

SISTEMA DE BIBLIOTECAS  
Sistema de Bibliotecas de la UASLP

# Informe

## Vigilancia Tecnológica

Tema: “Peso y obesidad en adolescentes”

Claudia Guadalupe Rangel Durán

Silvia Méndez Govea

María Isabel Patino López

Guadalupe Rivera Ornelas

# Contenido

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	Página
<b>I. PERFIL GENERAL</b>	
1. Introducción	3
2. Perfil del investigador	5
3. Perfil de la investigación	6
4. Definición de fuentes de información	9
5. Descripción de fuentes de información	10
6. Diseño metodológico	16
7. Metodología para la búsqueda de Información	21
8. Bibliografía	23
9. Resultados	24
<b>II. INFORMACIÓN BIBLIOGRAFICA</b>	<b>27</b>
1. Documentos de publicaciones periódicas	28
A. Estrategia de búsqueda: Revista Panamericana de la Salud AND Overweight AND Obesity	28
B. Estrategia de búsqueda: Overweight/epidemiology AND Obesity/epidemiology	34
C. Estrategia de búsqueda: Overweight/epidemiology AND Obesity/epidemiology and lifestyles	784
D. Estrategia de búsqueda: Seguridad alimentaria en adolescentes.	866
2. Congresos	873
3. Encuestas	876
4. Instrumentos de medición de peso	879
5. Libros	880
6. Tesis	884
7. Información de publicaciones para publicar	896

## I. PERFIL GENERAL

### 1. INTRODUCCIÓN

El sobrepeso y la obesidad se definen como una acumulación anormal o excesiva de grasa que es claramente un factor riesgoso para la salud de las personas que lo padezcan. Según la Organización Mundial de la Salud (OMS) se determina según el índice de masa corporal (IMC), que indica la relación entre el peso y la talla, se determina dividiendo el peso de una persona entre el cuadrado de su talla ( $\text{Kg}/\text{m}^2$ ). Donde si el IMC es  $\leq 18.5$  o  $> 25$ , establece que la persona tiene sobre peso, y un IMC  $\geq 30$  la persona tiene obesidad.

El sobrepeso y la obesidad dentro de los riesgos de defunción a nivel mundial ha llegado a ocupar el sexto lugar. En el 2008, 1400 millones de personas mayores de 20 años tenían sobrepeso, y cerca de 200 millones de hombres y 300 millones de mujeres tenían obesidad, cifras más alarmantes para el 2012, sobrepasando los 40 millones de niños menores de 5 años con sobrepeso.

En México, según la Encuesta Nacional de Salud y Nutrición en el 2012, los hombres mayores de 20 años de edad, el 42.6% presentan sobrepeso y el 26.8% obesidad. En las mujeres el 35.5% presentan sobrepeso y el 37.5% obesidad. Mientras que en niños de 5 a 11 años corresponden a 19.8% que presentan sobrepeso y 14.6% obesidad.

La Organización Panamericana de la Salud ha declarado a la obesidad como un problema de salud que está afectando a países del tercer mundo como México. Este problema de salud, ha ubicado a México como el segundo país con el mayor número de obesos a nivel mundial.

Tienen como consecuencia para la salud otras enfermedades no transmisibles como las enfermedades cardiovasculares, los trastornos del aparato locomotor, diabetes y diversos tipos de cánceres, incrementando el riesgo con el aumento del IMC. Estas enfermedades pueden prevenirse desde una etapa temprana, y revertirse en algunos casos, por lo que es necesario realizar elecciones saludables en la vida de las personas propensas o con estas enfermedades, comenzando con la recomendación más sencilla como lo son los alimentos y una serie de actividades físicas.

Situación que preocupa a especialistas del área biomédica y de la salud, y han sumado esfuerzos para determinar las causas y las consecuencias de la obesidad en

niños de secundaria con edades entre 12 y 15 años en el estado de San Luis Potosí, a fin de establecer estrategias que permitan detener el problema de la obesidad en esta población.

El Centro de Información en Ciencia Biomédicas, es el CI competente para atender al área de la salud y atender demandas informacionales por parte de la Facultad de Medicina, Estomatología y de Enfermería, así como a sus carreras y alumnos.

El primer contacto fue con la Dra Teresa Guerrero quien solicitó el servicio de Vigilancia Tecnológica, especificando el tema de investigación.

El objetivo principal del servicio de Vigilancia Tecnológica es realizar un acompañamiento a lo largo de la investigación, así como llevar a cabo la búsqueda y recuperación de información del tema “Obesidad y sobrepeso en adolescentes en México”.

Se pretende determinar las palabras clave del tema de investigación, para poder realizar la búsqueda y recuperación de información en las fuentes, utilizando los recursos locales y los convenios.

Como resultado se espera reunir información en diferentes soportes que permitan el apoyo al desarrollo de la investigación, y actualización frecuente sobre el tema a los investigadores.

## **OBJETIVO GENERAL**

Realizar la búsqueda y recuperación de la información sobre el tema de obesidad y sobrepeso en adolescentes.

### **OBJETIVOS POR ACCIONES:**

1. Capacitar en el uso de la herramienta de Trello.
2. Definir el perfil de los investigadores.
3. Definir el perfil de la investigación.
4. Definir las fuentes de información a utilizar.
5. Determinar la estrategia de búsqueda.
6. Realizar búsqueda de información en fuentes de información definidas.

## 2. PERFIL DE INVESTIGADORAS

<p>NOMBRE DEL INVESTIGADOR: Dra. María Teresa Guerrero Hernández</p>	<p>Especialidad: Enfermería Nivel Académico: Doctorado en Ciencias de la Salud Ocupación: Investigadora Dirección institucional: Niño Artillero #130, Zona Universitaria, Facultad de Enfermería. Teléfono(s): (444) 8.26.23.00 e-mail: <a href="mailto:tereguerrero@yaho.com.mx">tereguerrero@yaho.com.mx</a></p>
<p>NOMBRE DEL INVESTIGADOR: Ma. Del Rocío Rocha Rodríguez</p>	<p>Especialidad: Enfermería Nivel académico: Doctorado en Ciencias de Enfermería Ocupación: Investigadora Dirección institucional: Niño Artillero #130, Zona Universitaria, Facultad de Enfermería. e-mail: <a href="mailto:rocio@uaslp.mx">rocio@uaslp.mx</a></p>
<p>NOMBRE DEL INVESTIGADOR: Mtra. Olga Edith González Lugo</p>	<p>Especialidad: Química Farmacobióloga Nivel académico: Maestría en Ciencias Biomédicas Básicas Ocupación: Investigadora Dirección institucional: COARA e-mail: <a href="mailto:ogonzalezlugo@yaho.com">ogonzalezlugo@yaho.com</a> / <a href="mailto:olga.gonzalez@yaho.com">olga.gonzalez@yaho.com</a></p>
<p>NOMBRE DEL INVESTIGADOR: Mtra. Martha Ranauro García</p>	<p>Especialidad: Enfermería Nivel académico: Maestría en Salud Pública Ocupación: Dirección institucional: Campus Tamanzuchale e-mail: <a href="mailto:marti-64@hotmail.com">marti-64@hotmail.com</a></p>
<p>NOMBRE DEL INVESTIGADOR: Menaka Nilmini Kalupahana</p>	<p>Especialidad: Lic.Educacion Fisica y Deporte, graduada en CUBA Nivel académico: Estudiante de la Maestría en Salud Pública e-mail: <a href="mailto:Menaka724@hotmail.com">Menaka724@hotmail.com</a></p>

### 3. PERFIL DE LA INVESTIGACIÓN

<b>TÍTULO DE LA INVESTIGACIÓN: “Sobrepeso y obesidad en adolescentes”</b>	
Tema(s) para la búsqueda bibliográfica	Sobrepeso Obesidad Adolescentes Antropometría Prevalencia de sobrepeso y obesidad Modelos e instrumentos para medir el peso corporal Seguridad alimentaria
Aplicación de la información localizada (producto):	Revisión bibliográfica
Tipo de fuentes:	Libros Tesis locales Publicaciones periódicas Congresos Estadísticas Informes Técnicos
Formato:	Impreso Electrónico En línea
Período de interés:	2010-2014
Idiomas para entregar la información:	Español Inglés Portugués
Área geográfica:	Sudamérica Estados Unidos Europa México San Luis Potosí Zona Huasteca Zona Altiplano Zona Media

	Zona centro
Autores/revistas/libros/fuentes relevantes para el investigador:	Revista de Salud Pública de México Revista Panamericana de la Salud Pública Revistas de Epidemiología y Salud Pública
Instituciones relevantes:	Organización Panamericana de la Salud Organización Mundial de la Salud Instituto Nacional de Nutrición (INN) Instituto Nacional de Salud Pública (INSP) Instituto Nacional de Estadística y Geografía (INEGI) Secretaría de Salud
Descriptorios del tema de búsqueda:	Sobrepeso Obesidad Adolescentes
Traducción de descriptorios:	Sobrepeso Descriptor Inglés: Overweight Descriptor Portugués: Sobrepeso Obesidad: Descriptorios Inglés: Obesity Descriptor Portugués: Obesidade Adolescentes: Descriptorios Inglés: Adolescent Descriptor Portugués: Adolscente
Sistemas de recuperación de información:	Catálogos de biblioteca Bases de datos bibliográficas, de texto completo y documentos completos. Buscadores médicos de internet.
Periodicidad de la entrega de resultados:	El solicitante especificará el periodo de entrega.

**Peso Corporal:** Masa o cantidad de peso de un individuo. Se expresa en unidades de libras o kilogramos.

Términos relacionados: obesidad

**Obesidad:** Estado en el que el PESO CORPORAL es superior a lo aceptable o deseable y generalmente se debe a una acumulación del exceso de GRASAS en el cuerpo. El estándar puede variar con la edad, sexo, genética o medio cultural. En el ÍNDICE DE MASA CORPORAL, un IMC superior a 30,0 kg/m<sup>2</sup> se considera obeso y un IMC mayor a 40,0 kg/m<sup>2</sup> se considera obeso mórbido (OBESIDAD MÓRBIDA).

Términos relacionados: fármacos antiobesidad, depresores del Apetito, bariatria, peso corporal, dieta reductora, lipectomía, grosor de pliegues cutáneos

**Adolescente:** Persona de 13 a 18 años de edad.

Términos relacionados: menor, joven.



#### 4. DEFINICIÓN DE FUENTES DE INFORMACION.

Es necesario aclarar el significado de las fuentes se utilizaron para la búsqueda y recuperación de información.

- **Bases de datos:** conjunto de datos que pertenecen al mismo contexto almacenados sistemáticamente para su uso posterior. En este sentido, una biblioteca puede considerarse una base de datos compuesta en su mayoría por documentos y textos impresos en papel e indexados para su consulta. Se distribuyen diversos tipos de bases de datos : las bibliográficas, que ofrecen datos de identificación de documentos; las numéricas o fácticas, que contienen datos objetivos de un área temática específica; las de texto completo, que ofrecen el texto íntegro de los documentos; las imágenes; etc.
- **Blogs:** Publicación cuyos volúmenes o números se suceden en orden numérico o cronológico, bajo un título común y en número indefinido.
- **Libros:** Obra impresa o manuscrita no periódica que consta de muchas hojas de papel, pergamino, vitela u otro material, cosida o encuadernada que se reúne en un volumen. Cada una de ciertas partes principales en que suelen dividirse las obras científicas o literarias, y los códigos y leyes de gran extensión.
- **Publicaciones periódicas:** Publicación cuyos volúmenes o números se suceden en orden numérico o cronológico, bajo un título común y en número indefinido.
- **Tesauro:** lista estructurada de conceptos, destinados a representar de manera unívoca el contenido de los documentos y de las consultas dentro de un sistema documental determinado, y a ayudar al usuario en la indización y en la correcta recuperación de la información consultada.
- **Tesis:** Disertación escrita que presenta a la universidad el aspirante al título de Licenciatura, maestría o doctorado en una facultad.

## 5. DESCRIPCIÓN DE FUENTES DE INFORMACION

### 1.1. FUENTES DISPONIBLES EN LA UASLP (CREATIVA)

#### **CIBERINDEX**

Es una plataforma especializada en la Gestión del Conocimiento en Cuidados de Salud que proporciona a profesionales e instituciones de cualquier ámbito (asistencial, docente, gestor o investigador) soluciones prácticas e innovadoras para la ayuda en la toma de decisiones fundamentadas en el conocimiento científico. Lo que CIBERINDEX pretende es acercar la ciencia a la práctica de los cuidados de salud haciendo accesible el conocimiento que emana de la investigación de calidad.

- Tipo de Información: Bibliográfica, Texto completo
- Idioma: Español
- Estado: Suscripción vigente

#### **ENFERMERIA AL DIA**

Fuente de referencia clínica en enfermería, con información relevante para profesionales en el punto de atención. Enfermería al Día ofrece la mejor y más reciente evidencia clínica procedente de miles de publicaciones a texto completo. La base de datos contiene extensa información sobre enfermedades y afecciones, recursos para educación a los pacientes, información sobre medicamentos, detalles sobre pruebas de diagnóstico y laboratorio y guías de buenas prácticas.

- Tipo de Información: Bibliográfica, Texto completo
- Idioma: Español
- Estado: Suscripción vigente

#### **MEDICLATINA**

Colección en investigación médica y publicaciones de investigación de prestigiosas editoriales de América Latina y España. Esta base de datos en español contiene el índice íntegro y texto completo 120 publicaciones médicas arbitradas. Se incluyen títulos de revistas como: Revista Médica del IMSS, Revista Mexicana de Patología Clínica, Boletín Médico del Hospital Infantil de México, Archivos de Neurociencias, Revista Biomédica, Veterinaria México, Salud Pública de México y ACIMED.

- Tipo de Información: Texto completo
- Idioma: Español
- Estado: Suscripción vigente

## **WEB OF SCIENCE**

Recurso que ofrece acceso a publicaciones de las áreas de: ciencias, ciencias sociales, artes y humanidades respectivamente. Ofrece 1 millón de registros y más de 23 millones de referencias citadas por un año de más de 230 disciplinas de las ciencias sociales, ciencia, etc.

Acceso a las siguientes base de datos:

***Science Citation Index Expanded,***  
***Social Sciences Citation Index (2002-presente),***  
***Arts & Humanities Citation Index (2002-presente) y***  
***Current Contents Connect***

- Tipo de Información: Referencial y texto completo
- Idioma: Inglés
- Estado: Suscripción vigente

## **SCOPUS**

Novedosa herramienta de navegación que engloba la mayor colección multidisciplinar a nivel mundial de resúmenes, referencias e índices de literatura científica, técnica y médica. Ofrece además la posibilidad de establecer mediciones de producción científica, ya que se ofrece información sobre las citas recibidas por los artículos.

## **1.2. FUENTES DE LIBRE ACCESO**

### **BIREME**

<http://www.bireme.br/php/index.php>

Recoge toda la terminología médica. Incluye en su sitio a la BVS, que es la base distribuidora del conocimiento en salud en Latinoamérica. Contiene numerosas bases de datos. Idiomas: Español, inglés y portugués.

Dirección: <http://www.bireme.br>

### **PUBMED**

<http://www.ncbi.nlm.nih.gov/pmc/>

Motor de búsqueda de libre acceso a la base de datos MEDLINE de citas y resúmenes de artículos de investigación biomédica. Ofrecido por la Biblioteca Nacional de Medicina de los Estados Unidos como parte de Entrez. MEDLINE tiene

alrededor de 4800 revistas publicadas en Estados Unidos y en más de 70 países de todo el mundo desde 1966 hasta la actualidad.

### **REDALYC**

<http://www.redalyc.org/>

Red de Revistas Científicas de América Latina y el Caribe, España y Portugal. Tiene acceso libre a más de 600 revistas científicas y a más de 143 mil artículos de texto completo.

### **SCIELO**

<http://www.scielo.org>

Portal de revistas a texto completo, tanto de América Latina y el Caribe, como de España. Scielo pertenece a un proyecto liderado por Bireme y en el que también participa Infomed. Desde la página principal de Infomed se puede acceder a Scielo Idiomas: Español, inglés y portugués.

## **1.3. BLOGS**

### **A PERDER PESO**

[www.aperderpeso.com/autoayuda/recomendaciones-para-el-sobrepeso-en-la-adolescencia.html](http://www.aperderpeso.com/autoayuda/recomendaciones-para-el-sobrepeso-en-la-adolescencia.html)

Blog que aborda información relacionada con el peso ideal para nuestra salud. Cuanta con distintas secciones como son la de adelgazar, belleza, dietas, ejercicios, embarazo y lactancia; obesidad, productos. Dichas secciones se subdividen en distintos subtemas como alimentos, recetas bajas en calorías, remedios caseros, diabetes, hipertensión, hígado graso, medicamentos entre mucho más; en donde se muestra información que puede ser de gran ayuda para el que la consulta. Cuenta con boletín donde para obtenerlo solo es necesario registrarse.

### **BLOG NEA**

<http://nutricion-armonia.blogspot.mx/p/alimentacion-en-escolares.html>

Creado con la intención de incentivar a sus lectores a mejorar el estilo de vida que llevan, promoviendo buenos hábitos alimentarios y enseñándolos a comer evitando pasar hambre con dietas estrictas. Uno de los objetivos, es influir en la gente y romper y/o evitar los falsos estereotipos de belleza que exige la sociedad consumista actual, haciendo daño no solo fisiológicamente sino también psicológicamente.

El blog puede ayudar a evacuar dudas sobre cualquier aspecto relacionado con la alimentación, como dietas especiales, suplementos, alimentos, nutrientes, métodos de cocción, recetas, patologías, tratamientos, la actualidad en nutrición etc., y también a que tomen conciencia de lo que abarca la nutrición en general. Además de contar con su archivo, noticias de interés, páginas recomendadas, calculador para tu masa corporal, etc.

### **CONAPROLE**

<http://blog.conaprole.com.uy/la-obesidad-en-adolescentes>

Blog perteneciente a la página oficial Conaprole, proporciona cualquier tipo de información relacionada con la alimentación saludable. Puede consultarse información de meses anteriores gracias al archivo, en cual tiene desde el año 2012. Dividido por distintas secciones, información en la que se encuentra diversidad de esta, recetas, concursos en el cual se dan a conocer los diferentes eventos y concursos que ha realizado esta compañía y los ganadores de los mismos. De este blog tienes acceso a las diferentes corporaciones que tiene Conaprole.

### **CIENCIAS MEDICAS**

<http://blog.ciencias-medicas.com/archives/1018>

blog de diversa información, con 4 apartados; Lactancia materna, Material multimedia, Diccionario médico y Noticias Médicas. Para buscar un determinado tema, cuanta con su cuadro de dialogo búsqueda donde se te arroja la información relacionada a la búsqueda. Cada tema se describe de manera detallada, abordando los síntomas, diagnóstico, complicaciones tratamiento etc; al final de la de cada tema se muestran otros temas relacionados que puedes acceder por un enlace.

### **EL CEREBRO DE NIÑOS Y ADOLESCENTES**

<http://cerebroniad.blogspot.mx/2013/09/obesidad-y-sobrepeso-en-los-adolescentes.html>

Blog con diversidad de información, entre los temas se puede encontrar el cerebro humano, inteligencia emocional en el niño, alimentación para estudiar, comida chatarra, el ejercicio físico mejora el cerebro, autismo, obesidad infantil, etc. Dividido por categorías, adolescente, cerebro y salud, degeneración, disfunción, investigación. Niños, nutrición. Cuenta con su archivo desde el año 2013, además de un apartado donde se te muestran los próximos temas que se integraran. Para realizar una búsqueda específica cuanta con un cuadro de dialogo en donde lo puedes hacer, lo que te arroja la información que exista en el blog del tema en cuestión. Cada información al final te muestra enlaces a temas relacionados.

### **EN AMARGEMIA'S**

<http://amargemia.wordpress.com/2011/05/19/epidemiologia-del-sobrepeso-y-la-obesidad-en-ninos-y-adolescentes/>

Acceso a información del tema de "Epidemiología del sobrepeso y la obesidad en niños y adolescentes, está dividido por la introducción, el proceso de la obesidad y finalizando se muestran los enlaces utilizados para la realización de dicho tema.

### **OBESIDAD ADOLESCENTE**

<http://obesidadadolescente.blogspot.mx>

Es un blog que contiene información sobre la obesidad, como es: las razones por las que hay que detener la obesidad, cómo se debe tratar en los adolescentes, cómo bajar de peso; la obesidad juvenil "dilema de la salud moderna". Además de enlaces a sitios de interés sobre dicho tema.

### **PROMOCIÓN Y EDUCACIÓN PARA LA SALUD**

<http://blogs.murciasalud.es/edusalud/2014/06/06/adolescencia-y-obesidad/>

Tiene la finalidad de difundir información, expresar ideas y generar contenidos sobre promoción y educación para la salud. Está abierto a profesionales docentes, socio-sanitarios y agentes de salud así como a la población general.

La publicación de contenidos se realiza desde el Centro de Recursos de Promoción y Educación para la Salud, adscrito al Servicio de Promoción y Educación para la Salud de la Dirección General de Salud Pública de la Consejería de Sanidad y Política Social.

### **PLAN SALUDABLE**

<http://enplansaludable.blogspot.mx/2013/11/la-alimentacion-clave-para-combatir.html>

Blog con información de utilidad para mantener una buena alimentación y salud. Algunos de los temas más recientes son la diabetes, VIH, Obesidad, alimentación etc., en los de tiempo anterior se encuentran osteoporosis, embarazo adolescente, sexualidad entre mucho más. Cuanta con su archivo a partir de 2010.

### **SURA**

<http://www.sura.com/blogs/calidad-de-vida/sobrepeso-obesidadadolescencia.aspx>

Blog con información actualizada de diversos temas, dividido por secciones, mujeres en donde encontrara información de belleza, alimentación, aspectos de pareja, adicciones, sexualidad etc. Autos, información sobre multas, consejos, accidentes, tips entre mucho más. Calidad de vida, aquí se encontrara información

sobre nutrición, obesidad, hábitos alimenticios, embarazo, medicamentos, aspectos psicológicos, consejos etc. Corporativo y expertos en donde se muestra a los especialistas de Sura una pequeña descripción. Tiene los apartados de los Top 20 de los más comentados y Top 20 más visitados.

#### **1.4. BUSCADORES**

##### **GOOGLE ACADEMICO**

Buscador especializado de google orientado a la búsqueda bibliográfica  
Servicio especializado para buscar tesis, artículos, libros, trabajos de investigación, informes técnicos y materiales educativos y académicos de diversas fuentes, utilizando la tecnología de ranking de Google.

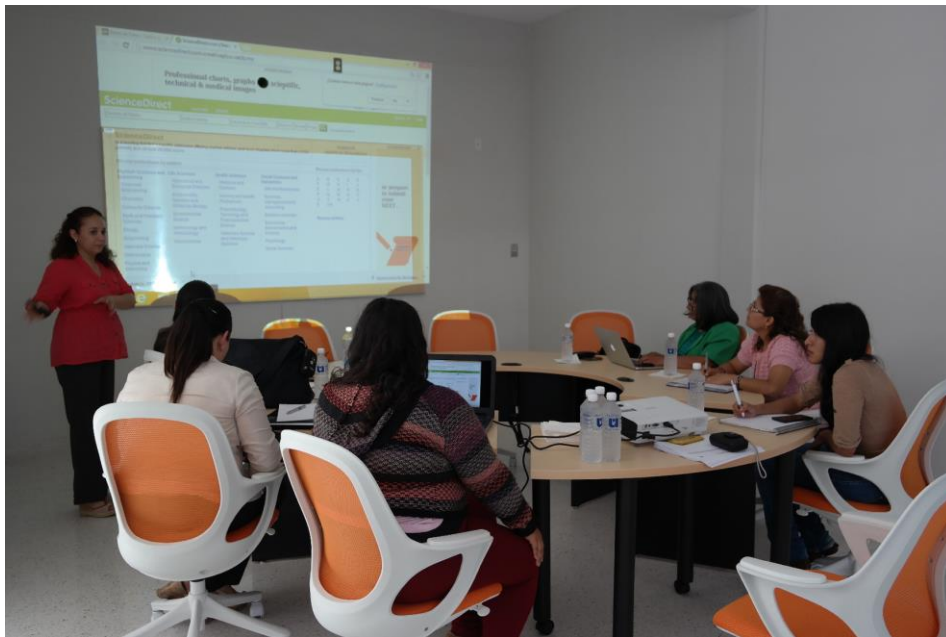
## 6. DISEÑO METODOLÓGICO

### Capacitaciones.

Los investigadores recibieron capacitación en el curso-taller “Búsqueda y recuperación de información especializada” en los recursos disponibles en la UASLP.

Así mismo, se les capacitó para el uso de la plataforma de trabajo Trello, la cual es el medio de comunicación para las solicitudes y respuestas, intercambio de documentos, avisos, por parte de los investigadores y personal de CICBI.

Ambas capacitaciones se llevaron a cabo en las instalaciones del Centro de Información en Ciencias Biomédicas, el día 11 de Julio de 2014, solicitada por la Dra. María Teresa Guerrero.



Curso-taller de búsqueda y recuperación de información, 10 de julio del 2014 / CICBI.





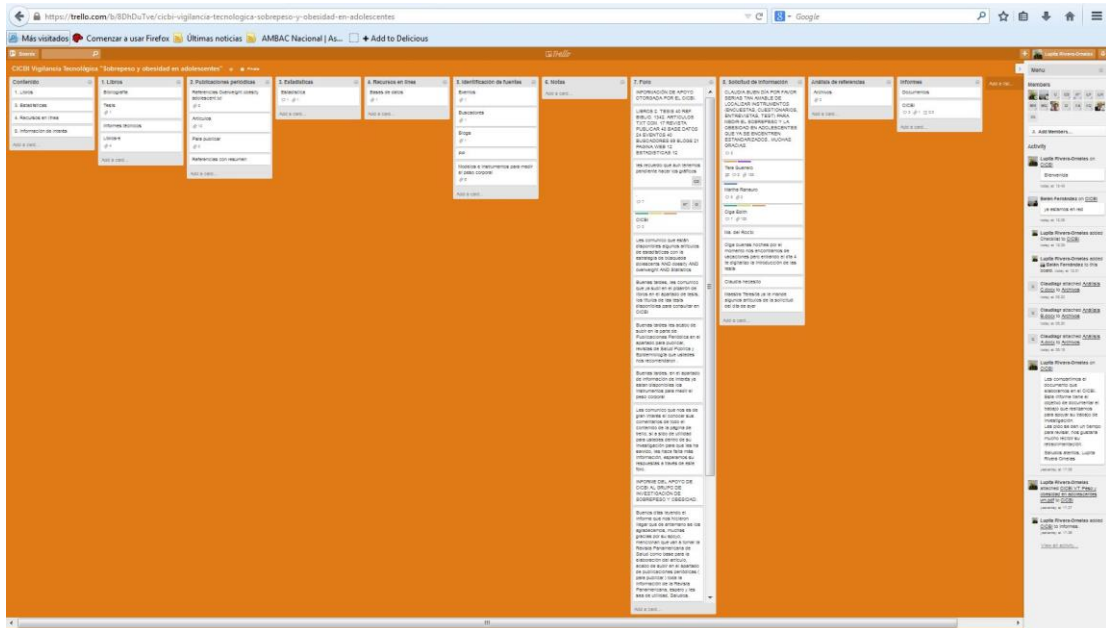
Curso-taller de Trello, 11 de julio del 2014 / CICBI.

### **Plataforma Colaborativa.**

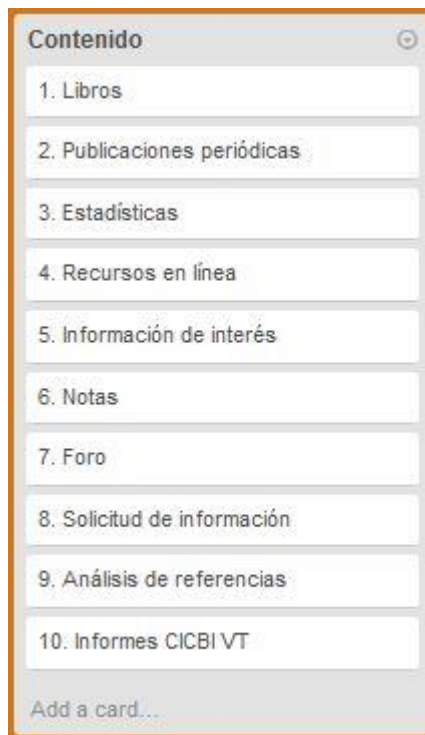
La plataforma TRELLO, se seleccionó para llevar a cabo la comunicación y compartir documentos en la Investigación. El criterio para seleccionar esta plataforma, fue el antecedente de uso para la comunicación entre la Maestría en Ciencias en Investigación Clínica y el Centro de Información en Ciencias Biomédicas, resultando de gran ayuda y utilidad para mantener comunicación y compartir documentos.

El pizarrón para esta investigación se denominó: CICBI Vigilancia Tecnológica "Sobrepeso y obesidad en adolescentes".

CICBI Vigilancia Tecnológica  
"Sobrepeso y obesidad en  
adolescentes"



El pizarrón se estructuró bajo el siguiente contenido:



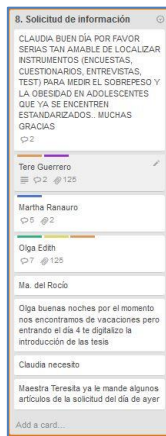
1. Libros (la cual contiene 4 tarjetas):  
Bibliografía: en la cual se encontrará la bibliografía recomendada.  
Tesis: se encontrará las tesis recuperadas.  
Informes técnicos: correspondientes a las instituciones solicitadas.  
Libros electrónicos: este espacio corresponderá a los libros electrónicos recuperados.
2. Publicaciones Periódicas (cuenta con 4 tarjetas)  
Referencias Bibliográficas: en este espacio se encuentran las referencias de artículos.  
Artículos: Se pone a disposición el PDF de los artículos solicitados.  
Para publicar: Se encuentra el análisis de revistas de epidemiología y salud pública de interés para los investigadores en los que pueden publicar.  
Referencias con resumen: Se encuentran los resúmenes de artículos.
3. Estadísticas: se encuentran documentos con estadísticas específicas.
4. Recursos en línea: con una tarjeta “Bases de datos” en la cual se hace una descripción de las Bases de datos que se utilizarán para la búsqueda y recuperación de información.
5. Información de interés (4 tarjetas):  
Eventos: en esta tarjeta se les da a conocer sobre eventos locales y nacionales en lo que puedan asistir, referentes al tema de investigación  
Buscadores: Se presenta un listado de buscadores del área de la salud, como herramientas de apoyo.  
Blogs: se hace una socialización con otros investigadores de forma cibernética, para que compartan sus investigaciones y puedan interactuar.  
Páginas web: Se presentan las páginas de instituciones o de alguna otra dependencia que tengan contenido que pueda apoyar a al investigación.  
Instrumentos para medir el peso corporal: se encuentran las aplicaciones útiles para el investigador.
6. Notas: En este espacio el investigador puede realizar notas personales o grupales.
7. Foro: En este espacio los investigadores pueden interactuar y aclarar dudas.
8. Solicitud de información: Por medio de este espacio se realiza la solicitud de información, así como la especificación de la misma.
9. Análisis de referencias. Apartado en donde se presenta un análisis de las referencias bibliográficas.

## 10. Informes CICBI VT. Espacio para compartir el informe de vigilancia tecnológica.

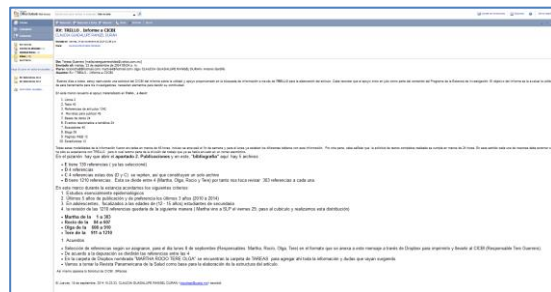
### Retroalimentación.

La comunicación se sostuvo por varios canales:

- Sesiones grupales, y
- Sesiones personales en tres vías: en Trello, por correo electrónico y presencial.



Trello



Correo electrónico



Sesión personal de retroalimentación, 13 de noviembre del 2014.

## 7. METODOLOGIA PARA LA BUSQUEDA DE INFORMACION

En la sesión de capacitación se entregó un formato de estrategia de búsqueda de información avanzada, mediante una Pregunta estructurada (PICO) la cual se muestra a continuación:

Universidad Autónoma de San Luis potosí  
 Centro de Información en Ciencias Biomédicas "Dr. José Miguel Torre López"  
 Estrategia de búsqueda de información avanzada

Pregunta estructurada (PICO)				
	P	I	C	O
	Paciente Problema Causación	Información Especificación Factor TX Factor riesgo Prueba Medicamento Ox No Tx	Alternativa: comparar con Intervención 2 medicamentos vs placebo vs no medicamentos 2 oja. Ox 2 Tx Ox Control	Resultados de interés clínico Qué se busca lograr Mortalidad Morbilidad Complicaciones Síntomas Calidad de vida S
Preguntas				
Términos Mesh				
Términos DeCS				

Periodo a cubrir
Área Geográfica:
Idioma:
Selección de fuentes de información:
Nombre del tema de investigación

Mediante este formato que llenaron las Profesoras investigadoras, se determinaron:

1. Palabras Clave de la Investigación, consultando tesauros como el MeSh (para obtener los términos correctos en inglés) y el DeCs (para los términos en español y portugués).
2. Establecer el periodo a cubrir.
3. Áreas Geográficas de interés, que aunque la investigación se basará en un ambiente local en estado de San Luis Potosí, es de utilidad la información de otros lugares.
4. Idiomas en los que la información debe de ser buscada.
5. Fuentes de información que es de mayor interés para las profesoras investigadoras, así como recursos específicos e instituciones.

Posteriormente se unificaron datos de las Profesoras Investigadoras.

6. Se establecieron en coordinación con los investigadores las estrategias de búsqueda.
7. Se Realizó la búsqueda en las fuentes de información definidas.
8. Se entregó vía Trello una revisión bibliográfica con resumen.
9. Los investigadores realizaron una selección, en la cual establecieron la necesidad de recuperación de artículos.
10. Se realizó la recuperación de documentos.
11. Se entregaron los documentos en formato electrónico.

**Estrategias de búsqueda:**

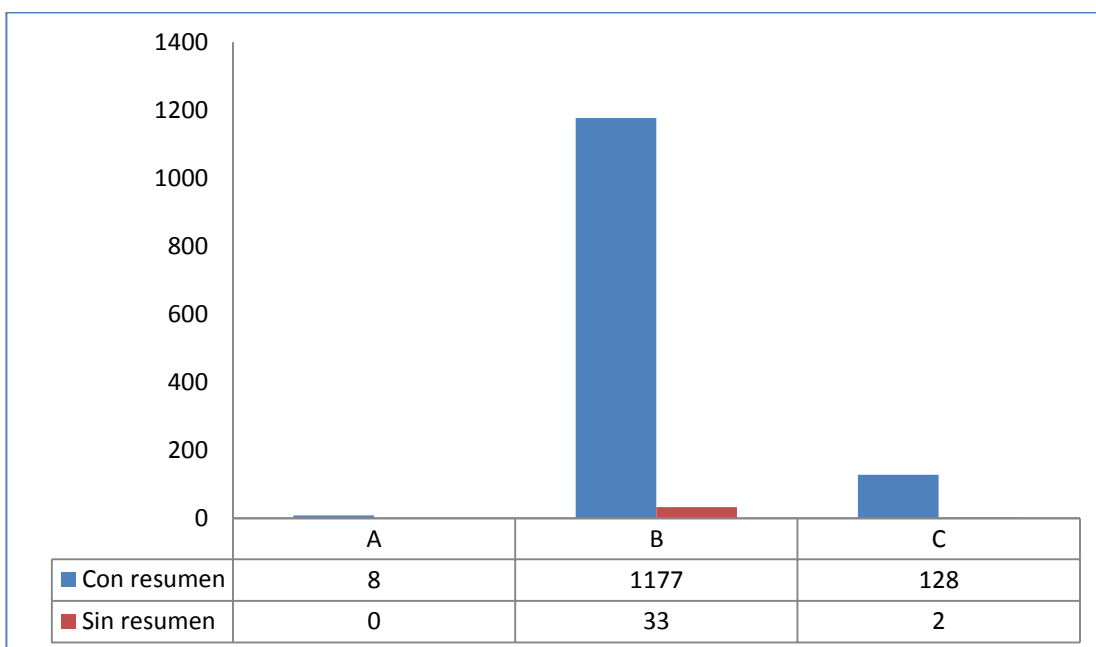
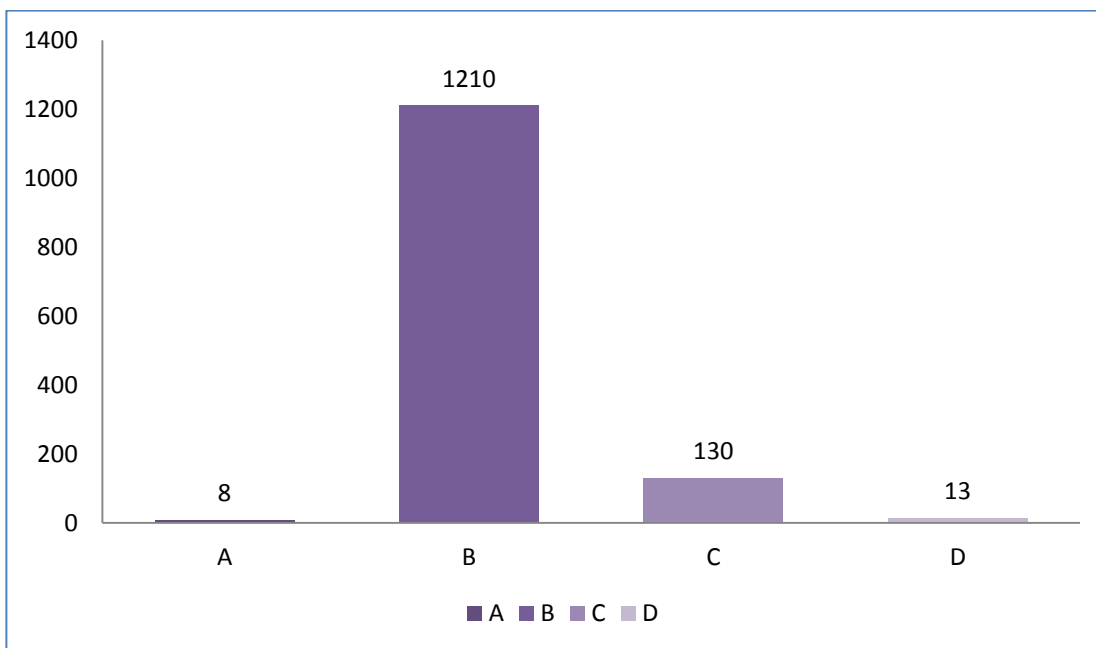
- A) Revista Panamericana de la Salud AND Overweight AND Obesity
- B) Overweight/epidemiology AND Obesity/epidemiology
- C) Overweight/epidemiology AND Obesity/epidemiology and lifestyles
- D) Seguridad alimentaria en adolescentes

## 8. BIBLIOGRAFÍA

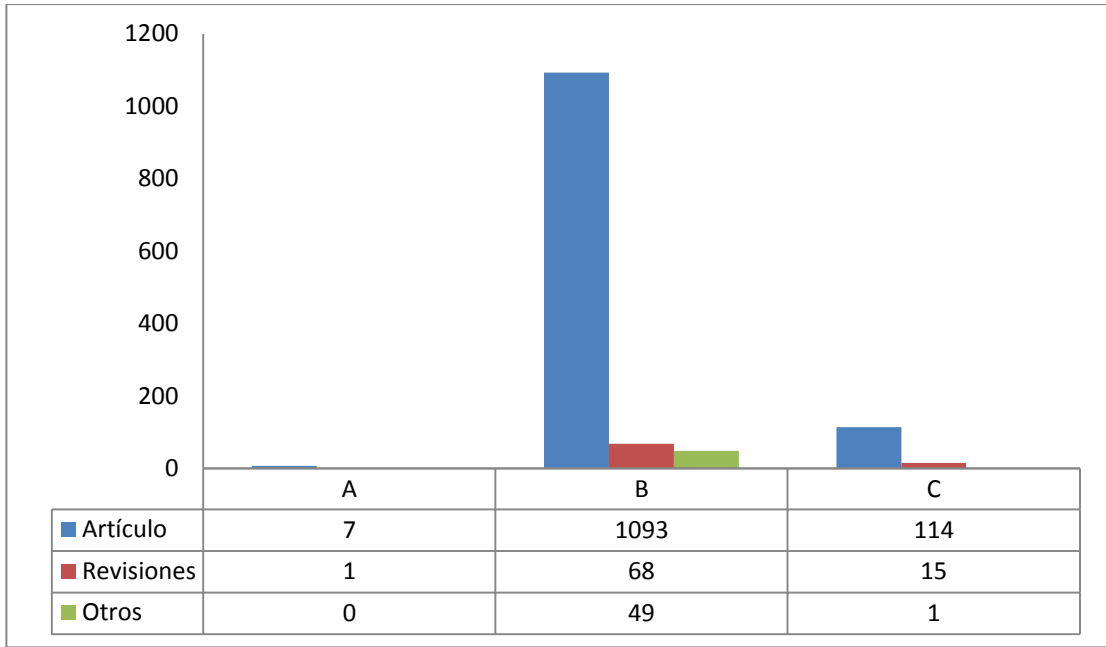
1. Biblioteca Virtual en Salud. [en línea]. Brasil. Centro Latinoamericano y del Caribe de Información en Ciencias de la Salud; 2014 [consulta 10 de julio 2014].  
Descriptores en Ciencias de la Salud: peso corporal. Disponible en:  
<http://decs.bvs.br/cgi-bin/wxis1660.exe/decsserver/>.
2. Biblioteca Virtual en Salud. [en línea]. Brasil. Centro Latinoamericano y del Caribe de Información en Ciencias de la Salud; 2014 [consulta 10 de julio 2014].  
Descriptores en Ciencias de la Salud: obesidad. Disponible en:  
<http://decs.bvs.br/cgi-bin/wxis1660.exe/decsserver/>.
3. Biblioteca Virtual en Salud. [en línea]. Brasil. Centro Latinoamericano y del Caribe de Información en Ciencias de la Salud; 2014 [consulta 10 de julio 2014].  
Descriptores en Ciencias de la Salud: adolescente. Disponible en:  
<http://decs.bvs.br/cgi-bin/wxis1660.exe/decsserver/>.
4. Glosario.net. [en línea]. HispaNetwork Publicidad y Servicios; 2013 [consulta 15 Oct 2014]. Diccionario de términos bibliotecarios. Disponible en:  
<http://cultura.glosario.net/terminos-bibliotecarios/>.
5. Organización Mundial de la Salud. Obesidad y sobrepeso [en línea]. Mayo 2014. [consulta 15 Oct 2014]. Disponible en: <http://www.who.int/mediacentre/factsheets/fs311/es/>.
6. Secretaría de Salud. Estrategia nacional para la prevención y el control del sobrepeso, la obesidad y la diabetes [en línea]. México: Secretaría de Salud; 2013 [consulta 15 Oct 2014]. 205 p. Disponible en: [http://promocion.salud.gob.mx/dgps/descargas1/estrategia/Estrategia\\_con\\_portada.pdf](http://promocion.salud.gob.mx/dgps/descargas1/estrategia/Estrategia_con_portada.pdf).
7. Wikipedia la enciclopedia libre. [en línea]. Foundation wikimedia, Inc; 2014 [consulta 10 de julio 2014]. Pubmed. Disponible en:  
<http://es.wikipedia.org/wiki/PubMed>

## 9. RESULTADOS

### A. Análisis de la información bibliográfica entregada: artículos de publicaciones periódicas.







## B. Resultados esperados.

### 1. Cartel (aceptado en Congreso Internacional)



2. Tesis de licenciatura (en proceso).
3. Tesis de maestría (en proceso).
4. Programa de intervención para atención de salud de niños (en proceso).
5. Artículo publicado en la Revista Panamericana de Salud Pública.
6. **Revisión sistematica (Investigadores-CICBI).**

## II. INFORMACION BIBLIOGRAFICA

La información esta organizada por tipo de documento:

### 1. Artículos de publicaciones periódicas.

La información de los artículos contiene la referencia bibliográfica acompañada del resumen. Se presenta de acuerdo a las estrategias de búsqueda. El orden de las referencias es por año de forma decreciente, del 2014 al 2010.

Estrategias de búsqueda:

- A) Revista Panamericana de la Salud AND Overweight AND Obesity.
- B) Overweight/epidemiology AND Obesity/epidemiology.
- C) Overweight/epidemiology AND Obesity/epidemiology and lifestyles.
- D) Seguridad alimentaria en adolescentes.

### 2. Congresos.

### 3. Encuestas sobre peso y obesidad.

### 4. Instrumentos de medición de peso.

### 5. Libros.

### 6. Tesis.

### 7. Información de publicaciones periódicas para publicar.

## 1. DOCUMENTOS DE PUBLICACIONES PERIODICAS

*A. Documentos que aparecen en la publicación periódica: Rev Panam Salud Publica). Estrategía de búsqueda: Revista Panamericana de la Salud AND Overweight AND Obesity.*

**1: Gonzalez-Casanova I, Sarmiento OL, Gazmararian JA, Cunningham SA, Martorell R, Pratt M, Stein AD. Comparing three body mass index classification systems to assess overweight and obesity in children and adolescents. Rev Panam Salud Publica. 2013 May;33(5):349-55. PubMed PMID: 23764666.**

Abstract

OBJECTIVE:

To compare the International Obesity Task Force (IOTF) 2005, Centers for Disease Control and Prevention (CDC) 2000, and World Health Organization (WHO) 2007 body mass index (BMI) classification systems in terms of prevalence estimation and association with demographic factors.

METHODS:

The 18 265 children and adolescents ages 5 to 18 years (mean = 11.2 years, standard deviation = 3.9 years) in the nationally representative Colombian National Nutrition Survey of 2005 were classified as overweight or obese according to IOTF, CDC, and WHO criteria. Prevalence estimates were compared according to each system and associations with age, sex, socioeconomic status, and population density were tested.

RESULTS:

Prevalence estimates of combined overweight and obesity differed by system (males: IOTF = 8.5%, CDC = 10.8%, WHO = 14.1%; females: IOTF = 14.6%, CDC = 13.8%, WHO = 17.1%;  $P < 0.001$ ). The association between combined overweight and obesity and age and sex varied by system. The odds of having overweight and obesity in children (5 to 10 years) compared with adolescents (11 to 18 years) were: IOTF, odds ratio (OR) = 0.87 and 95% confidence interval (CI) = 0.77-0.98; CDC, OR = 1.27 and CI = 1.14-1.42; WHO, OR = 1.21 and CI = 1.08-1.35. The values for females compared with males were: IOTF, OR = 1.84 and CI = 1.6-2.10; CDC, OR = 1.33 and CI = 1.17-1.51; WHO, OR = 1.25 and CI = 1.12-1.41.

CONCLUSIONS:

There is a lack of consistency among the three main international systems in assessing overweight and obesity in children and adolescents. Appreciably different estimates of prevalence and associations with age and sex are obtained depending on which system is used. Future studies should assess how well each system reflects valid measures of body composition.

**2: Barrau M, Larrieu S, Cassadou S, Chappert JL, Dussart P, Najioullah F, Matheus S, Renner J, Gasc C, Quenel P, Ledrans M. Hospitalized cases of influenza A(H1N1)pdm09 in the French territories of the Americas, July 2009-March 2010. Rev Panam Salud Publica. 2012 Aug;32(2):124-30. PubMed PMID: 23099873.**

Abstract

OBJECTIVE:

To describe the methodology used for implementing a surveillance system specifically for influenza A(H1N1)pdm09 in the French West Indies and French Guiana during an outbreak of this new virus in 2009-2010, and to report its main results.

METHODS:

This was an observational descriptive study of confirmed and probable cases of influenza A(H1N1)pdm09 hospitalized for at least 24 hours in 23 July 2009-3 March 2010. Reverse transcription polymerase chain reaction was performed on nasopharyngeal swab samples according to the Centers for Disease Control and Prevention protocol. A probable case was defined as fever  $> 38^{\circ}\text{C}$  or aches or asthenia with respiratory symptoms (cough or dyspnea). All confirmed and probable hospitalized cases were reported, along with patient's age, sex, clinical condition at admission, place and length of hospitalization, antiviral treatment, underlying conditions, complications, and clinical evolution. A case was classified as severe if respiratory assistance or intensive care was required or if death resulted.

RESULTS:

A total of 331 confirmed and 16 probable cases were hospitalized, with a hospitalization rate ranging from 4.3 per 1 000 clinical cases in Saint Martin to 10.3 in French Guiana. Of these, 36 were severe, and subsequently, 10 were fatal. The median length of stay was 4 days for non-severe cases and 9 days for severe ( $P < 0.05$ ). The mean patient age was 21 years, and severe cases were significantly older than non-severe (mean: 38 years versus 19 years,  $P < 0.05$ ). Underlying conditions associated with a higher risk of severity were 65 years of age or more (RR = 7.5, 95%CI = 4.2-13.3), diabetes (RR = 3.7, 95%CI = 1.5-9.4), cardiac insufficiency (RR = 8.4, 95%CI = 5.2-13.6), and morbid obesity (RR = 4.4, 95%CI = 1.8-10.4). Patients who received antiviral treatment within 2 days of symptom onset had shorter hospital stays (mean: 4 days versus 6.5 days,  $P < 0.05$ ), and the illness tended to become less severe (11.1% versus 19.0%,  $P = 0.13$ ).

CONCLUSIONS:

Active research of hospitalized cases enabled almost exhaustive surveillance. The pandemic's hospitalization rates and lethality were more moderate than expected. Some previously known underlying conditions of severity were confirmed during this outbreak. Furthermore, these results show the validity of early antiviral treatment.

**3: Pilgrim NA, Blum RW. Adolescent mental and physical health in the English-speaking Caribbean. Rev Panam Salud Publica. 2012 Jul;32(1):62-9. Review. PubMed PMID: 22910727.**

Abstract

OBJECTIVE:

Bronfenbrenner's ecological systems theory, a multisystem framework, was used to identify risk and protective factors associated with adolescent mental and physical health (AMPH) in the English-speaking Caribbean.

#### METHODS:

A structured literature review, using the online databases of Medline, PsychInfo, and Scopus, was conducted to identify peer-reviewed studies published between January 1998 and July 2011 focused on adolescents ages 10-19 years.

#### RESULTS:

Sixty-eight articles were examined: 40 on adolescent mental health (AMH), 27 on adolescent physical health (APH), and 1 on both topics. Key individual factors included gender and age. Religiosity and engagement in other risk behaviors were associated with AMH, while the presence of other chronic illnesses affected APH. Significant determinants of AMH in the microsystem included family and school connectedness, family structure, and socioeconomic status. Maternal obesity, parental education, and school environment influenced APH. Studies that investigated macrosystem factors reported few consistent findings related to AMPH. A history of family mental health problems and physical and sexual abuse was significantly associated with AMH in the chronosystem, while a family history of diabetes and low birth weight were associated with APH. Studies did not examine the exosystem or the mesosystem.

#### CONCLUSIONS:

AMPH in the English-speaking Caribbean is affected by a variety of factors in developing adolescents and their surroundings. Gender, family, and early exposure to negative environments are salient factors influencing AMPH and present potential avenues for prevention and intervention. A fuller understanding of AMPH in this region, however, requires scientifically rigorous studies that incorporate a multisystem approach.

**4: Gonçalves H, Dumith SC, González DA, Menezes AM, Araújo CL, Hallal PC, Bastos JL. [Self-reported discrimination by adolescents in a Brazilian birth cohort: prevalence and associations]. Rev Panam Salud Publica. 2012 Mar;31(3):204-10. Portuguese. PubMed PMID: 22569694.**

#### Abstract

##### OBJECTIVE:

To evaluate the prevalence of and factors associated with discrimination self-reported by adolescents.

##### METHODS:

Cross-sectional analysis of adolescents belonging to a cohort of live births in 1993 in the city of Pelotas, Brazil. From the 5 249 members of the cohort, information was collected from 4 452 adolescents in 2004 and 2005 regarding self-reported discrimination, sociodemographic variables, physical attributes, and nutritional status. A Poisson regression was utilized in the raw and adjusted analyses to estimate prevalence rates (RP).

##### RESULTS:

The global prevalence of self-reported discrimination was 16.4%. In the adjusted analysis, discrimination was reported more by the following groups: girls (RP = 1.27, 95%CI: 1.10-1.48), people identified by others as black (RP = 1.28, 95%CI: 1.04-1.57), poorer adolescents (RP = 1.58, 95%CI: 1.23-2.02), those who perceived themselves to be very thin or very fat (RP = 1.81 and 1.54 respectively), those whose families had financial trouble (RP = 1.76, 95%CI: 1.49-2.08), those who wore glasses (RP = 1.74, 95%CI: 1.45-2.10), those who thought their teeth looked bad (RP = 1.58,

95%CI: 1.21-2.07), those who had been reprimanded in school (RP = 1.23, 95%CI: 1.01- 1.51), and those who had been involved in fights in the past year (RP = 1.62, 95%CI: 1.36-1.94). The association between discrimination and nutritional status varied by sex (interaction P = 0.009). Thin children reported greater discrimination than those who were overweight or obese. Discrimination on the basis of obesity was higher among girls, with this effect more strongly felt among rich girls than among poor ones.

**CONCLUSIONS:**

Self-reported discrimination was prevalent and unequally distributed among the population. Actions to reduce experiences of discrimination must be implemented during the initial stages of life.

**5: Guedes DP, Rocha GD, Silva AJ, Carvalho IM, Coelho EM. Effects of social and environmental determinants on overweight and obesity among Brazilian schoolchildren from a developing region. Rev Panam Salud Publica. 2011 Oct;30(4):295-302. PubMed PMID: 22124687.**

**Abstract**

**OBJECTIVE:**

To identify the social and environmental determinants most strongly associated with overweight and obesity in Brazilian schoolchildren from a developing region.

**METHODS:**

Data were collected from a community-based survey of schoolchildren from the Valley of Jequitinhonha, Minas Gerais, Brazil. The sample was composed of 5 100 school children aged 6-18 years. Overweight and obesity were defined by body mass index based on the current method recommended by the World Health Organization in 2007. Social and environmental determinants were collected by using a structured questionnaire.

**RESULTS:**

The prevalence of overweight and obesity was 11.1% and 2.7% in girls and 8.2% and 1.5% in boys, respectively. The chance of overweight was higher in schoolchildren who engaged in remunerated work (odds ratio [OR] = 2.19, 95% confidence interval [CI] 1.30- 3.26), whose parents had higher education levels (OR = 1.52, 95% CI 1.12-2.07), who had two or fewer siblings (OR = 1.74, 95% CI 1.21-2.49), and who were in a high economic class (OR = 1.93, 95% CI 1.32-2.85). Schoolchildren who traveled by car to school (OR = 1.50, 95% CI 1.14-1.91), lived < 5 km from school (OR = 1.64, 95% CI 1.06-2.39), and consumed foods sold in the school cafeteria (OR = 1.56, 95% CI 1.19-2.16) presented high odds of being overweight.

**CONCLUSIONS:**

The background from a particular region of a country should be considered when implementing preventive measures regarding overweight and obesity, especially for very poor, developing regions like the Valley of Jequitinhonha. Measures taken should consider a multilevel intervention that includes the family, school, and physical environment.

**6: Oliveira GF, Oliveira TR, Rodrigues FF, Corrêa LF, Ikejiri AT, Casulari LA. [Prevalence of diabetes mellitus and impaired glucose tolerance in indigenous people from Aldeia Jaguapiru, Brazil]. Rev Panam Salud Publica. 2011 May;29(5):315-21. Portuguese. PubMed PMID: 21709935.**

Abstract

OBJECTIVE:

To determine the prevalence of diabetes mellitus (DM) and impaired glucose tolerance in indigenous people from Aldeia Jaguapiru, in Dourados, state of Mato Grosso do Sul.

METHODS:

Between August 2007 and July 2008, individuals aged 18-69 years were evaluated. To obtain the simple random sample for the study, 349 houses were picked from among the total 1 255 houses in the village. Pregnant women, nonindigenous individuals, and their descendents, and those using glucocorticoids were excluded from the sample. Six hundred and six people were studied (268 men and 338 women). Capillary glucose was measured with a glucose meter, and the oral glucose tolerance test was performed as necessary.

RESULTS:

A 4.5% prevalence was observed for DM and 2.2% for impaired glucose tolerance, with higher frequency among women. Among diabetics, 44.4% had not been previously diagnosed. Obesity was present in 14.2% of men and 30.8% of women. The prevalence of hypertension was 29.7% for the overall group and 67.5% in diabetics and individuals with impaired glucose tolerance. There was no statistical relationship between smoking and the presence of DM and impaired glucose tolerance.

CONCLUSIONS:

The prevalence of DM and impaired glucose tolerance was lower in this sample compared to the Brazilian population. However, the prevalence of obesity was higher, and that of hypertension was similar. Nutritional guidance and encouragement of physical activity are recommended in Jaguapiru as preventive measures for DM.

**7: Dumith SC, Farias Júnior JC. [Overweight and obesity in children and adolescents: comparison of three classification criteria based on body mass index]. Rev Panam Salud Publica. 2010 Jul;28(1):30-5. Portuguese. PubMed PMID: 20857018.**

Abstract

OBJECTIVE:

To describe and compare the nutritional status of children and adolescents using three body mass index (BMI)-based criteria; to analyze the agreement between these criteria in terms of frequency of excess weight; and to investigate if the factors associated with excess weight were similar for the three criteria.

METHODS:

The following criteria were investigated: 2000 International Obesity Task Force (IOTF), 2006 Conde and Monteiro, and 2007 World Health Organization (WHO). Weight, height, and physical fitness were measured in 525 students from urban and rural schools, with ages between 7 and 15 years (mean = 11.0 ± 2.1). The McNemar test, kappa statistics, and Poisson regression were used to evaluate each objective, respectively.

RESULTS:



The overall prevalence of excess weight (overweight + obesity) was 28.4% with the IOTF, 35.1% with the WHO, and 35.8% with Conde and Monteiro. There were no differences between criteria concerning overall prevalence of excess weight in males and females. However, within each sex, different results were observed for specific age groups, especially between 7 and 9 years. Nevertheless, the agreement (kappa) between the criteria was satisfactory: 0.71 to 0.98, depending on sex and age. The factors associated with excess weight and the strength of associations were similar for the three criteria.

**CONCLUSIONS:**

The prevalence of excess weight obtained with the IOTF was 20% lower than that calculated with the other criteria. Despite the differences between sexes observed for some age groups, the agreement between the three criteria was relatively high, and the factors associated with excess weight were similar. Further studies employing similar methods are required to confirm the present results in different populations of children and adolescents

**8: Araújo CL, Dumith SC, Menezes AM, Hallal PC. [Measured weight, self-perceived weight, and associated factors in adolescents]. Rev Panam Salud Publica. 2010 May;27(5):360-7. Portuguese. PubMed PMID: 20602070.**

**Abstract**

**OBJECTIVE:**

To compare weight self-perception and nutritional status based on objective measurements of weight, height, and skin folds in adolescents, and to evaluate factors associated with disagreement between these measures.

**METHODS:**

The sample included the 1993 birth cohort from the city of Pelotas, Brazil, who were interviewed at home in 2004 and 2005. The study outcome resulted from the comparison between nutritional status and the weight self-perception of adolescents, and was divided into three categories: underestimation, agreement, and overestimation. The explanatory variables were sex, skin color, accumulated goods index, physical activity, eating habits, discrimination, dieting, feeling of well-being, and opinion of the adolescent concerning the perception of his/her parents regarding the adolescent's weight. Multivariate logistic regression was used for statistical analysis.

**RESULTS:**

A total of 4 452 interviews were conducted (87.5% of original cohort). Mean age was 11 years. The analysis of nutritional status revealed that 7.1% were underweight, 69.8% normal weight, 11.6% overweight, and 11.6% obese. The analysis of self-perceived weight revealed that 19% saw themselves as thin or very thin, 56% believed their weight was normal, and 25% saw themselves as fat or very fat. Global agreement between weight self-perception and nutritional status was 65% (kappa = 0.36). Weight underestimation occurred in 24.9% of boys vs. 20.3% of girls. Overestimation occurred in 15.8% of girls vs. 8.5% of boys.

**CONCLUSIONS:**

Girls tended to overestimate their weight, and boys, to underestimate it. There was a strong association between the opinion of adolescents concerning their parents' view of the adolescent's body and self-perceived weight.

***B. Artículos con resumen con la estrategia de búsqueda:  
("Overweight/epidemiology"[Mesh]) AND "Obesity/epidemiology"[Mesh]***

**1: Ghosh A. Explaining overweight and obesity in children and adolescents of Asian Indian origin: the Calcutta childhood obesity study. Indian J Public Health. 2014 Apr-Jun;58(2):125-8. doi: 10.4103/0019-557X.132290. PubMed PMID: 24820988.**

**Abstract**

The present study was aimed to find out the prevalence of overweight and obesity and its associated factors among Bengalee children and adolescents in the Kolkata, India. A total of 1061 Bengalee school children and adolescents (610 boys and 451 girls) participated and were divided into three age groups: Group I = 8-11 years; Group II = 12-15 years and Group III = 16-18 years. Overweight and obesity were defined as: Overweight (between  $\geq 85$  th and  $< 95$  th percentile) and obesity ( $\geq 95$  th percentile). Multivariate regression analyses (adjusted for age and sex) of body mass index (BMI) revealed that about 18% ( $R^2 = 0.185$ ) of total variance of BMI could be explained by monthly family income, participants think obese, consumption of too much junk foodstuffs, breakfast skip, extra consumption of salt, and computer hours. Sedentary lifestyles, including increasing fast food preferences may be responsible for increasing occurrence of pediatric and adolescent obesity in this population.

**2: Nawab T, Khan Z, Khan IM, Ansari MA. Influence of behavioral determinants on the prevalence of overweight and obesity among school going adolescents of Aligarh. Indian J Public Health. 2014 Apr-Jun;58(2):121-4. doi: 10.4103/0019-557X.132289. PubMed PMID: 24820987.**

**Abstract**

Obesity has reached epidemic proportions globally and the prevention of adult obesity will require prevention and management of childhood obesity. A study was conducted to determine the prevalence and behavioral determinants of overweight and obesity in school going adolescents. A total of 660 adolescents from affluent and nonaffluent schools were taken. Overweight and obesity was defined as per World Health Organization 2007 growth reference. Prevalence of overweight and obesity was 9.8% and 4.8%, respectively. Prevalence of both overweight and obesity was higher among males. Statistically significant difference was found in prevalence of overweight and obesity among affluent schools (14.8% and 8.2%) and nonaffluent schools (4.8% and 1.5%). Important determinants of overweight and obesity were increased consumption of fast food, low physical activity level and watching television for more than 2 h/day. The prevalence of obesity is high even in small cities. Dietary behavior and physical activity significantly affect weight of adolescent children.

**3: Brook JS, Lee JY, Brook DW, Finch SJ. Determinants of obesity: results from a longitudinal study of adolescents and adults living in an urban area. Psychol Rep. 2013 Dec;113(3):717-33. PubMed PMID: 24693808; PubMed Central PMCID: PMC3979534.**

Abstract

This study examined the relation of cigarette smoking, psychological symptoms (e.g., depressive symptoms, anxiety), physical activity, and body mass index (BMI) separately by sex. The sample consisted of 815 African Americans and Puerto Ricans (324 males, 491 females). The participants were originally 14 years of age, and were followed to 32 years of age, and gave information on smoking, depressive symptoms, anxiety, physical activity, and BMI. Structural equation modeling showed that for males cigarette smoking in mid/late adolescence was related to cigarette smoking in emerging adulthood and early adulthood. Finally, cigarette smoking in early adulthood was negatively related to BMI in adulthood only for male participants. For female participants, cigarette smoking in adolescence was related to psychological symptoms (e.g., depressive symptoms, anxiety) in emerging adulthood and early adulthood. Psychological symptoms in early adulthood predicted less physical activity in adulthood, which in turn, was related to BMI. With one exception, all of the standardized coefficients were statistically significant. Implications for preventive interventions are discussed.

**4: Fernández Villa T, Alguacil Ojeda J, Ayán Pérez C, Bueno Cavanillas A, Cancela Carral JM, Capelo Álvarez R, Delgado Rodríguez M, Jiménez Mejías E, Jiménez Moleón JJ, Llorca Díaz J, Mateos Campos R, Molina de la Torre AJ, Valero Juan LF, Martín Sánchez V. [UNIHCOS Project: dynamic cohort of Spanish college students to the study of drug and other addictions]. Rev Esp Salud Publica. 2013 Nov-Dec;87(6):575-85. doi: 10.4321/S1135-57272013000600003. Spanish. PubMed PMID: 24549356.**

Abstract

The University stage gives rise to social and personal changes as the independence of the nuclear family and the increased responsibilities that are related to the acquisition and/or consolidation of life styles and habits that may determine the future health status. Inadequate nutrition, a high level of inactivity, risky sexual behavior, abuse of new technologies or starting consumption of legal and illegal drugs, are among the most significant risk behaviors in this phase. In order to know how to set and / or consolidate the habits and lifestyles in the university stage and health effects in the future, to born the uniHcos project. It is a dynamic cohort of university students who join the project during the first academic year and will be followed during their stay at college and working life. The follow-up will be biennially and for the capture and the information collection will be used on-line technologies. This paper aims to show the uniHcos project to the scientific community as well as present preliminary results found so far in the two cohorts established since 2011.

**5: Frederick CB, Snellman K, Putnam RD. Increasing socioeconomic disparities in adolescent obesity. Proc Natl Acad Sci U S A. 2014 Jan 28;111(4):1338-42. doi: 10.1073/pnas.1321355110. Epub 2014 Jan 13. PubMed PMID: 24474757; PubMed Central PMCID: PMC3910644.**

Abstract

Recent reports suggest that the rapid growth in youth obesity seen in the 1980s and 1990s has plateaued. We examine changes in obesity among US adolescents aged 12-17 y by socioeconomic background using data from two nationally representative health surveys, the 1988-2010 National Health and Nutrition Examination Surveys and the 2003-2011 National Survey of Children's Health. Although the overall obesity prevalence stabilized, this trend masks a growing socioeconomic gradient: The prevalence of obesity among high-socioeconomic status adolescents has decreased in recent years, whereas the prevalence of obesity among their low-socioeconomic status peers has continued to increase. Additional analyses suggest that socioeconomic differences in the levels of physical activity, as well as differences in calorie intake, may have contributed to the growing obesity gradient.

**6: Maclagan LC, Park J, Sanmartin C, Mathur KR, Roth D, Manuel DG, Gershon A, Booth GL, Bhatia S, Atzema CL, Tu JV. The CANHEART health index: a tool for monitoring the cardiovascular health of the Canadian population. CMAJ. 2014 Feb 18;186(3):180-7. doi: 10.1503/cmaj.131358. Epub 2013 Dec 23. PubMed PMID: 24366893; PubMed Central PMCID: PMC3928209.**

Abstract

BACKGROUND:

To comprehensively examine the cardiovascular health of Canadians, we developed the Cardiovascular Health in Ambulatory Care Research Team (CANHEART) health index. We analyzed trends in health behaviours and factors to monitor the cardiovascular health of the Canadian population.

METHODS:

We used data from the Canadian Community Health Survey (2003-2011 [excluding 2005]; response rates 70%-81%) to examine trends in the prevalence of 6 cardiovascular health factors and behaviours (smoking, physical activity, fruit and vegetable consumption, overweight/obesity, diabetes and hypertension) among Canadian adults aged 20 or older. We defined ideal criteria for each of the 6 health metrics. The number of ideal metrics was summed to create the CANHEART health index; values range from 0 (worst) to 6 (best or ideal). A separate CANHEART index was developed for youth age 12-19 years; this index included 4 health factors and behaviours (smoking, physical activity, fruit and vegetable consumption and overweight/obesity). We determined the prevalence of ideal cardiovascular health and the mean CANHEART health index score, stratified by age, sex and province.

RESULTS:

During the study period, physical activity and fruit and vegetable consumption increased and smoking decreased among Canadian adults. The prevalence of overweight/obesity, hypertension and diabetes increased. In 2009-2010, 9.4% of Canadian adults were in ideal cardiovascular health, 53.3% were in intermediate health (4-5 healthy factors or behaviours), and 37.3% were in poor cardiovascular

health (0-3 healthy factors or behaviours). Twice as many women as men were in ideal cardiovascular health (12.8% vs. 6.1%). Among youth, the prevalence of smoking decreased and the prevalence of overweight/obesity increased. In 2009-2010, 16.6% of Canadian youth were in ideal cardiovascular health, 33.7% were in intermediate health (3 healthy factors or behaviours), and 49.7% were in poor cardiovascular health (0-2 healthy factors or behaviours).

**INTERPRETATION:**

Fewer than 1 in 10 Canadian adults and 1 in 5 Canadian youth were in ideal cardiovascular health from 2003 to 2011. Intensive health promotion activities are needed to meet the Heart and Stroke Foundation of Canada's goal of improving the cardiovascular health of Canadians by 10% by 2020 as measured by the CANHEART health index.

**7: Agborsangaya CB, Ngwakongwi E, Lahtinen M, Cooke T, Johnson JA. Multimorbidity prevalence in the general population: the role of obesity in chronic disease clustering. BMC Public Health. 2013 Dec 10;13:1161. doi: 10.1186/1471-2458-13-1161. PubMed PMID: 24325303; PubMed Central PMCID: PMC4029057.**

**Abstract**

**BACKGROUND:**

The role of obesity in the prevalence and clustering of multimorbidity, the occurrence of two or more chronic conditions, is understudied. We estimated the prevalence of multimorbidity by obesity status, and the interaction of obesity with other predictors of multimorbidity.

**METHODS:**

Data from adult respondents (18 years and over) to the Health Quality Council of Alberta 2012 Patient Experience Survey were analyzed. Multivariable regression models were fitted to test for associations.

**RESULTS:**

The survey sample included 4803 respondents; 55.8% were female and the mean age was 47.8 years (SD, 17.1). The majority (62.0%) of respondents reported having at least one chronic condition. The prevalence of multimorbidity, including obesity, was 36.0% (95% CI, 34.8 - 37.3). The prevalence of obesity alone was 28.1% (95% CI 26.6 - 29.5). Having obesity was associated with more than double the odds of multimorbidity (odds ratio = 2.2, 95% CI 1.9 - 2.7) compared to non-obese.

**CONCLUSIONS:**

The prevalence of multimorbidity in the general population is high, but even higher in obese than non-obese persons. These findings may be relevant for surveillance, prevention and management strategies for multimorbidity.

**8: Zhang X, Morrison-Carpenter T, Holt JB, Callahan DB. Trends in adult current asthma prevalence and contributing risk factors in the United States by state: 2000-2009. BMC Public Health. 2013 Dec 10;13:1156. doi: 10.1186/1471-2458-13-1156. PubMed PMID: 24325173; PubMed Central PMCID: PMC3878893.**

**Abstract**

**BACKGROUND:**

Current asthma prevalence among adults in the United States has reached historically high levels. Although national-level estimates indicate that asthma prevalence among adults increased by 33% from 2000 to 2009, state-specific temporal trends of current asthma prevalence and their contributing risk factors have not been explored.

**METHODS:**

We used 2000-2009 Behavioral Risk Factor Surveillance System data from all 50 states and the District of Columbia (D.C.) to estimate state-specific current asthma prevalence by 2-year periods (2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009). We fitted a series of four logistic-regression models for each state to evaluate whether there was a statistically significant linear change in the current asthma prevalence over time, accounting for sociodemographic factors, smoking status, and weight status (using body mass index as the indicator).

**RESULTS:**

During 2000-2009, current asthma prevalence increased in all 50 states and D.C., with significant increases in 46/50 (92%) states and D.C. After accounting for weight status in the model series with sociodemographic factors, and smoking status, 10 states (AR, AZ, IA, IL, KS, ME, MT, UT, WV, and WY) that had previously shown a significant increase did not show a significant increase in current asthma prevalence.

**CONCLUSIONS:**

There was a significant increasing trend in state-specific current asthma prevalence among adults from 2000 to 2009 in most states in the United States. Obesity prevalence appears to contribute to increased current asthma prevalence in some states.

**9: Thomas F, Pannier B, Benetos A, Vischer UM. Visceral obesity is not an independent risk factor of mortality in subjects over 65 years. Vasc Health Risk Manag. 2013;9:739-45. doi: 10.2147/VHRM.S49922. Epub 2013 Nov 22. PubMed PMID: 24294003; PubMed Central PMCID: PMC3839799.**

**Abstract**

The aim of the study was to determine the role of obesity evaluated by body mass index (BMI), waist circumference (WC), and their combined effect on all-cause mortality according to age and related risk factors. This study included 119,090 subjects (79,325 men and 39,765 women), aged from 17 years to 85 years, who had a general health checkup at the Centre d'Investigations Préventives et Cliniques, Paris, France. The mean follow-up was 5.6±2.4 years. The prevalence of obesity, defined by WC and BMI categories, was determined according to age groups (<55, 55-65, >65 years). All-cause mortality according to obesity and age was determined using Cox regression analysis, adjusted for related risk factors and previous cardiovascular events. For the entire population, WC adjusted for BMI, an index of central obesity, was strongly associated with mortality, even after adjustment for hypertension, dyslipidemia, and diabetes. The prevalence of obesity increased with age, notably when defined by WC. Nonetheless, the association between WC adjusted for BMI and mortality was not observed in subjects >65 years old (hazard ratio [HR]=1.010, P=NS) but was found in subjects <55 (HR=1.030, P<0.0001) and 55-65 years old (HR=1.023, P<0.05). By contrast, hypertension (HR=1.31, P<0.05), previous cardiovascular events (HR=1.98, P<0.05), and smoking (HR=1.33, P<0.05) remained associated with mortality even after age 65. In conclusion, WC adjusted for BMI is strongly and independently associated with all-cause mortality before 65 years of age, after taking into account the associated risk factors. This relationship disappears in subjects >65 years of age, suggesting a differential impact of visceral fat deposition according to age.

**10: Ghavamzadeh S, Khalkhali HR, Alizadeh M. TV viewing, independent of physical activity and obesogenic foods, increases overweight and obesity in adolescents. J Health Popul Nutr. 2013 Sep;31(3):334-42. PubMed PMID: 24288947; PubMed Central PMCID: PMC3805883.**

Abstract

The aim of this study was to estimate the prevalence of overweight and obesity (OAO) and associated risk factors in a representative sample of students aged 11-20 years in Urmia, Iran. In this population-based cross-sectional study, a multistage random cluster-sampling method was used, through which 2,498 students were selected. OAO were defined based on criteria set by the US Center for Health Statistics in collaboration with the US Center for Chronic Disease Prevention and Health Promotion under the Centers for Disease Control and Prevention (CDC). OAO risk factors were assessed using a questionnaire containing questions about TV viewing, nutrition, physical activities (PA), social and economic factors. Contents of the questionnaire were validated by calculating the content validity ratio (CVR) and content validity index (CVI), based on the responses elicited from 15 experts. Reliability of the questionnaire was obtained from a test and re-test of the questionnaire completed by 15 students. To analyze the data,  $\chi^2$ -test, t-test, and multiple logistic regression analysis were conducted. The prevalence of OAO was found to be 14.1% among the 11-20 years old students of junior and senior high schools. The results of multiple logistic regression analysis indicated that the educational level of mothers, type of school, and the time spent on viewing TV were associated with an increased risk of OAO while obesogenic foods and PA had no effect on the frequency of OAO [Odds ratio (OR) for the time spent on watching TV one hour more than usual equals 1.27 at  $p=0.001$ ]. The direct correlation between TV viewing and OAO, which is independent of PA and obesogenic foods, needs to be carefully investigated through randomized clinical trials and cohort studies.

**11: May AL, Freedman D, Sherry B, Blanck HM; Centers for Disease Control and Prevention (CDC). Obesity - United States, 1999-2010. MMWR Surveill Summ. 2013 Nov 22;62 Suppl 3:120-8. PubMed PMID: 24264501.**

Abstract

Obesity is a major public health problem affecting adults and children in the United States. Since 1960, the prevalence of adult obesity in the United States has nearly tripled, from 13% in 1960-1962 to 36% during 2009-2010. Since 1970, the prevalence of obesity has more than tripled among children, from 5% in 1971-1974 to 17% in 2009-2010. Although the prevalence of obesity is high among all U.S. population groups, substantial disparities exist among racial/ethnic minorities and vary on the basis of age, sex, and socioeconomic status.

**12: Fuchs SC, Alencastro PR, Ikeda ML, Barcellos NT, Wolff FH, Brandão AB, Ximenes RA, Miranda-Filho Dde B, Lacerda HR, de Albuquerque Mde F, Montarroyos UR, Nery MW, Turchi MD. Risk of coronary heart disease among HIV-infected patients: a multicenter study in Brazil. ScientificWorldJournal. 2013 Oct 2;2013:163418. doi: 10.1155/2013/163418. eCollection 2013. PubMed PMID: 24223499; PubMed Central PMCID: PMC3809373.**

Abstract

Cardiovascular disease has emerged as a crescent problem among HIV-infected population. This study aimed to determine the 10-year risk of coronary heart disease using the Framingham risk score among HIV-infected patients from three regions of Brazil. This is a pooled analysis of three cohort studies, which enrolled 3,829 individuals, 59% were men, 66% had white skin color, and mean age  $39.0 \pm 9.9$  years. Comparisons among regions showed that there were marked differences in demographic, socioeconomic, clinical, and HIV-related characteristics. Prevalence of Framingham score  $\geq 10$  was 4.5% in the Southern, 4.2% in the Midwest, and 3.9% in the Northeast of Brazil. The Framingham score  $\geq 10$  was similar between regions for males, patients aged  $\geq 60$  years, with obesity, central obesity, hypertension, and diabetes mellitus. Women were three times more likely to have coronary heart disease in 10 years than men. Hypertension and diabetes increased more than four times the risk of coronary heart disease, followed by central obesity, obesity, and prehypertension. The use of antiretroviral agents and time since HIV diagnosis were not risk factors for coronary artery disease in 10 years. In conclusion, hypertension and diabetes are the strongest independent predictors of 10-year risk of coronary heart disease among HIV-infected population.

**13: Ananth CV, Keyes KM, Wapner RJ. Pre-eclampsia rates in the United States, 1980-2010: age-period-cohort analysis. BMJ. 2013 Nov 7;347:f6564. doi: 10.1136/bmj.f6564. PubMed PMID: 24201165; PubMed Central PMCID: PMC3898425.**

Abstract

OBJECTIVE:

To estimate the contributions of biological aging, historical trends, and birth cohort effects on trends in pre-eclampsia in the United States.

DESIGN:

Population based retrospective study.

SETTING:

National hospital discharge survey datasets, 1980-2010, United States.

PARTICIPANTS:

120 million women admitted to hospital for delivery.

MAIN OUTCOME MEASURES:

Temporal changes in rates of mild and severe pre-eclampsia in relation to maternal age, year of delivery, and birth cohorts. Poisson regression as well as multilevel age-period-cohort models with adjustment for obesity and smoking were incorporated.

RESULTS:

The rate of pre-eclampsia was 3.4%. The age-period-cohort analysis showed a strong age effect, with women at the extremes of maternal age having the greatest risk of pre-eclampsia. In comparison with women delivering in 1980, those delivering in 2003 were at 6.7-fold (95% confidence interval 5.6-fold to 8.0-fold) increased risk of severe pre-eclampsia. Period effects declined after 2003. Trends



for severe pre-eclampsia also showed a modest birth cohort effect, with women born in the 1970s at increased risk. Compared with women born in 1955, the risk ratio for women born in 1970 was 1.2 (95% confidence interval 1.1 to 1.3). Similar patterns were also evident for mild pre-eclampsia, although attenuated. Changes in the population prevalence of obesity and smoking were associated with period and cohort trends in pre-eclampsia but did not explain the trends.

**CONCLUSIONS:**

Rates of severe pre-eclampsia have been increasing in the United States and age-period-cohort effects all contribute to these trends. Although smoking and obesity have driven these trends, changes in the diagnostic criteria may have also contributed to the age-period-cohort effects. Health consequences of rising obesity rates in the United States underscore that efforts to reduce obesity may be beneficial to maternal and perinatal health.

**14: Lawson JA, Rennie DC, Dosman JA, Cammer AL, Senthilselvan A. Obesity, diet, and activity in relation to asthma and wheeze among rural dwelling children and adolescents. J Obes. 2013;2013:315096. doi: 10.1155/2013/315096. Epub 2013 Sep 26. PubMed PMID: 24191194; PubMed Central PMCID: PMC3804370.**

**Abstract**

**AIMS AND OBJECTIVES:**

We investigated associations between weight status, activity level, and diet with asthma or wheeze as well as the interrelationship between these factors.

**METHODS:**

We conducted a case-control study of 6-18-year olds from 2005 to 2007. Cases (n = 87) were subjects reporting episodes or breathing medication use along with doctor-diagnosed asthma or wheeze in the past 12 months. Controls were randomly selected (n = 208) and without asthma or wheeze. Data regarding health outcomes, diet, and activity were obtained from questionnaire. Objectively measured height and weight were collected.

**RESULTS:**

In the adjusted analysis, there was a trend (P = 0.07) towards an increased risk of asthma or wheeze associated with high fast food and/or pop consumption. Among cases, a significantly lower proportion (66%) classified as overweight participated in hard exercise in  $\geq 9$  of the past 14 days compared to those who were not overweight (86%). This pattern was not seen among controls (76% participating in hard exercise versus 78%, resp.). However, based on perceived weight status by the parent, the patterns were similar regardless of case-control status.

**CONCLUSIONS:**

Overweight status may negatively impact activity level among those with asthma or wheeze. Efforts should be made to encourage healthy food choices, and activity programming must consider the needs of overweight children with asthma.

**15: Forte GC, Grutcki DM, Menegotto SM, Pereira RP, Dalcin Pde T. Prevalence of obesity in asthma and its relations with asthma severity and control. Rev Assoc Med Bras. 2013 Nov-Dec;59(6):594-9. doi: 10.1016/j.ramb.2013.06.015. Epub 2013 Oct 31. English, Portuguese. PubMed PMID: 24182891.**

Abstract

OBJECTIVE:

To determine the prevalence of obesity in asthmatic patients attending at an outpatient clinic, and to investigate its relationships with asthma severity and level of asthma control.

METHODS:

In a cross-sectional study we recruited patients aged 11 years and older with confirmed asthma diagnosis from the outpatient asthma clinic of Hospital de Clínicas de Porto Alegre, Brazil. They underwent an evaluation by a general questionnaire, an asthma control questionnaire and by pulmonary function tests. Nutritional status was classified by body mass index (BMI).

RESULTS:

272 patients were included in the study. Mean age was  $51.1 \pm 16.5$  years and there were 206 (74.9%) female patients. Mean BMI was  $27.5 \pm 5.3$  kg/m<sup>2</sup>, and 96 (35.3%) patients were classified as normal weight, 97 (35.7%) as overweight and 79 (29%) as obesity. There was a significant higher proportion of female than male patients (34.3% vs. 13.2%,  $p = 0.002$ ) in the obesity group. There were no significant differences with respect to asthma control ( $p = 0.741$ ) and severity classification ( $p = 0.506$ ). The FEV<sub>1</sub>% predicted was significantly higher in the obese than in the non-obese group (73.7% vs. 67.2%,  $p = 0.037$ ). Logistic regression analysis identified sex (OR = 3.84,  $p = 0.002$ ) as an independent factor associated with obesity.

CONCLUSIONS:

This study showed a high prevalence of obesity in asthmatic patients. Obese and non-obese subjects were similar in regard to asthma severity and level of asthma control. Female sex was associated with obesity in this asthma population.

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**16: Briggs AD, Mytton OT, Kehlbacher A, Tiffin R, Rayner M, Scarborough P. Overall and income specific effect on prevalence of overweight and obesity of 20% sugar sweetened drink tax in UK: econometric and comparative risk assessment modelling study. BMJ. 2013 Oct 31;347:f6189. doi: 10.1136/bmj.f6189. PubMed PMID: 24179043; PubMed Central PMCID: PMC3814405.**

Abstract

OBJECTIVE:

To model the overall and income specific effect of a 20% tax on sugar sweetened drinks on the prevalence of overweight and obesity in the UK.

DESIGN:

Econometric and comparative risk assessment modelling study.

SETTING:

United Kingdom.

POPULATION:

Adults aged 16 and over.

INTERVENTION:

A 20% tax on sugar sweetened drinks.

**MAIN OUTCOME MEASURES:**

The primary outcomes were the overall and income specific changes in the number and percentage of overweight (body mass index  $\geq 25$ ) and obese ( $\geq 30$ ) adults in the UK following the implementation of the tax. Secondary outcomes were the effect by age group (16-29, 30-49, and  $\geq 50$  years) and by UK constituent country. The revenue generated from the tax and the income specific changes in weekly expenditure on drinks were also estimated.

**RESULTS:**

A 20% tax on sugar sweetened drinks was estimated to reduce the number of obese adults in the UK by 1.3% (95% credible interval 0.8% to 1.7%) or 180,000 (110,000 to 247,000) people and the number who are overweight by 0.9% (0.6% to 1.1%) or 285,000 (201,000 to 364,000) people. The predicted reductions in prevalence of obesity for income thirds 1 (lowest income), 2, and 3 (highest income) were 1.3% (0.3% to 2.0%), 0.9% (0.1% to 1.6%), and 2.1% (1.3% to 2.9%). The effect on obesity declined with age. Predicted annual revenue was £276m (£272m to £279m), with estimated increases in total expenditure on drinks for income thirds 1, 2, and 3 of 2.1% (1.4% to 3.0%), 1.7% (1.2% to 2.2%), and 0.8% (0.4% to 1.2%).

**CONCLUSIONS:**

A 20% tax on sugar sweetened drinks would lead to a reduction in the prevalence of obesity in the UK of 1.3% (around 180,000 people). The greatest effects may occur in young people, with no significant differences between income groups. Both effects warrant further exploration. Taxation of sugar sweetened drinks is a promising population measure to target population obesity, particularly among younger adults.

**17: Pimenta AM, Felisbino-Mendes MS, Velasquez-Melendez G. Clustering and combining pattern of metabolic syndrome components in a rural Brazilian adult population. Sao Paulo Med J. 2013;131(4):213-9. doi: 10.1590/1516-3180.2013.1314326. PubMed PMID: 24141291.**

**Abstract**

**CONTEXT AND OBJECTIVE** Metabolic syndrome is characterized by clustering of cardiovascular risk factors such as obesity, dyslipidemia, insulin resistance, hyperinsulinemia, glucose intolerance and arterial hypertension. The aim of this study was to estimate the probability of clustering and the combination pattern of three or more metabolic syndrome components in a rural Brazilian adult population. **DESIGN AND SETTING** This was a cross-sectional study conducted in two rural communities located in the Jequitinhonha Valley, Minas Gerais, Brazil. **METHODS** The sample was composed of 534 adults (both sexes). Waist circumference, blood pressure and demographic, lifestyle and biochemical characteristics were assessed. The prevalences of metabolic syndrome and its components were estimated using the definitions of the National Cholesterol Education Program - Adult Treatment Panel III. A binomial distribution equation was used to evaluate the probability of clustering of metabolic syndrome components. The statistical significance level was set at 5% ( $P < 0.05$ ). **RESULTS** Metabolic syndrome was more frequent among women (23.3%) than among men (6.5%). Clustering of three or more metabolic syndrome components was greater than expected by chance. The commonest combinations of three metabolic syndrome components were: hypertriglyceridemia + low levels of HDL-c + arterial hypertension and abdominal obesity + low levels of HDL-c + arterial hypertension; and of four metabolic syndrome components: abdominal obesity + hypertriglyceridemia + low levels of HDL-c + arterial hypertension. **CONCLUSION** The population

studied presented high prevalence of metabolic syndrome among women and clustering of its components greater than expected by chance, suggesting that the combination pattern was non-random.

**18: Goodson JM, Tavares M, Wang X, Niederman R, Cugini M, Hasturk H, Barake R, Alsmadi O, Al-Mutawa S, Ariga J, Soparkar P, Behbehani J, Behbehani K. Obesity and dental decay: inference on the role of dietary sugar. PLoS One. 2013 Oct 10;8(10):e74461. doi: 10.1371/journal.pone.0074461. eCollection 2013. PubMed PMID: 24130667; PubMed Central PMCID: PMC3795155.**

Abstract

OBJECTIVE:

To evaluate the relationship of children's obesity and dental decay.

METHODS:

We measured parameters related to obesity and dental decay in 8,275 4(th) and 5(th) grade Kuwaiti children (average age = 11.36 years) in a cross-sectional study. First to determine body weight, height, age for computation of BMI . Second, to determine numbers of teeth, numbers of fillings and numbers of untreated decayed teeth to determine extent and severity of dental disease. From these measurements, we computed measures of dental decay in children from four body weight categories; obese, overweight, normal healthy weight and underweight children.

RESULTS:

The percentage of children with decayed or filled teeth varied inversely with the body weight category. The percentage of decayed or filled teeth decreased from 15.61% (n=193) in underweight children, to 13.03% (n=4,094) in normal healthy weight children, to 9.73% (n=1,786) in overweight children to 7.87% (n=2,202) in obese children. Differences between all groups were statistically significant. Male children in this population had more dental decay than female children but the reduction of tooth decay as a function of BMI was greater in male children.

CONCLUSIONS:

The finding of an inverse obesity-dental decay relationship contradicts the obesity-sugar and the obesity-dental decay relationship hypotheses. Sugar is well recognized as necessary and sufficient for dental decay. Sugar is also hypothesized to be a leading co-factor in obesity. If the later hypothesis is true, one would expect dental decay to increase with obesity. This was not found. The reasons for this inverse relationship are not currently clear.

**19: Velásquez-Meléndez G, Mendes LL, Padez CM. Built environment and social environment: associations with overweight and obesity in a sample of Brazilian adults. Cad Saude Publica. 2013 Oct;29(10):1988-96. PubMed PMID: 24127093.**

Abstract

The aim of this study was to assess associations between the built environment and social environment and excess weight in an urban population. Participants were selected from the Surveillance System for Risk Factors for Chronic Diseases (VIGITEL). The study used data from the city of Belo Horizonte, Minas Gerais State, Brazil. A total of 3,425 interviews from the years 2008 and 2009 were used. Georeferenced data on parks, squares, and locations for physical exercise, population density, and food stores were used to assess the built environment. Description of the social environment used income and homicide rate for the neighborhood. Environmental variables

associated independently with excess weight were population density, presence of parks, squares, and locations for physical exercise, and self-reported presence of locations for physical exercise. The findings show that residential neighborhood characteristics are associated with excess weight in urban adults.

**20: Camhi SM, Waring ME, Sisson SB, Hayman LL, Must A. Physical activity and screen time in metabolically healthy obese phenotypes in adolescents and adults. J Obes. 2013;2013:984613. doi: 10.1155/2013/984613. Epub 2013 Sep 11. PubMed PMID: 24102022; PubMed Central PMCID: PMC3786460.**

Abstract

INTRODUCTION:

The purpose of this study was to examine levels of physical activity (PA) and screen time (ST) in metabolically healthy obese (MHO) and metabolically unhealthy obese (MUO) adolescents and adults.

METHODS:

NHANES data from obese adolescents (12-18 years, BMI z-score  $\geq$  95th percentile) and adults (19-85 years, BMI  $\geq$  30 kg/m<sup>2</sup>) were pooled from 2003-2005 cycles. Metabolic phenotypes were categorized as MHO (0 or 1 cardiometabolic risk factor; triglycerides, HDL-C, blood pressure, or glucose) or MUO ( $\geq$ 2 cardiometabolic risk factors). Logistic regression models estimated associations between phenotype and PA/ST adjusted for age, gender, BMI, race/ethnicity, menopausal status, and NHANES cycle.

RESULTS:

Among adolescents, PA was not associated with MHO. In contrast, MHO adults 19-44 years were 85% more likely to engage in active transportation and 2.7 times more likely to be involved in light intensity usual daily activity versus sitting. For each minute per day, adults 45-85 years were 36% more likely to have the MHO phenotype with higher levels of moderate PA. ST was not associated with metabolic phenotypes in adolescents or adults.

CONCLUSION:

The current study provides evidence that PA, but not ST, differs between MHO and MUO in adults, but not in adolescents. Future studies are needed to confirm results.

**21: Wierdsma NJ, van Bokhorst-de van der Schueren MA, Berkenpas M, Mulder CJ, van Bodegraven AA. Vitamin and mineral deficiencies are highly prevalent in newly diagnosed celiac disease patients. Nutrients. 2013 Sep 30;5(10):3975-92. doi: 10.3390/nu5103975. PubMed PMID: 24084055; PubMed Central PMCID: PMC3820055.**

Abstract

Malabsorption, weight loss and vitamin/mineral-deficiencies characterize classical celiac disease (CD). This study aimed to assess the nutritional and vitamin/mineral status of current "early diagnosed" untreated adult CD-patients in the Netherlands. Newly diagnosed adult CD-patients were included (n = 80, 42.8  $\pm$  15.1 years) and a comparable sample of 24 healthy Dutch subjects was added to compare vitamin concentrations. Nutritional status and serum concentrations of folic acid, vitamin A, B<sub>6</sub>, B<sub>12</sub>, and (25-hydroxy) D, zinc, haemoglobin (Hb) and ferritin were determined (before prescribing gluten free diet). Almost all CD-patients (87%) had at least one value below the lower limit of reference. Specifically, for vitamin A, 7.5% of patients showed deficient levels, for vitamin B<sub>6</sub> 14.5%, folic acid

20%, and vitamin B<sub>12</sub> 19%. Likewise, zinc deficiency was observed in 67% of the CD-patients, 46% had decreased iron storage, and 32% had anaemia. Overall, 17% were malnourished (>10% undesired weight loss), 22% of the women were underweight (Body Mass Index (BMI) < 18.5), and 29% of the patients were overweight (BMI > 25). Vitamin deficiencies were barely seen in healthy controls, with the exception of vitamin B<sub>12</sub>. Vitamin/mineral deficiencies were counter-intuitively not associated with a (higher) grade of histological intestinal damage or (impaired) nutritional status. In conclusion, vitamin/mineral deficiencies are still common in newly "early diagnosed" CD-patients, even though the prevalence of obesity at initial diagnosis is rising. Extensive nutritional assessments seem warranted to guide nutritional advices and follow-up in CD treatment.

**22: Watari J, Hori K, Toyoshima F, Kamiya N, Yamasaki T, Okugawa T, Asano H, Li ZL, Kondo T, Ikehara H, Sakurai J, Tomita T, Oshima T, Fukui H, Miwa H.**

**Association between obesity and Barrett's esophagus in a Japanese population: a hospital-based, cross-sectional study. BMC Gastroenterol. 2013 Sep 26;13:143.**

**doi: 10.1186/1471-230X-13-143. PubMed PMID: 24070185; PubMed Central PMCID: PMC3849380.**

Abstract

BACKGROUND:

The association between obesity and Barrett's esophagus (BE) in the Japanese population remains unclear. The prevalence of BE and its associated risk factors was examined.

METHODS:

A cross-sectional study of 1581 consecutive individuals who underwent upper gastrointestinal endoscopy was conducted. The prevalence of endoscopically suspected BE (ESBE) was evaluated. Obesity was evaluated by body mass index (BMI,  $\geq 25$  kg/m<sup>2</sup>) and waist circumference (WC) (males,  $\geq 85$  cm; females,  $\geq 90$  cm). Because endoscopic diagnosis of ultra-short ESBE (<1 cm in extent) is difficult and highly unreliable, this type of ESBE was excluded from the study.

RESULTS:

In proton pump inhibitor (PPI) non-users, the prevalence of ESBE  $\geq 1$  cm was 5.6%. In univariate analysis, male sex and reflux esophagitis (RE) were significantly associated with BE, but BMI, WC, and reflux symptoms were not. In multivariate logistic regression analysis, only RE (odds ratio [OR] = 3.48, 95% confidence interval [CI] 1.89-6.41,  $p < 0.0001$ ) was an independent risk factor for BE; obesity and the other factors were not. In contrast, RE (OR 5.67,  $p = 0.0004$ ) and large WC (OR 5.09,  $p = 0.0005$ ) were significant risk factors for ESBE  $\geq 1$  cm in PPI users. Only male sex, but not obesity or the other risk factors, was associated with an increased risk of RE in patients not taking PPIs.

CONCLUSIONS:

RE, but not obesity, may have an independent association with the risk of ESBE in the Japanese population. Furthermore, obesity measures were not independent risks for RE. Interestingly, PPI-refractory RE and large WC were risk factors for ESBE  $\geq 1$  cm in patients taking PPIs.

**23: Kim CK, Ryu WS, Kim BJ, Lee SH. Paradoxical effect of obesity on hemorrhagic transformation after acute ischemic stroke. BMC Neurol. 2013 Sep 23;13:123. doi: 10.1186/1471-2377-13-123. PubMed PMID: 24053109; PubMed Central PMCID: PMC3848776.**

Abstract

BACKGROUND:

Among the patients with established coronary artery diseases, obese patients tend to have a more favorable prognosis, which is called as obesity paradox. Interestingly, mildly obese patients who underwent coronary revascularization had a lower risk of bleeding. In this context, we have investigated the association between obesity and hemorrhagic transformation (HTf) after acute ischemic stroke.

METHODS:

A total of 365 patients with first-ever acute ischemic stroke were included in this study. Demographic, clinical and radiological information was collected and HTf was evaluated through follow-up T2\*-weighted gradient-recalled echo MRI performed usually within 1 week after occurrence of stroke. Body mass index was calculated, and obesity was defined using the World Health Organization Western Pacific Regional Office criteria.

RESULTS:

The HTf was identified in 59 patients (16.2%). As the severity of obesity increased, the occurrence of HTf decreased. Compared with the normal weight group and after controlling possible confounders including acute and previous treatment, stroke severity and subtype, the risk of HTf decreased significantly in the obese group (odds ratio, 0.39; 95% confidence interval, 0.17-0.87).

CONCLUSIONS:

The better outcome for HTf seen in obese patients suggests the existence of a "bleeding-obesity paradox" in acute ischemic stroke.

**24: Yang J, Gong H, Liu W, Tao T. The association of Pro12Ala polymorphism in the peroxisome proliferator-activated receptor-gamma2 gene with the metabolic characteristics in Chinese women with polycystic ovary syndrome. Int J Clin Exp Pathol. 2013 Aug 15;6(9):1894-902. eCollection 2013. PubMed PMID: 24040456; PubMed Central PMCID: PMC3759498.**

Abstract

BACKGROUND:

The Pro12Ala polymorphism in the peroxisome Proliferator-activated receptor-gamma2 (PPAR $\gamma$ 2) gene that account for metabolic dysfunction in women with polycystic ovary syndrome (PCOS) remain elusive.

AIM:

To explore the association between PPAR $\gamma$ 2 gene pro12ala polymorphism and the metabolic characteristics in Chinese women with PCOS.

METHODS:

PPAR $\gamma$ 2 gene Pro12Ala polymorphism was assayed by PCR/RFLP methods in 120 Chinese women with PCOS and 118 normal subjects. All subjects were examined by anthropometry, lipid profile, sex hormone, oral glucose tolerance tests and insulin tolerance tests.

RESULTS:

In PCOS patients, women with the non-Pro/Pro genotypes of the PPAR $\gamma$ 2 gene Pro12Ala polymorphism showed statistically significantly higher fasting triglycerides (TG) levels and WHR value than those with the Pro/Pro genotype (P=.006 for both). There was no significant difference with PPAR $\gamma$ 2 Pro12Ala polymorphism distributions between Chinese Han women with PCOS and controls.

**CONCLUSION:**  
PPAR $\gamma$ 2 gene Pro12Ala polymorphism was not supposed to be susceptible genes in PCOS. However, in PCOS patients, the PPAR-gamma Pro12Ala polymorphism may modulate the concentrations of serum fasting TG levels and fat-deposition in abdomen, respectively.

**25: Gates M, Hanning RM, Martin ID, Gates A, Tsuji LJ. Body Mass Index of First Nations youth in Ontario, Canada: influence of sleep and screen time. Rural Remote Health. 2013;13(3):2498. Epub 2013 Sep 14. PubMed PMID: 24033103.**

Abstract

**INTRODUCTION:**

Prevalence rates of overweight and obesity in Canada have risen rapidly in the past 20 years. Concurrent with the obesity epidemic, sleep time and physical activity levels have decreased among youth. Aboriginal youth experience disproportionately high obesity prevalence but there is inadequate knowledge of contributing factors. This research aimed to examine sleep and screen time behavior and their relationship to Body Mass Index (BMI) in on-reserve First Nations youth from Ontario, Canada.

**METHODS:**

This was an observational population-based study of cross-sectional design. Self-reported physical activity, screen time, and lifestyle information was collected from 348 youth aged 10-18 years residing in five northern, remote First Nations communities and one southern First Nations community in Ontario, Canada, from October 2004 to June 2010. Data were collected in the school setting using the Waterloo Web-based Eating Behaviour Questionnaire. Based on self-reported height and weight, youth were classified normal (including underweight), overweight and obese according to BMI. Descriptive cross-tabulations and Pearson's  $\chi^2$  tests were used to compare screen time, sleep habits, and physical activity across BMI categories.

**RESULTS:**

Participants demonstrated low levels of after-school physical activity, and screen time in excess of national guidelines. Overall, 75.5% reported being active in the evening three or less times per week. Approximately one-quarter of the surveyed youth watched more than 2 hours of television daily and 33.9% spent more than 2 hours on the internet or playing video games. For boys, time using the internet/video games (p=0.022) was positively associated with BMI category, with a greater than expected proportion of obese boys spending more than 2 hours using the internet or video games daily (56.7%). Also for boys, time spent outside after school (p=0.033) was negatively associated with BMI category, with a lesser than expected proportion spending 'most of the time' outside (presumably being active) after school. These relationships were not observed in girls. Adjusted standardized residuals suggest a greater than expected proportion of obese individuals had a television in their bedroom (66.7%) as compared with the rest of the population.

**CONCLUSIONS:**

The current study adds to the limited information about contributors to overweight and obesity in First Nations youth living on-reserve in Canada. Concerns about inadequate sleep, excess screen time, and inadequate physical activity mirror those of the general population. Further investigation is



warranted to improve the understanding of how various lifestyle behaviors influence overweight, obesity, and the development of chronic disease among First Nations youth. Initiatives to reduce screen time, increase physical activity, and encourage adequate sleep among on-reserve First Nations youth are recommended.

**26: Wen M, Kowaleski-Jones L, Fan JX. Ethnic-immigrant disparities in total and abdominal obesity in the US. Am J Health Behav. 2013 Nov;37(6):807-18. doi: 10.5993/AJHB.37.6.10. PubMed PMID: 24001630; PubMed Central PMCID: PMC3914658.**

Abstract

OBJECTIVES:

To examine sex-specific disparities in total and abdominal obesity prevalence across 6 ethnic-immigrant groups and explore whether the observed differences were attributable to diet and physical activity (PA).

METHODS:

Data were from 4331 respondents age 18-64 from the 2003-2006 National Health and Nutrition Examination Survey. Sex-specific multiple logistic regression analyses were performed.

RESULTS:

Regardless of race-ethnicity, immigrants exhibited lower prevalence of total and abdominal obesity than natives. Among the US-born, Whites had the lowest total obesity prevalence followed by Hispanics and then Blacks; but racial-ethnic disparities for immigrants were different. In abdominal obesity, US-born white men had the highest prevalence. PA helped explain some ethnic-immigrant disparities.

CONCLUSIONS:

Complex interactions of sex by race-ethnicity and nativity exist for obesity prevalence.

**27: Jodkowska M, Tabak I, Oblacińska A, Stalmach M. [Sedentary behaviour 13-years-olds and its association with selected health behaviours, parenting practices and body mass]. Med Wieku Rozwoj. 2013 Apr-Jun;17(2):165-73. Polish. PubMed PMID: 23988375.**

Abstract

OBJECTIVE:

1. To estimate the time spent in sedentary behaviour (watching TV, using the computer, doing homework). 2. To assess the link between the total time spent on watching TV, using the computer, doing homework and dietary habits, physical activity, parental practices and body mass.

MATERIAL AND METHODS:

Cross-sectional study was conducted in Poland in 2008 among 13-year olds (n=600). They self-reported their time of TV viewing, computer use and homework. Their dietary behaviours, physical activity (MVPA) and parenting practices were also self-reported. Height and weight were measured by school nurses. Descriptive statistics and correlation were used in this analysis.

RESULTS:

The mean time spent watching television in school days was 2.3 hours for girls and 2.2 for boys. Boys spent significantly more time using the computer than girls - respectively 1.8 and 1.5 hours, while girls took longer doing homework - respectively 1.7 and 1.3 hours. Mean screen time was about 4 hours in school days and about 6 hours during weekend, statistically longer for boys in weekdays.

Screen time was positively associated with intake of sweets, chips, soft drinks, "fast food" and meals consumption during TV, and negatively with regularity of meals and parental supervision. There was no correlation between screen time with physical activity and body mass.

**CONCLUSION:**

Sedentary behaviours and physical activity are not competing behaviours in Polish teenagers, but their relationship with unhealthy dietary patterns may lead to development of obesity. Good parental practices, both mother's and father's supervision seems to be crucial for screen time limitation in their children. Parents should become aware that relevant lifestyle monitoring of their children is a crucial element of health education in prevention of civilization diseases. This is a task for both healthcare workers and educational staff.

**28: Konrad S, Hossain A, Senthilselvan A, Dosman JA, Pahwa P. Chronic bronchitis in Aboriginal people--prevalence and associated factors. Chronic Dis Inj Can. 2013 Sep;33(4):218-25. English, French. PubMed PMID: 23987218.**

**Abstract**

**INTRODUCTION:**

Knowledge about chronic bronchitis (CB) among Aboriginal people in Canada is limited. The aim of this study was to determine the prevalence of CB and its associated factors among Aboriginal people aged 15 years plus.

**METHODS:**

Logistic regression analysis was used on data from the cross-sectional 2006 Aboriginal Peoples Survey to determine risk factors associated with CB.

**RESULTS:**

CB prevalence was 6.6% among First Nations, 6.2% among Métis and 2.4% among Inuit. Prevalence was higher among females than males (7.2% versus 5.0%). Individuals with CB were more likely to be older, living at a lower income, with a lower educational attainment and residing in rural areas. Smoking status and body mass index were also significantly associated with CB, but their effect differed by sex. Obesity was particularly significantly associated with CB among females compared with males, and current smoking and non-smoking status was significantly associated with CB among females but not males.

**CONCLUSION:**

These findings identify factors associated with CB among Aboriginal people. As such, they may represent potentially preventable risk factors that can inform health promotion and disease prevention practices.

**29: Gong CD, Wu QL, Chen Z, Zhang D, Zhao ZY, Peng YM. Glycolipid metabolic status of overweight/obese adolescents aged 9- to 15-year-old and the BMI-SDS/BMI cut-off value of predicting dyslipidemia in boys, Shanghai, China: a cross-sectional study. *Lipids Health Dis.* 2013 Aug 28;12:129. doi: 10.1186/1476-511X-12-129. PubMed PMID: 23984682; PubMed Central PMCID: PMC3766195.**

Abstract

BACKGROUND:

The prevalence of adolescents' obesity and overweight has dramatically elevated in China. Obese children were likely to insulin resistance and dyslipidemia, which are risk factors of cardiovascular diseases. However there was no cut-off point of anthropometric values to predict the risk factors in Chinese adolescents. The present study was to investigate glycolipid metabolism status of adolescents in Shanghai and to explore the correlations between body mass index standard deviation score (BMI-SDS) and metabolic indices, determine the best cut-off value of BMI-SDS to predict dyslipidemia.

METHODS:

Fifteen schools in Shanghai's two districts were chosen by cluster sampling and primary screening was done in children aged 9-15 years old. After screening of bodyweight and height, overweight and obese adolescents and age-matched children with normal body weight were randomly recruited in the study. Anthropometric measurements, biochemical measurements of glycolipid profiles were done. SPSS19.0 was used to analyze the data. Receiver operating characteristic (ROC) curves were made and the best cut-off values of BMI-SDS to predict dyslipidemia were determined while the Youden indices were maximum.

RESULTS:

Five hundred and thirty-eight adolescents were enrolled in this research, among which 283 have normal bodyweight, 115 were overweight and 140 were obese. No significant differences of the ages among 3 groups were found. There were significant differences of WC-SDS ( $p < 0.001$ ), triacylglycerol ( $p < 0.05$ ), high and low density lipoprotein cholesterol ( $p < 0.01$ ), fasting insulin ( $p < 0.01$ ) and C-peptide ( $p < 0.001$ ) among 3 groups. Significant difference of fasting glucose was only found between normal weight and overweight group. Significant difference of total cholesterol was found between obese and normal weight group. There was no significant difference of glycated hemoglobin among 3 groups. The same tendency was found in boys but not in girls. Only HDL-C reduced and TG increased while BMI elevated in girls. The best cut-off value of BMI-SDS was 1.22 to predict dyslipidemia in boys. The BMI cut-off was 21.67 in boys.

CONCLUSION:

Overweight and obese youths had reduced insulin sensitivity and high prevalence of dyslipidemia. When BMI-SDS elevated up to 1.22 and BMI was higher than 21.67 in boys, dyslipidemia may happen.

**30: Gee S, Chin D, Ackerson L, Woo D, Howell A. Prevalence of childhood and adolescent overweight and obesity from 2003 to 2010 in an integrated health care delivery system. J Obes. 2013;2013:417907. doi: 10.1155/2013/417907. Epub 2013 Jul 18. PubMed PMID: 23970960; PubMed Central PMCID: PMC3732626.**

Abstract

An observational study of the Kaiser Permanente Northern California (KPNC) BMI coding distributions was conducted to ascertain the trends in overweight and obesity prevalence among KPNC members aged 2-19 between the periods of 2003-2005 and 2009-2010. A decrease in the prevalence of overweight (-11.1% change) and obesity (-3.6% change) and an increase in the prevalence of healthy weight (+2.7% change) were demonstrated. Children aged 2-5 had the greatest improvement in obesity prevalence (-11.5% change). Adolescents aged 12-19 were the only age group to not show a decrease in obesity prevalence. Of the racial and ethnic groups, Hispanics/Latinos had the highest prevalence of obesity across all age groups. The KPNC prevalence of overweight and obesity compares favorably to external benchmarks, although differences in methodologies limit our ability to draw conclusions. Physician counseling as well as weight management programs and sociodemographic factors may have contributed to the overall improvements in BMI in the KPNC population. Physician training, practice tools, automated BMI reminders and performance feedback improved the frequency and quality of physician counseling. BMI screening and counseling at urgent visits, in addition to well-child care visits, increased the reach and dose of physician counseling.

**31: Palmsten K, Hernández-Díaz S, Huybrechts KF, Williams PL, Michels KB, Achtyes ED, Mogun H, Setoguchi S. Use of antidepressants near delivery and risk of postpartum hemorrhage: cohort study of low income women in the United States. BMJ. 2013 Aug 21;347:f4877. doi: 10.1136/bmj.f4877. PubMed PMID: 23965506; PubMed Central PMCID: PMC3748906.**

Abstract

OBJECTIVE:

To determine whether use of serotonin or non-serotonin reuptake inhibitors near to delivery is associated with postpartum hemorrhage.

DESIGN:

Cohort study.

SETTING:

2000-07 nationwide Medicaid data (Medicaid Analytic eXtract).

POPULATION:

106,000 pregnant women aged 12-55 with a diagnosis of mood or anxiety disorder. Women were categorized into four mutually exclusive exposure groups according to pharmacy dispensing data: current (delivery date), recent (1-30 days before delivery date), past (1-5 months before delivery date), and no exposure (reference group).

MAIN OUTCOME MEASURES:

Risk of postpartum hemorrhage by timing of exposure and by serotonin or non-serotonin reuptake inhibitors, classes of antidepressant, and antidepressant types. Relative risks and 95% confidence intervals adjusted for delivery year, risk factors for postpartum hemorrhage, indicators of severity of mood/anxiety disorder, other indications for antidepressants, and other drugs. High dimensional propensity score (hdPS) methods were used to empirically identify and adjust for additional factors.

RESULTS:

12,710 (12%) women had current exposure to serotonin reuptake inhibitor monotherapy, and 1495 (1.4%) women had current exposure to non-serotonin reuptake inhibitor monotherapy. The risk of postpartum hemorrhage was 2.8% among women with mood/anxiety disorders but no exposure to antidepressants, 4.0% in the current users of serotonin reuptake inhibitors, 3.8% in the current users of non-serotonin reuptake inhibitors, 3.2% in the recent users of serotonin reuptake inhibitors, 3.1% in the recent users of non-serotonin reuptake inhibitors, 2.5% in the past users of serotonin reuptake inhibitors, and 3.4% in the past users of non-serotonin reuptake inhibitors. Compared with no exposure, women with current exposure to serotonin reuptake inhibitors had a 1.47-fold increased risk of postpartum hemorrhage (95% confidence interval 1.33 to 1.62) and women with current non-serotonin reuptake inhibitor exposure had a 1.39-fold increased risk (1.07 to 1.81). Results were similar with hdPS adjustment. Women with current exposure to serotonin reuptake inhibitors had an adjusted excess risk of 1.26% (0.90% to 1.62%), with a number needed to harm of 80, and for women with current exposure to non-serotonin reuptake inhibitors the excess risk was 1.03% (0.07% to 1.99%), with a number needed to harm of 97. For exposure to serotonin reuptake inhibitors the relative risk was 1.19 (1.03 to 1.38) for recent exposure and 0.93 (0.82 to 1.06) for past exposure; for non-serotonin reuptake inhibitors the figures were 1.17 (0.80 to 1.70) and 1.26 (1.00 to 1.59), respectively. Current exposure to selective serotonin reuptake inhibitor monotherapy was also associated with postpartum hemorrhage (1.42, 1.27 to 1.57), as was current serotonin norepinephrine (noradrenaline) reuptake inhibitor (1.90, 1.37 to 2.63) and tricyclic monotherapy (1.77, 0.90 to 3.47). All types of selective serotonin reuptake inhibitors available for analysis and venlafaxine, a serotonin norepinephrine reuptake inhibitor, were significantly associated with postpartum hemorrhage.

#### CONCLUSIONS:

Exposure to serotonin and non-serotonin reuptake inhibitors, including selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, and tricyclics, close to the time of delivery was associated with a 1.4 to 1.9-fold increased risk for postpartum hemorrhage. While potential confounding by unmeasured factors cannot be ruled out, these findings suggest that patients treated with antidepressants during late pregnancy are more likely to experience postpartum hemorrhage.

**32: Ochiai H, Shirasawa T, Ohtsu T, Nishimura R, Morimoto A, Hoshino H, Tajima N, Kokaze A. Eating behaviors and overweight among adolescents: a population-based survey in Japan. J Obes. 2013;2013:717942. doi: 10.1155/2013/717942. Epub 2013 Jul 17. PubMed PMID: 23956845; PubMed Central PMCID: PMC3730185.**

#### Abstract

##### OBJECTIVES:

The aim of the present study was to investigate the relationship between eating behaviors and overweight among population-based adolescents in Japan.

##### METHODS:

Study subjects comprised adolescents in the seventh grade (age range, 12-13 years) from Ina, a town in Saitama Prefecture, Japan, between 1999 and 2008. The height and weight of the subjects were measured, and information concerning eating behaviors (eating speed and eating until full) was obtained using a self-administered questionnaire.

##### RESULTS:

Among boys (n = 1586), fast eating speed significantly increased the odds ratio (OR) for overweight when compared with medium eating speed, regardless of eating until full or not; moreover, a more

marked increase in the OR was observed among boys eating until full (OR: 2.78, 95% confidence interval: 1.76-4.38) than among those not eating until full (2.43, 1.41-4.20). Among girls (n = 1542), fast eating speed led to a significant increase in the OR in those eating until full; however, no significant increases were observed in the OR in those eating quickly and not until full.

#### CONCLUSIONS:

Among adolescents, fast eating speed was associated with overweight; furthermore, the combination of both fast eating speed and eating until full may have a significant effect on overweight.

**33: León-Mimila P, Villamil-Ramírez H, Villalobos-Comparán M, Villarreal-Molina T, Romero-Hidalgo S, López-Contreras B, Gutiérrez-Vidal R, Vega-Badillo J, Jacobo-Albavera L, Posadas-Romeros C, Canizalez-Román A, Río-Navarro BD, Campos-Pérez F, Acuña-Alonzo V, Aguilar-Salinas C, Canizales-Quinteros S. Contribution of common genetic variants to obesity and obesity-related traits in Mexican children and adults. PLoS One. 2013 Aug 8;8(8):e70640. doi: 10.1371/journal.pone.0070640. eCollection 2013. PubMed PMID: 23950976; PubMed Central PMCID: PMC3738539.**

#### Abstract

##### BACKGROUND:

Several studies have identified multiple obesity-associated loci mainly in European populations. However, their contribution to obesity in other ethnicities such as Mexicans is largely unknown. The aim of this study was to examine 26 obesity-associated single-nucleotide polymorphisms (SNP) in a sample of Mexican mestizos.

##### METHODS:

9 SNPs in biological candidate genes showing replications (PPARG, ADRB3, ADRB2, LEPR, GNB3, UCP3, ADIPOQ, UCP2, and NR3C1), and 17 SNPs in or near genes associated with obesity in first, second and third wave GWAS (INSIG2, FTO, MC4R, TMEM18, FAIM2/BCDIN3, BDNF, SH2B1, GNPDA2, NEGR1, KCTD15, SEC16B/RASAL2, NPC1, SFRF10/ETV5, MAF, PRL, MTCH2, and PTER) were genotyped in 1,156 unrelated Mexican-Mestizos including 683 cases (441 obese class I/II and 242 obese class III) and 473 normal-weight controls. In a second stage we selected 12 of the SNPs showing nominal associations with obesity, to seek associations with quantitative obesity-related traits in 3 cohorts including 1,218 Mexican Mestizo children, 945 Mexican Mestizo adults, and 543 Indigenous Mexican adults.

##### RESULTS:

After adjusting for age, sex and admixture, significant associations with obesity were found for 6 genes in the case-control study (ADIPOQ, FTO, TMEM18, INSIG2, FAIM2/BCDIN3 and BDNF). In addition, SH2B1 was associated only with class I/II obesity and MC4R only with class III obesity. SNPs located at or near FAIM2/BCDIN3, TMEM18, INSIG2, GNPDA2 and SEC16B/RASAL2 were significantly associated with BMI and/or WC in the combined analysis of Mexican-mestizo children and adults, and FTO locus was significantly associated with increased BMI in Indigenous Mexican populations.

##### CONCLUSIONS:

Our findings replicate the association of 8 obesity-related SNPs with obesity risk in Mexican adults, and confirm the role of some of these SNPs in BMI in Mexican adults and children.

**34: Rani MA, Sathiyasekaran BW. Behavioural determinants for obesity: a cross-sectional study among urban adolescents in India. J Prev Med Public Health. 2013 Jul;46(4):192-200. doi: 10.3961/jpmph.2013.46.4.192. Epub 2013 Jul 31. PubMed PMID: 23946877; PubMed Central PMCID: PMC3740224.**

Abstract

OBJECTIVES:

To measure the prevalence of behavioural risk factors for obesity among urban adolescent school children in Chennai, India.

METHODS:

This study was performed as a cross-sectional study using a World Health Organization-designed Global School-based Student Health Survey questionnaire (modified for India) among adolescent school children studying in 30 randomly selected secondary and higher secondary schools in Chennai city. 1842 adolescents studying in the VIII to XII standards were randomly selected for the study.

RESULTS:

In the present study, 40.7% of the students ate fruit one or more times per day and 74.5% of the students ate vegetables one or more times per day. Nearly 20% of the students ate fast food items on 4 to 7 days during the previous week. Among the students, 30.4% watched television for more than two hours per day. Nearly 68% of the girls and 22% of the boys did not participate in outdoor sports activities. When the pattern of physical activity of the students was assessed, it was observed that 15.6% were inactive, 43.4% were minimally active, and the remaining 41.0% belonged to the category of health enhancing physical activity. Among the students, 6.2% were overweight and 5.2% were obese.

CONCLUSIONS:

The prevalence of risk factors for obesity was quite high among the adolescents. This study also showed that a great proportion of overweight/obese adolescents had a correct perception of their body weight and they were making efforts to modify risk factors such as television viewing, computer use, a sedentary lifestyle, and unhealthy dietary habits.

KEYWORDS:

Adolescent; Dietary behaviour; Motor activity; Obesity; Overweight.

**35: Lee HA, Park H. Overview of noncommunicable diseases in Korean children and adolescents: focus on obesity and its effect on metabolic syndrome. J Prev Med Public Health. 2013 Jul;46(4):173-82. doi: 10.3961/jpmph.2013.46.4.173. Epub 2013 Jul 31. PubMed PMID: 23946875; PubMed Central PMCID: PMC3740222.**

Abstract

Obesity during childhood is a dominant risk factor for noncommunicable diseases (NCDs), and is itself considered a disease that needs to be treated. Recently, the growth in childhood obesity in Korea has become stagnant; however, two in every ten children are still overweight. In addition, 60% or more of overweight children have at least one metabolic syndrome risk factor. Thus, childhood obesity should be controlled through lifestyle modification. This paper reviews studies of the modifiable risk factors of obesity in Korean children. According to the life-course approach, preschool-aged children (<5 years) are influenced by their parents rather than individual habits because they are under mostly parental care. Elementary school-aged children (6 to 11 years) are affected by overlapping individual and parental effects. This may mean that the establishment of individual behavior patterns begins

during this period. The conditions of poor eating habits such as skipping meals, eating out, and high fat intake, along with low physical activity, facilitate increased obesity among adolescents (12 to 18 years). Notably, adolescent girls show high rates of both underweight and obesity, which may lead to the development of NCDs in their offspring. Therefore, the problem of NCDs is no longer limited to adults, but is also prevalent among children. In addition, early intervention offers cost-effective opportunities for preventing NCDs. Thus, children need primary consideration, adequate monitoring, diagnosis, and treatment to reduce the burden of NCDs later in adulthood.

**KEYWORDS:**

Adolescents; Children; Metabolic syndrome; Noncommunicable diseases; Obesity

**36: Chen W, Shi Z. Trend in gender disparities of BMI and height between 2004 and 2011 among adolescents aged 17-18 years in Changzhou China. *Asia Pac J Clin Nutr.* 2013;22(3):466-73. doi: 10.6133/apjcn.2013.22.3.03. PubMed PMID: 23945418.**

**Abstract**

**OBJECTIVES:**

to describe the trend in gender disparities of overweight/obesity and underweight, as well as height, among Chinese adolescents.

**METHODS:**

the study is based on population-based data from annual health checks of approximately 7,000 students finishing high school each year between 2004-2011. Height and weight were measured. Overweight/obesity and underweight were defined using International Obesity Task Force (IOTF) criteria. School level socioeconomic status (SES) was constructed based on real-estate prices near each school.

**RESULTS:**

there was a slight increase in the prevalence of obesity between 2004 and 2011; 3.7% to 4.7% in boys and 1.1% to 1.5% in girls. The prevalence of overweight was quite stable in both genders (boys: 12%-15%; girls: 7%-10%). In most years, the prevalence of underweight was above 10%. The prevalence of underweight in girls born after 1991 increased dramatically. However, the opposite trend was seen in boys. School SES was positively associated with overweight and inversely associated with underweight among boys. There was a significant increase in height in both genders. Height and BMI was positively associated in boys but this relation was inversely associated in girls.

**CONCLUSION:**

between 2004 and 2011, the prevalence of overweight/obesity was plateauing among adolescents finishing high school. A substantial increase in the prevalence of underweight was observed among girls born after 1991 but this seemed to be positively associated with high SES.

**37: Varadharajan KS, Thomas T, Rajaraman D, Kurpad AV, Vaz M. Overweight and obesity among internal migrants in India. *Asia Pac J Clin Nutr.* 2013;22(3):416-25. doi: 10.6133/apjcn.2013.22.3.14. PubMed PMID: 23945412.**

**Abstract**

Migration, chiefly from rural to urban areas has been linked to precursor conditions of cardiovascular diseases. We estimated the odds of overweight/obesity ( BMI  $\geq$ 25 kg/m<sup>2</sup>) associated with different patterns of internal migration, using data from the National Family Health Survey 3, a cross-sectional survey that covered 29 states of India in 2005/06. A total of 56,498 non-pregnant women, aged 15 to



49 years, and 42,190 men, aged 15 to 54 years, with BMI >18.5 kg/m<sup>2</sup> were included in the final analysis. Odds ratios (ORs) for overweight/ obesity were computed for different groups of migrants after adjusting for age, socioeconomic status and parity using binomial logistic regression models. All analyses were performed separately for men and women and weighted using national sampling weights. Rural to urban migrant women but not men, had higher odds of being overweight/obese (adjusted OR (AOR): 1.50, 95% confidence interval (CI): 1.36-1.65) compared to non-migrant rural residents. Increased odds were also noted among women migrating from one urban area to another, compared to non-migrant urban women ( A OR: 1.10, 95% CI: 1.02-1.19). Women migrating from urban to rural areas, however had decreased odds (AOR: 0.75, 95% CI: 0.67-0.83) of overweight/ obesity. Thus, apart from confirming rural to urban migration as a risk factor for overweight, this study finds that other patterns of migration are also associated with overweight/obesity.

**38: Munch-Andersen T, Sorensen K, Achmann-Andersen NJ, Aksglaede L, Juul A, Helge JW. Ethnic differences in leptin and adiponectin levels between Greenlandic Inuit and Danish children. *Int J Circumpolar Health*. 2013 Aug 7;72. doi: 10.3402/ijch.v72i0.21458. Print 2013. PubMed PMID: 23940841; PubMed Central PMCID: PMC3739969.**

Abstract

OBJECTIVE:

In a recent study, we found that Greenlandic Inuit children had a more adverse metabolic profile than Danish children. Aerobic fitness and adiposity could only partly account for the differences.

Therefore, we set out to evaluate and compare plasma leptin and adiponectin levels in Danish and Inuit children.

METHODS:

In total, 187 Inuit and 132 Danish children (5.7-17.1 years) had examinations of anthropometrics, body fat content, pubertal staging, fasting blood and aerobic fitness.

RESULTS:

Plasma leptin was higher in Danish boys [3,774 (4,741-3,005)] [pg/mL unadjusted geometric mean (95% CI)] compared to both northern [2,076 (2,525-1,706)] ( $p < 0.001$ ) and southern (2,515 (3,137-2,016)) ( $p < 0.001$ ) living Inuit boys and higher in Danish girls [6,988 (8,353-5,847)] compared to southern living Inuit girls [4,910 (6,370-3,785)] ( $p = 0.021$ ) and tended to be higher compared to northern living Inuit girls [5,131 (6,444-4,085)] ( $p = 0.052$ ). Plasma adiponectin was higher for both Danish boys [22,359 (2,573-19,428)] [ng/mL unadjusted geometric mean (95% CI)] and girls [26,609 (28,994-24,420)] compared to southern living Inuit boys [15,306 (18,406-12,728)] and girls [18,864 (22,640-15,717)] (both  $p < 0.001$ ), respectively. All differences remained after adjustment for body fat percentage (BF%), aerobic fitness, age and puberty. The leptin/adiponectin ratio was higher in Danish boys and tended to be higher in Danish girls compared to northern living Inuit boys and girls, respectively. These differences were eliminated after adjustment for BF%, aerobic fitness, age and puberty.

CONCLUSIONS:

In contrast to our hypothesis, plasma leptin was higher in Danish children despite a more healthy metabolic profile compared to Inuit children. As expected, plasma adiponectin was lowest in Inuit children with the most adverse metabolic profile.

KEYWORDS:

Inuit; adiponectin; children; ethnic differences; leptin; leptin/adiponectin ratio; metabolic syndrome.

**39: Khalaf A, Ekblom Ö, Kowalski J, Berggren V, Westergren A, Al-Hazzaa H. Female university students' physical activity levels and associated factors--a cross-sectional study in southwestern Saudi Arabia. Int J Environ Res Public Health. 2013 Aug 9;10(8):3502-17. doi: 10.3390/ijerph10083502. PubMed PMID: 23939387; PubMed Central PMCID: PMC3774451.**

Abstract

BACKGROUND:

The high prevalence of physical inactivity in Saudi Arabia is a growing challenge to public health. This study aimed to examine the prevalence of physical activity (PA) and associated factors among female university students.

METHODS:

This cross-sectional study involved 663 randomly selected female university students who completed the Arab Teens Life Style questionnaire. Data included measurements of anthropometric, socioeconomic and environmental factors, as well as self-reported PA. Ordinal regression was used to identify associated factors with low, moderate and high PA levels.

RESULTS:

The mean age of participants was 20.4 years (SD 1.5). Mean BMI of the students in relation to PA were 23.0, 22.9, 22.1 for high, moderate and low levels of activity, respectively. The analysis revealed significantly higher PA levels among married students, those with high educated mothers, and those who lived far from parks, and lower activity levels among underweight students.

CONCLUSIONS:

This study raises four important determinants for female university students' PA levels. These factors could be of great importance in the endeavor to prevent the health-threatening increase in physical inactivity patterns and thus non-communicable diseases and obesity where the focus should be on the specific situation and needs of women in Saudi Arabia.

**40: Viester L, Verhagen EA, Oude Hengel KM, Koppes LL, van der Beek AJ, Bongers PM. The relation between body mass index and musculoskeletal symptoms in the working population. BMC Musculoskelet Disord. 2013 Aug 12;14:238. doi: 10.1186/1471-2474-14-238. PubMed PMID: 23937768; PubMed Central PMCID: PMC3751130.**

Abstract

BACKGROUND:

The primary aim of this study was to investigate the association between BMI and musculoskeletal symptoms in interaction with physical workload. In addition, it was aimed to obtain insight into whether overweight and obesity are associated with an increase in occurrence of symptoms and/or decrease in recovery from symptoms.

METHODS:

Based on a large working population sample (n = 44,793), using the data from The Netherlands Working Conditions Survey (NWCS), logistic regression analyses were carried out to investigate the association between BMI and musculoskeletal symptoms, with adjustment for potential confounders. Longitudinal data from the Netherlands Working Conditions Cohort Study (NWCCS) of 7,909 respondents was used for the second research aim (i.e., to investigate the transition in musculoskeletal symptoms).

#### RESULTS:

For high BMI an increased 12-month prevalence of musculoskeletal symptoms was found (overweight: OR 1.13, 95% CI: 1.08-1.19 and obesity: OR 1.28, 95% CI: 1.19-1.39). The association was modified by physical workload, with a stronger association for employees with low physical workload than for those with high physical workload. Obesity was related to developing musculoskeletal symptoms (OR 1.37, 95% CI: 1.05-1.79) and inversely related to recovery from symptoms (OR 0.76, 95% CI: 0.59-0.97).

#### CONCLUSION:

BMI was associated with musculoskeletal symptoms, in particular symptoms of the lower extremity. Furthermore, the association differed for employees with high or low physical workload. Compared to employees with normal weight, obese employees had higher risk for developing symptoms as well as less recovery from symptoms. This study supports the role of biomechanical factors for the relationship between BMI and symptoms in the lower extremity.

**41: Josefsson A, Bladh M, Wiréhn AB, Sydsjö G. Risk for congenital malformations in offspring of women who have undergone bariatric surgery. A national cohort. BJOG. 2013 Nov;120(12):1477-82. doi: 10.1111/1471-0528.12365. Epub 2013 Aug 9. PubMed PMID: 23927006.**

#### Abstract

##### OBJECTIVE:

To study the risk for congenital anomalies in the first child of women after bariatric surgery compared with all other women giving birth to their first child and divided by maternal body mass index (BMI) groups.

##### DESIGN:

Prospective, population-based register study.

##### SETTING:

Sweden.

##### SAMPLE:

All firstborn children to women born 1973-83 were studied to determine if they had a congenital anomaly and a mother who had undergone bariatric surgery before pregnancy.

##### METHODS:

A total of 270,805 firstborns; of which 341 had mothers who had had bariatric surgery before delivery. We retrieved information on the women's marital or cohabitation status, smoking, BMI, diabetes and hypertension during pregnancy.

##### MAIN OUTCOME MEASURES:

Congenital malformations.

##### RESULTS:

Of the firstborn children to mothers who had had bariatric surgery before pregnancy, 4.1% (95% confidence interval [95% CI] 2.2-6.0) were malformed compared with 3.4% (95% CI 3.3-3.5) of those whose mothers had not undergone bariatric surgery. The risk for congenital malformation in firstborn children increased with increasing maternal BMI. The adjusted odds ratio (OR) for congenital malformation among children whose mothers' BMI ranged between 25 and 29 kg/m<sup>2</sup> was 1.09 (95% CI 1.03-1.15), whose mothers' BMI ranged between 30 and 34 kg/m<sup>2</sup> was 1.14 (1.05-1.24) and whose mothers' BMI was ≥35 kg/m<sup>2</sup> was 1.30 (95% CI 1.16-1.45) compared with those whose

mothers had a normal BMI. Bariatric surgery before pregnancy did not have any effect on the odds ratio for having congenital malformation (OR = 1.09, 95% CI 0.63-1.91).

**CONCLUSIONS:**

Preconception bariatric surgery does not seem to affect the risk for congenital malformations but a high to very high BMI does appear to increase the risk.

**42: Ichiho HM, Demei Y, Kuartei S, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Republic of Palau: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):98-105. PubMed PMID: 23901368; PubMed Central PMCID: PMC3689453.**

**Abstract**

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the Republic of Palau and describes the burden due to selected NCD (diabetes, heart disease, hypertension, stroke, chronic kidney disease); and assesses the system of service capacity and current activities for service delivery, data collection, and reporting as well as identifying the issues that need to be addressed. There has been a 7.1% increase in the population between 2000 and 2010. Significant shifts in the age groups show declines among children and young adults under 34 years of age and increases among adult residents over 45 years of age. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors are associated with overweight and obesity and subsequent NCD that play a significant role in the morbidity and mortality of the population. The leading causes of death include heart disease and cancer. A 2003 community household survey was conducted and 22.4% of them reported a history of diabetes in the household. A survey among Ministry of Health employees showed that 44% of the men and 47% of the women were overweight and 46% of the men and 42% of the women were obese. Other findings show significant gaps in the system of administrative, clinical, and support services to address these NCD. Priority issues and needs for the administrative and clinical systems were identified.

**43: Ichiho HM, deBrum I, Kedi S, Langidrik J, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Republic of the Marshall Islands, Majuro Atoll: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):87-97. PubMed PMID: 23901367; PubMed Central PMCID: PMC3689459.**

**Abstract**

Non-communicable diseases (NCD) have been identified as a health emergency in the US-associated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the Republic of the Marshall Islands, Majuro Atoll and describes the burdens due to selected NCD (diabetes, heart disease, hypertension, stroke, chronic kidney disease); and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifying the issues that need to be addressed. Findings reveal that the risk factors of poor diet, lack of physical activity, and risky lifestyle behaviors are associated with overweight and obesity and subsequent NCD that are significant factors in the morbidity and mortality of the population. The leading causes of death include sepsis, cancer, diabetes-related deaths, pneumonia, and hypertension. Population-based survey for the RMI show that 62.5% of the adults are overweight or

obese and the prevalence of diabetes stands at 19.6%. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCD. There is no policy and procedure manual for the hospital or public health diabetes clinics and there is little communication, coordination, or collaboration between the medical and public health staff. There is no functional data system that allows for the identification, registry, or tracking of patients with diabetes or other NCDs. Based on these findings, priority issues and problems to be addressed for the administrative, clinical, and data systems were identified.

**44: Ichiho HM, Seremai J, Trinidad R, Paul I, Langidrik J, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Republic of the Marshall Islands, Kwajalein Atoll, Ebeye Island: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):77-86. PubMed PMID: 23901366; PubMed Central PMCID: PMC3689463.**

Abstract

Non-communicable diseases (NCD) have been declared a health emergency in the US-affiliated Pacific Islands (USAPI). This assessment, funded by the National Institutes of Health, was conducted on Ebeye Island of Kwajalein Atoll, Republic of the Marshall Islands (RMI) to describe the burdens due to selected NCD (diabetes, heart disease, hypertension, stroke, chronic kidney disease); assess the system of service capacity and activities for service delivery, data collection, and reporting; and identify the key issues that need to be addressed. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors lead to overweight and obesity and subsequent NCD that impact the morbidity and mortality of the population. Population survey of the RMI show that 62.5% of the total population is overweight or obese with a dramatic increase from the 15-24 year old (10.6%) and the 25-64 year old (41.9%) age groups. The leading causes of death were septicemia, renal failure, pneumonia, cancer, and myocardial infarction. Other findings show gaps in the system of administrative, clinical, and support services to address these NCD. All health care in Ebeye is provided in one setting and there is collaboration, coordination, and communication among medical and health care providers. The Book of Protocols for the Kwajalein Atoll Health Care Bureau provides the guidelines, standards, and policy and procedures for the screening, diagnosis, and management of diabetes and other NCDs. Based on these findings, priority issues and problems to be addressed for the administrative, clinical, and data systems were identified.

**45: Ichiho HM, Roby FT, Ponausuia ES, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the territory of American Samoa: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):10-8. PubMed PMID: 23901364; PubMed Central PMCID: PMC3689461.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in American Samoa and describes the burden of selected NCDs (ie, diabetes, heart disease, hypertension, stroke, and chronic kidney disease); and assesses the system of service capacity and activities regarding service delivery, data collection and reporting as well as identifies the issues needing to be addressed. Findings reveal that nutrient-poor diet, lack of physical activity, and other lifestyle behaviors are associated with overweight and obesity and subsequent NCDs that impact the

morbidity and mortality of the population. The leading causes of death include heart disease, diabetes, cancer and stroke. Population surveys show that 93% of the adults are overweight or obese and 47% have diabetes. Among public school children, 44.6% are overweight or obese. Other data show that between 2006 and 2010, there was a 33% increase in the number of patients receiving hemodialysis. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCDs. There is a paucity of health plans, policy and procedure manuals, coordination among providers, and lack of common standards of care. The combined administrative and clinical system of service needs were identified and prioritized. They include the need for a Territory-wide health strategy and plan, need for standards of care, and a need for collaborative team approach for the treatment and management of patients with diabetes and other chronic diseases.

**46: Ichiho HM, Anson R, Keller E, Lippwe K, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Federated States of Micronesia, State of Pohnpei: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):49-56. PubMed PMID: 23900565; PubMed Central PMCID: PMC3689464.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the Federated States of Micronesia, State of Pohnpei and describes the burden due to selected NCD (diabetes, heart disease, hypertension, stroke, chronic kidney disease); and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifies the issues that need to be addressed. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors lead to overweight and obesity and subsequent NCD that are significant factors in the morbidity and mortality of the population. Leading causes of death were due to heart disease, diabetes, cancer, and hypertension. Population survey data show that 32.1% of the adult population had diabetes with a higher rate among women (37.1%) when compared to men (26.4%). The data also showed that 73.1% of the adult population was overweight or obese. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCD. There is no overall planning document for the prevention and control of NCDs or diabetes. There is evidence of little communication among the medical and health care providers which leads to fragmentation of care and loss of continuity of care. Based on some of the findings, priority issues and problems that need to be addressed for the administrative and clinical systems are identified.

**47: Ichiho HM, Robles B, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the commonwealth of the Northern Mariana Islands: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):19-29. PubMed PMID: 23900536; PubMed Central PMCID: PMC3689462.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the Commonwealth of the Northern Mariana Islands (CNMI) and describes the burdens due to

NCDs, with an emphasis on diabetes, and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifies the issues that need to be addressed. There has been a 22.7% decline in the population between 2000 and 2010. Findings of medical and health data reveal that the risk factors of lifestyle behaviors lead to overweight and obesity and subsequent NCD. The leading causes of death are heart disease, stroke and cancer. The 2009 BRFSS survey reveals that the prevalence rate for diabetes was 9.8%. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCDs. There is no overall health plan to address NCDs or diabetes, there is little coordination between the medical care and public health staff, and there is no functional data system to identify, register, and track patients with diabetes. Based on the findings, priority issues and problems to be addressed for the administrative system and clinical system are identified.

**48: Ichiho HM, Yurow J, Lippwe K, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Federated States of Micronesia, State of Yap: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):57-67. PubMed PMID: 23900490; PubMed Central PMCID: PMC3689458.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the Federated States of Micronesia, State of Yap, and describes the burdens due to diabetes and other NCDs (heart disease, hypertension, stroke, chronic renal disease), and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifying the issues that need to be addressed. There has been a 1.2% increase in the population between 2000 and 2010; however, there was a significant increase in the 45-64 year old age group. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors lead to overweight and obesity and subsequent NCD that are a significant factor in the morbidity and mortality of the population. The leading causes of death include cancer, heart disease, and diabetes. Local household surveys show that 63% to 80% of the adults and 20.5% to 33.8% of the children were overweight or obese. The surveys also showed that 23% of the adult population had diabetes and 35% were hypertensive. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCD. There is a policy and procedure manual that guides the NCD staff. There is no functional data system that is able to identify, register, or track patients with diabetes and other NCDs. Priority administrative and clinical issues were identified.

**49: Ichiho HM, Gillan JW, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Territory of Guam: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):68-76. PubMed PMID: 23900408; PubMed Central PMCID: PMC3689457.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in the US Territory of Guam and describes the burdens due to NCD, with an emphasis on diabetes; and assesses the system of service capacity and current activities for service delivery, data collection, and reporting as well as identifying the issues that need to be addressed. There has been an increase



of 2.6% in the total population between 2000 and 2010. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors are associated with overweight and obesity. The leading causes of death include heart disease, cancer, and cerebrovascular accidents. Population surveys show that 9.1% of the adult population in 2009 reported being diagnosed with diabetes. Other data reports show that of the adults, 35.4% were overweight and 25.9% were obese; and among youth, 30% were overweight or obese. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address NCDs and diabetes. There is no Territory-wide health plan to address the prevention and control of NCDs including diabetes. There are no common standards of care or policy and procedures that are used by all the various medical and health care providers. Based on these findings, priority issues and needs were identified for the administrative and clinical systems.

**50: Ichiho HM, Tolenoa N, Taulung L, Mongkeya M, Lippwe K, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Federated States of Micronesia, State of Kosrae: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):39-48. PubMed PMID: 23900387; PubMed Central PMCID: PMC3689452.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI). This assessment, funded by the National Institutes of Health, was conducted in the Federated States of Micronesia, State of Kosrae and describes the burdens due to NCDs, including diabetes, and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifying the issues that need to be addressed. There has been a 13.9% decline in the population between 2000 and 2010. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors lead to overweight and obesity and subsequent NCD that are a significant factor in the morbidity and mortality of the population. Leading causes of death were due to nutrition and metabolic diseases followed by diseases of the circulatory system. Data from selected community programs show that the prevalence of overweight and obese participants ranged between 82% and 95% and the rate of reported diabetes ranged from 13% to 14%. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCD. There is no functional data system that is able to identify, register, or track patients with diabetes. Priority administrative and clinical issues were identified that need to be addressed to begin to mitigate the burdens of NCDs among the residents of Kosrae State.

**51: Ji CY, Chen TJ, Sun X. Secular changes on the distribution of body mass index among Chinese children and adolescents, 1985-2010. Biomed Environ Sci. 2013 Jul;26(7):520-30. doi: 10.3967/0895-3988.2013.07.002. PubMed PMID: 23895697.**

Abstract

OBJECTIVE:

To analyze the change in Body Mass Index (BMI) distribution among Chinese children and adolescents for the development of more effective intervention for childhood obesity.

METHODS:



Data on the national students' constitution and health survey between 1985 and 2010 was used for this study. Subjects were students aged 7-18 randomly selected from 30 provinces in China. BMI for-age curves were developed by LMS method, and the trend of BMI distribution was determined by comparing the upper BMI percentiles and analyzing the skew shift of distribution between 1985 and 2010.

#### RESULTS:

An overall positive swift trend of BMI between 1985 and 2010 was observed among the Chinese school-age children and adolescents. The average median of the BMI increased from 16.8 and 17.0 kg/m<sup>2</sup> to 18.2 and 17.9 kg/m<sup>2</sup> in 25 years, with increments 0.56 and 0.36 kg/m<sup>2</sup> per decade for males and females, respectively. The more obvious increments were found at the high BMI. The total increments of BMI in this period were 4.03 and 2.20 kg/m<sup>2</sup> at the 85th, 6.14 and 3.57 kg/m<sup>2</sup> at the 95th, and 6.99 and 4.27 kg/m<sup>2</sup> at the 97th percentiles, for males and females, respectively.

#### CONCLUSION:

Obvious increments were observed at high BMI of the Chinese children and adolescents. More effective interventions should be taken for control and prevention of obesity and its health consequence for these subgroups. It is necessary to establish a risk-complex system consisting of the identification of BMI scope, the screen of the disease risk factors and the assessment of excessive adiposity.

**52: Park MH, Sovio U, Viner RM, Hardy RJ, Kinra S. Overweight in childhood, adolescence and adulthood and cardiovascular risk in later life: pooled analysis of three british birth cohorts. PLoS One. 2013 Jul 24;8(7):e70684. doi: 10.1371/journal.pone.0070684. Print 2013. PubMed PMID: 23894679; PubMed Central PMCID: PMC3722162.**

#### Abstract

##### BACKGROUND:

Overweight and obesity in adulthood are established risk factors for adverse cardiovascular outcomes, but the contribution of overweight in childhood to later cardiovascular risk is less clear. Evidence for a direct effect of childhood overweight would highlight early life as an important target for cardiovascular disease prevention. The aim of this study was to assess whether overweight and obesity in childhood and adolescence contribute to excess cardiovascular risk in adults.

##### METHODS AND FINDINGS:

Data from three British birth cohorts, born in 1946, 1958 and 1970, were pooled for analysis (n = 11,447). Individuals were categorised, based on body mass index (BMI), as being of normal weight or overweight/obese in childhood, adolescence and adulthood. Eight patterns of overweight were defined according to weight status at these three stages. Logistic regression models were fitted to assess the associations of patterns of overweight with self-reported type 2 diabetes, hypertension, and coronary heart disease (CHD) in adulthood (34-53 years). Compared to cohort members who were never overweight, those who were obese in adulthood had increased risk of all outcomes. For type 2 diabetes, the odds ratio was higher for obese adults who were also overweight or obese in childhood and adolescence (OR 12.6; 95% CI 6.6 to 24.0) than for those who were obese in adulthood only (OR 5.5; 95% CI 3.4 to 8.8). There was no such effect of child or adolescent overweight on hypertension. For CHD, there was weak evidence of increased risk among those with overweight in childhood. The main limitations of this study concern the use of self-reported outcomes and the generalisability of findings to contemporary child populations.

#### CONCLUSIONS:

Type 2 diabetes and to a lesser extent CHD risk may be affected by overweight at all stages of life, while hypertension risk is associated more strongly with weight status in adulthood.

**53: Schmidt Morgen C, Rokholm B, Sjöberg Brixval C, Schou Andersen C, Geisler Andersen L, Rasmussen M, Nybo Andersen AM, Due P, Sørensen TI. Trends in prevalence of overweight and obesity in danish infants, children and adolescents--are we still on a plateau? PLoS One. 2013 Jul 24;8(7):e69860. doi: 10.1371/journal.pone.0069860. Print 2013. PubMed PMID: 23894553; PubMed Central PMCID: PMC3722196.**

#### Abstract

##### BACKGROUND:

After the worldwide steep increase in child and adolescent overweight and obesity during the last decades, there is now evidence of a levelling off in the prevalence in many countries in the Western world.

##### AIM:

To examine whether there still is a plateau in the prevalence of overweight and obesity in Danish children and adolescents, or whether the prevalence is decreasing or rising again.

##### METHODS:

THE TRENDS IN THE PREVALENCE RATES WERE BASED ON THREE DATA SETS PROVIDING COMPARABLE REPEATED ESTIMATES: 1) the Danish Health Visitors Child Health Database (DHVCHD) with measurements on infant and childhood height and weight from 2002 to 2011 (n up to 39,984), 2) the Danish National Birth Cohort (DNBC) with maternal reports of measured infant and childhood height and weight from 1998 to 2010 (n up to 56,826) and 3) the Danish part of the Health Behaviour in School-aged Children survey (HBSC) with self-reported information on adolescent height and weight from the years 2002 to 2010 (n = 16,557). Overweight and obesity were categorized according to WHO growth standards. Trends were assessed by repeated point estimates and linear regression analyses providing regression coefficients for changes in per cent per year with 95% confidence intervals (CI).

##### RESULTS:

The prevalence rates of overweight and obesity for infants, children and adolescents showed a mixed pattern of decline, stability and increase (ranging from -1.10 through 0.29 per cent per year with CI's from -3.10 through 2.37). Overall, there were no consistent statistically significant trends upwards or downwards, although some significant downward trends in childhood and adolescence were observed.

##### CONCLUSION:

This study, based on data from 1998 through 2011, showed that the prevalence rates of overweight and obesity among Danish infants, children and adolescents were largely still on a plateau with tendencies for a decline among children and adolescents.

**54: Park S, Choi BY, Wang Y, Colantuoni E, Gittelsohn J. School and neighborhood nutrition environment and their association with students' nutrition behaviors and weight status in Seoul, South Korea. J Adolesc Health. 2013 Nov;53(5):655-662.e12. doi: 10.1016/j.jadohealth.2013.06.002. Epub 2013 Jul 23. PubMed PMID: 23891243.**

Abstract

PURPOSE:

We examined the association between the school and neighborhood nutrition environments and adolescent nutrition behaviors and weight status.

METHODS:

We conducted a cross-sectional survey with 1,342 fourth to ninth graders in 15 schools on their food-eating behaviors. Participants were randomly selected from eight predetermined districts in Seoul, South Korea. Height and weight data from the school annual health check-ups were obtained. Dietitians from each school completed questionnaires on the school nutrition environment. Types of food outlets in a 500-meter radius of the schools were recorded. Healthy eating index was created based on 10 questions on students' eating behaviors, such as breakfast skipping, fruit consumption, and ramen noodle consumption (possible score range 0-10). Generalized estimating equation method was used for statistical modeling.

RESULTS:

Higher density of supermarkets and traditional markets in the school neighborhoods was associated with a greater likelihood of child obesity after controlling for individual-level covariates (odds ratio = 1.37, 1.21-1.54). The school nutrition environment was not associated with student's healthy eating habits and weight status. Students who were younger, female, from more affluent families, who had less weekly screen time, or had stay-at-home mothers had higher scores on the healthy eating index. There was a gender difference in the associations between environmental factors and students' eating behaviors and obesity status.

CONCLUSIONS:

These findings suggest that the relationship between environmental factors and individual factors and weight status may be more complicated than previously reported in other parts of the world. Copyright © 2013 Society for Adolescent Health and Medicine. Published by Elsevier Inc. All rights reserved.

**55: Izquierdo-Gomez R, Martínez-Gómez D, Tejero-Gonzalez CM, Cabanas-Sánchez V, Ruiz Ruiz J, Veiga ÓL. Are poor physical fitness and obesity two features of the adolescent with Down syndrome? Nutr Hosp. 2013 Jul-Aug;28(4):1348-51. doi: 10.3305/nh.2013.28.4.6566. PubMed PMID: 23889665.**

Abstract

INTRODUCTION:

"Obesity" is considered a feature of youth with DS but whether "low physical fitness" is also a feature is unknown.

OBJECTIVE:

The aim of this case-control study was to compare the levels of fatness and fitness in adolescents with and without DS.

METHODS:

Participants included 17 (5 girls) adolescents with DS aged 12-18 years and a control group of 94 (45 girls) adolescents without DS aged 12-16 years. The ALPHA health-related fitness test battery for children and adolescents was selected to assess fatness and fitness in both groups.

**RESULTS:**

There were no differences in levels of fatness between groups (all  $P > 0.27$ ). Adolescents with DS had lower levels of fitness in all the tests than adolescents without DS (all  $P < 0.001$ ).

**CONCLUSION:**

Adolescents with DS have similar levels of fatness and lower levels of fitness than their peers without DS.

**56: Rossoni de Oliveira V, Camboim Rockett F, Castro K, da Silveira Perla A, Chaves ML, Schweigert Perry ID. Body mass index, abdominal obesity, body fat and migraine features in women. Nutr Hosp. 2013 Jul-Aug;28(4):1115-20. doi: 10.3305/nh.2013.28.4.6504. PubMed PMID: 23889629.**

**Abstract**

**BACKGROUND:**

Studies seeking to establish an association between migraine and anthropometric parameters have thus far been inconclusive. Furthermore, drugs used for migraine prophylaxis may be associated with changes in body weight.

**OBJECTIVE:**

To investigate the potential association of anthropometric parameters and body fat percentage with attack patterns and use of prophylactic medication in migraineurs.

**METHODS:**

Cross-sectional study that assessed the body mass index, waist circumference, body fat percentage and related clinical variables (characteristics of attacks and the use of prophylactic medication) in female outpatients with migraine.

**RESULTS:**

166 female migraineurs aged  $\geq 18$  years (mean age,  $45 \pm 14$  years) were included in the study. Migraine without aura was most prevalent (71.7%). Mean body mass index and body fat percentage were  $27.8 \pm 6.0$  kg/m<sup>2</sup> and  $36.4 \pm 8.3\%$  respectively. Body mass index and waist circumference were weakly correlated with frequency of attacks over 6 months ( $r_s = 0.162$ ,  $p < 0.05$  and  $r_s = 0.187$ ,  $p < 0.05$  respectively). These correlations remains weak considering only premenopausal women, but disappear in the older women. Stratification of analysis by migraine type field shows a moderate correlation between migraine with aura and frequency of attacks over 6 months and body mass index ( $r_s = 0.369$ ,  $p < 0.05$ ), as well as waist circumference ( $r_s = 0.423$ ,  $p < 0.01$ ). Patients who were on prophylactic medication had higher body mass index, waist circumference, and body fat percentage values ( $p < 0.01$ , Student t-test).

**CONCLUSION:**

This study revealed a potential, though tenuous association between migraine and anthropometric parameters and frequency of attacks, which does not reflect on the duration, severity, and disability of attacks, with patterns differing by migraine type, reproductive age and prophylactic medication.

**57: Oliveira GJ, Barbiero SM, Cesa CC, Pellanda LC. Comparison of NCHS, CDC, and WHO curves in children with cardiovascular risk. Rev Assoc Med Bras. 2013 Jul-Aug;59(4):375-80. doi: 10.1016/j.ramb.2013.02.001. Epub 2013 Jul 17. English, Portuguese. PubMed PMID: 23871457.**

Abstract

OBJECTIVE:

The study aimed to compare the prevalence of overweight and obesity according to three growth curves, created by the World Health Organization (WHO/2006), by the National Center for Health Statistics (NCHS/1977), and by the Centers for Disease Control and Prevention (CDC/2000) in children with cardiovascular risk factors.

METHODS:

Data from 118 children and adolescents, aged between 2 and 19 years, treated between the years 2001 to 2009 at the Pediatric Preventive Cardiology Outpatient Clinic of the Instituto de Cardiologia de Porto Alegre were evaluated. The variables analyzed were: weight, height, age, and gender. Variables were classified according to the following criteria: weight/age, height/age, and body mass index (BMI). The cutoff points used were obtained from the three growth curves: WHO/2006, NCHS/1977, and CDC/2000.

RESULTS:

Regarding the criterion weight/age by the NCHS curve, 18% of the children were classified as having normal weight, and 82% had excess weight; by the CDC curve, 28% had normal and 72% had excess weight; by the WHO curve, 16.0% had normal weight and 84% had excess weight. According to the BMI, 0.8% of the population was underweight. According to the CDC and WHO curves, 7.6% and 6.8% had normal weight; 26.3% and 11.9% were overweight; and 65.3% and 80.5% were obese, respectively. Regarding the height/age criterion, there was no significant difference between the references and, on average, 98.3% of the population showed adequate height for age.

CONCLUSION:

The new WHO curves are more sensitive to identify obesity in a population at risk, which has important implications for preventive and therapeutic management.

**58: Wuisman PG, Wuisman-Frerker MG, van Pelt-Halders MM. [The need to monitor risk factors relating to patients on antipsychotics]. Tijdschr Psychiatr. 2013;55(6):439-45. Dutch. PubMed PMID: 23864411.**

Abstract

BACKGROUND:

The use of antipsychotics can lead to the development of obesity, dyslipidemia, hypertension and hyperglycemia, risk factors for diabetes mellitus type 2 and cardiovascular diseases.

AIM:

To find out whether patients suffering from psychoses and schizophrenia and taking antipsychotics should be monitored systematically and periodically for the risk factors for and complications of the above-mentioned diseases.

METHOD:

A written survey was conducted among the relatives of users of antipsychotics, relatives being members of the Ypsilon association in the Limburg region.

RESULTS:

Seventy-eight relatives (27%) returned the forms. Compared to the Dutch population, the risk factor for high blood pressure was remarkably common in the 20-30 age group. In the group of persons aged 30-40 obesity occurred surprisingly frequently; remarkably frequent too was diabetes in the 40-50 age group. At each monitoring session 27% of the users were checked on all parameters. Only 59% of the users were checked periodically.

**CONCLUSION:**

Apparently, systematic and regular monitoring of risk factors and somatic complications is currently inadequate. The regional survey therefore needs to be extended so that it covers the entire country.

**59: Wamba PC, Enyong Oben J, Cianflone K. Prevalence of overweight, obesity, and thinness in Cameroon urban children and adolescents. J Obes. 2013;2013:737592. doi: 10.1155/2013/737592. Epub 2013 Jun 19. PubMed PMID: 23862056; PubMed Central PMCID: PMC3703727.**

**Abstract**

**OBJECTIVE:**

This study examined the prevalence of thinness, overweight, and obesity in Cameroon children ranging from 8 to 15 years old using several published references as evaluation tools.

**METHODS:**

A stratified sample was used with eleven schools randomly selected, and data from 2689 children (52.2% girls) ranging from 8 to 15 years were analyzed. Weight and height were recorded and BMI was calculated. BMI cutoffs used to define nutritional status grades included two international and three national published indices which were compared to our database-derived cutoffs.

**RESULTS:**

A prevalence of 9.5% thinness and 12.4% overweight including 1.9% obesity according to international references was detected. A 2.2% low-weight-for-age, 5.7% low-height-for-age, and 5.2% low-weight-for-height were identified. Overall, there were significant differences using calculations based on our database versus published reference values and between boys versus girls.

**CONCLUSIONS:**

This study demonstrates that prevalence of thinness, overweight, and obesity is similar to that of other leading-emerging countries reported within the last decade, yet it is still lower than prevalence in developed countries. Ethnic background and social environment have impact on prevalences, highlighting the importance of evaluating the Cameroon population based on locally derived database.

**60: Romero Núñez C, Mendoza Martínez GD, Yañez Arteaga S, Ponce Macotella M, Bustamante Montes P, Ramírez Durán N. Prevalence and risk factors associated with Toxocara canis infection in children. ScientificWorldJournal. 2013 Jun 9;2013:572089. doi: 10.1155/2013/572089. Print 2013. PubMed PMID: 23844404; PubMed Central PMCID: PMC3690266.**

**Abstract**

The objective of this study was to determine seroprevalence and identify risk factors associated with Toxocara canis infection. A clinical and epidemiological questionnaire and body mass index were used to assess the risk factors associated with human toxocarasis in 108 children with an age range of 2-16 years. Antibodies against Toxocara canis were detected using an ELISA test kit. Chi-square analysis

and odds ratio (OR) were used to identify risk factors associated with *Toxocara canis* seropositivity. The prevalence of antibodies against *Toxocara canis* was greater ( $P = 0.02$ ) in males than females (28.84% and 16.07%, resp.). Chi-square analysis and odds ratio revealed just one variable with  $P < 0.05$ , and  $OR > 1.0$  was associated with seropositivity: the possession of dogs under one year old ( $OR = 1.78$ ). Although not significant, the OR values suggest that other factors may be epidemiologically important for *Toxocara* presence such as not washing hands before meals, malnutrition, obesity, and use of public parks. Children in the age group  $>12$  and  $<16$  years old had higher seroprevalence to *Toxocara canis* (17.59%) than the  $>2$  and  $<11$  years old age group (4.62%). Toxocariosis infection needs to be prevented by pet deworming and hygienic measures after contact with dogs.

**61: Lowe AJ, Ekeus C, Bråbäck L, Rajaleid K, Forsberg B, Hjern A. Impact of maternal obesity on inhaled corticosteroid use in childhood: a registry based analysis of first born children and a sibling pair analysis. PLoS One. 2013 Jun 28;8(6):e67368. doi: 10.1371/journal.pone.0067368. Print 2013. PubMed PMID: 23840681; PubMed Central PMCID: PMC3696102.**

#### Abstract

##### BACKGROUND:

It has been proposed that maternal obesity during pregnancy may increase the risk that the child develops allergic disease and asthma, although the mechanisms underpinning this relationship are currently unclear. We sought to assess if this association may be due to confounding by genetic or environmental risk factors that are common to maternal obesity and childhood asthma, using a sibling pair analysis.

##### METHODS:

The study population comprised a Swedish national cohort of term children born between 1992 and 2008 to native Swedish parents. Maternal body mass index (BMI) was measured at 8-10 weeks gestation. Unconditional logistic regression models were used to determine if maternal obesity was associated with increased risk of inhaled corticosteroid (ICS) in 431,718 first-born children, while adjusting for potential confounders. An age-matched discordant sib-pair analysis was performed, taking into account shared genetic and environmental risk factors.

##### RESULTS:

Maternal over-weight and obesity were associated with increased risk that the child would require ICS (for  $BMI \geq 35$  kg/m<sup>2</sup>),  $aOR = 1.30$ ,  $95\%CI = 1.10-1.52$  compared with normal weight mothers) in children aged 6-12 years. Similar effects were seen in younger children, but in children aged 13-16 years, maternal obesity ( $BMI \geq 30$ ) was related to increased risk of ICS use in girls ( $aOR = 1.28$ ,  $95\%CI = 1.07-1.53$ ) but not boys ( $OR = 1.05$ ,  $95\%CI = 0.87-1.26$ ). The sib-pair analysis, which included 2,034 sib-pairs older than six years who were discordant for both ICS use and maternal BMI category, failed to find any evidence that increasing maternal weight was related to increased risk of ICS use.

##### CONCLUSION:

Maternal obesity is associated with increased risk of childhood ICS use up to approximately 12 years of age, but only in girls after this age. These effects could not be confirmed in a sib pair analysis, suggesting either limited statistical power, or the effects of maternal BMI may be due to shared genetic or environmental risk factors.

**62: Shang X, Li J, Tao Q, Li J, Li X, Zhang L, Liu X, Wang Q, Shi X, Zhao Y, Hu S, Jiang L, Yang Y. educational level, obesity and incidence of diabetes among Chinese adult men and women aged 18-59 years old: an 11-year follow-up study. PLoS One. 2013 Jun 20;8(6):e66479. doi: 10.1371/journal.pone.0066479. Print 2013. PubMed PMID: 23840484; PubMed Central PMCID: PMC3688760.**

Abstract

OBJECTIVE:

To determine whether educational level and overweight/obesity was associated with the development of diabetes among Chinese adult men and women.

METHODS:

A cohort (2000-2011) of 10 704 participants aged 18-59 years (8 238 men, 2 466 women) in Qingdao Port Health Study (QPHS) were recruited in this study. The personal lifestyle, height, weight, waist circumference, resting heart rate, blood pressure, fasting blood glucose, total cholesterol, triglycerides and plasma uric acid were collected annually in a comprehensive health checkup program. Cox proportional hazards regression models were used to estimate the association of factors and incidence of diabetes.

RESULTS:

During 110 825 person-years of follow-up, 1 056 new onset cases (9.5 per 1 000 person-years) of diabetes were identified. With normal weight as reference, the multiple-adjusted hazard ratio (HR) (95%CI) of diabetes was 1.69(1.38-2.09) for overweight and 2.24(1.66-3.02) for obesity among men, which was 1.81(1.12-2.92) and 2.58(1.37-4.86) among women, respectively. Compared with the participants with high educational level, those with low educational level had a higher risk of diabetes (multiple-adjusted HR (95%CI): 1.43(1.11-1.86)) among men. The association was not found among women and the adjusted HR (95%CI) of diabetes was 1.56(0.89-2.76). The increased risks of low educational level were independent of mediators among men, through normal weight (P for trend = 0.0313) and overweight (P for trend = 0.0212) group but not obesity group (P for trend = 0.0957).

CONCLUSION:

Baseline overweight/obesity was an independent risk factor for diabetes for both men and women. Low educational level was adversely associated with incidence of diabetes through normal weight, overweight and obesity groups, with the association being substantially attenuated by mediating factors only in the obesity group among men. The association was not found among women.

**63: Pacifico L, Bezzi M, Lombardo CV, Romaggioli S, Ferraro F, Bascetta S, Chiesa C. Adipokines and C-reactive protein in relation to bone mineralization in pediatric nonalcoholic fatty liver disease. World J Gastroenterol. 2013 Jul 7;19(25):4007-14. doi: 10.3748/wjg.v19.i25.4007. PubMed PMID: 23840146; PubMed Central PMCID: PMC3703188.**

Abstract

AIM:

To investigate bone mineral density (BMD) in obese children with and without nonalcoholic fatty liver disease (NAFLD); and the association between BMD and serum adipokines, and high-sensitivity C-reactive protein (HSCRP).

METHODS:



A case-control study was performed. Cases were 44 obese children with NAFLD. The diagnosis of NAFLD was based on magnetic resonance imaging (MRI) with high hepatic fat fraction ( $\geq 5\%$ ). Other causes of chronic liver disease were ruled out. Controls were selected from obese children with normal levels of aminotransferases, and without MRI evidence of fatty liver as well as of other causes of chronic liver diseases. Controls were matched (1- to 1-basis) with the cases on age, gender, pubertal stage and as closely as possible on body mass index-SD score. All participants underwent clinical examination, laboratory tests, and whole body (WB) and lumbar spine (LS) BMD by dual energy X-ray absorptiometry. BMD Z-scores were calculated using race and gender specific LMS curves.

**RESULTS:**

Obese children with NAFLD had a significantly lower LS BMD Z-score than those without NAFLD [mean, 0.55 (95%CI: 0.23-0.86) vs 1.29 (95%CI: 0.95-1.63);  $P < 0.01$ ]. WB BMD Z-score was also decreased in obese children with NAFLD compared to obese children with no NAFLD, though borderline significance was observed [1.55 (95%CI: 1.23-1.87) vs 1.95 (95%CI: 1.67-2.10);  $P = 0.06$ ]. Children with NAFLD had significantly higher HSCRP, lower adiponectin, but similar leptin levels. Thirty five of the 44 children with MRI-diagnosed NAFLD underwent liver biopsy. Among the children with biopsy-proven NAFLD, 20 (57%) had nonalcoholic steatohepatitis (NASH), while 15 (43%) no NASH. Compared to children without NASH, those with NASH had a significantly lower LS BMD Z-score [mean, 0.27 (95%CI: -0.17-0.71) vs 0.75 (95%CI: 0.13-1.39);  $P < 0.05$ ] as well as a significantly lower WB BMD Z-score [1.38 (95%CI: 0.89-1.17) vs 1.93 (95%CI: 1.32-2.36);  $P < 0.05$ ]. In multiple regression analysis, NASH (standardized  $\beta$  coefficient, -0.272;  $P < 0.01$ ) and HSCRP (standardized  $\beta$  coefficient, -0.192;  $P < 0.05$ ) were significantly and independently associated with LS BMD Z-score. Similar results were obtained when NAFLD (instead of NASH) was included in the model. WB BMD Z-scores were significantly and independently associated with NASH (standardized  $\beta$  coefficient, -0.248;  $P < 0.05$ ) and fat mass (standardized  $\beta$  coefficient, -0.224;  $P < 0.05$ ).

**CONCLUSION:**

This study reveals that NAFLD is associated with low BMD in obese children, and that systemic, low-grade inflammation may accelerate loss of bone mass in patients with NAFLD.

**64: Ferreira Marques CD, Ribeiro Silva Rde C, Machado ME, Portela de Santana ML, Castro de Andrade Cairo R, Pinto Ede J, Oliveira Reis Maciel L, Rodrigues Silva L. The prevalence of overweight and obesity in adolescents in Bahia, Brazil. Nutr Hosp. 2013 Mar-Apr;28(2):491-6. doi: 10.3305/nh.2013.28.2.6187. PubMed PMID: 23822703.**

**Abstract**

**AIM:**

A cross-sectional study was conducted with 1,477 middle school students enrolled in the public school network in Salvador, Bahia, Brazil to assess the prevalence of overweight and obesity.

**METHODS:**

The sample was determined using a two-stage cluster sampling technique for selecting schools and classes. A posteriori error was estimated. The students were classified as overweight or obese according to the World Health Organization's 2007 classifications. They were also classified according to age, stage of sexual maturity, socioeconomic class and the presence of abdominal obesity.

**RESULTS:**

Overall, 9.3% of the students were overweight and 6.4% were obese; therefore, 15.7% of the students were considered to have excess weight (obesity + overweight), at a 95% confidence interval. Abdominal obesity was found in 12.9% of all students and in 13% of those of normal weight. An association was found between excess weight and age < 14 years ( $p = 0.030$ ) and abdominal obesity ( $p = 0.001$ ).

**CONCLUSIONS:**

Intervention programs should be implemented to prevent and treat obesity in childhood and adolescence. In addition, professionals working with individuals in this age group should be sensitized to this problem. The need to standardize the anthropometric indicators used in the different studies is also emphasized.

**65: Bacardí-Gascón M, Jones EG, Jiménez-Cruz A. Prevalence of obesity and abdominal obesity from four to 16 years old children living in the Mexico-USA border. Nutr Hosp. 2013 Mar-Apr;28(2):479-85. doi: 10.3305/nh.2013.28.2.6257. PubMed PMID: 23822701.**

**Abstract**

The prevalence of obesity among Mexicans is alarming in both the child and adult populations. The objective of this study was to determine the levels of overweight, obesity and abdominal obesity in pre-school (PS), elementary (ES), and middle high (MHS) public school children from Tijuana. From February to April of 2011, a biotopic random sample was selected by cluster method of 30 PS, 30 ES, and 30 MHS children. And a sample of 30 groups for each level was chosen. Twenty elementary teachers and eight graduate students were trained at one central location on how to take anthropometric measurements using a portable scale, a stadiometer, and a measuring tape to determine weight, height, and waist circumference. Body Mass Index values were computed and compared to age/gender BMI percentiles according to WHO criteria. Waist circumference for-age at the 90th percentile from NHANES III (Mexican-American) was used to define abdominal obesity. The sample was composed of 646 PS children, 961 ES children, and 1,095 MHS children. Their ages ranged from 4- 16 years. Results showed an overall prevalence of overweight and obesity in younger than 5y preschool children ( $> 2$  SD) of 23.1%, in  $\geq 5$  y PS ( $> 1$  SD) of 33.8%, in ES children of 46.3%, and in MHS children of 41.9%. Abdominal obesity in PS children was 18%, in ES children was 16.7%, and in MHS children was 15.2%. These results warrant immediate and comprehensive actions to prevent a critical public health problem in Mexico.

**66: Schikowski T, Schaffner E, Meier F, Phuleria HC, Vierkötter A, Schindler C, Kriemler S, Zemp E, Krämer U, Bridevaux PO, Rochat T, Schwartz J, Künzli N, Probst-Hensch N. Improved air quality and attenuated lung function decline: modification by obesity in the SAPALDIA cohort. Environ Health Perspect. 2013 Sep;121(9):1034-9. doi: 10.1289/ehp.1206145. Epub 2013 Jun 27. PubMed PMID: 23820868; PubMed Central PMCID: PMC3764076.**

**Abstract**

**BACKGROUND:**

Air pollution and obesity are hypothesized to contribute to accelerated decline in lung function with age through their inflammatory properties.

**OBJECTIVE:**

We investigated whether the previously reported association between improved air quality and lung health in the population-based SAPALDIA cohort is modified by obesity.

**METHODS:**

We used adjusted mixed-model analyses to estimate the association of average body mass index (BMI) and changes in particulate matter with aerodynamic diameter  $\leq 10 \mu\text{m}$  (PM10;  $\Delta\text{PM10}$ ) with lung function decline over a 10-year follow-up period.

**RESULTS:**

Lung function data and complete information were available for 4,664 participants. Age-related declines in lung function among participants with high average BMI were more rapid for FVC (forced vital capacity), but slower for FEV1/FVC (forced expiratory volume in 1 sec/FVC) and FEF25-75 (forced expiratory flow at 25-75%) than declines among those with low or normal average BMI. Improved air quality was associated with attenuated reductions in FEV1/FVC, FEF25-75, and FEF25-75/FVC over time among low- and normal-BMI participants, but not overweight or obese participants. The attenuation was most pronounced for  $\Delta\text{FEF25-75/FVC}$  (30% and 22% attenuation in association with a 10- $\mu\text{g}/\text{m}^3$  decrease in PM10 among low- and normal-weight participants, respectively.)

**CONCLUSION:**

Our results point to the importance of considering health effects of air pollution exposure and obesity in parallel. Further research must address the mechanisms underlying the observed interaction.

**67: Gutiérrez-Salmeán G, Meaney A, Ocharán ME, Araujo JM, Ramírez-Sánchez I, Olivares-Corichi IM, García-Sánchez R, Castillo G, Méndez-Bolaina E, Meaney E, Ceballos G. Anthropometric traits, blood pressure, and dietary and physical exercise habits in health sciences students; the obesity observatory project. Nutr Hosp. 2013 Jan-Feb;28(1):194-201. doi: 10.3305/nh.2013.28.1.6185. PubMed PMID: 23808450.**

**Abstract**

**BACKGROUND:**

Obesity and the metabolic syndrome affect a considerable segment of the population worldwide, including health professionals. In fact, several studies have reported that physicians tend to have more cardiovascular risk factors than their patients. The present cross-sectional study assessed whether the Health Sciences students had a healthier lifestyle, thus could have a more preventive attitude towards chronic diseases than the general population.

**MATERIALS AND METHODS:**

Students of the medical-biological areas were surveyed by answering a questionnaire about familiar cardiovascular risk factors, personal smoking, alcohol drinking, dietary and exercise habits. Blood pressure was also measured, along with weight, height, and abdominal circumference.

**RESULTS:**

23.4% of the participants were overweight and 10% obese. Parental obesity was the most frequent risk factor, followed by social drinking and smoking. We found high consumption of animal derived foods, breakfast- like cereals, pastries, white bread and sweetened beverages; while low intake of fruit and vegetables were reported. More than half the sample reported to practice very little or no exercise at all.

**DISCUSSION AND CONCLUSIONS:**

We found similar or even higher rates of risk factors than the average population, that may eventually lead to the development of chronic cardiometabolic diseases. Thus we can infer that

biomedical education is inefficient in inducing healthy lifestyles among biomedical students, which could have impact in their future practice as they will most probable become obese health-professionals, thus fail to effectively treat their own patients.

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**68: Brener ND, Eaton DK, Kann LK, McManus TS, Lee SM, Scanlon KS, Fulton JE, O'Toole TP. Behaviors related to physical activity and nutrition among U.S. high school students. J Adolesc Health. 2013 Oct;53(4):539-46. doi: 10.1016/j.jadohealth.2013.05.006. Epub 2013 Jun 21. PubMed PMID: 23796969.**

Abstract

PURPOSE:

National data related to physical activity (PA) and nutrition among adolescents are needed to help develop effective obesity prevention programs. The 2010 National Youth Physical Activity and Nutrition Study (NYPANS) was conducted to provide nationally representative data on behaviors and behavioral correlates related to healthy eating and PA.

METHODS:

NYPANS used a three-stage cluster sample design to obtain data representative of public- and private-school students in grades 9 through 12 in the United States (n = 11,429). Students completed an anonymous, self-administered questionnaire in their classrooms during a regular class period. Trained data collectors directly measured the students' height and weight at school using a standard protocol.

RESULTS:

Analyses revealed that 19.0% of students were obese and 17.8% were overweight. Students participated in a range of physical activities during the 12 months before the survey; prevalence ranged from 5.0% for ice hockey to 83.9% for walking. In addition, 52.5% of students enjoyed the physical education classes they took at school. During the 7 days before the survey, 74.8% of students ate at least one meal or snack from a fast food restaurant, with black students more likely than white and Hispanic students to have done so. Forty-one percent of students always or most of the time have a TV on while eating dinner at home.

CONCLUSIONS:

These and other NYPANS results can be used to develop obesity prevention programs that address specific behaviors and behavioral correlates, and target subgroups in which behaviors and behavioral correlates related to obesity are most prevalent.

Published by Elsevier Inc.

**69: Sobieska M, Gajewska E, Kalmus G, Samborski W. Obesity, physical fitness, and inflammatory markers in Polish children. Med Sci Monit. 2013 Jun 24;19:493-500. doi: 10.12659/MSM.883959. PubMed PMID: 23792582; PubMed Central PMCID: PMC3694001.**

Abstract

BACKGROUND:

The relationship between obesity, physical fitness, and inflammation was analyzed in a Polish population aged 12 to 18 years.

MATERIAL/METHODS:

Body mass index measurements and Eurofit physical fitness tests were undertaken to assess the adiposity and physical fitness status, respectively, of subjects. Serum samples were collected to measure standard inflammatory markers, including interleukin 6; and the acute-phase proteins alpha1-acid glycoprotein and alpha1-antichymotrypsin. In addition, the glycosylation profiles of alpha1-acid glycoprotein and alpha1-antichymotrypsin were analyzed to further evaluate immune statuses.

**RESULTS:**

The physical fitness of individuals was negatively influenced by obesity. Obese subjects were characterized by an abnormal immune balance, including increased levels of alpha1-acid glycoprotein, as well as alpha1-antichymotrypsin, and altered glycosylation profiles indicative of an underlying inflammatory condition. Older age, male sex, and a large body mass index appeared to correlate with poor physical fitness scores and a disturbed immune status.

**CONCLUSIONS:**

Impaired physical fitness is indicative for non-compensated overweight and affects mainly males aged 15 to 18 years. Female subjects seemed to cope better with increased body mass.

**70: Abramczyk A. Body mass, behaviours and social/health situation in diabetes patients at the level of primary medical healthcare: a Polish national study. Kardiol Pol. 2013;71(5):493-501. doi: 10.5603/KP.2013.0096. PubMed PMID: 23788090.**

**Abstract**

**BACKGROUND:**

Multiple health and economic consequences related to obesity cause it to be regarded as a problem of social significance; body mass control has become a crucial element in the process of diabetes treatment.

**AIM:**

This paper shows factors differentiating body mass values in diabetes patients.

**METHODS:**

The research for this study was carried out among 1,986 patients with diabetes, originating from 61 randomly chosen units of the national primary health care system.

**RESULTS:**

Normal body mass was found only in 12.8% of patients. Normal body mass was found in patients characterised by a better (moderate) level of knowledge about the disease ( $p < 0.005$ ) and with full knowledge of health indicators significant in diabetes treatment ( $p < 0.05$ ). Patients with normal body mass function in families were characterised by a more complete capacity to care and support the patient in the home environment ( $p < 0.0001$ ), a more favourable socio-living situation ( $p < 0.05$ ), with less requirement for professional care ( $p < 0.0001$ ). Persons with normal body mass more frequently showed blood pressure ( $p < 0.0001$ ), triglyceride concentrations ( $p < 0.0001$ ) and total cholesterol concentrations ( $p < 0.0001$ ) close to normal. Obesity was most frequently recognised in patients who declared no physical activity or excessive physical activity (regardless of the recommendation to dose physical effort and activity) ( $p < 0.01$ ).

**CONCLUSIONS:**

The obtained results show that the levels of health consciousness, healthy behaviours, and family and socio-living situations differentiate the body mass values defined by body mass index in diabetic patients.

**71: Katzmarzyk PT, Mire E, Bray GA, Greenway FL, Heymsfield SB, Bouchard C. Anthropometric markers of obesity and mortality in white and African American adults: the pennington center longitudinal study. Obesity (Silver Spring). 2013 May;21(5):1070-5. doi: 10.1002/oby.20151. PubMed PMID: 23784912; PubMed Central PMCID: PMC3695407.**

Abstract

OBJECTIVE:

The purpose of this study was to determine the association between anthropometric measures of obesity and all-cause mortality in white and African American men and women.

DESIGN AND METHODS:

The sample included 14,343 adults 18-89 years of age. Height, weight, and waist and hip circumferences were measured, and the BMI ( $\text{kg m}^{-2}$ ), body adiposity index (BAI =  $([\text{hip circumference in centimeters}]/[\text{height in meters}])^{1.5} - 18$ ), waist-to-height ratio (WHtR) and waist-to-hip ratio (WHR) were computed. Vital status of the participants was determined from linkage with the National Death Index through 2009. Cox regression was used to assess the association between anthropometry and all-cause mortality, adjusting for age, sex, year of baseline examination, study code, smoking status, alcohol consumption and physical activity. Hazard ratios (HR) are expressed per standard deviation of each variable.

RESULTS:

A total of 438 deaths occurred during 120,637 person-years of follow-up. All anthropometric markers demonstrated significant associations with all-cause mortality in white subjects. In multivariable-adjusted models, BMI (HR 1.34; 95% CI: 1.19-1.50), waist circumference (1.41; 1.25-1.60), BAI (1.34; 1.17-1.53), WHtR (1.46; 1.28-1.65), and WHR (1.40; 1.23-1.61) all demonstrated significant relationships with mortality in white participants, but not in African Americans. In categorical analyses, there was a significant association between BMI status and mortality in whites but not African Americans. However, the risk associated with elevated waist circumference was similar in whites (1.49; 1.15-1.94) and African Americans (1.60; 1.06-2.40).

CONCLUSION:

In summary, this study has demonstrated race differences in the association between anthropometry and all-cause mortality.

**72: Zeller MH, Reiter-Purtill J, Jenkins TM, Ratcliff MB. Adolescent suicidal behavior across the excess weight status spectrum. Obesity (Silver Spring). 2013 May;21(5):1039-45. doi: 10.1002/oby.20084. PubMed PMID: 23784908; PubMed Central PMCID: PMC3694737.**

Abstract

OBJECTIVE:

Relative suicidal behavioral risks (ideation, attempts) for overweight, obese, and extremely obese adolescents (vs. healthy weight) and who did/did not accurately perceive themselves as overweight were examined in this study.

DESIGN AND METHODS:

A new variable (weight status/accuracy) was computed that combined actual weight status (based on BMI) with weight perception accuracy. To evaluate the effect of weight status/accuracy on each suicidal risk behavior, logistic regression was performed to calculate odds-ratios and 95% confidence

intervals (CI). Potential model covariates included gender, age, race, survey year, and whether they had felt sad/hopeless.

**RESULTS:**

Weight perception accuracy increased as the degree of excess weight increased. Relative to healthy weight, being obese or extremely obese (but not overweight) was associated with significantly greater risk for adolescent engagement in suicidal ideation, but was unrelated to suicide attempts. Adolescents in all excess weight categories who were accurate in their weight perception were at significantly greater odds of suicidal ideation, whereas those who were inaccurate were of no greater odds of suicidal ideation than healthy weight youth who accurately perceived their weight. Findings regarding suicide attempts varied based on actual weight/weight perception accuracy and race/ethnicity.

**CONCLUSION:**

The present findings are both important and clinically relevant. While widely accepted that there are multiple pathways to suicide, our understanding of adolescent suicidal behavior risks and accordingly, prevention efforts, will be informed by comprehensive prospective studies that should also, from here forward, consider categorization of the entire weight spectrum (e.g., extreme obesity).

**73: Pereira G, Christian H, Foster S, Boruff BJ, Bull F, Knuiman M, Giles-Corti B. The association between neighborhood greenness and weight status: an observational study in Perth Western Australia. Environ Health. 2013 Jun 19;12:49. doi: 10.1186/1476-069X-12-49. PubMed PMID: 23783002; PubMed Central PMCID: PMC3710261.**

**Abstract**

**BACKGROUND:**

Few studies have examined the relationship between weight status and objectively measured neighborhood greenness and no study has examined this relationship across the different stages of adulthood. This research was an investigation of weight status and neighborhood greenness using objectively measured satellite remote sensing for a large population representative sample.

**METHOD:**

Cross-sectional study of 10,208 young adults (16-24 years), mid-age adults (25-64 years) and older adults (65+ years) from a population representative sample for the period 2004-2009 in Perth, Western Australia. Neighborhood greenness was ascertained for a 1600m road network service area around each participant's address using the mean and standard deviation of the Normalized Difference Vegetation Index (NDVI) obtained from remote sensing. Multiple logistic regression was used to assess associations with weight status (overweight-or-obese, obese) adjusted for socio-demographics and health-related behaviors.

**RESULTS:**

The adjusted odds ratio (OR) comparing obesity in the highest to the lowest tertile of mean greenness was 0.78 (95% CI 0.69-0.89). For the same comparison, the OR for overweight-or-obese was similar, 0.84 (95% CI 0.76-0.92). The OR comparing obesity in the highest to lowest tertile of variation in greenness was 0.75 (95% CI 0.66-0.85). For the same comparison, the OR for overweight-or-obese was similar, 0.75 (95% CI 0.68-0.82).

**CONCLUSION:**

Higher levels and greater variation of neighborhood greenness are associated with lower odds of obesity among adults of all ages. Research examining neighborhood characteristics correlated with variability in greenness will help better understand these relationships.

**74: Jones Nielsen JD, Lavery AA, Millett C, Mainous AG 3rd, Majeed A, Saxena S. Rising obesity-related hospital admissions among children and young people in England: national time trends study. PLoS One. 2013 Jun 12;8(6):e65764. doi: 10.1371/journal.pone.0065764. Print 2013. PubMed PMID: 23776541; PubMed Central PMCID: PMC3680468.**

Abstract

OBJECTIVE:

To describe the trends in hospital admissions associated with obesity as a primary diagnosis and comorbidity, and bariatric surgery procedures among children and young people in England.

DESIGN:

National time trends study of hospital admissions data between 2000 and 2009.

PARTICIPANTS:

Children and young people aged 5 to 19 years who were admitted to hospital with any diagnosis of obesity.

MAIN OUTCOME MEASURES:

Age- and sex-specific admission rates per million children.

RESULTS:

Between 2000 and 2009, age- and sex-specific hospital admission rates in 5-19 year olds for total obesity-related diagnoses increased more than four-fold from 93.0 (95% CI 86.0 to 100.0) per million children to 414.0 (95% CI 410.7 to 417.5) per million children, largely due to rising admissions where obesity was mentioned as a co-morbidity. The median age of admission to hospital over the study period was 14.0 years; 5,566 (26.7%) admissions were for obesity and 15,319 (73.3%) mentioned obesity as a comorbidity. Admissions were more common in girls than boys (56.2% v 43.8%). The most common reasons for admission where obesity was a comorbid condition were sleep apnoea, asthma, and complications of pregnancy. The number of bariatric surgery procedures has risen from 1 per year in 2000 to 31 in 2009, with the majority were performed in obese girls (75.6%) aged 13-19 years.

CONCLUSIONS:

Hospital admission rates for obesity and related comorbid conditions have increased more than four-fold over the past decade amongst children and young people. Although some of the increase is likely to be due to improved case ascertainment, conditions associated with obesity in children and young people are imposing greater challenges for health care providers in English hospitals. Most inpatient care is directed at dealing with associated conditions rather than primary assessment and management of obesity itself.



**75: Li DK, Miao M, Zhou Z, Wu C, Shi H, Liu X, Wang S, Yuan W. Urine bisphenol-A level in relation to obesity and overweight in school-age children. PLoS One. 2013 Jun 12;8(6):e65399. doi: 10.1371/journal.pone.0065399. Print 2013. PubMed PMID: 23776476; PubMed Central PMCID: PMC3680397.**

Abstract

Bisphenol-A (BPA) is a potential endocrine disruptor impacting metabolic processes and increasing the risk of obesity. To determine whether urine BPA level is associated with overweight/obesity in school-age children, we examined 1,326 students in grades 4-12 from three schools (one elementary, one middle, and one high school) in Shanghai. More than 98% of eligible students participated. Total urine BPA concentration was measured and anthropometric measures were taken by trained research staff. Information on risk factors for childhood obesity was collected for potential confounders. Age- and gender-specific weight greater than 90(th) percentile of the underlying population was the outcome measure. After adjustment for potential confounders, a higher urine BPA level ( $\geq 2 \mu\text{g/L}$ ), at the level corresponding to the median urine BPA level in the U.S. population, was associated with more than two-fold increased risk of having weight  $>90$ (th) percentile among girls aged 9-12 (adjusted odds ratio (aOR) = 2.32, 95% confidence interval: 1.15-4.65). The association showed a dose-response relationship with increasing urine BPA level associated with further increased risk of overweight ( $p = 0.006$  for trend test). Other anthropometric measures of obesity showed similar results. The same association was not observed among boys. This gender difference of BPA effect was consistent with findings from experimental studies and previous epidemiological studies. Our study suggests that BPA could be a potential new environmental obesogen. Widespread exposure to BPA in the human population may also be contributing to the worldwide obesity epidemic.

**76: Viazzi F, Antolini L, Giussani M, Brambilla P, Galbiati S, Mastriani S, Stella A, Pontremoli R, Valsecchi MG, Genovesi S. Serum uric acid and blood pressure in children at cardiovascular risk. Pediatrics. 2013 Jul;132(1):e93-9. doi: 10.1542/peds.2013-0047. Epub 2013 Jun 17. PubMed PMID: 23776119.**

Abstract

OBJECTIVES:

Hyperuricemia has been shown to be a strong correlate of hypertension in children. However, the complex interaction between serum uric acid (UA), systemic blood pressure (BP), and possibly confounding factors has been elucidated only in part.

METHODS:

We evaluated office BP as well as clinical and biohumoral parameters in a cross-sectional cohort of 501 children (280 boys and 221 girls) aged between 6 and 18 years (mean = 10.8 years) consecutively referred for cardiovascular risk assessment.

RESULTS:

Overall, 156 (31.1%) were normotensive, 122 (24.4%) showed transient hypertension, 87 (17.4%) had prehypertension, and 136 (27.1%) had hypertension. Altogether 33.3% and 40.5% of the study group were overweight or obese, respectively. There was a trend toward greater weight and waist circumference and higher BMI, Homeostasis Model Assessment index, and UA levels as the BP categories rose. Moreover, the prevalence of pubertal children, obesity, and waist-to-height ratio above 0.50 progressively increased from lower to upper BP categories. After adjusting for puberty,

gender, BMI (z-score), Homeostasis Model Assessment index, and renal function, UA was found to be directly related to systolic and diastolic BP values ( $P = .03$ ). Using normotensive children for comparison, the risk of showing prehypertension or hypertension increased by at least 50% for each 1 mg/dL UA increase ( $P < .01$ ), whereas it doubled for children in the top gender-specific UA quartile ( $P < .03$ ).

**CONCLUSIONS:**

Increased UA levels showed an independent predictive power for the presence of higher BP levels among a cohort of children at relatively high cardiovascular risk.

**77: Wojtyła-Buciora P, Stawińska-Witoszyńska B, Klimberg A, Wojtyła A, Goździewska M, Wojtyła K, Piątek J, Wojtyła C, Sygit M, Ignyś I, Marcinkowski JT. Nutrition-related health behaviours and prevalence of overweight and obesity among Polish children and adolescents. *Ann Agric Environ Med.* 2013;20(2):332-40. PubMed PMID: 23772587.**

**Abstract**

**INTRODUCTION:**

An adequate mode of nutrition is among the most important environmental factors affecting the development of Man and maintenance of a good health status. An improper selection of nutrients and irregular consumption of meals may lead to overweight and obesity.

**OBJECTIVE:**

The characteristics of health behaviours of the examined population of schoolchildren, with consideration of nutrition and body weight disorders. A comparison of the opinions of schoolchildren and their parents concerning health behaviours. Development of guidelines for educational programmes carried out in the place of residence of the population of schoolchildren and their parents.

**MATERIALS AND METHOD:**

The survey covered a randomised group of schoolchildren attending elementary and secondary schools in the Kalisz Province and province of the city of Kalisz. The study was conducted in May and June 2009, in a randomly selected representative group of 1,100 boys and girls from classes V and VI of elementary schools, and 1,100 secondary school adolescents aged 16-19 and their parents. The studies of schoolchildren attending elementary and secondary schools were compared with the all-Polish studies of junior high school adolescents in the school year 2006-2007.

**RESULTS:**

The respondents most often consumed 3-4 meals; however, as many as 26% of junior high school adolescents and 27% of secondary school adolescents admitted that they consume only one meal daily. The schoolchildren show inadequate nutritional habits concerning an insufficient consumption of fruits, vegetables and fish, in favour of high calorific meals and sweet snacks and drinks. Parents improperly assess the body weight of their children and perceive them as slimmer, which is not confirmed by the BMI value for age and gender.

**CONCLUSIONS:**

Systematic monitoring and analysis of changes in the health behaviours of adolescents should be a basis for planning health education and promotion programmes. Educational programmes concerning various aspects of health should be implemented in an organized and complementary way, directed not only at schools, but also at entire families and local communities. Knowledge,

beliefs, skills and attitudes towards health acquired during the period of adolescence decide about life style in adulthood.

**78: Gonzalez-Casanova I, Sarmiento OL, Gazmararian JA, Cunningham SA, Martorell R, Pratt M, Stein AD. Comparing three body mass index classification systems to assess overweight and obesity in children and adolescents. Rev Panam Salud Publica. 2013 May;33(5):349-55. PubMed PMID: 23764666.**

Abstract

OBJECTIVE:

To compare the International Obesity Task Force (IOTF) 2005, Centers for Disease Control and Prevention (CDC) 2000, and World Health Organization (WHO) 2007 body mass index (BMI) classification systems in terms of prevalence estimation and association with demographic factors.

METHODS:

The 18 265 children and adolescents ages 5 to 18 years (mean = 11.2 years, standard deviation = 3.9 years) in the nationally representative Colombian National Nutrition Survey of 2005 were classified as overweight or obese according to IOTF, CDC, and WHO criteria. Prevalence estimates were compared according to each system and associations with age, sex, socioeconomic status, and population density were tested.

RESULTS:

Prevalence estimates of combined overweight and obesity differed by system (males: IOTF = 8.5%, CDC = 10.8%, WHO = 14.1%; females: IOTF = 14.6%, CDC = 13.8%, WHO = 17.1%;  $P < 0.001$ ). The association between combined overweight and obesity and age and sex varied by system. The odds of having overweight and obesity in children (5 to 10 years) compared with adolescents (11 to 18 years) were: IOTF, odds ratio (OR) = 0.87 and 95% confidence interval (CI) = 0.77-0.98; CDC, OR = 1.27 and CI = 1.14-1.42; WHO, OR = 1.21 and CI = 1.08-1.35. The values for females compared with males were: IOTF, OR = 1.84 and CI = 1.6-2.10; CDC, OR = 1.33 and CI = 1.17-1.51; WHO, OR = 1.25 and CI = 1.12-1.41.

CONCLUSIONS:

There is a lack of consistency among the three main international systems in assessing overweight and obesity in children and adolescents. Appreciably different estimates of prevalence and associations with age and sex are obtained depending on which system is used. Future studies should assess how well each system reflects valid measures of body composition.

**79: Liu Y, Chen HJ, Liang L, Wang Y. Parent-child resemblance in weight status and its correlates in the United States. PLoS One. 2013 Jun 10;8(6):e65361. doi: 10.1371/journal.pone.0065361. Print 2013. PubMed PMID: 23762352; PubMed Central PMCID: PMC3677887.**

Abstract

BACKGROUND:

Few studies have examined parent-child resemblance in body weight status using nationally representative data for the US.

DESIGN:

We analyzed Body Mass Index (BMI), weight status, and related correlates for 4,846 boys, 4,725 girls, and their parents based on US nationally representative data from the 2006 and 2007 Medical

Expenditure Panel Survey (MEPS). Pearson partial correlation coefficients, percent agreement, weighted kappa coefficients, and binary and multinomial logistic regression were used to examine parent-child resemblance, adjusted for complex sampling design.

**RESULTS:**

Pearson partial correlation coefficients between parent and child's BMI measures were 0.15 for father-son pairs, 0.17 for father-daughter pairs, 0.20 for mother-son pairs, and 0.23 for mother-daughter pairs. The weighted kappa coefficients between BMI quintiles of parent and child ranged from -0.02 to 0.25. Odds ratio analyses found children were 2.1 (95% confidence interval (CI): 1.6, 2.8) times more likely to be obese if only their father was obese, 1.9 (95% CI: 1.5, 2.4) times more likely if only their mother was obese, and 3.2 (95% CI: 2.5, 4.2) times more likely if both parents were obese.

**CONCLUSIONS:**

Parent-child resemblance in BMI appears weak and may vary across parent-child dyad types in the US population. However, parental obesity status is associated with children's obesity status. Use of different measures of parent-child resemblance in body weight status can lead to different conclusions.

**80: Leatherdale ST, Rynard V. A cross-sectional examination of modifiable risk factors for chronic disease among a nationally representative sample of youth: are Canadian students graduating high school with a failing grade for health? BMC Public Health. 2013 Jun 11;13:569. doi: 10.1186/1471-2458-13-569. PubMed PMID: 23758659; PubMed Central PMCID: PMC3751757.**

**Abstract**

**BACKGROUND:**

Substance use and weight gain among youth increase the risk for future disease. As such, the purpose of this study is to examine how many Canadian youth are currently failing to meet substance use and weight gain related public health guidelines.

**METHODS:**

Data from the 2010-11 Youth Smoking Survey were used to examine grade 9 to 12 students meeting seven different guidelines by sex and by grade.

**RESULTS:**

Among Canadian youth, 8.8% were current smokers, 18.8% were current marijuana users, 25.5% were current binge drinkers, 22.5% were considered overweight or obese, 31.2% did not meet physical activity guidelines, 89.4% exceeded sedentary behaviour guidelines, and 93.6% reported inadequate fruit and vegetable intake. The mean number of risk factors per student was 2.9 ( $\pm 1.2$ ); only 0.5% of youth reported having none of the risk factors.

**CONCLUSION:**

Students rarely met all seven public health guideline examined, and the vast majority of actually reported having two or more modifiable risk factors for disease.

**81: Bleich SN, Segal J, Wu Y, Wilson R, Wang Y. Systematic review of community-based childhood obesity prevention studies. Pediatrics. 2013 Jul;132(1):e201-10. doi: 10.1542/peds.2013-0886. Epub 2013 Jun 10. Review. PubMed PMID: 23753099; PubMed Central PMCID: PMC3691541.**

Abstract

OBJECTIVE:

This study systematically reviewed community-based childhood obesity prevention programs in the United States and high-income countries.

METHODS:

We searched Medline, Embase, PsychInfo, CINAHL, clinicaltrials.gov, and the Cochrane Library for relevant English-language studies. Studies were eligible if the intervention was primarily implemented in the community setting; had at least 1 year of follow-up after baseline; and compared results from an intervention to a comparison group. Two independent reviewers conducted title scans and abstract reviews and reviewed the full articles to assess eligibility. Each article received a double review for data abstraction. The second reviewer confirmed the first reviewer's data abstraction for completeness and accuracy.

RESULTS:

Nine community-based studies were included; 5 randomized controlled trials and 4 non-randomized controlled trials. One study was conducted only in the community setting, 3 were conducted in the community and school setting, and 5 were conducted in the community setting in combination with at least 1 other setting such as the home. Desirable changes in BMI or BMI z-score were found in 4 of the 9 studies. Two studies reported significant improvements in behavioral outcomes (1 in physical activity and 1 in vegetable intake).

CONCLUSIONS:

The strength of evidence is moderate that a combined diet and physical activity intervention conducted in the community with a school component is more effective at preventing obesity or overweight. More research and consistent methods are needed to understand the comparative effectiveness of childhood obesity prevention programs in the community setting.

**82: Showell NN, Fawole O, Segal J, Wilson RF, Cheskin LJ, Bleich SN, Wu Y, Lau B, Wang Y. A systematic review of home-based childhood obesity prevention studies. Pediatrics. 2013 Jul;132(1):e193-200. doi: 10.1542/peds.2013-0786. Epub 2013 Jun 10. Review. PubMed PMID: 23753095; PubMed Central PMCID: PMC3691540.**

Abstract

BACKGROUND AND OBJECTIVES:

Childhood obesity is a global epidemic. Despite emerging research about the role of the family and home on obesity risk behaviors, the evidence base for the effectiveness of home-based interventions on obesity prevention remains uncertain. The objective was to systematically review the effectiveness of home-based interventions on weight, intermediate (eg, diet and physical activity [PA]), and clinical outcomes.

METHODS:

We searched Medline, Embase, PsychInfo, CINAHL, clinicaltrials.gov, and the Cochrane Library from inception through August 11, 2012. We included experimental and natural experimental studies with  $\geq 1$ -year follow-up reporting weight-related outcomes and targeting children at home. Two

independent reviewers screened studies and extracted data. We graded the strength of the evidence supporting interventions targeting diet, PA, or both for obesity prevention.

**RESULTS:**

We identified 6 studies; 3 tested combined interventions (diet and PA), 1 used diet intervention, 1 combined intervention with primary care and consumer health informatics components, and 1 combined intervention with school and community components. Select combined interventions had beneficial effects on fruit/vegetable intake and sedentary behaviors. However, none of the 6 studies reported a significant effect on weight outcomes. Overall, the strength of evidence is low that combined home-based interventions effectively prevent obesity. The evidence is insufficient for conclusions about home-based diet interventions or interventions implemented at home in association with other settings.

**CONCLUSIONS:**

The strength of evidence is low to support the effectiveness of home-based child obesity prevention programs. Additional research is needed to test interventions in the home setting, particularly those incorporating parenting strategies and addressing environmental influences.

**KEYWORDS:**

BMI; child; home; intervention; obesity; overweight.

**83: Frisco ML, Houle JN, Lippert AM. Weight change and depression among US young women during the transition to adulthood. Am J Epidemiol. 2013 Jul 1;178(1):22-30. doi: 10.1093/aje/kws462. Epub 2013 Jun 9. PubMed PMID: 23752915; PubMed Central PMCID: PMC3816342.**

**Abstract**

By using data from wave 2 (in 1996) and wave 3 (in 2000-2001) of the US-based National Longitudinal Study of Adolescent Health, we investigated the association between young women's body weight and depression during the transition to adulthood. Respondents (n = 5,243) were 13-18 years of age during wave 2 and 19-25 years of age during wave 3. We used Center for Epidemiologic Studies Depression Scale scores to classify young women as never depressed, consistently depressed, experiencing depression onset, or experiencing depression recovery from wave 2 to wave 3. Results from adjusted multinomial logistic regression models indicated that respondents who experienced significant weight gain were at risk of depression onset. Normal weight (adjusted odds ratio = 2.10, 95% confidence interval: 1.14, 3.84) and overweight (adjusted odds ratio = 1.86, 95% confidence interval: 1.15, 2.99) adolescent girls who were obese by young adulthood, as well as young women who were consistently obese during adolescence and young adulthood (adjusted odds ratio = 1.97, 95% confidence interval: 1.19, 3.26), had roughly twice the odds of depression onset as did young women who were never overweight. We concluded that weight gain and obesity are risk factors for depression onset during the transition to adulthood. Policies prioritizing healthy weight maintenance may help improve young women's mental health as they begin their adult lives.

**KEYWORDS:**

body weight changes; depression; mental health; obesity; weight gain.

**85: Al Alwan I, Al Fattani A, Longford N. The effect of parental socioeconomic class on children's body mass indices. J Clin Res Pediatr Endocrinol. 2013;5(2):110-5. doi: 10.4274/Jcrpe.898. PubMed PMID: 23748064; PubMed Central PMCID: PMC3701916.**

Abstract

OBJECTIVE:

To assess the effect of education and economic status of parents on obesity in children.

METHODS:

A cross-sectional survey was conducted in 2006 among school children in Riyadh, Saudi Arabia. A representative sample of 1243 (542 male and 701 female) children aged 6-16 years were contacted using multistage cluster sampling strategy. Social and demographic variables were collected using questionnaires completed by parents. Height and weight of the children were recorded by a trained team.

RESULTS:

The mean body mass index for all children was  $19.8 \pm 5.4$ . The prevalence rates of overweight and obesity were 21.1% and 12.7%, respectively. Overweight and obesity were more prevalent in males than in females. By multivariate analysis, children were more likely to be overweight if they were male (OR=0.6,  $p < 0.01$ ), 12 years of age (OR=3.79,  $p < 0.01$ , compared to age 6 years), and if their families had higher income (OR=3.12,  $p < 0.01$ , compared to families with low income). Being male (OR=0.545,  $p < 0.01$ ), aged 12 years (OR=3.9,  $p = 0.005$ , compared to the age of 6), and having a mother who is more educated were determined to be significant risk factors for obesity in children. Mothers educated at university level were found to have a three-fold higher risk of having obese children (OR=3.4,  $p < 0.01$ , compared to mothers with lower education levels).

CONCLUSIONS:

Overweight and obesity among Saudi children is associated with educated mothers and higher family income. This finding calls for introducing interventions in health education for both children and parents.

**86: Wasiluk A, Saczuk J, Zalech M. Underweight, overweight and obesity in girls at the age of 7-19 years from the Lubelskie Province in the years 1986-2006. Pediatr Endocrinol Diabetes Metab. 2013;19(1):11-7. PubMed PMID: 23739644.**

Abstract

INTRODUCTION:

Increasing disproportions in the economic status of the Polish population are tangibly reflected in differences in the nutritional status of children and adolescents.

AIM OF THE STUDY:

The objective of this study was to determine changes in the population size of girls with proper BMI values and their peers with underweight, overweight and obesity in a twenty-year time span.

MATERIAL AND METHODS:

The survey conducted in 1986 covered 17 586 girls, whereas that conducted twenty years later covered 9540 girls. Measurements were taken of body height and body mass of the girls, which enabled calculating values of their Body Mass Index (BMI). Pursuant to guidelines of the International Obesity Task Force, girls with the 3rd degree underweight (gr. I), with the 2nd degree underweight (gr. II), with the 1st degree under-weight (gr. III), with proper BMI values (gr. IV), with overweight (gr.

V), and with obesity (gr. VI) were selected from the biological material. The statistical significance of differences between mean values achieved in the year 1986 and 2006 was verified with the Student's t-test for independent variables. The statistical significance of differences between the number of girls classified to each group in respect of the whole population surveyed in the year 1986 and 2006 was determined with the  $\chi^2$  test.

**RESULTS:**

In the investigated twenty-year period, analyses demonstrated an increased incidence of body mass deficiency and excess in the surveyed girls. Greater differences between the generations in the incidence of underweight, overweight and obesity were observed in the urban girls, compared to their rural peers. In addition, more significant differences in body mass deficiency and excess were noted in the youngest girls from schools of the Lubelskie Province.

**CONCLUSIONS:**

It may, therefore, be speculated that the differences in the economic status of Lubelskie Province inhabitants influenced a lower number of girls with appropriate BMI values as well as increased percentages of girls with body mass deficiency and excess.

**87: Migliore E, Pagano E, Mirabelli D, Baldi I, Gregori D, Zocchetti C, Tuzzi C, Balzola F, Petroni ML, Merletti F. Hospitalization rates and cost in severe or complicated obesity: an Italian cohort study. BMC Public Health. 2013 Jun 5;13:544. doi: 10.1186/1471-2458-13-544. PubMed PMID: 23738687; PubMed Central PMCID: PMC3682879.**

**Abstract**

**BACKGROUND:**

The economic and social costs of obesity are estimated to be considerable, particularly for inpatient care. The aim of this study was to compare the hospitalization rates of individuals with severe (body mass index [BMI]  $\geq 40$  kg/m<sup>2</sup>) or complicated (BMI  $\geq 30$  kg/m<sup>2</sup>) obesity with those of the general population in two regions of Northwest Italy, and to describe absolute costs of hospitalization and their determinants.

**METHODS:**

Between 1996 and 2002, 6,516 patients who were admitted for the first time to a hospital offering a nutritional rehabilitation programme for obesity were enrolled and followed-up (mean follow-up time: 7.3 years). Standardized hospitalization rates (SHRs) were computed by sex for all-cause and cause-specific hospitalization. The general population of the two regions was used as the reference population. The annual cost of hospitalization was estimated for the study cohort only at the individual level, and its association with different determinants was assessed using a multivariable linear model for longitudinal data.

**RESULTS:**

SHRs of the study cohort versus the general population increased for all-cause hospitalization (males: 3.53, 95% CI 3.45-3.61; females: 3.22, 95% CI 3.18-3.26) as well as for most obesity-related conditions. The absolute median annual cost of hospitalization was 2,436 euros for males and 2,293 euros for females. Older age at cohort enrolment, BMI  $\geq 40$  kg/m<sup>2</sup>, waist circumference above the median (males: 1.26 metres; females: 1.13 metres), and the presence of co-morbidities, such as cardiovascular diseases, respiratory diseases, cancer, diseases of the musculoskeletal system and connective tissue, and mental disorders, significantly increased the absolute median annual costs of hospitalization.



#### CONCLUSIONS:

The economic consequences of high hospitalization rates in obese individuals are relevant. Reducing the occurrence of co-morbidities among obese persons may be one important goal, not only for clinical reasons, but also from a public health point of view.

**88: Harris HR, Willett WC, Michels KB. Parental smoking during pregnancy and risk of overweight and obesity in the daughter. *Int J Obes (Lond)*. 2013 Oct;**37**(10):1356-63. doi: 10.1038/ijo.2013.101. Epub 2013 May 29. PubMed PMID: 23736356; PubMed Central PMCID: PMC3795801.**

#### Abstract

##### OBJECTIVE:

Emerging evidence suggests that prenatal exposures may affect long-term health outcomes. In utero exposure to smoking is associated with an increased risk of overweight and obesity in children and adolescents. However, few studies have examined how prenatal exposure to parental smoking influences the risk of obesity during adulthood and whether these associations are independent of childhood and adolescent adiposity. The aim of the current study was to investigate whether prenatal exposure to parental smoking influences body size during adulthood and whether any association may be mediated by childhood and adolescent body size.

##### METHODS:

We investigated the association between parental smoking during pregnancy and the risk of being overweight and obese during adulthood and at age 18 and adiposity during childhood among 35 370 participants in the Nurses' Health Study II. Data on smoking during pregnancy and socioeconomic variables were provided by the mothers, and anthropometric data and adult risk factors were reported by participants.

##### RESULTS:

After adjustment for socioeconomic and behavioral variables, maternal smoking during pregnancy was associated with adiposity at ages 5-10, 18 and during adulthood. For age 18 overweight, the odd ratios, ORs (95% confidence intervals, CIs) for 1-14, 15-24 and 25+cigarettes per day were 1.13 (1.18-1.50), 1.40 (1.20-1.64) and 1.15 (0.79-1.69), and for obesity were 1.41 (1.14-1.75), 1.69 (1.31-2.18) and 2.36 (1.44-3.86). The corresponding ORs (95% CIs) for obesity during adulthood were 1.26 (1.16-1.37), 1.46 (1.30-1.63) and 1.43 (1.10-1.86). Risk of adiposity was not increased among daughters whose mothers stopped smoking during the first trimester (OR (95% CI) for overweight (1.03 (95% CI 0.90-1.17)) and for obesity (1.12 (95% CI 0.97-1.30))). Women whose fathers smoked during pregnancy were also at an increased risk of being overweight and obese during adulthood with covariate-adjusted ORs (95% CIs) for obesity of 1.19 (1.11-1.29) for 1-14 cigarettes per day, 1.27 (1.18-1.37) for 15-24 cigarettes per day and 1.40 (1.27-1.54) for 25+ cigarettes per day compared with fathers who did not smoke ( $P_{trend} < 0.0001$ ). Paternal smoking during pregnancy was also associated with an increased risk of obesity at age 18 among those whose fathers smoked 15 or more cigarettes per day but was not associated with childhood body size.

##### CONCLUSIONS:

Maternal smoking during pregnancy was associated in a dose-response manner with overweight and obesity in the daughter across adolescence and adult life. Smoking cessation during the first trimester appears to mitigate this excess risk. Paternal smoking was also associated with the risk of being overweight and obese of the adult daughter and this association persisted after adjustment for maternal smoking.

**89: Hargreaves DS, Djafari Marbini A, Viner RM. Inequality trends in health and future health risk among English children and young people, 1999-2009. Arch Dis Child. 2013 Nov;98(11):850-5. doi: 10.1136/archdischild-2012-303403. Epub 2013 May 30. PubMed PMID: 23723337.**

Abstract

OBJECTIVE:

To investigate trends in health inequality among children and young people between 1999 and 2009, using outcomes consistent with the current NHS reforms.

DESIGN/DATA:

Secondary analysis of participants aged 0-24 in the Health Surveys for England (HSE) undertaken in 1999, 2004, 2006 and 2009.

MAIN OUTCOME MEASURES:

Changes in the absolute and relative risks of four health outcomes by deprivation tertiles, based on occupation of the head of household: self/parent-reported general health; presence of a long-standing illness (LSI); obesity; smoking.

RESULTS:

No indicator showed a reduction in relative or absolute inequality between 1999 and 2009. For children (0-12 years), the relative risk comparing the most and least deprived tertiles increased significantly for poor general health (1999:1.6 (95% CI 1.2 to 2.2); 2009:3.9 (2.4 to 6.2), while the absolute difference in LSI prevalence(%) increased from 1.3 (-2.9 to 5.5) to 7.4 (3.6 to 11.4). Among young people (13-24 years), the absolute difference in LSI prevalence increased from -5.9 (-10.9 to -1.1) to 3.1 (-4.1 to 10.7). Absolute inequality in having tried smoking among children aged 8-15(%) increased significantly in the first half of the decade before decreasing in the second half (1999:3.3 (-1.1 to 7.7); 2004:14.1 (9.6 to 18.8); 2009:4.1 (0.1 to 8.8)). However, the increase in absolute inequality for smoking prevalence among young adults (16-24 years) was maintained throughout the decade (1999:-7.0 (-15.6 to 1.3); 2004:11.6 (3.7 to 20.0); 2009:8.2 (-0.3 to 16.9)).

CONCLUSIONS:

The national programme between 1999 and 2009 was not successful in reducing inequality in four key indicators of health status and future health risk among children and young people. Some inequality measures for general health, LSI prevalence and smoking increased over this time.

KEYWORDS:

Comm Child Health; Epidemiology.

**90: Aasprang A, Andersen JR, Våge V, Kolotkin RL, Natvig GK. Five-year changes in health-related quality of life after biliopancreatic diversion with duodenal switch. Obes Surg. 2013 Oct;23(10):1662-8. doi: 10.1007/s11695-013-0994-z. PubMed PMID: 23722527; PubMed Central PMCID: PMC3769581.**

Abstract

BACKGROUND:

Long-term data of health-related quality of life (HRQL) after biliopancreatic diversion with duodenal switch (BPDDS) procedure are lacking. The aim of this study was to evaluate changes in HRQL from baseline to 5 years after BPDDS.

METHODS:

Fifty morbidly obese patients were followed for 5 years after BPDDS procedure. The sample consisted of 27 women and 23 men, the mean age was 37.8 years, and the mean body mass index (BMI) was 51.7 units. HRQL was measured with the Short Form 36 questionnaire (SF-36). Anxiety and depression were measured with the Hospital Anxiety and Depression Scale (HADS). Linear mixed model was used to investigate the change scores. The SF-36 scores and HADS scores of the sample were also compared with a Norwegian population norm, adjusted for age, gender, and BMI.

**RESULTS:**

Mental summary scores (MCS) and physical summary scores (PCS) were very low preoperatively but significantly improved ( $P < 0.05$ ) 5 years after surgery. The PCS was comparable to the population norm, while MCS was lower. Depression improved significantly from baseline to the 5-year follow-up ( $P = 0.004$ ), but anxiety did not ( $P = 0.595$ ).

**CONCLUSIONS:**

This study demonstrates a sustained weight loss and improved, although somewhat fading, HRQL scores 5 years after BPDDS. The study also shows that BPDDS is associated with a sustained reduction in depression symptoms but not in anxiety symptoms.

**91: Taylor SA, Garland BH, Sanchez-Fournier BE, Allen KF, Doak JS, Wiemann CM. A qualitative study of the day-to-day lives of obese Mexican-American adolescent females. *Pediatrics*. 2013 Jun;131(6):1132-8. doi: 10.1542/peds.2012-2114. Epub 2013 May 27. PubMed PMID: 23713106.**

**Abstract**

**OBJECTIVE:**

In an effort to develop more effective weight-loss interventions, this study examined the daily experiences and personal struggles of Mexican-American adolescent females with morbid obesity.

**METHODS:**

Twenty self-identified, morbidly obese Mexican-American adolescent females and their families were interviewed about their food choices, personal and family barriers to weight loss, sources of support, previous weight-loss experience, and weight-related beliefs. Qualitative responses were coded by using framework analysis.

**RESULTS:**

Four themes emerged from the adolescent and family responses: the impact of normal adolescent development, multiple sources of excess calories, the physical and emotional burden of excess weight for the adolescent, and the magnitude of the family's personal struggle with weight management. Multiple subthemes were also identified.

**CONCLUSIONS:**

Responses by the adolescents and their families highlighted the intersection of adolescence and Mexican-American culture and the daily challenges of obesity. Recommendations for providers include incorporating knowledge of adolescent development and culturally sensitive care into treatment recommendations.

**KEYWORDS:**

Mexican-Americans; adolescent obesity; minority health; obesity; qualitative research.

**92: Krzystek-Korpacka M, Patryn E, Hotowy K, Czapińska E, Majda J, Kustrzeba-Wójcicka I, Noczyńska A, Gamian A. Paraoxonase (PON)-1 activity in overweight and obese children and adolescents: association with obesity-related inflammation and oxidative stress. Adv Clin Exp Med. 2013 Mar-Apr;22(2):229-36. PubMed PMID: 23709379.**

Abstract

BACKGROUND:

Paraoxonase-1 (PON1) is a HDL-attached extracellular esterase which is believed to contribute to the anti-atherogenic and anti-inflammatory properties of HDL. A decrease in PON1 is a risk factor for cardiovascular disease and has recently been found to be associated with juvenile obesity. The issue of a possible association between enzyme activity and/or its phenotype distribution and obesity-related metabolic abnormalities, inflammation, and oxidative stress has not been addressed yet.

OBJECTIVES:

To evaluate PON1 activity and phenotype distribution with respect to obesity and obesity-related metabolic disorders, inflammation and oxidative stress in children and adolescents.

MATERIAL AND METHODS:

PON1 arylesterase activity was measured spectrophotometrically in 156 children and adolescents (47 lean, 27 overweight and 82 obese). Enzyme phenotype was determined using dual substrate (phenyl acetate/paraoxon) method. PON1 activity and phenotype distribution were related to the presence of obesity, metabolic syndrome, insulin resistance, hyperinsulinemia, hypertriglyceridemia, high blood pressure, low HDL level, impaired fasting glucose and/or glucose tolerance as well as inflammatory and oxidative stress indices.

RESULTS:

PON1 arylesterase activity decreased in general and central obesity, high blood pressure, and hyperinsulinemia conditions and correlated with BMI, CRP, adipocyte fatty acid-binding protein, superoxide dismutase, catalase, glutathione peroxidase, free thiols, and HOMA in a gender-dependent manner. PON1 decreases were independently associated with central obesity in girls, explaining 17% in PON1 variability, and with elevated CRP in boys, explaining 12% in its variability. PON1 phenotype was not associated with frequency of metabolic abnormalities.

CONCLUSIONS:

PON1 decreases in central obesity, exacerbating obesity-related inflammation and oxidative stress. The enzyme associations are gender-dependent: obesity and oxidative stress affects PON1 in girls whereas inflammation in boys.

**93: Shirasawa T, Ochiai H, Ohtsu T, Nishimura R, Morimoto A, Hoshino H, Tajima N, Kokaze A. LDL-cholesterol and body mass index among Japanese schoolchildren: a population-based cross-sectional study. Lipids Health Dis. 2013 May 24;12:77. doi: 10.1186/1476-511X-12-77. PubMed PMID: 23705977; PubMed Central PMCID: PMC3680021.**

Abstract

BACKGROUND:

Serum low-density lipoprotein cholesterol (LDL-C) is one of the most important risk factors for coronary heart disease. The aim of the present study was to investigate the relationship between LDL-C and body mass index (BMI) in population-based Japanese schoolchildren.

#### METHODS:

The subjects comprised all fourth graders and seventh graders in Ina Town, Saitama Prefecture, Japan, during 2002-2009. Information about each subject's age, sex, and family history of hypercholesterolemia was collected using a self-administered questionnaire. The body height, weight, and LDL-C were measured for each child. LDL-C was measured using the direct method. According to the LDL-C criteria of the Japan Atherosclerosis Society, LDL-C level was categorized into three subgroups: acceptable, < 110 mg/dL; borderline, 110-139 mg/dL; and high,  $\geq$  140 mg/dL. Children with either borderline or high LDL-C level were considered to have high-normal LDL-C (HDL-C).

#### RESULTS:

Data from a total of 5869 subjects were analyzed. A higher BMI category was associated with a higher prevalence of HDL-C regardless of sex or grade level ( $P < 0.05$ ). When compared with the <50th percentile BMI category, the odds ratio (OR) for HDL-C was statistically significant in the 75th to 84th percentile category of fourth-grade boys (OR: 1.95, 95% confidence interval (95% CI): 1.28-2.97), the 85th to 94th percentile of fourth-grade girls (2.52, 1.74-3.64), and the 85th to 94th percentile of seventh-grade boys (2.04, 1.31-3.20) and girls (1.90, 1.24-2.91).

#### CONCLUSION:

A statistically significant association between LDL-C levels and BMI was observed in Japanese school children.

**94: Ramon-Krauel M, Salsberg SL, Ebbeling CB, Voss SD, Mulkern RV, Apura MM, Cooke EA, Sarao K, Jonas MM, Ludwig DS. A low-glycemic-load versus low-fat diet in the treatment of fatty liver in obese children. *Child Obes.* 2013 Jun;9(3):252-60. doi: 10.1089/chi.2013.0022. Epub 2013 May 24. PubMed PMID: 23705885; PubMed Central PMCID: PMC3675832.**

#### Abstract

##### BACKGROUND:

Fatty liver is highly prevalent among obese children and represents a major risk factor for chronic liver diseases and severe metabolic complications.

##### METHODS:

We randomly assigned 17 obese children 8-17 years of age with fatty liver to either an experimental low-glycemic-load or conventional low-fat diet for 6 months. Participants in both groups received nutrition education and behavioral counseling of equal intensity. The primary outcome was hepatic lipid content measured by proton magnetic resonance spectroscopy. Secondary outcomes included change in visceral fat, BMI, anthropometrics, alanine aminotransferase (ALT), and insulin resistance.

##### RESULTS:

A total of 16 participants completed the study. Reported glycemic load decreased in the low-glycemic-load group and reported dietary fat decreased in the low-fat group. At baseline, liver fat was 23.8% [standard deviation (SD) 12.2] in the low-glycemic-load group and 29.3% (14.1) in the low-fat group. Liver fat decreased substantially in both groups at 6 months expressed as absolute percentage change, with no between-group differences [-8.8 (standard error (SE) 4.1) vs. -10.5 (3.7)%, respectively,  $p=0.76$  for group $\times$ time interaction]. Secondary outcomes also improved on both diets, with no between-group differences. Baseline and change in ALT were strongly associated with hepatic fat content.

##### CONCLUSIONS:

Weight-reducing diets focused either on glycemic load or dietary fat improved hepatic steatosis over 6 months. Additional research is needed to determine whether these diets differ in effectiveness over the long term.

**95: Block JP, Condon SK, Kleinman K, Mullen J, Linakis S, Rifas-Shiman S, Gillman MW. Consumers' estimation of calorie content at fast food restaurants: cross sectional observational study. BMJ. 2013 May 23;346:f2907. doi: 10.1136/bmj.f2907. PubMed PMID: 23704170; PubMed Central PMCID: PMC3662831.**

Abstract

OBJECTIVE:

To investigate estimation of calorie (energy) content of meals from fast food restaurants in adults, adolescents, and school age children.

DESIGN:

Cross sectional study of repeated visits to fast food restaurant chains.

SETTING:

89 fast food restaurants in four cities in New England, United States: McDonald's, Burger King, Subway, Wendy's, KFC, Dunkin' Donuts.

PARTICIPANTS:

1877 adults and 330 school age children visiting restaurants at dinnertime (evening meal) in 2010 and 2011; 1178 adolescents visiting restaurants after school or at lunchtime in 2010 and 2011.

MAIN OUTCOME MEASURE:

Estimated calorie content of purchased meals.

RESULTS:

Among adults, adolescents, and school age children, the mean actual calorie content of meals was 836 calories (SD 465), 756 calories (SD 455), and 733 calories (SD 359), respectively. A calorie is equivalent to 4.18 kJ. Compared with the actual figures, participants underestimated calorie content by means of 175 calories (95% confidence interval 145 to 205), 259 calories (227 to 291), and 175 calories (108 to 242), respectively. In multivariable linear regression models, underestimation of calorie content increased substantially as the actual meal calorie content increased. Adults and adolescents eating at Subway estimated 20% and 25% lower calorie content than McDonald's diners (relative change 0.80, 95% confidence interval 0.66 to 0.96; 0.75, 0.57 to 0.99).

CONCLUSIONS:

People eating at fast food restaurants underestimate the calorie content of meals, especially large meals. Education of consumers through calorie menu labeling and other outreach efforts might reduce the large degree of underestimation.

**96: Kane JB, Frisco ML. Obesity, school obesity prevalence, and adolescent childbearing among U.S. young women. Soc Sci Med. 2013 Jul;88:108-15. doi: 10.1016/j.socscimed.2013.04.005. Epub 2013 Apr 15. PubMed PMID: 23702216; PubMed Central PMCID: PMC3782080.**

Abstract

In the United States, adolescent obesity reduces young women's odds of forming romantic and sexual partnerships but increases the likelihood of risky sexual behavior when partnerships occur. This led us to conduct a study examining the relationship between adolescent obesity and adolescent childbearing. Our study has two aims. We draw from prior research to develop and test competing

hypotheses about the association between adolescent obesity and young women's risk of an adolescent birth. Drawing from risk regulation theory, we also examine whether the association between obesity and young women's risk of an adolescent birth may vary across high schools with different proportions of obese adolescents. Multilevel logistic regression models are used to analyze data from 4242 female students in 102 U.S. high schools who participated in Wave I (1994-1995) of the National Longitudinal Study of Adolescent Health. Results are the first to show that obesity reduces female adolescents' odds of childbearing, but that this association is not uniform across schools with different proportions of obese students. As the obesity prevalence in a school increases, so do obese young women's odds of childbearing. We conclude that understanding whether and how obesity is associated with young women's odds of having an adolescent birth requires attention to the weight context of high schools.

**97: Weber DR, Moore RH, Leonard MB, Zemel BS. Fat and lean BMI reference curves in children and adolescents and their utility in identifying excess adiposity compared with BMI and percentage body fat. Am J Clin Nutr. 2013 Jul;98(1):49-56. doi: 10.3945/ajcn.112.053611. Epub 2013 May 22. PubMed PMID: 23697708; PubMed Central PMCID: PMC3683820.**

Abstract

BACKGROUND:

Body mass index (BMI) and percentage body fat (%BF) are widely used to assess adiposity. These indexes fail to account for independent contributions of fat mass (FM) and lean body mass (LBM) to body weight, which vary according to age, sex, pubertal status, and population ancestry in the pediatric population.

OBJECTIVE:

The objective was to develop pediatric reference curves for fat mass index (FMI) and lean body mass index (LBMI) and evaluate the effects of population ancestry and LBM on measures of excess adiposity (BMI, %BF, and FMI).

DESIGN:

Sex-specific FMI and LBMI reference curves relative to age for children and adolescents aged 8-20 y were generated from cross-sectional body-composition data measured by dual-energy X-ray absorptiometry from NHANES.

RESULTS:

The mean LBMI z score was higher in blacks (males: 0.26; females: 0.45) than in whites (males: -0.07; females: -0.09) and Mexican Americans (males: 0.05; females: -0.09). The positive predictive value of overweight by BMI to identify excess adiposity defined by FMI was lower in blacks (males: 35.9%; females: 30.3%) than in whites (males: 65.4%; females: 52.2%) and Mexican Americans (males: 73.3%; females: 68.3%). Participants classified as having excess adiposity by FMI but normal adiposity by %BF had significantly higher BMI, LBMI, and height z scores than did those classified as having excess adiposity by %BF but normal adiposity by FMI.

CONCLUSIONS:

Relative to FMI, the prevalence of excess adiposity is overestimated by BMI in blacks and underestimated by %BF in individuals with high LBM. The use of FMI and LBMI improves on the use of %BF and BMI by allowing for the independent assessment of FM and LBM.

**98: Lu SR, Su J, Xiang QY, Zhang FY, Wu M. Active transport and health outcomes: findings from a population study in Jiangsu, China. J Environ Public Health. 2013;2013:624194. doi: 10.1155/2013/624194. Epub 2013 Apr 4. PubMed PMID: 23690804; PubMed Central PMCID: PMC3649642.**

**Abstract**

To investigate the prevalence of active transport (AT, defined as walking or bicycling for transport) and to explore the association between AT and health outcomes, we conducted a population-based cross-sectional study in Jiangsu, China, where walking and bicycling are still the main modes of transport. In this study, 8400 community residents aged 18 or above were interviewed following a multistage random sampling method (100% response rate). Face-to-face questionnaire survey data, anthropometric measurements, and biochemical data from blood tests were collected. Results show that 49.6% of the subjects, as part of daily transport, actively traveled on average 5.3 days per week, 53.5 minutes per day, and 300.3 minutes per week. There was an inverse correlation between AT and some health outcomes: AT respondents had a higher prevalence of cholesterol disorder; AT respondents who actively travelled every day had a higher risk of diabetes, whilst AT respondents with shorter daily or weekly duration had a lower risk of obesity, central obesity, and cholesterol disorder. Moreover, AT influences more health aspects among urban residents than among rural residents. Findings of this study do not support the notion that AT is beneficial to population health. Further research is needed in determining the negative side effects of AT.

**99: Cortese S, Ramos Olazagasti MA, Klein RG, Castellanos FX, Proal E, Mannuzza S. Obesity in men with childhood ADHD: a 33-year controlled, prospective, follow-up study. Pediatrics. 2013 Jun;131(6):e1731-8. doi: 10.1542/peds.2012-0540. Epub 2013 May 20. PubMed PMID: 23690516; PubMed Central PMCID: PMC4074659.**

**Abstract**

**OBJECTIVE:**

To compare BMI and obesity rates in fully grown men with and without childhood attention-deficit/hyperactivity disorder (ADHD). We predicted higher BMI and obesity rates in: (1) men with, versus men without, childhood ADHD; (2) men with persistent, versus men with remitted, ADHD; and (3) men with persistent or remitted ADHD versus those without childhood ADHD.

**METHODS:**

Men with childhood ADHD were from a cohort of 207 white boys (referred at a mean age of 8.3 years), interviewed blindly at mean ages 18 (FU18), 25 (FU25), and 41 years (FU41). At FU18, 178 boys without ADHD were recruited. At FU41, 111 men with childhood ADHD and 111 men without childhood ADHD self-reported their weight and height.

**RESULTS:**

Men with childhood ADHD had significantly higher BMI ( $30.1 \pm 6.3$  vs  $27.6 \pm 3.9$ ;  $P = .001$ ) and obesity rates (41.4% vs 21.6%;  $P = .001$ ) than men without childhood ADHD. Group differences remained significant after adjustment for socioeconomic status and lifetime mental disorders. Men with persistent ( $n = 24$ ) and remitted ( $n = 87$ ) ADHD did not differ significantly in BMI or obesity rates.



Even after adjustment, men with remitted (but not persistent) ADHD had significantly higher BMI (B: 2.86 [95% CI: 1.22 to 4.50]) and obesity rates (odds ratio: 2.99 [95% CI: 1.55 to 5.77]) than those without childhood ADHD.

**CONCLUSIONS:**

Children with ADHD are at increased risk of obesity as adults. Findings of elevated BMI and obesity rates in men with remitted ADHD require replication.

**KEYWORDS:**

ADHD; BMI; adults; longitudinal follow-up; obesity; weight.

**100: Shafique K, Zafar M, Ahmed Z, Khan NA, Mughal MA, Imtiaz F. Areca nut chewing and metabolic syndrome: evidence of a harmful relationship. Nutr J. 2013 May 20;12:67. doi: 10.1186/1475-2891-12-67. PubMed PMID: 23688186; PubMed Central PMCID: PMC3663704.**

**Abstract**

**BACKGROUND:**

There is some evidence which suggests that areca nut chewing has a relationship with metabolic syndrome. Areca nut chewing is continue to increase and so is the metabolic syndrome which is a major cause of cardiovascular mortality in developing countries. The aim of this study was to determine the relationship of raw areca nut and areca nut chewing with tobacco additives and metabolic syndrome.

**METHODS:**

This cross sectional study was conducted on population of Karachi, Pakistan. Simple random sampling was implied using the voter list as a sampling frame. A detailed questionnaire about the demographic details of all subjects was filled and an informed consent obtained for blood sampling. Logistic regression analyses were carried out to investigate the relationship between areca nut chewing and metabolic syndrome.

**RESULTS:**

Of the 1070 individuals, 192(17.9%) had metabolic syndrome with significantly higher (p-value <0.001) prevalence among females (26.3%) compared with males (11.4%). Eight individuals (11.1%) among non users had metabolic syndrome while significantly higher (p-value <0.001) proportion of both, raw areca nut users (n = 67, 29%) and areca users with tobacco additives (n = 45, 38.5%) had metabolic syndrome. The crude odds ratio for central obesity among raw areca nut users was 1.46 (95% CI 1.07-1.98) and among areca nut users with tobacco additives was 2.02 (95% CI 1.36-3.00), hypertension among raw areca nut users group was 1.31(0.96-1.78) and among areca nut users with tobacco additives group was 2.05 (95% CI 1.38-3.04). A significant positive association of raw areca nut chewing and metabolic syndrome was found among males (crude OR 2.74, 95% CI 1.52-4.95) and females (crude OR 3.80, 95% CI 2.32-6.20). Similarly, a significant positive association was found with regard to raw areca nut with tobacco additives chewing among males (crude OR 5.46, 95% CI 2.73-10.91) and females (crude OR 4.32, 95% CI 2.41-7.72). These associations remained significant adjustment for age, social class.

**CONCLUSIONS:**

This study suggests a harmful relationship between areca nut chewing and metabolic syndrome. The deleterious effects were even stronger among areca nut chewer with tobacco additives. Further research with longitudinal data might help to understand the temporal relationship between areca nut chewing and metabolic syndrome.

**101: Naranjo AA, Rodríguez ÁY, Llera RE, Aroche R. Diabetes risk in a Cuban primary care setting in persons with no known glucose abnormalities. MEDICC Rev. 2013 Apr;15(2):16-9. PubMed PMID: 23686250.**

Abstract

INTRODUCTION:

With 333 million cases worldwide predicted for 2015, type 2 diabetes mellitus presents an important global health challenge. Its rising tide calls for health policies emphasizing prevention at the primary care level, including public education as well as early risk identification and intervention.

OBJECTIVES:

Estimate risk of developing type 2 diabetes in persons with no known glucose abnormalities, registered in a primary care setting in Pinar del Río city, Cuba, using FINDRISK.

METHODS:

A descriptive, cross-sectional study applied FINDRISK to 620 persons aged  $\geq 18$  years randomly selected from a universe of 1058 patients with no known glucose abnormalities, registered in family-doctor-and-nurse office No. 23 in the Turcios Lima Teaching Polyclinic health area, Pinar del Río city.

RESULTS:

The study population was predominantly aged  $\leq 45$  years (53.5%) and 80.2% was overweight or obese. At least moderate risk of diabetes was found in 74.4% of the sample, and 10.5% was at very high risk, meaning an estimated 120 patients in the sample could be expected to develop type 2 diabetes within the next 10 years.

CONCLUSIONS:

Type 2 diabetes prevalence can be expected to increase substantially in this population over the next decade. We recommend design and timely implementation of intensive lifestyle change programs to eliminate or slow development of type 2 diabetes in at-risk individuals. We propose following cohorts identified by FINDRISK to assess its prognostic value in the Cuban population.

**102: Cortes TR, Schlüssel MM, Franco-Sena AB, Rebelo F, Kac G. Television viewing and abdominal obesity in women according to smoking status: results from a large cross-sectional population-based study in Brazil. Rev Bras Epidemiol. 2013 Mar;16(1):137-45. PubMed PMID: 23681330.**

Abstract

OBJECTIVE:

To investigate the associations between television viewing and abdominal obesity (AO) in Brazilian women, according to smoking status.

METHODS:

Data of 13,262 adult women (18-49 years) from the 2006's Demographic Health Survey, a cross-sectional household study with complex probabilistic sample and national representativeness, were analyzed. AO, defined as waist circumference  $\geq 80.0$  cm, was the outcome. Television viewing frequency ( $\geq 5$  times/week, 1-4 times/week,  $< 1$  time/week) was the main exposure variable, and smoking status (yes or no) the main co-variable. Prevalence ratios were estimated using Poisson regression models separately for smokers and non-smokers.

#### RESULTS:

A statistically significant interaction term was observed between smoking status and television viewing ( $p < 0.05$ ). Prevalence of AO among smokers who reported television viewing  $\geq 5$  times/week amounted to 59.0%, higher than the 35.0% for those with  $< 1$  time/week television viewing ( $p$ -value = 0.020). The values for non-smokers were 55.2% and 55.7%, respectively. Smokers with television viewing  $\geq 5$  times/week were 1.7 times (95% CI: 1.1 - 2.5) more likely to pre-sent AO, compared to those who reported a frequency  $< 1$  time/week. There was no significant association among non-smokers.

#### CONCLUSIONS:

Television viewing  $\geq 5$  times/week may increase the prevalence of AO among women who smoke. More detailed information on media use, as hours per day, may offer better estimates.

**103: Vollmer RL, Mobley AR. A pilot study to explore how low-income mothers of different ethnic/racial backgrounds perceive and implement recommended childhood obesity prevention messages. Child Obes. 2013 Jun;9(3):261-8. doi: 10.1089/chi.2012.0139. Epub 2013 May 16. PubMed PMID: 23679199; PubMed Central PMCID: PMC3675836.**

#### Abstract

##### BACKGROUND:

Mothers often serve as the "gatekeepers" of food and the eating experience for young children in the home. Children of different ethnic/racial groups have different obesity prevalence rates, but little is known about how mothers of these groups interpret or implement common childhood obesity prevention messages. The purpose of this mixed methods pilot study was to explore comprehension and implementation of common childhood obesity prevention messages and to identify feeding styles among low-income mothers of young children.

##### METHODS:

White, black, and Hispanic low-income mothers ( $n=30$ ) of children ages 3-10 were recruited from Indiana. Mothers were interviewed individually regarding the perception and implementation of eight commonly used nutrition and/or physical activity messages. Other outcomes included the results of the Caregiver Feeding Styles Questionnaire and self-reported weight of mothers and child(ren). Interviews were analyzed using thematic analysis to find common themes among the different ethnic/racial groups.

##### RESULTS:

Childhood obesity prevention messages were often interpreted or implemented differently among the different ethnic/racial groups. For example, white mothers cited control as a means to manage a child's weight more often compared to the other racial/ethnic groups, whereas black and Hispanic mothers reported catering to a child's preference more frequently compared to white mothers.

##### CONCLUSION:

The pilot study provides evidence that it may be prudent to tailor nutrition messages to mothers of different ethnic/racial backgrounds during nutrition education.

**104: Ratner RG, Hernández PJ, Martel JA, Atalah ES. [Food quality and nutritional status in university students of eleven Chilean regions]. Rev Med Chil. 2012 Dec;140(12):1571-9. doi: 10.4067/S0034-98872012001200008. Spanish. PubMed PMID: 23677230.**

Abstract

BACKGROUND:

The Chilean population has inadequate lifestyles and high prevalence of chronic diseases.

AIM:

To analyze eating behaviors, nutritional status and history of previous diseases, in students of higher education.

MATERIAL AND METHODS:

Cross-sectional study in students of 54 higher education centers across the country. They answered a survey about dietary habits, physical activity, smoking, previous diseases and opinion of their nutritional condition. Weight and height were measured under standardized conditions and nutritional status classified according to body mass index.

RESULTS:

We studied 6,823 students aged 17 to 29 years. Forty seven percent did not have breakfast and 35% did not have lunch every day. A low proportion had a daily consumption of vegetables (51.2%), fruits (39.4%) and dairy products (57.5%). There was a high frequency of soft drinks, chips, cakes and sweets consumption. Seventy six percent were sedentary, 40.3% smokers and 27.4% overweight or obese. The latter had a significantly higher frequency of diabetes, hypertension and hypercholesterolemia. There was a poor agreement between actual nutritional status and self-perception, especially in males (Kappa index 0.38). Recipients of a food scholarship provided by the Ministry of Education ate lunch usually with a higher frequency ( $p < 0.05$ ).

CONCLUSIONS:

A high prevalence of inadequate eating and physical activity patterns in these young subjects with good educational level was observed. The food scholarship has some positive effects, although differences in socioeconomic levels limited comparisons.

**105: Grimes CA, Wright JD, Liu K, Nowson CA, Loria CM. Dietary sodium intake is associated with total fluid and sugar-sweetened beverage consumption in US children and adolescents aged 2-18 y: NHANES 2005-2008. Am J Clin Nutr. 2013 Jul;98(1):189-96. doi: 10.3945/ajcn.112.051508. Epub 2013 May 15. PubMed PMID: 23676421; PubMed Central PMCID: PMC3683818.**

Abstract

BACKGROUND:

Increasing dietary sodium drives the thirst response. Because sugar-sweetened beverages (SSBs) are frequently consumed by children, sodium intake may drive greater consumption of SSBs and contribute to obesity risk.

OBJECTIVE:

We examined the association between dietary sodium, total fluid, and SSB consumption in a nationally representative sample of US children and adolescents aged 2-18 y.

**DESIGN:**

We analyzed cross-sectional data from NHANES 2005-2008. Dietary sodium, fluid, and SSB intakes were assessed with a 24-h dietary recall. Multiple regression analysis was used to assess associations between sodium, fluid, and SSBs adjusted for age, sex, race-ethnic group, body mass index (BMI), socioeconomic status (SES), and energy intake.

**RESULTS:**

Of 6400 participants, 51.3% (n = 3230) were males, and the average ( $\pm$ SEM) age was  $10.1 \pm 0.1$  y. The average sodium intake was  $3056 \pm 48$  mg/d (equivalent to  $7.8 \pm 0.1$  g salt/d). Dietary sodium intake was positively associated with fluid consumption ( $r = 0.42$ ,  $P < 0.001$ ). After adjustment for age, sex, race-ethnic group, SES, and BMI, each additional 390 mg Na/d (1 g salt/d) was associated with a 74-g/d greater intake of fluid ( $P < 0.001$ ). In consumers of SSBs (n = 4443; 64%), each additional 390 mg Na/d (1 g salt/d) was associated with a 32-g/d higher intake of SSBs ( $P < 0.001$ ) adjusted for age, sex, race-ethnic group, SES, and energy intake.

**CONCLUSIONS:**

Dietary sodium is positively associated with fluid consumption and predicted SSB consumption in consumers of SSBs. The high dietary sodium intake of US children and adolescents may contribute to a greater consumption of SSBs, identifying a possible link between dietary sodium intake and excess energy intake.

**106: Staiano AE, Broyles ST, Gupta AK, Katzmarzyk PT. Ethnic and sex differences in visceral, subcutaneous, and total body fat in children and adolescents. Obesity (Silver Spring). 2013 Jun;21(6):1251-5. doi: 10.1002/oby.20210. Epub 2013 May 13. PubMed PMID: 23670982; PubMed Central PMCID: PMC3735659.**

**Abstract**

**OBJECTIVE:**

This study investigated ethnic and sex differences in the distribution of fat during childhood and adolescence.

**DESIGN AND METHODS:**

A cross-sectional sample (n = 382), aged 5-18 years, included African American males (n = 84), White males (n = 96), African American females (n = 118), and White females (n = 84). Measures for total body fat (TBF) mass and abdominal adipose tissue (total volume and L4-L5 cross-sectional area) for both subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) depots were assessed by dual-energy X-ray absorptiometry and magnetic resonance image, respectively. Analyses of covariance (ANCOVAs) were used to determine ethnic and sex differences in TBF (adjusted for age) and ethnic and sex differences in SAT and VAT (adjusted for both age and TBF).

**RESULTS:**

Age-adjusted TBF was greater in African Americans ( $P = 0.017$ ) and females ( $P < 0.0001$ ) compared with Whites and males, respectively. In age- and TBF-adjusted ANCOVAs, no differences were found in the SAT. The VAT volume was, however, greater in Whites ( $P < 0.0001$ ) and males ( $P < 0.0001$ ) compared with African Americans and females, respectively. Similar patterns were observed in SAT and VAT area at L4-L5.

**CONCLUSIONS:**

The demonstrated ethnic and sex differences are important confounders in the prevalence of obesity and in the assignment of disease risk in children and adolescents.

**107: Pedroni JL, Rech RR, Halpern R, Marin S, Roth Ldos R, Sirtoli M, Cavalli A. [Prevalence of abdominal obesity and excess fat in students of a city in the mountains of southern Brazil]. Cien Saude Colet. 2013 May;18(5):1417-25. Portuguese. PubMed PMID: 23670470.**

Abstract

Obesity is considered the most important nutritional disorder due to a rapid increase in its prevalence in recent years. The scope of this study was to estimate the prevalence of abdominal obesity and excess fat in students aged 11 to 14 (boys and girls) from a town in the mountains of southern Brazil, and to verify the possible associations with economic classification, gender, age, eating habits, lifestyle habits (physical activity and sedentary activities) and dissatisfaction with body image. A cross-sectional study was conducted with 1230 students. The anthropometric variables studied were the waist circumference and the skin folds of the triceps and calf. A descriptive and bivariate analysis was conducted between the independent variables and the outcome. The prevalence of abdominal obesity and excess body fat were 28.7% and 40.1% respectively. There was a statistically significant association between a greater number of meals and dissatisfaction with body image and abdominal obesity, which was also associated with girls evaluated, and to excess body fat. The prevalence of abdominal obesity and excess body fat are high and justify the implementation of health actions in schools.

**108: Siceloff ER, Coulon SM, Wilson DK. Physical activity as a mediator linking neighborhood environmental supports and obesity in African Americans in the path trial. Health Psychol. 2014 May;33(5):481-9. doi: 10.1037/a0032758. Epub 2013 May 13. PubMed PMID: 23668847; PubMed Central PMCID: PMC3800242.**

Abstract

OBJECTIVE:

African Americans have the highest rates of obesity in the United States. Engaging in recommended levels of physical activity (PA) reduces risk for obesity. Social and environmental supports for PA may be important to increase PA. This study hypothesized that PA would mediate the effects of neighborhood and social supports for PA on body mass index (BMI).

METHOD:

Baseline data were collected from 434 underserved African American adults in the Positive Action for Today's Health (PATH) trial. Features of the neighborhood environment (i.e., infrastructure for walking, access to services, and crime) and peer social support were measured with validated surveys. Moderate-to-vigorous PA (MVPA) was assessed based on 7-day accelerometry estimates (in minutes per day), and self-reported walking and exercise were obtained using the Four-Week Physical Activity History questionnaire.

RESULTS:

The sample was predominantly female (63%) and obese (MBMI = 30.88 kg/m<sup>2</sup>, SD = 8.43). Neither crime nor social support was significantly associated with either PA or BMI; thus, they were excluded from the final models. Infrastructure for walking predicted MVPA (B = 4.06, p = .01) and self-reported

walking ( $B = 7.39$ ,  $p = .03$ ). A positive association between access to services and MVPA approached significance ( $B = 2.27$ ,  $p = .06$ ). MVPA ( $B = -0.07$ ,  $p < .001$ ) and self-reported walking ( $B = -0.02$ ,  $p = .01$ ) predicted BMI, but only MVPA mediated the effect of infrastructure for walking on BMI ( $B = -0.03$ ,  $p = .04$ ). No significant direct or indirect effects of predictors were found for self-reported exercise.

**CONCLUSION:**

Findings suggest that MVPA is a mediator linking infrastructure for walking and BMI in underserved communities.

**109: Bray M, Pomeroy J, Knowler WC, Bersamin A, Hopkins S, Brage S, Stanhope K, Havel PJ, Boyer BB. Simple anthropometrics are more correlated with health variables than are estimates of body composition in Yup'ik people. Obesity (Silver Spring). 2013 Sep;21(9):E435-8. doi: 10.1002/oby.20125. Epub 2013 May 10. PubMed PMID: 23666898; PubMed Central PMCID: PMC3748182.**

**Abstract**

**OBJECTIVES:**

To (1) evaluate the relationships between several indices of obesity with obesity-related risk factors; (2) compare the accuracy of body composition estimates derived from anthropometry and bioimpedance analysis (BIA) to estimates of body composition assessed by doubly-labeled water (DLW); and (3) establish equations for estimating fat mass (FM), fat-free mass (FFM), and percent body fat (PBF) in Yup'ik people.

**DESIGN AND METHODS:**

Participants included 1,056 adult Yup'ik people from 11 communities in Southwestern Alaska. In a sub-study of 30 participants, we developed population-specific linear regression models for estimating FM, FFM, and PBF from anthropometrics, age, sex, and BIA against criterion measures derived from total body water assessed with DLW. These models were then used with the population cohort and we analyzed the relationships between obesity indices and several health-related and disease status variables: (1) fasting plasma lipids, (2) glucose, (3) HbA1c, (4) adiponectin, (5) blood pressure, (6) diabetes (DM), and (7) cerebrocoronary vascular disease (CCVD) which includes stroke and heart disease.

**RESULTS:**

The best model for estimating FM in the sub-study used only three variables—sex, waist circumference (WC), and hip circumference and had multiple  $R(2) = 0.9730$ . FFM and PBF were calculated from FM and body weight.

**CONCLUSION:**

WC and other anthropometrics were more highly correlated with a number of obesity-related risk factors than were direct estimates of body composition. Body composition in Yup'ik people can be accurately estimated from simple anthropometrics.

**110: Blumentals WA, Hwu P, Kobayashi N, Ogura E. Obesity in hospitalized type 2 diabetes patients: a descriptive study. Med Sci Monit. 2013 May 13;19:359-65. doi: 10.12659/MSM.889119. PubMed PMID: 23666276; PubMed Central PMCID: PMC3658866.**

Abstract

BACKGROUND:

The association between obesity and type 2 diabetes has been well documented in epidemiological studies. Patients with type 2 diabetes have a higher body weight than control populations. Relatively few studies, however, have examined the prevalence of obesity in a cohort of hospitalized type 2 diabetes mellitus patients using an electronic health records database. This study measured the prevalence of obesity in hospitalized type 2 diabetes patients and described demographic and clinical characteristics using electronic health records from Convergence CT sites located in the southwestern United States.

MATERIAL AND METHODS:

Hospitalized patients with type 2 diabetes mellitus were identified in electronic health records from the Convergence Global Research Network. Demographic and clinical characteristics were examined for hospitalized patients with type 2 diabetes. Comparisons were made between males and females across different clinical characteristics as well as between obese patients (BMI  $\geq 30$  kg/m<sup>2</sup>) and patients with BMI  $< 30$  kg/m<sup>2</sup>.

RESULTS:

Approximately 26.8% of hospitalized type 2 diabetes patients were overweight (BMI=25-29.9 kg/m<sup>2</sup>) and 57.7% were obese (BMI  $\geq 30$  kg/m<sup>2</sup>). A higher percentage of females (61.3%) were obese compared to males (54.6%) ( $p=0.002$ ). Obese patients with type 2 diabetes were younger, appeared to have inadequate glycemic control, exhibited higher blood pressure, and had worse lipid profiles compared to type 2 diabetes patients with BMI  $< 30$  kg/m<sup>2</sup>.

CONCLUSIONS:

Approximately 84.5% of the hospitalized type 2 diabetes patients identified in this study were overweight or obese (BMI  $\geq 25$  kg/m<sup>2</sup>), suggesting the need for effective weight loss intervention in this population.

**111: Yang R, Mao S, Zhang S, Li R, Zhao Z. Prevalence of obesity and overweight among Chinese children with attention deficit hyperactivity disorder: a survey in Zhejiang Province, China. BMC Psychiatry. 2013 May 10;13:133. doi: 10.1186/1471-244X-13-133. PubMed PMID: 23663690; PubMed Central PMCID: PMC3655086.**

Abstract

BACKGROUND:

Attention Deficit Hyperactivity Disorder (ADHD) is often comorbid with psychiatric and developmental disorders. This study aimed to investigate the prevalence of obesity and overweight among Chinese children with ADHD, and to explore which subtypes of the disorder may specifically be associated with obesity/overweight.

METHODS:

Children meeting the DSM-IV criteria for ADHD were enrolled in the study. Weight, weight z-score, height, height z-score, BMI, and BMI z-score were used to evaluate growth status. Obesity and



overweight were determined using the National Growth Reference for Chinese Children and Adolescents. Relations between the prevalence of obesity/overweight and different ADHD subtypes and pubertal development were analyzed.

**RESULTS:**

A total of 158 children with ADHD (mean age: 9.2 years) were recruited for the study. The prevalences of obesity, overweight, and combined obesity/overweight were 12.0%, 17.1%, and 29.1%, respectively, which were significantly higher than in the general Chinese population (2.1%, 4.5%, and 6.6%, respectively). Multivariable analysis showed that the children with the combined subtype of ADHD and the onset of puberty were at a higher risk of becoming obese or overweight.

**CONCLUSIONS:**

The prevalence of obesity in Chinese children with ADHD is higher than that of the general population. Children with the ADHD combined subtype who were at the onset of puberty were more likely to be overweight or obese.

**112: Mohammed H, Vuvor F. Prevalence of childhood overweight/obesity in basic school in Accra. Ghana Med J. 2012 Sep;46(3):124-7. PubMed PMID: 23661824; PubMed Central PMCID: PMC3645158.**

**Abstract**

**BACKGROUND:**

This study intends to determine the prevalence of obesity among children in the University Primary School, Legon. It also intends to determine relationship between the prevalence of obesity in children and socio-economic status of their parents and the most endemic age group.

**METHOD:**

The study was conducted using 270 students sampled at random in the basic school. Children's height, weight and skin fold measurement were taken. Children's parent's socio-economic status was assessed using close and open-ended questionnaires administered to parents. Data obtained was then analyzed using SPSS software.

**RESULTS:**

Prevalence of obesity in the university primary school was found to be 10.9% with higher prevalence in girls (15.0%) than in boys (7.2%) (P-value=0.001). There was higher prevalence among children from high socioeconomic background (21 - 23%) with least prevalence in those from low socio-economic homes (10 - 20%) though this was not significant (p-value=0.23). Girls showed a higher body fat composition between 10 - 12years, while boys showed higher body fat stores between 8 - 10 years old. Increasing mother educational level reduced prevalence of child obesity (p-value=0.043) but this was not seen in increasing fathers' educational level (p-value=0.261).

**CONCLUSIONS:**

The prevalence of obesity in children in University primary school was very high and worrying. The prevalence increased with socio-economic status and it is more common in females than males. It was recommended that similar study should be expanded nationwide.

**113: Cortese S, Faraone SV, Bernardi S, Wang S, Blanco C. Adult attention-deficit hyperactivity disorder and obesity: epidemiological study. Br J Psychiatry. 2013 Jul;203(1):24-34. doi: 10.1192/bjp.bp.112.123299. Epub 2013 May 9. PubMed PMID: 23661765; PubMed Central PMCID: PMC3696877.**

Abstract

BACKGROUND:

A significant association between attention-deficit hyperactivity disorder (ADHD) and obesity has been reported. This study addresses unexplored aspects of this relationship.

AIMS:

To evaluate the association between adult obesity and: (a) persistent, remitted or lifetime ADHD; (b) number of childhood ADHD symptoms, controlling for socioeconomic status and mood, anxiety and substance use disorders.

METHOD:

Face-to-face psychiatric interviews in 34 653 US adults from the National Epidemiologic Study on Alcohol and Related Conditions. Obesity was defined as a body mass index  $\geq 30$ .

RESULTS:

Persistent, lifetime or remitted ADHD were not associated with obesity after controlling for confounders. The number of childhood ADHD symptoms was significantly associated with adult obesity, even after adjustment, in women.

CONCLUSIONS:

Childhood ADHD symptoms are associated with obesity in women even after comorbid psychiatric disorders are accounted for. This provides a rationale for longitudinal studies assessing the impact of the treatment of childhood ADHD symptoms on obesity in women.

**114: Huen K, Harley K, Beckman K, Eskenazi B, Holland N. Associations of PON1 and genetic ancestry with obesity in early childhood. PLoS One. 2013 May 3;8(5):e62565. doi: 10.1371/journal.pone.0062565. Print 2013. PubMed PMID: 23658746; PubMed Central PMCID: PMC3643931.**

Abstract

Obesity in children has become an epidemic in the U.S. and is particularly prominent in minority populations such as Mexican-Americans. In addition to physical activity and diet, genetics also plays a role in obesity etiology. A few studies in adults and adolescents suggest a link between obesity and paraoxonase 1 (PON1), a multifunctional enzyme that can metabolize organophosphate pesticides and also has antioxidant properties. We determined PON1192 genotype and arylesterase levels (ARYase, measure of PON1 enzyme quantity), to characterize the relationship between PON1 and obesity in young Mexican-American children ( $n = 373$ ) living in an agricultural community in California. Since PON1 polymorphisms and obesity both vary between ethnic groups, we estimated proportional genetic ancestry using 106 ancestral informative markers (AIMs). Among children, PON1192 allele frequencies were 0.5 for both alleles, and the prevalence of obesity was high (15% and 33% at ages two and five, respectively). The average proportion of European, African, and Native American ancestry was 0.40, 0.09, and 0.51, yet there was wide inter-individual variation. We found a significantly higher odds of obesity (9.3 and 2.5- fold) in PON1192QQ children compared to PON1192RR children at ages two and five, respectively. Similar relationships were seen with BMI Z-scores at age two and waist circumference at age five. After adjusting for genetic ancestry in models of PON1 and BMI Z-score, effect estimates for PON1192 genotype changed 15% and 9% among two and five year old children, respectively, providing evidence of genetic confounding by population stratification. However even after adjustment for genetic ancestry, the trend of increased BMI Z-scores with increased number of PON1192 Q alleles remained. Our findings suggest that PON1 may

play a role in obesity independent of genetic ancestry and that studies of PON1 and health outcomes, especially in admixed populations, should account for differences due to population stratification.

**115: Rockhill CM, Katon W, Richards J, McCauley E, McCarty CA, Myaing MT, Zhou C, Richardson LP. What clinical differences distinguish depressed teens with and without comorbid externalizing problems? Gen Hosp Psychiatry. 2013 Jul-Aug;35(4):444-7. doi: 10.1016/j.genhosppsy.2013.04.002. Epub 2013 May 4. PubMed PMID: 23648192; PubMed Central PMCID: PMC3692614.**

Abstract

OBJECTIVE:

This study examined differences in co-occurring symptoms, psychosocial correlates, health care utilization and functional impairment in youth who screened positive for depression, stratified by whether or not they also self-reported externalizing problems.

METHODS:

The AdoleSCent Health Study examined a random sample of youth ages 13-17 enrolled in a health care system. A total of 2291 youth (60.7% of the eligible sample) completed a brief depression screen: the two-item Patient Health Questionnaire. The current analyses focus on a subset of youth (n=113) who had a follow-up interview and screened positive for possible depression on the Patient Health Questionnaire 9 using a cutoff score of 11 or higher [1]. Youth were categorized as having externalizing behavior if their score was  $\geq 7$  on the Pediatric Symptom Checklist (PSC) externalizing scale [2,3].  $\chi^2$  tests and Wilcoxon rank sum tests were used to compare groups.

RESULTS:

Differences between groups included that youth with depression and externalizing symptoms had a higher rate of obesity and had higher self-reported functional impairment than youth with depression symptoms alone.

CONCLUSIONS:

Adding screening for externalizing problems to existing recommendations for depression screening may help primary care providers to identify a high-risk depressed group of youth for referral to mental health services.

**116: Völgyi E, Carroll KN, Hare ME, Ringwald-Smith K, Piyathilake C, Yoo W, Tylavsky FA. Dietary patterns in pregnancy and effects on nutrient intake in the Mid-South: the Conditions Affecting Neurocognitive Development and Learning in Early Childhood (CANDLE) study. Nutrients. 2013 May 3;5(5):1511-30. doi: 10.3390/nu5051511. PubMed PMID: 23645026; PubMed Central PMCID: PMC3708333.**

Abstract

Dietary patterns are sensitive to differences across socio-economic strata or cultural habits and may impact programming of diseases in later life. The purpose of this study was to identify distinct dietary patterns during pregnancy in the Mid-South using factor analysis. Furthermore, we aimed to analyze the differences in the food groups and in macro- and micronutrients among the different food patterns. The study was a cross-sectional analysis of 1155 pregnant women (mean age  $26.5 \pm 5.4$  years; 62% African American, 35% Caucasian, 3% Other; and pre-pregnancy BMI  $27.6 \pm 7.5$  kg/m<sup>2</sup>). Using food frequency questionnaire data collected from participants in the Conditions Affecting Neurocognitive Development and Learning in Early Childhood (CANDLE) study between 16 and 28

weeks of gestation, dietary patterns were identified using factor analysis. Three major dietary patterns, namely, Healthy, Processed, and US Southern were identified among pregnant women from the Mid-South. Further analysis of the three main patterns revealed four mixed dietary patterns, i.e., Healthy-Processed, Healthy-US Southern, Processed-US Southern, and overall Mixed. These dietary patterns were different ( $p < 0.001$ ) from each other in almost all the food items, macro- and micro nutrients and aligned across socioeconomic and racial groups. Our study describes unique dietary patterns in the Mid-South, consumed by a cohort of women enrolled in a prospective study examining the association of maternal nutritional factors during pregnancy that are known to affect brain and cognitive development by age 3.

**117: Wilson ML, Viswanathan B, Rousson V, Bovet P. Weight status, body image and bullying among adolescents in the Seychelles. *Int J Environ Res Public Health*. 2013 May 2;10(5):1763-74. doi: 10.3390/ijerph10051763. PubMed PMID: 23644826; PubMed Central PMCID: PMC3709347.**

#### Abstract

We investigated the relationship between being bullied and measured body weight and perceived body weight among adolescents of a middle-income sub Saharan African country. Our data originated from the Global School-based Health Survey, which targets adolescents aged 13-15 years. Student weights and heights were measured before administering the questionnaire which included questions about personal data, health behaviors and being bullied. Standard criteria were used to assess thinness, overweight and obesity. Among 1,006 participants who had complete data, 16.5% (95%CI 13.3-20.2) reported being bullied  $\geq 3$  days during the past 30 days; 13.4% were thin, 16.8% were overweight and 7.6% were obese. Categories of actual weight and of perceived weight correlated only moderately (Spearman correlation coefficient 0.37 for boys and 0.57 for girls;  $p < 0.001$ ). In univariate analysis, both actual obesity (OR 1.76;  $p = 0.051$ ) and perception of high weight (OR 1.63 for "slightly overweight"; OR 2.74 for "very overweight", both  $p < 0.05$ ) were associated with being bullied. In multivariate analysis, ORs for categories of perceived overweight were virtually unchanged while ORs for actual overweight and obesity were substantially attenuated, suggesting a substantial role of perceived weight in the association with being bullied. Actual underweight and perceived thinness also tended to be associated with being bullied, although not significantly. Our findings suggest that more research attention be given to disentangling the significant association between body image, overweight and bullying among adolescents. Further studies in diverse populations are warranted.

**118: Abu Ghazaleh LA, Budair Z. The relation between stone disease and obesity in Jordan. *Saudi J Kidney Dis Transpl*. 2013 May;24(3):610-4. PubMed PMID: 23640648.**

#### Abstract

Obesity forms a growing challenge in medicine worldwide. In Jordan, the obese and the overweight population form 49.7% of the total population. The latest national male to female ratio in Jordan is 1:1.06. There is a relation between obesity and renal stone formation. This study is conducted to study the relation of renal stone and obesity in the Jordanian population. All patients with urolithiasis that attended the urology clinic at Prince Hussein Bin Abdullah Urology Center at King Hussein Medical Center, Jordan, over the period from January 2006 to January 2011 were included in the study and analyzed for age, gender, body weight, number of visits to the clinic and number of

procedures. Over a period of 60 months from January 2006 through January 2011, 8346 patients were treated for urolithiasis. The median age was 43.2 years. The male to female ratio was 1.46:1. 42.3% of the patients were obese, with body mass index (BMI) >30 kg/m<sup>2</sup> and 25.8% of the patients were overweight, with BMI >25 kg/m<sup>2</sup>. The normal body weight population formed 31.9% of the total population. The majority of our urolithiasis patients were obese and overweight, forming 68.1% of the population, with a higher number of clinical visits and higher number of surgical procedures. In the Jordanian population, there is a clear relation between obesity and stone formation, where the majority of stone formers was obese.

**119: Chunara R, Bouton L, Ayers JW, Brownstein JS. Assessing the online social environment for surveillance of obesity prevalence. PLoS One. 2013 Apr 24;8(4):e61373. doi: 10.1371/journal.pone.0061373. Print 2013. PubMed PMID: 23637820; PubMed Central PMCID: PMC3634787.**

Abstract

BACKGROUND:

Understanding the social environmental around obesity has been limited by available data. One promising approach used to bridge similar gaps elsewhere is to use passively generated digital data.

PURPOSE:

This article explores the relationship between online social environment via web-based social networks and population obesity prevalence.

METHODS:

We performed a cross-sectional study using linear regression and cross validation to measure the relationship and predictive performance of user interests on the online social network Facebook to obesity prevalence in metros across the United States of America (USA) and neighborhoods within New York City (NYC). The outcomes, proportion of obese and/or overweight population in USA metros and NYC neighborhoods, were obtained via the Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance and NYC EpiQuery systems. Predictors were geographically specific proportion of users with activity-related and sedentary-related interests on Facebook.

RESULTS:

Higher proportion of the population with activity-related interests on Facebook was associated with a significant 12.0% (95% Confidence Interval (CI) 11.9 to 12.1) lower predicted prevalence of obese and/or overweight people across USA metros and 7.2% (95% CI: 6.8 to 7.7) across NYC neighborhoods. Conversely, greater proportion of the population with interest in television was associated with higher prevalence of obese and/or overweight people of 3.9% (95% CI: 3.7 to 4.0) (USA) and 27.5% (95% CI: 27.1 to 27.9, significant) (NYC). For activity-interests and national obesity outcomes, the average root mean square prediction error from 10-fold cross validation was comparable to the average root mean square error of a model developed using the entire data set.

CONCLUSIONS:

Activity-related interests across the USA and sedentary-related interests across NYC were significantly associated with obesity prevalence. Further research is needed to understand how the online social environment relates to health outcomes and how it can be used to identify or target interventions.

**120: Bутtenheim AM, Goldman N, Pebley AR. Underestimation of adolescent obesity. Nurs Res. 2013 May-Jun;62(3):195-202. doi: 10.1097/NNR.0b013e318286b790. PubMed PMID: 23636345; PubMed Central PMCID: PMC4006016.**

Abstract

**BACKGROUND:**

Previous studies assessing the validity of adolescent self-reported height and weight for estimating obesity prevalence have not accounted for, potential bias due to nonresponse in self-reports.

**OBJECTIVES:**

The aim of this study was to assess the implications of selective nonresponse in self-reports of height and weight for estimates of adolescent obesity.

**METHODS:**

The authors analyzed 613 adolescents ages 12-17 years from the 2006-2008 Los Angeles Family and Neighborhood Survey, a longitudinal study of Los Angeles County households with an oversample of poor neighborhoods. Obesity prevalence estimates were compared based on (a) self-report, (b) measured height and weight for those who did report, and (c) measured height and weight for those who did not report.

**RESULTS:**

Among younger teens, measured obesity prevalence was higher for those who did not report height and weight compared with those who did (40% vs. 30%). Consequently, obesity prevalence based on self-reported height and weight underestimated measured prevalence by 12 percentage points (when accounting for nonresponse) versus 9 percentage points (when nonresponse was not accounted for). Results were robust to the choice of difference child growth references.

**DISCUSSION:**

Adolescent obesity surveillance and prevention efforts must take into account selective nonresponse for self-reported height and weight, particularly for younger teens. Results should be replicated in a nationally representative sample.

**121: Kallem S, Carroll-Scott A, Gilstad-Hayden K, Peters SM, McCaslin C, Ickovics JR. Children's report of lifestyle counseling differs by BMI status. Child Obes. 2013 Jun;9(3):216-22. doi: 10.1089/chi.2012.0100. Epub 2013 Apr 30. PubMed PMID: 23631343; PubMed Central PMCID: PMC3727518.**

Abstract

**BACKGROUND:**

This study examined whether children's report of receiving weight, nutrition, and physical activity counseling from their clinicians differs by their BMI status and identified factors associated with higher rates of counseling.

**METHODS:**

Physical assessments and health surveys were collected from a school-based sample of 959 5(th) and 6(th) grade students. Multivariate logistic regression analysis was used to examine how lifestyle counseling differs by BMI status, adjusting for race, gender, socioeconomic status, co-morbidities, site of care provider, and age.

**RESULTS:**

Healthy weight children reported receiving the least amount of lifestyle counseling, with nearly one-quarter reporting none at all. Overweight children were no more likely than their healthy weight

peers to report receiving weight and nutrition counseling. As expected, obese children were approximately two times more likely to report being counseled on their weight, nutrition, or physical activity as compared to healthy weight children (all p values at least <0.01). However, 23.9% of obese children reported receiving no counseling about their weight. After adjusting for BMI and all other confounding factors, for each lifestyle topic, Hispanics were at least 1.84 times more likely than whites to report being counseled (all p values at least <0.05). Blacks were at least 1.38 times more likely than whites to report being counseled (all p values at least <0.05). Girls were at least 1.38 times more likely than boys to report being counseled (all p values at least <0.05).

**CONCLUSION:**

Although lifestyle counseling is universally recommended, many children report not receiving counseling. Despite clinical indications for more intensive counseling, overweight children report similar counseling rates as their healthy weight peers. Furthermore, a substantial proportion of obese children report not receiving lifestyle counseling. Future research should examine how lifestyle counseling can more effectively reach all children.

**122: Thabit H, Burns N, Shah S, Brema I, Crowley V, Finnegan F, Daly B, Nolan JJ. Prevalence and predictors of diabetes and cardiometabolic risk among construction workers in Ireland: the Construction Workers Health Trust screening study. Diab Vasc Dis Res. 2013 Jul;10(4):337-45. doi: 10.1177/1479164113479808. Epub 2013 Apr 26. PubMed PMID: 23624762.**

**Abstract**

Construction workers (CW) are at increased risk for a range of chronic diseases. We screened 983 CW for diabetes and cardiometabolic risk. The age range was 18-64 years, with mean age of 36.3 years. Self-reported questionnaires, Finnish diabetes risk score and fasting blood tests were collected at the workplace. The unadjusted prevalence of pre-diabetes and type 2 diabetes mellitus were 3.6% and 1.2%, respectively; 21% of CW had the metabolic syndrome (MetS). The majority were either overweight (48.3%) or obese (21.8%). In a regression model, age remained the strongest predictor of fasting glucose ( $p < 0.001$ ). Pre-diabetes and diabetes mellitus were significantly associated with presence of the MetS [odds ratio (OR) 5.6; 95% confidence interval (CI): 2.8-11.5,  $p < 0.001$  and OR 5.5; 95% CI: 1.6-18.7,  $p = 0.006$ , respectively]. Subjects engaged in greater physical activity outside of work had lower body mass index (26.9 vs. 28.8 kg/m<sup>2</sup>), waist circumference (95.8 vs. 98.1 cm,  $p = 0.03$ ) and fasting serum triglycerides (1.1 vs. 1.4 mmol/L,  $p = 0.03$ ) compared to those who were sedentary. Despite their youth and a physically demanding occupation, CW are at risk of cardiometabolic diseases. This risk increases with age and the MetS. Screening tools may be useful to identify those who are at risk.

**123: Birdee GS, Byrne DW, McGown PW, Rothman RL, Rolando LA, Holmes MC, Yarbrough MI. Relationship between physical inactivity and health characteristics among participants in an employee-wellness program. J Occup Environ Med. 2013 May;55(5):514-9. doi: 10.1097/JOM.0b013e31827f37d7. PubMed PMID: 23618884; PubMed Central PMCID: PMC3651750.**

Abstract

OBJECTIVE:

To characterize factors associated with physical inactivity among employees with access to workplace wellness program.

METHODS:

We examined data on physical inactivity, defined as exercise less than once a week, from the 2010 health risk assessment completed by employees at a major academic institution (N = 16,976).

RESULTS:

Among employees, 18% of individuals reported physical activity less than once a week. Individuals who were physically inactive as compared with physically active reported higher prevalence of cardiovascular diseases (adjusted odds ratio [AOR], 1.36 [1.23 to 1.51]), fair or poor health status (AOR, 3.52 [2.97 to 4.17]), and absenteeism from work (AOR, 1.59 [1.41 to 1.79]). Overall, physically inactive employees as compared with physically active employees reported more interest in health education programs.

CONCLUSION:

Future research is needed to address barriers to physical inactivity to improve employee wellness and potentially lower health utility costs.

**124: Biro FM, Deardorff J. Identifying opportunities for cancer prevention during preadolescence and adolescence: puberty as a window of susceptibility. J Adolesc Health. 2013 May;52(5 Suppl):S15-20. doi: 10.1016/j.jadohealth.2012.09.019. Review. Erratum in: J Adolesc Health. 2013 Jun;52(6);808. PubMed PMID: 23601607; PubMed Central PMCID: PMC4037133.**

Abstract

PURPOSE:

Early life exposures during times of rapid growth and development are recognized increasingly to impact later life. Epidemiologic studies document an association between exposures at critical windows of susceptibility with outcomes as diverse as childhood and adult obesity, timing of menarche, and risk for hypertension or breast cancer.

METHODS:

This article briefly reviews the concept of windows of susceptibility for providers who care for adolescent patients.

RESULTS:

The theoretical bases for windows of susceptibility is examined, evaluating the relationship between pubertal change and breast cancer as a paradigm, and reviewing the underlying mechanisms, such as epigenetic modification.

CONCLUSIONS:

The long-term sequela of responses to early exposures may impact other adult morbidities; addressing these exposures represents an important challenge for contemporary medicine.



**125: Koual M, Abbou H, Carbonnel M, Picone O, Ayoubi JM. Short-term outcome of patients with preeclampsia. Vasc Health Risk Manag. 2013;9:143-8. doi: 10.2147/VHRM.S38970. Epub 2013 Apr 15. PubMed PMID: 23610524; PubMed Central PMCID: PMC3629867.**

Abstract

INTRODUCTION:

Preeclampsia constitutes a cause of increased mortality in mothers and fetuses. Screening for promoting factors is essential for adequate prevention in the event of any subsequent pregnancy, and for the adequate follow-up of concerned patients. The aim of the present study was to evaluate the short-term outcome of patients with preeclampsia and to identify possible new factors predisposing them to the disease.

METHODS:

One hundred fifty-five patients having experienced preeclampsia between 2005 and 2010 from the Gynecology and Obstetrics Department of the Foch Hospital (Suresnes, France) were included in the study. All patients had undergone close clinical and standard biological follow-up immediately postpartum and then 3 months later with a reference practitioner. In severe cases, further investigation was carried out by full etiological examination with an assessment of both autoimmune and thrombophilic status.

RESULTS:

Obesity and gestational diabetes were observed to be major risk factors for preeclampsia, which were found in 46% and 15% of the cases, respectively. The etiological assessment showed abnormalities in 11% of the patients. Impaired thrombophilia was found in 3% of the patients, impaired autoimmune status in 4%, a combination of both abnormalities in only 1% of the patients, and detection of renal abnormalities in 3% of the patients were observed. In the immediate postpartum period, 66% of patients had maintained elevated blood pressure levels, and 66% had proteinuria > 0.3 g/24 hours. At the 3-month postpartum assessment, persisting arterial hypertension was found in 16% of the patients, requiring continuation of antihypertensive therapy, and 22% of the patients had proteinuria over the accepted threshold (0.15 g/24 hours).

CONCLUSION:

Patients with preeclampsia have increased cardiovascular risk, necessitating lifestyle measures and long-term follow-up. Etiological assessment must be carried out, systematically aiming at the detection of promoting underlying diseases and adaptation of the management of subsequent pregnancies.

KEYWORDS:

gestational hypertensive disorders; postpartum; preeclampsia.

**126: Corden B, Keenan NG, de Marvao AS, Dawes TJ, Decesare A, Diamond T, Durighel G, Hughes AD, Cook SA, O'Regan DP. Body fat is associated with reduced aortic stiffness until middle age. Hypertension. 2013 Jun;61(6):1322-7. doi: 10.1161/HYPERTENSIONAHA.113.01177. Epub 2013 Apr 22. PubMed PMID: 23608657.**

Abstract

Obesity is a major risk factor for cardiometabolic disease, but the effect of body composition on vascular aging and arterial stiffness remains uncertain. We investigated relationships among body composition, blood pressure, age, and aortic pulse wave velocity in healthy individuals. Pulse wave

velocity in the thoracic aorta, an indicator of central arterial stiffness, was measured in 221 volunteers (range, 18-72 years; mean, 40.3±13 years) who had no history of cardiovascular disease using cardiovascular MRI. In univariate analyses, age ( $r=0.78$ ;  $P<0.001$ ) and blood pressure ( $r=0.41$ ;  $P<0.001$ ) showed a strong positive association with pulse wave velocity. In multivariate analysis, after adjustment for age, sex, and mean arterial blood pressure, elevated body fat% was associated with reduced aortic stiffness until the age of 50 years, thereafter adiposity had an increasingly positive association with aortic stiffness ( $\beta=0.16$ ;  $P<0.001$ ). Body fat% was positively associated with cardiac output when age, sex, height, and absolute lean mass were adjusted for ( $\beta=0.23$ ;  $P=0.002$ ). These findings suggest that the cardiovascular system of young adults may be capable of adapting to the state of obesity and that an adverse association between body fat and aortic stiffness is only apparent in later life.

KEYWORDS:

MRI; aging; aortic stiffness; blood pressure; obesity.

**127: Lowry R, Lee SM, Fulton JE, Demissie Z, Kann L. Obesity and other correlates of physical activity and sedentary behaviors among US high school students. J Obes. 2013;2013:276318. doi: 10.1155/2013/276318. Epub 2013 Mar 31. PubMed PMID: 23606950; PubMed Central PMCID: PMC3628188.**

Abstract

Understanding correlates of physical activity (PA) can help inform and improve programs that promote PA among youth. We analyzed data from the 2010 National Youth Physical Activity and Nutrition Study, a representative sample of US students in grades 9-12. Logistic regression was used to examine associations between PA correlates (obesity, physical education classes, sports team participation, attitude toward PA, adult support for PA, and environmental support for PA) and participation in daily PA (DPA), vigorous PA (VPA), muscle-strengthening activity (MSA), viewing television (TV), and using computers or video games (C/VG). A positive attitude toward PA and adult support for PA were both associated with increased PA and decreased sedentary behavior. However, among students who lived in neighborhoods that were not safe for PA, a positive attitude toward PA was not associated with increased DPA or decreased sedentary behavior and was less strongly associated with VPA and MSA. Efforts to increase PA among youth should promote a positive attitude toward PA among youth and encourage adult family members to support their efforts to be active. Policies that promote safe neighborhoods may work synergistically with a positive attitude toward PA to increase participation in PA and decrease sedentary behaviors.

**128: Rosenbaum M, Fennoy I, Accacha S, Altshuler L, Carey DE, Holleran S, Rapaport R, Shelov SP, Speiser PW, Ten S, Bhangoo A, Boucher-Berry C, Espinal Y, Gupta R, Hassoun AA, Iazetti L, Jean-Jacques F, Jean AM, Klein ML, Levine R, Lowell B, Michel L, Rosenfeld W. Racial/ethnic differences in clinical and biochemical type 2 diabetes mellitus risk factors in children. *Obesity (Silver Spring)*. 2013 Oct;21(10):2081-90. doi: 10.1002/oby.20483. Epub 2013 Jul 5. PubMed PMID: 23596082; PubMed Central PMCID: PMC3766484.**

Abstract

OBJECTIVE:

To examine whether periadolescent children demonstrate the significant racial/ethnic differences in body fatness relative to BMI and in the prevalence and relationship of body composition to risk factors for type 2 diabetes (T2DM) as in adults.

DESIGN AND METHODS:

Family history of obesity and T2DM, anthropometry, insulin sensitivity and secretory capacity, lipids, and cytokines (IL-6, CRP, TNF- $\alpha$ , and adiponectin) were examined in a cohort of 994 middle school students (47% male, 53% female; 12% African American, 14% East Asian, 13% South Asian, 9% Caucasian, 44% Hispanic, and 8% other).

RESULTS:

Fractional body fat content was significantly greater at any BMI among South Asians. There were racial/ethnic specific differences in lipid profiles, insulin secretory capacity, insulin sensitivity, and inflammatory markers corrected for body fatness that are similar to those seen in adults. Family history of T2DM was associated with lower insulin secretory capacity while family history of obesity was more associated with insulin resistance.

CONCLUSIONS:

Children show some of the same racial/ethnic differences in risk factors for adiposity-related comorbidities as adults. BMI and waist circumference cutoffs to identify children at-risk for adiposity-related comorbidities should be adjusted by racial/ethnic group as well as other variables such as birthweight and family history.

**129: Satija A, Agrawal S, Bowen L, Khandpur N, Kinra S, Prabhakaran D, Reddy KS, Smith GD, Ebrahim S. Association between milk and milk product consumption and anthropometric measures in adult men and women in India: a cross-sectional study. *PLoS One*. 2013 Apr 8;8(4):e60739. doi: 10.1371/journal.pone.0060739. Print 2013. PubMed PMID: 23593300; PubMed Central PMCID: PMC3620205.**

Abstract

BACKGROUND:

The nutritional aetiology of obesity remains unclear, especially with regard to the role of dairy products in developing countries.

OBJECTIVE:

To examine whether milk/milk product consumption is associated with obesity and high waist circumference among adult Indians.

METHODS:

Information on plain milk, tea, curd and buttermilk/lassi consumption assessed using a Food Frequency Questionnaire was obtained from the cross-sectional sib-pair designed Indian Migration

Study (3698 men and 2659 women), conducted at four factory locations across north, central and south India. The anthropometric measures included were Body Mass Index (BMI) and Waist Circumference (WC). Mixed-effect logistic regression models were conducted to accommodate sib-pair design and adjust for potential confounders.

**RESULTS:**

After controlling for potential confounders, the risk of being obese (BMI  $\geq 25$  kg/m<sup>2</sup>) was lower among women (OR = 0.57;95%CI:0.43-0.76;p  $\leq$  0.0001) and men (OR = 0.67;95%CI: 0.51-0.87;p = 0.005), and the risk of a high WC (men: >90 cm; women: >80 cm) was lower among men (OR = 0.71;95%CI:0.54-0.93;p = 0.005) and women (OR = 0.79;95%CI:0.59-1.05;p>0.05) who consume  $\geq 1$  portions of plain milk daily than those who do not consume any milk. The inverse association between daily plain milk consumption and obesity was also confirmed in sibling-pair analyses. Daily tea consumption of  $\geq 1$  portion was associated with obesity (OR = 1.51;95%CI:1.00-2.25;p>0.050) and high WC (OR = 1.65;95%CI:1.08-2.51;p>0.019) among men but not among women but there was no strong evidence of association of curd and buttermilk/lassi consumption with obesity and high waist circumference among both men and women.

**CONCLUSIONS:**

The independent, inverse association of daily plain milk consumption with the risk of being obese suggests that high plain milk intake may lower the risk of obesity in adult Indians. However, this is an observational finding and uncontrolled confounding cannot be excluded as an explanation for the association. Therefore, confirmatory studies are needed to clarify this relationship.

**130: Ouyang F, Parker M, Cerda S, Pearson C, Fu L, Gillman MW, Zuckerman B, Wang**

**X. Placental weight mediates the effects of prenatal factors on fetal growth: the extent differs by preterm status. Obesity (Silver Spring). 2013 Mar;21(3):609-20.**

**doi: 10.1002/oby.20254. PubMed PMID: 23592670; PubMed Central PMCID: PMC3418379.**

**Abstract**

**OBJECTIVE:**

Elevated pre-pregnancy BMI, excessive gestational weight gain (GWG), and gestational diabetes mellitus (GDM) are known determinants of fetal growth. The role of placental weight is unclear. We aimed to examine the extent to which placental weight mediates the associations of pre-pregnancy BMI, GWG, and GDM with birth weight-for-gestational age, and whether the relationships differ by preterm status.

**DESIGN AND METHODS:**

We examined 1,035 mother-infant pairs at birth from the Boston Birth Cohort. Data were collected by questionnaire and clinical measures. Placentas were weighed without membranes or umbilical cords. We performed sequential models excluding and including placental weight, stratified by preterm status.

**RESULTS:**

We found that 21% of mothers were obese, 42% had excessive GWG, and 5% had GDM. Forty-one percent were preterm. Among term births, after adjustment for sex, gestational age, maternal age, race, parity, education, smoking, and stress during pregnancy, birth weight-for-gestational age z-score was 0.55 (0.30, 0.80) units higher for pre-pregnancy obesity vs. normal weight. It was 0.34 (0.13, 0.55) higher for excessive vs. adequate GWG, 0.67 (0.24, 1.10) for GDM vs. no DM, with additional adjustment for pre-pregnancy BMI. Adding placental weight to the models attenuated the estimates for pre-pregnancy obesity by 20%, excessive GWG by 32%, and GDM by 21%. Among

preterm infants, GDM was associated with 0.67 (0.34, 1.00) higher birth weight-for-gestational age z-score, but pre-pregnancy obesity and excessive GWG were not. Attenuation by placental weight was 36% for GDM.

**CONCLUSIONS:**

These results suggest that placental weight partially mediates the effects of pre-pregnancy obesity, GDM, and excessive GWG on fetal growth among term infants.

**131: Mitchell JA, Rodriguez D, Schmitz KH, Audrain-McGovern J. Greater screen time is associated with adolescent obesity: a longitudinal study of the BMI distribution from Ages 14 to 18. Obesity (Silver Spring). 2013 Mar;21(3):572-5. doi: 10.1002/oby.20157. PubMed PMID: 23592665; PubMed Central PMCID: PMC3630469.**

**Abstract**

**OBJECTIVE:**

Previous research has examined the association between screen time and average changes in adolescent body mass index (BMI). Until now, no study has evaluated the longitudinal relationship between screen time and changes in the BMI distribution across mid to late adolescence.

**DESIGN AND METHODS:**

Participants (n = 1,336) were adolescents who were followed from age 14 to age 18 and surveyed every 6 months. Time spent watching television/videos and playing video games was self-reported (<1 h day<sup>-1</sup> , 1 h day<sup>-1</sup> , 2 h day<sup>-1</sup> , 3 h day<sup>-1</sup> , 4 h day<sup>-1</sup> , or 5+ h day<sup>-1</sup> ). BMI (kg m<sup>-2</sup> ) was calculated from self-reported height and weight. Longitudinal quantile regression was used to model the 10th, 25th, 50th, 75th, and 90th BMI percentiles as dependent variables. Study wave and screen time were the main predictors, and adjustment was made for gender, race, maternal education, hours of sleep, and physical activity.

**RESULTS:**

Increases at all the BMI percentiles over time were observed, with the greatest increase observed at the 90th BMI percentile. Screen time was positively associated with changes in BMI at the 50th (0.17, 95% CI: 0.06, 0.27), 75th (0.31, 95% CI: 0.10, 0.52), and 90th BMI percentiles (0.56, 95% CI: 0.27, 0.82). No associations were observed between screen time and changes at the 10th and 25th BMI percentiles.

**CONCLUSIONS:**

Positive associations between screen time and changes in the BMI at the upper tail of the BMI distribution were observed. Therefore, lowering screen time, especially among overweight and obese adolescents, could contribute to reducing the prevalence of adolescent obesity.

**132: Musaiger AO, bin Zaal AA, D'Souza R. Body weight perception among adolescents in Dubai, United Arab Emirates. Nutr Hosp. 2012 Nov-Dec;27(6):1966-72. doi: 10.3305/nh.2012.27.6.5830. PubMed PMID: 23588446.**

**Abstract**

This study investigated the body image perceptions among adolescents in Dubai, United Arab Emirates (UAE). A cross-sectional survey was conducted amongst 661 adolescents (324 males; 337 females) aged 12-17 years selected from government schools using a multistage stratified random sampling technique. A pretested validated questionnaire was employed to determine the perception of adolescents toward their weight status. A nine figure silhouette illustration was used to measure

perceptions of their ideal body image and how it compares with their current body weight. The results revealed that overweight (18.5%) and obesity (27.2%) were higher among males than in females (13.1% and 20.5% respectively). A high proportion of overweight males and females considered themselves as average (45.0% and 52.3%, respectively). Similarly, 56.9% of obese male and 46.4% of females considered themselves as average weight. Of non-overweight/obese males and females, 27.6% and 39.3% respectively, were pressured by parents to gain weight ( $p > 0.000$ ). In general overweight and obese adolescents were more likely to face pressure from their parents and teased by friends than non-overweight/obese adolescents. Compared to their current body image, overweight and obese adolescents chose a significantly lighter figure as their ideal ( $p < 0.000$ ). It is suggested that the current health education curriculum should include information related to healthy body weight and appropriate diet and lifestyle so as to minimize risk of developing distorted body image concerns in adolescence and beyond.

**133: González-Jiménez E, García López PA, Schmidt Río-Valle J. [Analysis of the nutritional state of school children in different districts of the province of Granada (Spain)]. Nutr Hosp. 2012 Nov-Dec;27(6):1960-5. doi: 10.3305/nh.2012.27.6.6067. Spanish. PubMed PMID: 23588445.**

Abstract

BACKGROUND:

In Spain the prevalence of obesity shows a north-south distribution. In the province of Granada its distribution is unknown.

OBJECTIVES:

(1) To study the prevalence of overweight and obesity in a sample population of school children and adolescents from different districts in the province of Granada. (2) To verify whether there are significant differences, depending on the district where the students reside. (3) To find a possible correlation between the nutritional state of the students and that of their parents.

METHODS:

The population sample was composed of 977 school children and adolescents from 9 to 17 years of age, attending 13 public elementary schools and high schools in the city and province of Granada (Spain). In this analytical and multicentric study, the nutritional state of the subjects was evaluated by means of anthropometric measurements. Furthermore, data were collected by means of questionnaire to discover whether the respondents had a family history of overweight or obesity.

RESULTS:

We found a high prevalence of overweight and obesity among the studied population. In girls, the greater prevalence of both overweight and obesity ranged from 12 to 14 years of age. In boys, there was an increase in the prevalence of overweight at twelve years of age. Regarding obesity, their rates were significantly lower than those described among girls. There were statistically significant differences for weight ( $F = 4,154$ ;  $p = 0,003$ ) but not for height ( $F = 1,928$ ;  $p = 0,105$ ). But for the variable BMI was statistically significant difference ( $F = 5.037$ ;  $P < 0.001$ ) between the studied geographical areas. The results showed that the nutritional state of students with a family history of obesity was significantly worse ( $p < 0.01$ ).

DISCUSSION:

A high prevalence of obesity was found in the sample, especially among the girls. There exists a geographical distribution pattern, possibly derived from the socioeconomic characteristics of each

area in the province. The existence of a family history of obesity is an important factor that can determine whether the child will also become obese in the future.

**134: Ortiz-Moncada R, Norte Navarro AI, Zaragoza Marti A, Fernández Sáez J, Davó Blanes MC. [Do the Spanish university students follow Mediterranean dietary patterns?]. Nutr Hosp. 2012 Nov-Dec;27(6):1952-9. doi: 10.3305/nh.2012.27.6.6091. Spanish. PubMed PMID: 23588444.**

Abstract

OBJECTIVE:

To determine the pattern of food intake among the students of the University of Alicante (UA) by the level of adherence to the Mediterranean diet.

METHODS:

Descriptive trans-sectional study estimating the individual intake by means of a questionnaire of food intake frequency (QFIF) in a representative sample of 380 college students.

STUDY VARIABLES:

age, gender, geographical area of origin, self-communicated weight and height; types and intake frequencies of the foods included in the QFIF. The percentage of adherence was calculated taking into account the actual intake and the intake recommended in the guideline of traditional Mediterranean diet: 100 x servings consumed/recommended servings. We established 5 ranges of percentage of adherence: optimal intake (80%-119%), acceptable intake (60%-79%), deficient intake (40%-59%), very deficient intake (< 39%), excessive intake (> 120%). We analyzed the differences in proportions distribution and the Student's t test with EPIDAT 3.1 and SPSS 15.0.

RESULTS:

The prevalence of overweight/obesity is higher in men (34.6%) than in women (9.8%),  $p < 0.001$ , whereas women had higher prevalence of low weight (7.0%) than men (0.7%),  $p < 0.05$ . The consumption of grains and derivatives was very deficient (women = 90.6; men = 94.9) whereas the intake of red meats (women = 90.6; men = 92.7) and cold meats (women = 95.9%, men = 96.3%) was excessive. No student had an "optimal intake" or an "acceptable intake" of all the dietary groups ( $n = 12$ ).

DISCUSSION:

The educational level and access to the information do not protect the university population from socio-environmental factors that have an influence on their dietary habits. The public health strategies focused on this population group should be strengthened.

**135: Mackay DF, Gray L, Pell JP. Impact of smoking and smoking cessation on overweight and obesity: Scotland-wide, cross-sectional study on 40,036 participants. BMC Public Health. 2013 Apr 15;13:348. doi: 10.1186/1471-2458-13-348. PubMed PMID: 23587253; PubMed Central PMCID: PMC3636072.**

Abstract

BACKGROUND:

Weight control is cited by some people, especially adolescent girls, as a reason for commencing smoking or not quitting. The aim of this study was to explore the relationship between smoking behaviour and being overweight or obese, overall and by age and sex sub-groups.

#### METHODS:

We used data from the six Scottish Health Surveys conducted to date (1995-2010) to undertake a population-based, cross-sectional study on 40,036 participants representative of the adult ( $\geq 16$  years) Scottish population. Height and weight were measured by a trained interviewer, not self-reported.

#### RESULTS:

24,459 (63.3%) participants were overweight (BMI  $\geq 25$  kg/m<sup>2</sup>) and 9,818 (25.4%) were obese (BMI  $\geq 30$  kg/m<sup>2</sup>). Overall, current smokers were less likely to be overweight than never smokers. However, those who had smoked for more than 20 years (adjusted OR 1.54, 95% CI 1.41-1.69,  $p < 0.001$ ) and ex-smokers (adjusted OR 1.18, 95% CI 1.11-1.25,  $p < 0.001$ ) were more likely to be overweight. There were significant interactions with age. Participants 16-24 years of age, were no more likely to be overweight if they were current (adjusted OR 1.01, 95% CI 0.84-1.20,  $p = 0.944$ ) or ex (adjusted OR 0.88, 95% CI 0.67-1.14,  $p = 0.319$ ) smokers. The same patterns pertained to obesity.

#### CONCLUSIONS:

Whilst active smoking may be associated with reduced risk of being overweight among some older adults, there was no evidence to support the belief among young people that smoking protects them from weight gain. Making this point in educational campaigns targeted at young people may help to discourage them from starting to smoke.

**136: Datar A, Nicosia N, Shier V. Parent perceptions of neighborhood safety and children's physical activity, sedentary behavior, and obesity: evidence from a national longitudinal study. Am J Epidemiol. 2013 May 15;177(10):1065-73. doi: 10.1093/aje/kws353. Epub 2013 Apr 11. PubMed PMID: 23579555; PubMed Central PMCID: PMC3649633.**

#### Abstract

We examined the relationship between parent-perceived neighborhood safety and children's physical activity, sedentary behavior, body mass, and obesity status using 9 years of longitudinal data (1999-2007) on a cohort of approximately 19,000 US kindergartners from the Early Childhood Longitudinal Study. Children's height and weight measurements and parent perceptions of neighborhood safety were available in kindergarten and in the first, third, fifth, and eighth grades. Dependent variables included age- and gender-specific body mass index percentile, obesity status, and parent- or child-reported weekly physical activity and television-watching. Pooled cross-sectional and within-child longitudinal regression models that controlled for child, family, and school characteristics were fitted. Both cross-sectional and longitudinal models indicated that children whose parents perceived their neighborhoods as unsafe watched more television and participated in less physical activity, although the magnitude of this association was much weaker in longitudinal models. However, there was no significant association between parent-perceived neighborhood safety and children's body mass index.

#### KEYWORDS:

body mass index; motor activity; obesity; residence characteristics.



**137: Du T, Sun X, Yin P, Huo R, Ni C, Yu X. Increasing trends in central obesity among Chinese adults with normal body mass index, 1993-2009. BMC Public Health. 2013 Apr 10;13:327. doi: 10.1186/1471-2458-13-327. PubMed PMID: 23575244; PubMed Central PMCID: PMC3626835.**

Abstract

BACKGROUND:

Central obesity is thought to be more pathogenic than overall obesity and studies have shown that the association between waist circumference (WC) and mortality was strongest in those with a normal body mass index (BMI). The objective of our study was to determine secular trends in the prevalence of central obesity (WC  $\geq$  90 cm for men and  $\geq$  80 cm for women) among Chinese adults with normal BMI from 1993 to 2009 and to examine the impact of performance of combined BMI and WC on the prevalence of obesity in Chinese adults.

METHODS:

We used data from the China Health and Nutrition Survey (CHNS) conducted from 1993 to 2009. From which we included a total of 52023 participants aged  $\geq$  18 years.

RESULTS:

The age-standardized prevalence of central obesity among Chinese adults with BMI  $<$  25 kg/m<sup>2</sup> increased from 11.9% in 1993 to 21.1% in 2009 (P for linear trend  $<$ 0.001). The upward trends were noted in both genders, all ages, rural/urban settings, and education groups (all P for linear trend  $<$ 0.001), with greater increments in men, participants aged 18-64 years, and rural residents (P for interaction terms survey  $\times$  sex, survey  $\times$  age, and survey  $\times$  rural/urban settings were 0.042, 0.003, and  $<$  0.001, respectively). Trends in the prevalence of central obesity were similar when a more stringent BMI  $<$  23 kg/m<sup>2</sup> cut point (Asian cut point) was applied. Central obesity is associated with a higher risk of incident hypertension within normal BMI category. More than 65% individuals with obesity would be missed if solely BMI was measured.

CONCLUSIONS:

We observed an upward trend in the prevalence of central obesity among participants with normal BMI irrespective of sex, age, rural/urban settings, and education level. Central obesity is associated with a higher risk of incident hypertension within normal BMI category. Approximately two thirds of the individuals with obesity would be missed if WC was not measured. It is, therefore, urgent to emphasize the importance of WC as a measure to monitor the prevalence of obesity.

**138: Wate JT, Snowdon W, Millar L, Nichols M, Mavoia H, Goundar R, Kama A, Swinburn B. Adolescent dietary patterns in Fiji and their relationships with standardized body mass index. Int J Behav Nutr Phys Act. 2013 Apr 9;10:45. doi: 10.1186/1479-5868-10-45. PubMed PMID: 23570554; PubMed Central PMCID: PMC3637506.**

Abstract

BACKGROUND:

Obesity has been increasing in adolescents in Fiji and obesogenic dietary patterns need to be assessed to inform health promotion. The objective of this study was to identify the dietary patterns of adolescents in peri-urban Fiji and determine their relationships with standardized body mass index (BMI-z).

METHODS:

This study analysed baseline measurements from the Pacific Obesity Prevention In Communities (OPIC) Project. The sample comprised 6,871 adolescents aged 13-18 years from 18 secondary schools on the main island of Viti Levu, Fiji. Adolescents completed a questionnaire that included diet-related variables; height and weight were measured. Descriptive statistics and regression analyses were conducted to examine the associations between dietary patterns and BMI-z, while controlling for confounders and cluster effect by school.

**RESULTS:**

Of the total sample, 24% of adolescents were overweight or obese, with a higher prevalence among Indigenous Fijians and females. Almost all adolescents reported frequent consumption of sugar sweetened beverages (SSB) (90%) and low intake of fruit and vegetables (74%). Over 25% of participants were frequent consumers of takeaways for dinner, and either high fat/salt snacks, or confectionery after school. Nearly one quarter reported irregular breakfast (24%) and lunch (24%) consumption on school days, while fewer adolescents (13%) ate fried foods after school. IndoFijians were more likely than Indigenous Fijians to regularly consume breakfast, but had a high unhealthy SSB and snack consumption. Regular breakfast ( $p<0.05$ ), morning snack ( $p<0.05$ ) and lunch ( $p<0.05$ ) consumption were significantly associated with lower BMI-z. Consumption of high fat/salt snacks, fried foods and confectionery was lower among participants with higher BMI-z.

**CONCLUSIONS:**

This study provides important information about Fijian adolescents' dietary patterns and associations with BMI-z. Health promotion should target reducing SSB, increasing fruit and vegetables consumption, and increasing regularity of meals among adolescents. Future research is needed to investigate moderator(s) of inverse associations found between BMI-z and consumption of snacks, fried foods and confectionery to assess for potential reverse causality.

**139: Bickham DS, Blood EA, Walls CE, Shrier LA, Rich M. Characteristics of screen media use associated with higher BMI in young adolescents. *Pediatrics*. 2013 May;131(5):935-41. doi: 10.1542/peds.2012-1197. Epub 2013 Apr 8. PubMed PMID: 23569098; PubMed Central PMCID: PMC3639454.**

**Abstract**

**OBJECTIVES:**

This study investigates how characteristics of young adolescents' screen media use are associated with their BMI. By examining relationships between BMI and both time spent using each of 3 screen media and level of attention allocated to use, we sought to contribute to the understanding of mechanisms linking media use and obesity.

**METHODS:**

We measured heights and weights of 91 13- to 15-year-olds and calculated their BMIs. Over 1 week, participants completed a weekday and a Saturday 24-hour time-use diary in which they reported the amount of time they spent using TV, computers, and video games. Participants carried handheld computers and responded to 4 to 7 random signals per day by completing onscreen questionnaires reporting activities to which they were paying primary, secondary, and tertiary attention.

**RESULTS:**

Higher proportions of primary attention to TV were positively associated with higher BMI. The difference between 25th and 75th percentiles of attention to TV corresponded to an estimated +2.4 BMI points. Time spent watching television was unrelated to BMI. Neither duration of use nor extent of attention paid to video games or computers was associated with BMI.

#### CONCLUSIONS:

These findings support the notion that attention to TV is a key element of the increased obesity risk associated with TV viewing. Mechanisms may include the influence of TV commercials on preferences for energy-dense, nutritionally questionable foods and/or eating while distracted by TV. Interventions that interrupt these processes may be effective in decreasing obesity among screen media users.

#### KEYWORDS:

adolescents; computer; ecological momentary assessment; obesity; television; video games.

**140: Lin SL, Leung GM, Lam TH, Schooling CM. Timing of solid food introduction**

**and obesity: Hong Kong's "children of 1997" birth cohort. *Pediatrics*. 2013**

**May;131(5):e1459-67. doi: 10.1542/peds.2012-2643. Epub 2013 Apr 8. PubMed PMID:**

**23569095.**

#### Abstract

##### BACKGROUND:

Some observational studies in Western settings show that early introduction of solid food is associated with subsequent obesity. However, introduction of solid food and obesity share social patterning. We examined the association of the timing of the introduction of solid food with BMI and overweight (including obesity) into adolescence in a developed non-Western setting, in which childhood obesity is less clearly socially patterned.

##### METHODS:

We used generalized estimating equation models to estimate the adjusted associations of the timing of the introduction of solid food (<3, 3-4, 5-6, 7-8, and >8 months) with BMI z score and overweight (including obesity) at different growth phases (infancy, childhood, and puberty) in 7809 children (88% follow-up) from a Chinese birth cohort, "Children of 1997." We assessed if the associations varied with gender or breastfeeding. We used multiple imputation for missing exposure and confounders.

##### RESULTS:

The introduction of solid food at <3 months of age was associated with lower family socioeconomic position (SEP) but was not clearly associated with BMI or overweight (including obesity) in infancy [mean difference in BMI z score: 0.01; 95% confidence interval (CI): -0.14 to 0.17], childhood (0.14; 95% CI: -0.11 to 0.40), or at puberty (0.22; 95% CI: -0.07 to 0.52), adjusted for SEP and infant and maternal characteristics.

##### CONCLUSIONS:

In a non-Western developed setting, there was no clear association of the early introduction of solid food with childhood obesity. Together with the inconsistent evidence from studies in Western settings, this finding suggests that any observed associations might simply be residual confounding by SEP.

##### KEYWORDS:

China; cohort study; infant feeding; obesity; solid food.

**141: Mitchell JA, Rodriguez D, Schmitz KH, Audrain-McGovern J. Sleep duration and adolescent obesity. *Pediatrics*. 2013 May;131(5):e1428-34. doi: 10.1542/peds.2012-2368. Epub 2013 Apr 8. PubMed PMID: 23569090; PubMed Central PMCID: PMC3639456.**

Abstract

OBJECTIVES:

Short sleep has been associated with adolescent obesity. Most studies used a cross-sectional design and modeled BMI categories. We sought to determine if sleep duration was associated with BMI distribution changes from age 14 to 18.

METHODS:

Adolescents were recruited from suburban high schools in Philadelphia when entering ninth grade (n = 1390) and were followed-up every 6 months through 12th grade. Height and weight were self-reported, and BMIs were calculated (kg/m<sup>2</sup>). Hours of sleep were self-reported. Quantile regression was used to model the 10th, 25th, 50th, 75th, and 90th BMI percentiles as dependent variables; study wave and sleep were the main predictors.

RESULTS:

BMI increased from age 14 to 18, with the largest increase observed at the 90th BMI percentile. Each additional hour of sleep was associated with decreases in BMI at the 10th (-0.04; 95% confidence interval [CI]: -0.11, 0.03), 25th (-0.12; 95% CI: -0.20, -0.04), 50th (-0.15; 95% CI: -0.24, -0.06), 75th (-0.25; 95% CI: -0.38, -0.12), and 90th (-0.27; 95% CI: -0.45, -0.09) BMI percentiles. The strength of the association was stronger at the upper tail of the BMI distribution. Increasing sleep from 7.5 to 10.0 hours per day at age 18 predicted a reduction in the proportion of adolescents >25 kg/m<sup>2</sup> by 4%.

CONCLUSIONS:

More sleep was associated with nonuniform changes in BMI distribution from age 14 to 18. Increasing sleep among adolescents, especially those in the upper half of the BMI distribution, may help prevent overweight and obesity.

KEYWORDS:

adolescence; longitudinal study; obesity; sleep.

**142: Kaisari P, Yannakoulia M, Panagiotakos DB. Eating frequency and overweight and obesity in children and adolescents: a meta-analysis. *Pediatrics*. 2013 May;131(5):958-67. doi: 10.1542/peds.2012-3241. Epub 2013 Apr 8. Review. PubMed PMID: 23569087.**

Abstract

OBJECTIVES:

To determine the effect of eating frequency on body weight status in children and adolescents.

METHODS:

In this meta-analysis, original observational studies published to October 2011 were selected through a literature search in the PubMed database. The reference list of the retrieved articles was also used to identify relevant articles; researchers were contacted when needed. Selected studies were published in English, and they reported on the effect of eating frequency on overweight/obesity in children and adolescents. Pooled effect sizes were calculated using a random effects model.

RESULTS:

Ten cross-sectional studies and 1 case-control study (21 substudies in total), comprising 18 849 participants (aged 2-19 years), were included in the analysis. Their combined effect revealed that the highest category of eating frequency, as compared with the lowest, was associated with a beneficial effect regarding body weight status in children and adolescents (odds ratio [OR] = 0.78, log OR = -0.24, 95% confidence interval [CI] -0.41 to -0.06). The observed beneficial effect remained significant in boys (OR = 0.76, log OR = -0.27, 95% CI -0.47 to -0.06), but not in girls (OR = 0.96, log OR = -0.04, 95% CI -0.40 to 0.32) (P for sex differences = 0.14).

**CONCLUSIONS:**

Higher eating frequency was associated with lower body weight status in children and adolescents, mainly in boys. Clinical trials are warranted to confirm this inverse association, evaluate its clinical applicability, and support a public health recommendation; more studies are also needed to further investigate any sex-related differences, and most importantly, the biological mechanisms.

**KEYWORDS:**

children; eating frequency; obesity.

**143: Vasconcellos MB, Anjos LA, Vasconcellos MT. [Nutritional status and screen time among public school students in Niterói, Rio de Janeiro State, Brazil]. *Cad Saude Publica*. 2013 Apr;29(4):713-22. Portuguese. PubMed PMID: 23568301.**

**Abstract**

The aim of this study was to assess nutritional status, sedentary behavior (TV, computer, and videogame time and screen time as the sum of these first three) and physical activity using a questionnaire with youth (10 to 18 years of age) enrolled in public schools in Niterói, Rio de Janeiro State, Brazil. Anthropometry (body mass and stature), sedentary behavior, and information on physical activity were obtained in a probability sample of 10 to 18 year-old students (n = 328; 108 boys) stratified by school and selected in two stages (classes and students). Low height for age did not appear as a problem, but 25.7% of the youth presented excess weight (18% overweight and 7.7% obese). Total screen time did not differ between the sexes, but boys spent more time playing videogames than girls, regardless of age, while girls watched more TV. Boys spent twice as much time as girls of all ages in physical activity (three times more in the  $\geq 14$  year-old group). Screen time was significantly associated with excess weight. In conclusion, public school youth in Niterói show high prevalence rates of excess weight associated with inadequate lifestyle.

**144: Jayawardena R, Byrne NM, Soares MJ, Katulanda P, Yadav B, Hills AP. High dietary diversity is associated with obesity in Sri Lankan adults: an evaluation of three dietary scores. *BMC Public Health*. 2013 Apr 8;13:314. doi: 10.1186/1471-2458-13-314. PubMed PMID: 23566236; PubMed Central PMCID: PMC3626879.**

**Abstract**

**BACKGROUND:**

Dietary diversity is recognized as a key element of a high quality diet. However, diets that offer a greater variety of energy-dense foods could increase food intake and body weight. The aim of this study was to explore association of diet diversity with obesity in Sri Lankan adults.

**METHODS:**

Six hundred adults aged > 18 years were randomly selected by using multi-stage stratified sample. Dietary intake assessment was undertaken by a 24 hour dietary recall. Three dietary scores, Dietary Diversity Score (DDS), Dietary Diversity Score with Portions (DDSP) and Food Variety Score (FVS) were calculated. Body mass index (BMI)  $\geq 25 \text{ kg.m}^{-2}$  is defined as obese and Asian waist circumference cut-offs were used diagnosed abdominal obesity.

**RESULTS:**

Mean of DDS for men and women were 6.23 and 6.50 ( $p=0.06$ ), while DDSP was 3.26 and 3.17 respectively ( $p=0.24$ ). FVS values were significantly different between men and women 9.55 and 10.24 ( $p=0.002$ ). Dietary diversity among Sri Lankan adults was significantly associated with gender, residency, ethnicity, education level but not with diabetes status. As dietary scores increased, the percentage consumption was increased in most of food groups except starches. Obese and abdominal obese adults had the highest DDS compared to non obese groups ( $p<0.05$ ). With increased dietary diversity the level of BMI, waist circumference and energy consumption was significantly increased in this population.

**CONCLUSION:**

Our data suggests that dietary diversity is positively associated with several socio-demographic characteristics and obesity among Sri Lankan adults. Although high dietary diversity is widely recommended, public health messages should emphasize to improve dietary diversity in selective food items.

**145: Liu PC, Kieckhefer GM, Gau BS. A systematic review of the association between obesity and asthma in children. J Adv Nurs. 2013 Jul;69(7):1446-65. doi: 10.1111/jan.12129. Epub 2013 Apr 8. Review. PubMed PMID: 23560878; PubMed Central PMCID: PMC3723337.**

**Abstract**

**AIM:**

To provide a comprehensive integration of contemporary studies focusing on the relationship between obesity and asthma in paediatric populations.

**BACKGROUND:**

The simultaneous increase in asthma and obesity prevalence has been widely discussed over the past 20 years. Although studies have discovered a positive correlation between the two, evidence-based findings are needed to develop nursing interventions.

**DESIGN:**

A quantitative systematic review on the literature was conducted from June-December 2011.

**DATA SOURCES:**

An electronic database search was conducted for studies published between January 1966-May 2011. Additional articles were identified through the reference lists of reviewed papers.

**REVIEW METHODS:**

Inclusion/exclusion criteria and quality appraisal were applied to ensure research primarily designed to study the relationship between obesity and asthma in children was included.

**RESULTS:**

The majority of studies support a positive association between obesity and asthma in children. Among correlates recognized as important effect modifiers, gender was the most prominent, with obese girls more likely to have asthma diagnoses than obese boys. Scrutinization of covariates in

selected studies revealed that most related to children's demographic characteristics and were inconsistent across the studies.

**CONCLUSIONS:**

This review was designed to integrate contemporary scientific findings on the association between obesity and asthma by including a large number of studies with variant research designs. To identify high-risk groups and develop nursing interventions to help children affected by both epidemics, more interdisciplinary and well-designed investigations focusing on an expanded spectrum of correlates including demographic and behavioural factors are warranted.

**146: Arnaiz P, Villarroel L, Barja S, Godoy I, Cassis B, Domínguez A, Castillo O, Farías M, Carvajal J, Tinoco AC, Mardones F. [Association of carotid intima media thickness with blood pressure and HDL cholesterol in children]. Rev Med Chil. 2012 Oct;140(10):1268-75. doi: 10.4067/S0034-98872012001000005. Spanish. PubMed PMID: 23559283.**

Abstract

**BACKGROUND:**

Cardiovascular risk factors must be controlled since childhood.

**AIM:**

To assess the association of carotid intima media thickness (CIMT) with the components of the metabolic syndrome in Children.

**MATERIAL AND METHODS:**

Cross sectional assessment of 299 children aged  $11.5 \pm 0.9$  years (58% women) with and without metabolic syndrome components. Anthropometric parameters and blood pressure were measured and a blood sample was obtained to measure blood glucose and lipids. CIMT was measured using high resolution ultrasound.

**RESULTS:**

Ninety three percent of children were post puberal, 64% were overweight and 25% had metabolic syndrome. Mean and maximum CIMT correlated with systolic blood pressure ( $r = 0.21$  and  $0.21$  respectively  $p < 0.01$ ). Children with a CIMT over the 75th percentile had higher blood pressure and lower HDL cholesterol. A stepwise logistic regression accepted both variables as predictors of CIMT with odds ratios for mean CIMT of 1.46 (1.19-1.79) and 0.81 (0.7-0.94) per five units of change, respectively.

**CONCLUSIONS:**

In this group of children systolic blood pressure and HDL cholesterol are associated to CIMT.

**147: Bhandari R, Xiao J, Shankar A. Urinary bisphenol A and obesity in U.S. children. Am J Epidemiol. 2013 Jun 1;177(11):1263-70. doi: 10.1093/aje/kws391. Epub 2013 Apr 4. PubMed PMID: 23558351; PubMed Central PMCID: PMC3664337.**

Abstract

Childhood obesity, a major public health problem, can lead to cardiovascular disease in adulthood. Studies have implicated exposure to bisphenol A (BPA), a commonly used chemical, in the development of obesity in adults. However, literature is limited on this association in children. We examined the association between urinary BPA and obesity in children aged 6-18 years from the National Health and Nutrition Examination Survey (2003-2008). The primary exposure was urinary

BPA and the outcome was obesity, defined as the  $\geq$  95th percentile of body mass index specific for age and sex. We found a positive association between increasing levels of urinary BPA and obesity, independent of age, sex, race/ethnicity, education, physical activity, serum cotinine, and urinary creatinine. Compared with children in the lowest quartile of BPA (<1.5 ng/mL), children in the highest quartile (>5.4 ng/mL) had a multivariable odds ratio for obesity of 2.55 (95% confidence interval (CI): 1.65, 3.95) (Ptrend < 0.01). The observed positive association was predominantly present in boys (odds ratio = 3.80, 95% CI: 2.25, 6.43) (Ptrend < 0.001) and in non-Hispanic whites (odds ratio = 5.87, 95% CI: 2.15, 16.05) (Ptrend < 0.01). In a representative sample of children, urinary BPA was associated with obesity, predominantly in non-Hispanic white boys, independent of major risk factors.

KEYWORDS:

NHANES; bisphenol A; body mass index; children; obesity.

**148: Roberts RE, Hao DT. Obesity has few effects on future psychosocial functioning of adolescents. *Eat Behav.* 2013 Apr;14(2):128-36. doi: 10.1016/j.eatbeh.2013.01.008. Epub 2013 Feb 9. PubMed PMID: 23557808; PubMed Central PMCID: PMC3618662.**

Abstract

We reexamine the effects of obesity on a wide range (n=17) of indicators of functioning drawn from five broad domains: interpersonal problems, psychological problems, suicidal behaviors, academic performance, and psychiatric disorders. Evidence on this question is mixed. Data are analyzed from a large community sample of adolescents 11-17 at baseline (n=4175) who were followed up a year later (n=3134). Using measured height and weight, overweight was defined as 95th<BMI<85th percentile and obese as BMI >95th percentile. At baseline, obesity was associated with increased odds only for any mood disorder and poor perceived mental health. For boys, there were no significant associations, but girls had higher odds of problems at school, poor perceived mental health, and mood disorders. Results from the two-wave cohort reveal obesity increased future risk only for poor perceived mental health. For boys, the same pattern was observed, but for girls there were no significant associations. Overall, we found that weight status had few deleterious effects on adolescent social functioning, in multivariate, prospective analyses. If there is an effect of obesity on functioning, it may operate through mediators such as body image.

**149: Aljunaibi A, Abdulle A, Nagelkerke N. Parental weight perceptions: a cause for concern in the prevention and management of childhood obesity in the United Arab Emirates. *PLoS One.* 2013;8(3):e59923. doi: 10.1371/journal.pone.0059923. Epub 2013 Mar 26. PubMed PMID: 23555833; PubMed Central PMCID: PMC3608558.**

Abstract

Parental participation is a key factor in the prevention and management of childhood obesity, thus parental recognition of weight problems is essential. We estimated parental perceptions and their determinants in the Emirati population. We invited 1541 students (grade 1-12; 50% boys) and their parents, but only 1440 (6-19 years) and their parents consented. Of these, 945 Emirati nationals provided data for analysis. Anthropometric and demographic variables were measured by standard methods. CDC BMI percentile charts for age and sex were used to classify children's weight. Parental perception of their children's weight status (underweight, normal, and overweight/obese) was



recorded. Logistic regression analyses were used to identify independent predictors of parental perceptions of children's weight status. Of all parents, 33.8% misclassified their children's weight status; underestimating (27.4%) or overestimating (6.3%). Misclassification was highest among parents of overweight/obese children (63.5%) and underweight (55.1%) children. More importantly, parental perceptions of their children being overweight or obese, among truly overweight/obese children, i.e. correct identification of an overweight/obese child as such, were associated with the true child's BMI percentile (CDC) with an OR of 1.313 (95% CI: 1.209-1.425;  $p < 0.001$ ) per percentile point, but not age, parental education, household income, and child's sex. We conclude that the majority of parents of overweight/obese children either overestimated or, more commonly, underestimated children's weight status. Predictors of accurate parental perception, in this population, include the true children's BMI, but not age, household income, and sex. Thus, parents having an incorrect perception of their child's weight status may ignore otherwise appropriate health messages.

**150: Conceição-Machado ME, Silva LR, Santana ML, Pinto EJ, Silva Rde C, Moraes LT, Couto RD, Assis AM. Hypertriglyceridemic waist phenotype: association with metabolic abnormalities in adolescents. J Pediatr (Rio J). 2013 Jan-Feb;89(1):56-63. doi: 10.1016/j.jpeds.2013.02.009. PubMed PMID: 23544811.**

#### Abstract

##### OBJECTIVE:

This study aimed to identify the prevalence of hypertriglyceridemic waist (HTW) phenotype, and to evaluate its association with metabolic abnormalities in adolescents of low socioeconomic status.

##### METHOD:

This was a cross-sectional study with a random sample of 1,076 adolescents between 11 and 17 years, of both genders, from public schools. The participants underwent anthropometric measurements (weight, height, and waist circumference), and levels of total cholesterol, low-density-lipoprotein cholesterol (LDL-C), high-density-lipoprotein cholesterol (HDL-C), non-HDL cholesterol, triglyceride (TG), and fasting glucose were measured. Information regarding the socioeconomic status of the participants' families was obtained. The HTW phenotype was defined by the simultaneous presence of increased waist circumference ( $\geq 90$ (th) percentile for age and gender) and serum triglyceride levels ( $\geq 100$ mg/dL). A logistic regression analysis was used to evaluate the associations of interest.

##### RESULTS:

The prevalence of HTW phenotype was 7.2% among the adolescents, being higher in the presence of obesity (63.4%) and high levels of non-HDL cholesterol (16.6%) and LDL-C (13.7%). The bivariate analysis indicated that, of the metabolic variables, only blood glucose was not associated with the HTW phenotype. Multivariate analysis adjusted for age and gender indicated that the HTW phenotype was positively associated with high non-HDL cholesterol (odds ratio: 7.0; 95% CI: 3.9-12.6) and low HDL-C levels (odds ratio: 2.7; 95% CI: 1.5-4.8).

##### CONCLUSIONS:

This study demonstrated that the HTW phenotype was associated with an atherogenic lipid profile, and this phenotype is suggested as a screening tool to identify adolescents with metabolic alterations.

**151: Rahman AJ, Qamar FN, Ashraf S, Khowaja ZA, Tariq SB, Naeem H. Prevalence of hypertension in healthy school children in Pakistan and its relationship with body mass index, proteinuria and hematuria. Saudi J Kidney Dis Transpl. 2013 Mar;24(2):408-12. PubMed PMID: 23538376.**

Abstract

To determine the prevalence of high blood pressure (BP) in healthy school Pakistani children and its association with high body mass index (BMI), asymptomatic hematuria and proteinuria, we studied 661 public school children and measured their body weight, height and BP and urine dipstick for hematuria performed on a single occasion. Hypertension (BP >95 th centile) and pre-hypertension (BP >90 th centile) were defined based on the US normative BP tables. Over-weight and obesity were defined according to the World Health Organization (WHO) classification of BMI. The mean age of the children was  $14 \pm 1.3$  years. The mean BMI was  $18.5 \pm 4.3$  kg/m<sup>2</sup>. The majority (81.8%) of the children were found to be normotensive (BP <90 th centile). Pre-hypertension was observed in 15% and hypertension in 3% of the children. Overweight was observed in 7.7% and obesity in 1% of the children. The independent risk factors for hypertension and pre-hypertension were age of the child (RR 1.2 95% CI 1-1.4), gender (RR 2.0 for being female 95% CI 1-4.4), BMI >25 (RR for BMI b/w 25-30 = 2.6, RR for BMI >30 = 4.3), positive urine dipstick for proteinuria (RR = 2.3 95% CI 0.7-7.7) and positive urine dipstick for hematuria (RR 1.0 95% CI 0.2-8.3). Hypertension in children is strongly correlated with obesity, asymptomatic proteinuria and hematuria. Community based screening programs for children should include BP recording, BMI assessment and urine dipsticks analysis and approach high-risk groups for early detection and lifestyle modifications.

**152: Pietras SA, Goodman E. Socioeconomic status gradients in inflammation in adolescence. Psychosom Med. 2013 Jun;75(5):442-8. doi: 10.1097/PSY.0b013e31828b871a. Epub 2013 Mar 26. PubMed PMID: 23533285; PubMed Central PMCID: PMC3679200.**

Abstract

OBJECTIVE:

To determine whether lower socioeconomic status (SES), broadly defined, is associated with increased inflammation in adolescence and whether adiposity mediates these relationships.

METHODS:

Fasting blood samples from 941 non-Hispanic black and white adolescents enrolled in a suburban, Midwestern school district were assayed for proinflammatory biomarkers (interleukin-6 [IL-6], tumor necrosis factor  $\alpha$  soluble receptor 2 fibrinogen). A parent reported objective SES (parent education [E1  $\leq$  high school, E2 = some college, E3 = college graduate, E4 = professional degree], household income), and youth perceived SES (PSES). Multivariable linear regressions assessed the relationship of SES measures to biomarkers adjusting for age, race, sex, and puberty status. In the final step, body mass index (BMI) z score (BMIz) was added to models, and Sobel tests were performed to assess mediation by adiposity.

RESULTS:

Parent education was inversely associated with IL-6 ( $\beta E1 = .11$ ,  $\beta E2 = .10$ ,  $\beta E3 = .02$ ;  $p < .001$ ). This association was attenuated but remained significant after BMIz adjustment ( $p = .01$ ). Sobel testing confirmed BMIz's partial mediating role ( $p < .001$ ). Parent education was also inversely associated with sTNFR2 ( $\beta E1 = .03$ ,  $\beta E2 = .02$ ,  $\beta E3 = .001$ ;  $p = .01$ ); this relationship was mediated by BMIz.

Although no main effect was noted for PSES, PSES by race interactions was observed for sTNFR2 ( $p = .02$ ) and IL-6 ( $p = .06$ ). High PSES was associated with lower sTNFR2 and IL-6 for white but not black youth. There were no associations with household income.

**CONCLUSIONS:**

Social disadvantage, specifically low parent education, is associated with increased inflammation in adolescence. Adiposity explains some but not all associations, suggesting that other mechanisms link lower SES to inflammation. High PSES is associated with lower inflammation for white but not black youth.

**KEYWORDS:**

adolescence; disparities; inflammation; obesity; socioeconomic status.

**153: Quick V, Wall M, Larson N, Haines J, Neumark-Sztainer D. Personal, behavioral and socio-environmental predictors of overweight incidence in young adults: 10-yr longitudinal findings. Int J Behav Nutr Phys Act. 2013 Mar 25;10:37. doi: 10.1186/1479-5868-10-37. PubMed PMID: 23531253; PubMed Central PMCID: PMC3623851.**

**Abstract**

**BACKGROUND:**

The objective of this study was to identify 10-year longitudinal predictors of overweight incidence during the transition from adolescence to young adulthood.

**METHODS:**

Data were from Project EAT (Eating and Activity in Teens and Young Adults). A diverse, population-based cohort ( $N = 2,134$ ) completed baseline surveys in 1998-1999 (mean age =  $15.0 \pm 1.6$ , 'adolescence') and follow-up surveys in 2008-2009 (mean age =  $25.4 \pm 1.7$ , 'young adulthood'). Surveys assessed personal, behavioral and socio-environmental factors hypothesized to be of relevance to obesity, in addition to height and weight. Multivariable logistic regression was used to estimate the adjusted odds for each personal, behavioral and socio-environmental factor at baseline, and 10-year changes for these factors, among non-overweight adolescents ( $n = 1,643$ ) being predictive of the incidence of overweight ( $BMI \geq 25$ ) at 10-year follow-up.

**RESULTS:**

At 10-year follow-up, 51% of young adults were overweight (26% increase from baseline). Among females and males, higher levels of body dissatisfaction, weight concerns, unhealthy weight control behaviors (e.g., fasting, purging), dieting, binge eating, weight-related teasing, and parental weight-related concerns and behaviors during adolescence and/or increases in these factors over the study period predicted the incidence of overweight at 10-year follow-up. Females with higher levels of whole grain intake and breakfast and dinner consumption frequency during adolescence were protected against becoming overweight. Among males, increases in vegetable intake protected against the incidence of overweight 10 years later.

**CONCLUSIONS:**

Findings suggest that obesity prevention interventions for adolescents should address weight-specific factors from within the domains of personal, behavioral, and socio-environmental factors such as promoting positive body image, decreasing unhealthy weight control behaviors, and limiting negative weight talk.

**154: Hughan KS, Bonadonna RC, Lee S, Michaliszyn SF, Arslanian SA.  $\beta$ -Cell lipotoxicity after an overnight intravenous lipid challenge and free fatty acid elevation in African American versus American white overweight/obese adolescents. *J Clin Endocrinol Metab.* 2013 May;98(5):2062-9. doi: 10.1210/jc.2012-3492. Epub 2013 Mar 22. PubMed PMID: 23526462; PubMed Central PMCID: PMC3644601.**

Abstract

OBJECTIVE:

Overweight/obese (OW/OB) African American (AA) adolescents have a more diabetogenic insulin secretion/sensitivity pattern compared with their American white (AW) peers. The present study investigated  $\beta$ -cell lipotoxicity to test whether increased free fatty acid (FFA) levels result in greater  $\beta$ -cell dysfunction in AA vs AW OW/OB adolescents.

RESEARCH DESIGN AND METHODS:

Glucose-stimulated insulin secretion was modeled, from glucose and C-peptide concentrations during a 2-hour hyperglycemic (225 mg/dL) clamp in 22 AA and 24 AW OW/OB adolescents, on 2 occasions after a 12-hour overnight infusion of either normal saline or intralipid (IL) in a random sequence.  $\beta$ -Cell function relative to insulin sensitivity, the disposition index (DI), was examined during normal saline and IL conditions. Substrate oxidation was evaluated with indirect calorimetry and body composition and abdominal adiposity with dual-energy X-ray absorptiometry and magnetic resonance imaging at L4-L5, respectively.

RESULTS:

Age, sex, body mass index, total and sc adiposity were similar between racial groups, but visceral adiposity was significantly lower in AAs. During IL infusion, FFAs and fat oxidation increased and insulin sensitivity decreased similarly in AAs and AWs.  $\beta$ -Cell glucose sensitivity of first- and second-phase insulin secretion did not change significantly during IL infusion in either group, but DI in each phase decreased significantly and similarly in AAs and AWs.

CONCLUSIONS:

Overweight/obese AA and AW adolescents respond to an overnight fat infusion with significant declines in insulin sensitivity, DI, and  $\beta$ -cell function relative to insulin sensitivity, suggestive of  $\beta$ -cell lipotoxicity. However, contrary to our hypothesis, there does not seem to be a race differential in  $\beta$ -cell lipotoxicity. Longer durations of FFA elevation may unravel such race-related contrasts.

**155: Oh JY, Sung YA, Lee HJ. Elevated thyroid stimulating hormone levels are associated with metabolic syndrome in euthyroid young women. *Korean J Intern Med.* 2013 Mar;28(2):180-6. doi: 10.3904/kjim.2013.28.2.180. Epub 2013 Feb 27. PubMed PMID: 23525791; PubMed Central PMCID: PMC3604608.**

Abstract

BACKGROUND/AIMS:

The existence of an association between thyrotropin (thyroid stimulating hormone, TSH) levels and metabolic derangement in euthyroid subjects is controversial. We examined the association between high normal TSH levels and metabolic syndrome in healthy young women.

METHODS:

The study recruited 2,760 young female volunteers (age, 18 to 39 years) with TSH levels in the normal range (0.3 to 4.5 mU/L). We defined metabolic syndrome using the 2007 International Diabetes Federation criteria. Using a TSH level of 2.5 mU/L as an upper reference limit, as recommended by

the National Academy of Clinical Biochemistry, we divided the subjects into high-(n = 453) and low-TSH groups (n = 2,307).

**RESULTS:**

The prevalence of metabolic syndrome was significantly higher in the high-TSH group than in the low-TSH group (7.5% vs. 4.8%, p = 0.016). Central obesity (22.3% vs. 17.3%, p = 0.012) and hypertriglyceridemia (8.0% vs. 4.2%, p = 0.0007) were significantly more frequent in the high-TSH group than in the low-TSH group. Waist circumference, systolic and diastolic blood pressure, and triglycerides were significantly associated with the TSH level after adjusting for age and body mass index (BMI). Subjects in the high-TSH group had a 2-fold greater risk of metabolic syndrome than subjects in the low-TSH group after adjusting for age and BMI (odds ratio, 1.9; 95% confidence interval, 1.1 to 3.2).

**CONCLUSIONS:**

Healthy young women with TSH levels > 2.5 mU/L should be assessed for the presence of metabolic syndrome, even if their TSH levels are in the normal range.

**KEYWORDS:**

Euthyroid; Metabolic syndrome; Thyrotropin; Young women.

**156: Richards K, Fuddy LJ, Greenwood MR, Pressler V, Rajan R, St John TL, Sinclair BM, Irvin L; Childhood Obesity Prevention Task Force. The Childhood Obesity Prevention Task Force (ACT 269): recommendations for obesity prevention in Hawai'i. Hawaii J Med Public Health. 2013 Mar;72(3):102-6. PubMed PMID: 23520569; PubMed Central PMCID: PMC3602950.**

**Abstract**

Obesity in both adults and children is a critical issue in Hawai'i, as well as nationally and internationally. Today in Hawai'i, 57 percent of adults are overweight or obese as are almost 1 in 3 children entering kindergarten. Each year, obesity costs Hawai'i more than \$470 million in medical expenditures alone.(1) These staggering human and economic costs underscore the serious need for Hawai'i to address obesity now. Due to the urgent need to reverse the current trends in obesity Senate Bill 2778 was signed into law, on July 6, 2012, as Act 269 by Governor Neil Abercrombie, creating The Childhood Obesity Prevention Task Force. The task force was charged with developing policy recommendations and proposed legislation for the 2013 legislature. The task force ultimately identified eleven recommendations for the 2013 legislative session and one recommendation for the 2014 legislative session. When implemented together, these recommendations could profoundly reshape Hawai'i's school, work, community, and health care environments, making healthier lifestyles obtainable for all Hawai'i residents.

**157: Wang Q, Yin J, Xu L, Cheng H, Zhao X, Xiang H, Lam HS, Mi J, Li M. Prevalence of metabolic syndrome in a cohort of Chinese schoolchildren: comparison of two definitions and assessment of adipokines as components by factor analysis. BMC Public Health. 2013 Mar 21;13:249. doi: 10.1186/1471-2458-13-249. PubMed PMID: 23514611; PubMed Central PMCID: PMC3608951.**

**Abstract**

**BACKGROUND:**

Although attention to metabolic syndrome (MetS) in children has increased, there is still no universally accepted definition and its pathogenesis remains unclear. Our aim was to compare the current definitions of childhood MetS in a Chinese cohort and to examine the clustering pattern of MetS risk factors, particularly inclusion of leptin and adiponectin as additional components.

**METHODS:**

3373 schoolchildren aged 6 to 18 years were recruited. Anthropometric and biochemical parameters and adipokines were measured. MetS was identified using both the International Diabetes Federation (IDF) and a modified Adult Treatment Panel III (ATP III) definitions. Exploratory factor analysis was performed to establish grouping of metabolic characteristics.

**RESULTS:**

For children  $\geq 10$  years, the prevalence of MetS was 14.3% in the obese group and 3.7% in the overweight group according to the new IDF definition, and 32.3% in the obese group and 8.4% in the overweight group according to the modified ATP III definition. Frequency of hypertriglyceridemia, low high-density lipoprotein cholesterol (HDL-C), impaired fasting glucose, elevated blood pressure, and central obesity according to the new IDF definition was 16.7%, 20.7%, 15.8%, 25.5% and 75.5% in obese boys and 14.7%, 24.0%, 12.0%, 11.0% and 89.0% in obese girls, respectively. Metabolic abnormalities in children under 10 years of age were also noted. Using factor analysis on eight conventional variables led to the extraction of 3 factors. Waist circumference (WC) provided a connection between two factors in boys and all three factors in girls, suggesting its central role in the clustering of metabolic risk factors. Addition of leptin and adiponectin also led to the extraction of 3 factors, with leptin providing a connection between two factors in girls. When using WC, mean arterial pressure, triglyceride/HDL-C ratio, HOMA-IR and leptin/adiponectin ratio as variables, a single-factor model was extracted. WC had the biggest factor loading, followed by leptin/adiponectin ratio.

**CONCLUSIONS:**

MetS was highly prevalent amongst obese children and adolescents in this cohort, regardless of the definition used. Central obesity is the key player in the clustering of metabolic risk factors in children, supporting the new IDF definition. Moreover, our findings suggest that a common factor may underlie MetS. Leptin/adiponectin ratio as a possible component of MetS deserves further consideration.

**158: Privileggio L, Falchi A, Grisoni ML, Souty C, Turbelin C, Fonteneau L, Hanslik T, Kernéis S. Rates of immunization against pandemic and seasonal influenza in persons at high risk of severe influenza illness: a cross-sectional study among patients of the French Sentinelles general practitioners. BMC Public Health. 2013 Mar 20;13:246. doi: 10.1186/1471-2458-13-246. PubMed PMID: 23514534; PubMed Central PMCID: PMC3621692.**

**Abstract**

**BACKGROUND:**

Three main categories of persons are targeted by the French influenza vaccination strategy: all persons aged 65 years or over, those aged less than 65 years with certain underlying medical conditions and health care workers. The main objective of this study was to estimate rates of influenza immunization in these target groups attending a medical consultation for two consecutive influenza seasons: 2009-2010 (seasonal and pandemic vaccines) and 2010-2011 (seasonal vaccine).

**METHODS:**

A standardized questionnaire was mailed to 1323 general practitioners (GPs) of the Sentinelles Network, collecting data on all patients seen on a randomly assigned day. For every patient, following information was collected: age, gender, BMI, presence of any medical condition that increases risk of severe influenza illness, and vaccination status for the three vaccines mentioned.

**RESULTS:**

Two hundred and three GPs agreed to participate and included 4248 patients. Overall, in persons with high risk of severe influenza, the estimated vaccine coverages (VC) were 60%, (95% CI = 57%; 62%) for the seasonal vaccine in 2010-2011, 61% (59%; 63%) for the seasonal vaccine in 2009-2010 and 23% (21%; 25%), for the pandemic vaccine in 2009-2010. Among people aged 65 years and over (N=1259, 30%) VC was estimated for seasonal vaccines at 72% (70%; 75%) in 2010-2011 and 73% (71%; 76%) in 2009-2010, and 24% (22%; 26%) for the pandemic vaccine. The lowest seasonal VC were observed in younger persons (<65 years) with underlying medical conditions, in particular pregnant women (<10%) and overweight persons (<30%).

**CONCLUSIONS:**

Our study shows that influenza vaccination coverage among patients of the French Sentinelles general practitioners remains largely below the target of 75% defined by the 2004 French Public Health Law, and underscores the need for the implementation of public health interventions likely to increase vaccination uptake.

**159: McPherson AC, Swift JA, Yung E, Lyons J, Church P. The assessment of weight status in children and young people attending a spina bifida outpatient clinic: a retrospective medical record review. Disabil Rehabil. 2013;35(25):2123-31. doi: 10.3109/09638288.2013.771705. Epub 2013 Mar 19. PubMed PMID: 23510013; PubMed Central PMCID: PMC3857675.**

**Abstract**

**PURPOSE:**

Children with disabilities are two to three times more likely to become overweight or obese than typically developing children. Children with spina bifida (SB) are at particular risk, yet obesity prevalence and weight management with this population are under-researched. This retrospective chart review explored how weight is assessed and discussed in a children's SB outpatient clinic.

**METHOD:**

Height/weight data were extracted from records of children aged 2-18 with a diagnosis of SB attending an outpatient clinic at least once between June 2009-2011. Body mass index was calculated and classified using Centers for Disease Control and Prevention cut-offs. Notes around weight, diet and physical/sedentary activities were transcribed verbatim and analysed using descriptive thematic analysis.

**RESULTS:**

Of 180 eligible patients identified, only 63 records had sufficient data to calculate BMI; 15 patients were overweight (23.81%) and 11 obese (17.46%). Weight and physical activity discussions were typically related to function (e.g. mobility, pain). Diet discussions focused on bowel and bladder function and dietary challenges.

**CONCLUSIONS:**

Anthropometrics were infrequently recorded, leaving an incomplete picture of weight status in children with SB and suggesting that weight is not prioritised. Bowel/bladder function was highlighted over other benefits of a healthy body weight, indicating that health promotion

opportunities are being missed. Implications for Rehabilitation It is important to assess, categorise and record anthropometric data for children and youth with spina bifida as they may be at particular risk of excess weight. Information around weight categorisation should be discussed openly and non-judgmentally with children and their families. Health promotion opportunities may be missed by focusing solely on symptom management or function. Healthcare professionals should emphasise the broad benefits of healthy eating and physical activity, offering strategies to enable the child to incorporate healthy lifestyle behaviours appropriate to their level of ability.

**160: Ward DS, Vaughn A, Story M. Expert and stakeholder consensus on priorities for obesity prevention research in early care and education settings. Child Obes. 2013 Apr;9(2):116-24. doi: 10.1089/chi.2013.9204. Epub 2013 Mar 18. PubMed PMID: 23506454; PubMed Central PMCID: PMC3713439.**

#### Abstract

##### BACKGROUND:

Early childhood is a formative period for many weight-related behaviors (diet and activity), but little obesity prevention research targeting this age group has been conducted. Early care and education settings are a useful avenue for interventions targeting young children, but the limited research provides insufficient evidence upon which to base policy decisions, practice guidelines, or mobilized efforts to improve healthy eating and physical activity, and ultimately healthy weight development in these settings.

##### METHODS:

In September of 2011, prominent researchers, young investigators, and leaders in early care and education came together to examine past research and to explore challenges and priorities for future research on healthy weight development in children aged 2-5 years. During this meeting, experts presented and attendees discussed key issues around measurement of diet and physical activity, policy and environment measurement, intervention approaches, policy research, and capacity development. Following the meeting, attendees were invited to participate in an online voting exercise to select top research priorities.

##### RESULTS:

A total of 64 research issues were identified, and voting narrowed this list to 24 issues. Highest-rated issues included: Assessment of the quality of children's meals and snacks, use of financial incentives, interventions that include healthcare providers, the role of screen time, and need for multilevel interventions.

##### CONCLUSIONS:

The presentations within this meeting highlighted the importance of research to address the unique challenges for those working in early care and education settings. Expert and stakeholder consensus of priorities identified significant and innovative areas where future obesity prevention research efforts should be focused.



**161: Dancause KN, Vilar M, Wilson M, Soloway LE, DeHuff C, Chan C, Tarivonda L, Regenvanu R, Kaneko A, Lum JK, Garruto RM. Behavioral risk factors for obesity during health transition in Vanuatu, South Pacific. Obesity (Silver Spring). 2013 Jan;21(1):E98-E104. doi: 10.1002/oby.20082. PubMed PMID: 23505203; PubMed Central PMCID: PMC3605745.**

Abstract

The South Pacific archipelago of Vanuatu, like many developing countries, is currently experiencing a shift in disease burdens from infectious to chronic diseases with economic development. A rapid increase in obesity prevalence represents one component of this "health transition."

OBJECTIVE:

To identify behaviors associated with measures of obesity in Vanuatu.

DESIGN AND METHODS:

Five hundred and thirty four adults from three islands varying in level of economic development were surveyed. Height, weight, waist, and hip circumferences; triceps, subscapular and suprailiac skinfolds; and percent body fat (%BF) by bioelectrical impedance were measured. Diet through 24-h dietary recall and physical activity patterns using a survey were assessed. We analyzed prevalence of obesity and central obesity based on multiple indicators (body mass index, %BF, waist circumference, and waist-to-height ratio), and analyzed differences among islands and associations with behavioral patterns.

RESULTS:

Obesity prevalence was lowest among rural and highest among suburban participants. Prevalence of central obesity was particularly high among women (up to 73.9%), even in rural areas (ranging from 14.7 to 41.2% depending on the measure used). Heavier reliance on animal protein and incorporation of Western foods in the diet—specifically, tinned fish and instant noodles—was significantly associated with increased obesity risk.

CONCLUSIONS:

Even in rural areas where diets and lifestyles remain largely traditional, modest incorporation of Western foods in the diet can contribute to increased risk of obesity. Early prevention efforts are thus particularly important during health transition. Where public health resources are limited, education about dietary change could be the best target for prevention.

**162: Deliard S, Panossian S, Mentch FD, Kim CE, Hou C, Frackelton EC, Bradfield JP, Glessner JT, Zhang H, Wang K, Sleiman PM, Chiavacci RM, Berkowitz RI, Hakonarson H, Zhao J, Grant SF. The missense variation landscape of FTO, MC4R, and TMEM18 in obese children of African Ancestry. Obesity (Silver Spring). 2013 Jan;21(1):159-63. doi: 10.1002/oby.20147. PubMed PMID: 23505181; PubMed Central PMCID: PMC3605748.**

Abstract

OBJECTIVE:

Common variation at the loci harboring fat mass and obesity (FTO), melanocortin receptor 4 (MC4R), and transmembrane protein 18 (TMEM18) is consistently reported as being statistically most strongly associated with obesity. Investigations if these loci also harbor rarer missense variants that confer substantially higher risk of common childhood obesity in African American (AA) children were conducted.

#### DESIGN AND METHODS:

The exons of FTO, MC4R, and TMEM18 in an initial subset of our cohort were sequenced, that is, 200 obese (BMI  $\geq$  95 th percentile) and 200 lean AA children (BMI  $\leq$  5 th percentile). Any missense exonic variants that were uncovered went on to be further genotyped in a further 768 obese and 768 lean (BMI  $\leq$  50th percentile) children of the same ethnicity.

#### RESULTS:

A number of exonic variants were observed from our sequencing effort: seven in FTO, of which four were non-synonymous (A163T, G182A, M400V, and A405V), thirteen in MC4R, of which six were non-synonymous (V103I, N123S, S136A, F202L, N240S, and I251L), and four in TMEM18, of which two were non-synonymous (P2S and V113L). Follow-up genotyping of these missense variants revealed only one significant difference in allele frequency between cases and controls, namely with N240S in MC4R (Fisher's exact  $P = 0.0001$ ).

#### CONCLUSION:

In summary, moderately rare missense variants within the FTO, MC4R, and TMEM18 genes observed in our study did not confer risk of common childhood obesity in African Americans except for a degree of evidence for one known loss-of-function variant in MC4R.

**163: Khadgawat R, Marwaha RK, Tandon N, Mehan N, Upadhyay AD, Sastry A, Bhadra K. Percentage body fat in apparently healthy school children from northern India. Indian Pediatr. 2013 Sep;50(9):859-66. Epub 2013 Feb 5. PubMed PMID: 23502670.**

#### Abstract

##### CONTEXT:

Increased prevalence of obesity in childhood and adolescence, defined by the use of body mass index (BMI), has drawn attention towards direct measurement of body fat.

##### OBJECTIVE:

To develop age-and sex-specific reference distribution of body fat in apparently healthy North-Indian children in the age group of 7-17 years and to assess agreement between obesity (defined by BMI) and excess body fat.

##### DESIGN:

Study subjects for this cross sectional study included 1640 apparently healthy school children (825 boys; 815 girls) aged 7-17 years. Total body fat was measured by dual energy X-rays absorptiometry (DXA). The excess body fat by DXA was defined by two methods, prevalence matching and with the use of 85th and 95th centile cutoffs.

##### RESULTS:

The mean  $\pm$  SD, 3rd, 10th, 25th, 50th, 75th, 90th and 97th centile values of percentage body fat (PBF) are presented. PBF was highly correlated with BMI in both boys and girls (all boys:  $r=0.76$ ,  $P<0.0001$ ; all girls  $r=0.81$ ,  $P<0.0001$ ). There was no significant difference noted in PBF between boys and girls at the age of 7-8 years. From 9 years onwards, girls had significantly higher PBF than boys. Moderate degree of agreement was observed between BMI and PBF by DXA by both methods.

##### CONCLUSIONS:

Smoothed reference distribution of PBF for North-Indian children and adolescents in Delhi are provided. Indian children accumulate more body fat during peri-pubertal years in comparison with US children.

**164: Pastucha D, Filipčíková R, Horáková D, Radová L, Marinov Z, Malinčíková J, Kocvrlich M, Horák S, Bezdičková M, Dobiáš M. The incidence of metabolic syndrome in obese Czech children: the importance of early detection of insulin resistance using homeostatic indexes HOMA-IR and QUICKI. *Physiol Res.* 2013 Jul 18;62(3):277-83. Epub 2013 Mar 14. PubMed PMID: 23489184.**

Abstract

Common alimentary obesity frequently occurs on a polygenic basis as a typical lifestyle disorder in the developed countries. It is associated with characteristic complex metabolic changes, which are the cornerstones for future metabolic syndrome development. The aims of our study were 1) to determine the incidence of metabolic syndrome (based on the diagnostic criteria defined by the International Diabetes Federation for children and adolescents) in Czech obese children, 2) to evaluate the incidence of insulin resistance according to HOMA-IR and QUICKI homeostatic indexes in obese children with and without metabolic syndrome, and 3) to consider the diagnostic value of these indexes for the early detection of metabolic syndrome in obese children. We therefore performed anthropometric and laboratory examinations to determine the incidence of metabolic syndrome and insulin resistance in the group of 274 children with obesity (128 boys and 146 girls) aged 9-17 years. Metabolic syndrome was found in 102 subjects (37 %). On the other hand, the presence of insulin resistance according to QUICKI  $<0.357$  was identified in 86 % and according to HOMA-IR  $>3.16$  in 53 % of obese subjects. This HOMA-IR limit was exceeded by 70 % children in the MS(+) group, but only by 43 % children in the MS(-) group ( $p<0.0001$ ). However, a relatively high incidence of insulin resistance in obese children without metabolic syndrome raises a question whether the existing diagnostic criteria do not falsely exclude some cases of metabolic syndrome. On the basis of our results we suggest to pay a preventive attention also to obese children with insulin resistance even if they do not fulfill the actual diagnostic criteria for metabolic syndrome.

**165: Aguilar Cordero MJ, Neri Sánchez M, Padilla López CA, Pimentel Ramírez ML, García Rillo A, Sánchez López AM. [Risk factors in the development of breast cancer, state of Mexico]. *Nutr Hosp.* 2012 Sep-Oct;27(5):1631-6. doi: 10.3305/nh.2012.27.5.5997. Spanish. PubMed PMID: 23478716.**

Abstract

INTRODUCTION:

Breast cancer is one of the most frequent diseases in women today, and its social impact is devastating. The risk factors focused on in recent research are mainly hormonal, genetic, and environmental though toxic habits, overweight, and obesity have also been studied. In contrast, protective factors against breast cancer include breastfeeding and daily exercise.

OBJECTIVE:

To ascertain the risk factors for the women with breast cancer in our study sample.

MATERIAL AND METHODS:

A study of cases and controls was performed on 115 women diagnosed with breast cancer and on 115 healthy women, who had been patients at the National Cancer Institute ISSEMYM in Mexico from January to December 2011. Information was collected from the women in the sample pertaining to their family history of cancer, personal background, life style, and body mass index (BMI). Breast cancer risk was estimated with multivariate logistic regression models and the chi-square test.

RESULTS:

It was found that there was a greater risk of breast cancer in overweight or obese women who did not do any physical exercise and either who had breastfed their children for a very short time or who had not breastfed them at all. No significant differences were found between breast cancer and toxic habits.

**CONCLUSIONS:**

The results of our study found a direct relation between breast cancer and overweight, obesity, and physical inactivity. Breastfeeding during the first months of the baby's life was found to be a protective factor against breast cancer.

**166: González Jiménez E, Aguilar Cordero MJ, García López PA, Schmidt Río-Valle J, García García CJ. [Analysis of the nutritional state and body composition of school children in Granada (Spain)]. Nutr Hosp. 2012 Sep-Oct;27(5):1496-504. doi: 10.3305/nh.2012.27.5.5926. Spanish. PubMed PMID: 23478697.**

**Abstract**

The objective of this study was to first determine the nutritional state of a sample population of school children, and then analyze the distribution pattern of their subcutaneous fat layer. The sample was composed of 977 school children from the city and province of Granada (Spain). All of the children (524 girls and 452 boys) were 9-17 years of age. To study their nutritional state and the distribution of the subcutaneous fat layer, they were given a complete anthropometric evaluation, which included measuring their weight, height, body mass index, skin folds, and body perimeters. The results obtained showed a 23.01% prevalence of overweight in the female subjects and 20.81% in the male subjects. Furthermore, the female subjects had an obesity prevalence of 12.70% in comparison to the male subjects, whose obesity prevalence was 4.98%. The distribution pattern of subcutaneous fat was found to be mainly located in the central part of body. The high percentage of overweight and obesity along with the development of a central fat distribution pattern (neck, chest, and abdomen) in these school children is clear evidence of potential cardiovascular risk.

**167: Pérez-Morales ME, Bacardí-Gascón M, Jiménez-Cruz A. Childhood overweight and obesity prevention interventions among Hispanic children in the United States: systematic review. Nutr Hosp. 2012 Sep-Oct;27(5):1415-21. doi: 10.3305/nh.2012.27.5.5973. Review. PubMed PMID: 23478686.**

**Abstract**

The aim of this study was to conduct a systematic review of childhood obesity interventions among Hispanic children in the United States. An electronic search was conducted to identify articles published in the PubMed, CINAHL and EBSCO databases. Keyword that used included "Latino", "Hispanic", "childhood", "obesity", "interventions". The inclusion criteria were: published in English from January 2001 to January 2012, studies equal or longer than 6 months of follow-up, Hispanic children and obesity prevention studies (RCT or Quasi-experimental studies). We found 10 studies for inclusion in this review, seven RCT and three Quasi-experimental studies, published from 2005 to January 2012. Overall, improvements in BMI and z-BMI across studies were inconsistent. Only two studies had a follow-up of 3 years, and the most recent study showed an increase in the proportion of children classified as obese. The overall quality rate of evidence with respect to reducing BMI or the prevalence of childhood obesity was low.

**168: Lee HJ, Park S, Kim CI, Choi DW, Lee JS, Oh SM, Cho E, Park HK, Kwon KI, Oh SW. The association between disturbed eating behavior and socioeconomic status: the Online Korean Adolescent Panel Survey (OnKAPS). PLoS One. 2013;8(3):e57880. doi: 10.1371/journal.pone.0057880. Epub 2013 Mar 5. PubMed PMID: 23472117; PubMed Central PMCID: PMC3589486.**

Abstract

BACKGROUND:

A limited amount of research, primarily conducted in Western countries, has suggested that higher socioeconomic status (SES) is associated with higher risk of eating disorders (EDs). However, little is known about this association in Asian countries. We examined the association of SES with disturbed eating behavior (DEB) and related factors in Korean adolescents.

SUBJECTS:

A nationwide online panel survey was conducted in a sample of adolescents (n = 6,943, 49.9% girls). DEB was measured with the 26-item Eating Attitudes Test (EAT-26). Participants who scored  $\geq 20$  on the EAT-26 were considered to have DEB. Participants' SES was determined based on self-reported household economic status.

RESULTS:

The prevalence of DEB was 12.7%: 10.5% among boys and 14.8% among girls. Both boys and girls with DEB were more likely to perceive themselves as obese, experience higher levels of stress, and have lower academic achievement. The risk for DEB was significantly higher in boys of higher SES than in those of middle SES (OR = 1.45, 95%CI = 1.05-1.99 for high SES; OR = 5.16, 95%CI: 3.50-7.61 for highest SES). Among girls, higher risk of DEB was associated with the highest and lowest SES (OR = 1.52, 95%CI: 1.13-2.06 for lowest SES; OR = 2.22, 95%CI: 1.34-3.68 for highest SES).

CONCLUSIONS:

Despite the lower prevalence of obesity in Korea compared with Western countries, the prevalence of DEB in Korean adolescents was high, especially among girls. Moreover, the association between SES and DEB followed a U-shaped curve for girls and a J-shaped curve for boys.

**169: Stone MR, Faulkner GE, Buliung RN. How active are children in Toronto? A comparison with accelerometry data from the Canadian Health Measures Survey. Chronic Dis Inj Can. 2013 Mar;33(2):61-8. PubMed PMID: 23470171.**

Abstract

INTRODUCTION:

The Canadian Health Measures Survey (CHMS) is the most comprehensive direct health measures survey ever conducted in Canada. Results show that the majority of children and youth (93%) do not meet current physical activity recommendations for health. CHMS data have not yet been considered alongside an independent sample of Canadian youth; such a Canadian-context examination could support CHMS results and contribute to discussions regarding accelerometry data reduction protocols.

METHODS:

From 2010 to 2011, valid accelerometry data were collected on 856 children living in the Greater Toronto Area (GTA). Where possible, data presentation and analyses were aligned with the CHMS protocol such that physical activity outcomes could be compared.

RESULTS:

Overall, trends were similar, with some deviations likely due to contextual and sampling differences and differences in data collection/reduction protocols regarding accelerometer model selection, wear time, activity intensity thresholds and epoch.

**CONCLUSION:**

The similar trends support the notion that physical inactivity is an ongoing problem in communities across Canada.

**170: Novotny R, Vijayadeva V, Grove J, Lim U, Le Marchand L. Birth size and later central obesity among adolescent girls of Asian, White, and Mixed ethnicities. Hawaii J Med Public Health. 2013 Feb;72(2):50-5. PubMed PMID: 23467588; PubMed Central PMCID: PMC3585499.**

**Abstract**

Birth size has important implications for health and disease in adulthood. This study examined the association of birth size with central body fat distribution in late adolescence. Data were from a cross-sectional survey of adolescent girls (N = 143, 13-18y) of Asian, White and Mixed Asian-white ethnicity collected in 2005-2007 in Hawai'i, USA. Central body fat distribution was assessed with dual-energy x-ray absorptiometry and birth size from birth certificates and parent recall. Food diaries (3-day) were used to determine energy intake and metabolic equivalents of energy expenditure. The proportion of Asian ancestry was determined by questions and anthropometry was performed. T-tests compared groups, and multiple regression examined predictors of central body fat distribution, adjusting for potential confounders. Asian girls had a lower mean weight and gestational age at birth than White girls, and a lower mean dietary fat intake in adolescence. Girls of Asian and Mixed Asian-white ancestry had a more body fat distribution than White girls. Lower birth weight was associated with greater central body fat distribution (0.1 or 10% higher central body fat distribution for every 10 grams lower birth weight), after adjusting for age, ancestry, physical activity, energy intake, and iliac breadth, and gestational age. Further adjusting for birth length attenuated the birth weight effect, and shorter birth length was the significant predictor of central body fat distribution. (0.1 or 10% higher central body fat distribution for every 0.01mm shorter length). If confirmed, these findings would suggest that linear growth may be more relevant to metabolic programming than growth in mass.

**KEYWORDS:**

adolescence; birth size; body composition; body fat; ethnicity.

**171: Chawla A, Sprinz PG, Welch J, Heeney M, Usmani N, Pashankar F, Kavanagh P. Weight status of children with sickle cell disease. Pediatrics. 2013 Apr;131(4):e1168-73. doi: 10.1542/peds.2012-2225. Epub 2013 Mar 4. PubMed PMID: 23460681.**

**Abstract**

**OBJECTIVE:**

Historically, many children and adolescents with sickle cell disease (SCD) were underweight. Treatment advances like hydroxyurea have been associated with improved growth. We hypothesized that increased hemoglobin (Hb) levels would be associated with increased weight status of children with SCD.

**METHODS:**

Investigators at 6 institutions conducted a retrospective chart review of all patients aged 2 to 19 years of age for the calendar years 2007-2009. Height, weight, baseline Hb levels, demographic information, and select comorbidities were recorded from the most recent clinic visit. Overweight and obesity were defined as  $\geq 85$ th and  $\geq 95$ th BMI percentiles for age and gender, respectively, and underweight was defined as  $< 5$ th BMI percentile.

**RESULTS:**

Data were collected on 675 children and adolescents in 3 New England states. In this sample, 22.4% were overweight or obese, whereas only 6.7% were underweight. Overweight or obese status was associated with sickle genotypes other than Hb SS or Hb S $\beta$ (0) disease, and were associated with higher baseline Hb levels. Underweight individuals were more likely to be male, older, and have had at least 1 SCD-related complication. After adjusting for demographic factors, any SCD-related complication, SCD-directed treatments, and obesity-related conditions, there was a 36% increased odds of overweight/obesity for each 1 g/dL increase in baseline Hb levels.

**CONCLUSIONS:**

Nearly one-quarter of children and adolescents with SCD in New England are overweight or obese. Longitudinal studies are needed to determine the impact of elevated BMI on the morbidity and mortality of both children and adults with SCD.

**172: Schlüssel MM, Silva AA, Pérez-Escamilla R, Kac G. Household food insecurity and excess weight/obesity among Brazilian women and children: a life-course approach. Cad Saude Publica. 2013 Feb;29(2):219-26. PubMed PMID: 23459802.**

**Abstract**

Household food insecurity (HFI) may increase obesity risk, but results are not consistent across the life course or between developed/underdeveloped settings. The objective of this paper is to review findings from previous analyses in Brazil among adult women, female adolescents, and children up to five. Data were derived from the 2006 Brazilian Demographic and Health Survey. Associations between HFI (measured with the Brazilian Food Insecurity Scale) and excess weight/obesity were investigated through Poisson regression models. While severe HFI was associated with obesity risk among adult women (PR: 1.49; 95%CI: 1.17-1.90), moderate HFI was associated with excess weight among female adolescents (PR: 1.96; 95%CI: 1.18-3.27). There was no association between HFI and obesity among children (either boys or girls). The nutrition transition in Brazil may be shaping the differential deleterious effect of HFI on body fat accumulation across the life course; the association is already evident among female adolescents and adult women but still not among children.

**173: Tobias JH, Deere K, Palmer S, Clark EM, Clinch J. Joint hypermobility is a risk factor for musculoskeletal pain during adolescence: findings of a prospective cohort study. Arthritis Rheum. 2013 Apr;65(4):1107-15. doi: 10.1002/art.37836. PubMed PMID: 23450628.**

**Abstract**

**OBJECTIVE:**

To determine whether joint hypermobility (JH) in childhood is a risk factor for the subsequent development of musculoskeletal pain.

**METHODS:**

JH was determined according to the Beighton score at age 13.8 years in children from the Avon Longitudinal Study of Parents and Children (ALSPAC), using a cutoff of  $\geq 6$  for the presence of hypermobility. Musculoskeletal pain was evaluated by questionnaire at age 17.8 years. Logistic regression analysis was performed in 2,901 participants (1,267 boys and 1,634 girls) who had complete data.

**RESULTS:**

A total of 4.6% of participants had JH at age 13.8 years. Moderately troublesome musculoskeletal pain at age 17.8 years was reported most commonly in the lower back (16.1%), shoulder (9.5%), upper back (8.9%), knee (8.8%), neck (8.6%), and ankle/foot (6.8%). JH was associated with an increased risk of at least moderately troublesome musculoskeletal pain at the shoulder (odds ratio [OR] 1.68 [95% confidence interval (95% CI) 1.04, 2.72]), knee (OR 1.83 [95% CI 1.10, 3.02]), and ankle/foot (OR 1.82 [95% CI 1.05, 3.16]) (adjusted for sex, maternal education, and body mass index). An equivalent relationship was not observed at other sites, including the spine, elbows, hands, and hips. In analyses examining interactions with obesity, associations between JH and knee pain showed higher ORs in obese participants (OR 11.01) as compared with nonobese participants (OR 1.57) ( $P=0.037$  for the interaction of hypermobility and obesity).

**CONCLUSION:**

JH represents a risk factor for musculoskeletal pain during adolescence, comprising a specific distribution, namely, the shoulder, knee, and ankle/foot. These relationships were strongest in the presence of obesity, which is consistent with a causal pathway whereby JH leads to pain at sites exposed to the greatest mechanical forces.

**174: Adler-Wailes DC, Periwai V, Ali AH, Brady SM, McDuffie JR, Uwaifo GI, Tanofsky-Kraff M, Salaita CG, Hubbard VS, Reynolds JC, Chow CC, Sumner AE, Yanovski JA. Sex-associated differences in free fatty acid flux of obese adolescents. J Clin Endocrinol Metab. 2013 Apr;98(4):1676-84. doi: 10.1210/jc.2012-3817. Epub 2013 Feb 28. PubMed PMID: 23450055; PubMed Central PMCID: PMC3615213.**

**Abstract**

**CONTEXT:**

In obesity, increases in free fatty acid (FFA) flux can predict development of insulin resistance. Adult women release more FFA relative to resting energy expenditure (REE) and have greater FFA clearance rates than men. In adolescents, it is unknown whether sex differences in FFA flux occur.

**OBJECTIVE:**

Our objective was to determine the associations of sex, REE, and body composition with FFA kinetics in obese adolescents.

**PARTICIPANTS:**

Participants were from a convenience sample of 112 non-Hispanic white and black adolescents (31% male; age range, 12-18 years; body mass index SD score range, 1.6-3.1) studied before initiating obesity treatment.

**MAIN OUTCOME MEASURES:**

Glucose, insulin, and FFA were measured during insulin-modified frequently sampled iv glucose tolerance tests. Minimal models for glucose and FFA calculated insulin sensitivity index (SI) and FFA kinetics, including maximum ( $I_0 + I_2$ ) and insulin-suppressed ( $I_2$ ) lipolysis rates, clearance rate constant (cf), and insulin concentration for 50% lipolysis suppression (ED50). Relationships of FFA



measures to sex, REE, fat mass (FM), lean body mass (LBM) and visceral adipose tissue (VAT) were examined.

**RESULTS:**

In models accounting for age, race, pubertal status, height, FM, and LBM, we found sex, pubertal status, age, and REE independently contributed to the prediction of I2 and I0 + I2 ( $P < .05$ ). Sex and REE independently predicted ED50 ( $P < .05$ ). Sex, FM/VAT, and LBM were independent predictors of cf. Girls had greater I2, I0 + I2 and ED50 ( $P < .05$ , adjusted for REE) and greater cf ( $P < .05$ , adjusted for FM or VAT) than boys.

**CONCLUSION:**

Independent of the effects of REE and FM, FFA kinetics differ significantly in obese adolescent girls and boys, suggesting greater FFA flux among girls.

**175: Sewaybricker LE, Antonio MÃ, Mendes RT, Barros Filho Ade A, Zambon MP. Metabolic syndrome in obese adolescents: what is enough? Rev Assoc Med Bras. 2013 Jan-Feb;59(1):64-71. PubMed PMID: 23440144.**

**Abstract**

**OBJECTIVE:**

To study the agreement among three distinct criteria for metabolic syndrome (MS) adapted to adolescents, and to identify associated factors for MS.

**METHODS:**

Cross-sectional study with 65 obese subjects aged 10 to 18 years, attended to at the Outpatient Clinic for Obese Children and Adolescents at the Clinical Hospital of the Universidade Estadual de Campinas (Unicamp). MS was defined using the criteria of the World Health Organization (WHO), the International Diabetes Federation (IDF), and the Adult Treatment Panel III (ATP III). Clinical, anthropometrical, and laboratorial data were associated to MS.

**RESULTS:**

From the 65 subjects, none had MS according to the WHO criteria, while 18 were diagnosed with MS (27.6%) according to the IDF, and 19 (29.2%) according to the ATP III. Agreement between IDF and ATP III was excellent (kappa 81%). In this study, puberty and triglycerides levels showed significant statistical difference when comparing subjects with and without MS, the first for ATP III ( $p = 0.03$ ), and the second for IDF ( $p = 0.005$ ) and ATP III ( $p = 0.001$ ) criteria.

**CONCLUSION:**

The WHO criteria does not seem to be adequate for adolescents. IDF and ATP III criteria had an excellent agreement. Puberty and triglycerides were associated with MS.

**176: Leung CW, Blumenthal SJ, Hoffnagle EE, Jensen HH, Foerster SB, Nestle M, Cheung LW, Mozaffarian D, Willett WC. Associations of food stamp participation with dietary quality and obesity in children. Pediatrics. 2013 Mar;131(3):463-72. doi: 10.1542/peds.2012-0889. Epub 2013 Feb 25. PubMed PMID: 23439902; PubMed Central PMCID: PMC3581840.**

**Abstract**

**OBJECTIVE:**

To determine if obesity and dietary quality in low-income children differed by participation in the Supplemental Nutrition Assistance Program (SNAP), formerly the Food Stamp Program.

#### METHODS:

The study population included 5193 children aged 4 to 19 with household incomes  $\leq$ 130% of the federal poverty level from the 1999-2008 NHANES. Diet was measured by using 24-hour recalls.

#### RESULTS:

Among low-income US children, 28% resided in households currently receiving SNAP benefits. After adjusting for sociodemographic differences, SNAP participation was not associated with a higher rate of childhood obesity (odds ratio = 1.11, 95% confidence interval [CI]: 0.71-1.74). Both SNAP participants and low-income nonparticipants were below national recommendations for whole grains, fruits, vegetables, fish, and potassium, while exceeding recommended limits for processed meat, sugar-sweetened beverages, saturated fat, and sodium. Zero percent of low-income children met at least 7 of 10 dietary recommendations. After multivariate adjustment, compared with nonparticipants, SNAP participants consumed 43% more sugar-sweetened beverages (95% CI: 8%-89%), 47% more high-fat dairy (95% CI: 7%, 101%), and 44% more processed meats (95% CI: 9%-91%), but 19% fewer nuts, seeds, and legumes (95% CI: -35% to 0%). In part due to these differences, intakes of calcium, iron, and folate were significantly higher among SNAP participants. Significant differences by SNAP participation were not evident in total energy, macronutrients, Healthy Eating Index 2005 scores, or Alternate Healthy Eating Index scores.

#### CONCLUSIONS:

The diets of low-income children are far from meeting national dietary recommendations. Policy changes should be considered to restructure SNAP to improve children's health.

**177: Sands AL, Higgins LA, Mehta SN, Nansel TR, Lipsky LM, Laffel LM.**

**Associations of youth and parent weight status with reported versus predicted daily energy intake and hemoglobin A1c in youth with type 1 diabetes mellitus. J Diabetes Sci Technol. 2013 Jan 1;7(1):263-70. PubMed PMID: 23439184; PubMed Central PMCID: PMC3692240.**

#### Abstract

##### BACKGROUND:

The epidemic of overweight/obesity affects youth with type 1 diabetes mellitus (T1DM) and their families. In youth with T1DM and their parents, we examined weight status with reported and expected energy intake and with youth hemoglobin A1c (HbA1c).

##### METHODS:

In 243 youth (48% female,  $13 \pm 3$  years) and their parents (84% female,  $45 \pm 6$  years), we assessed body mass index (BMI), prevalence of overweight/obesity, reported energy intake (REI), and youth glycemic control (HbA1c). The REI was compared with predicted daily energy requirements (DER; based on age, weight, sex, and physical activity).

##### RESULTS:

Youth had diabetes duration of  $6.3 \pm 3.4$  years and HbA1c of  $8.5\% \pm 1.3\%$ ; 69% used insulin pump therapy. Overweight and obesity affected 23% and 11% of youth and 30% and 24% of parents, respectively. Youth and parent BMI ( $r = 0.38$ ;  $p < .001$ ) and weight status (overweight/obese;  $p < .001$ ) were significantly associated. The ratio of REI:DER was significantly lower in overweight/obese compared with underweight/normal weight parents ( $1.0 \pm 0.4$  versus  $1.2 \pm 0.5$ ;  $p = .001$ ) but did not differ among youth by weight status. Both youth and parent BMI were positively correlated with youth HbA1c ( $r = 0.14$ ,  $p = .02$ ;  $r = 0.16$ ,  $p = .01$ , respectively). Hemoglobin A1c tended to be higher in obese than in overweight and normal weight youth (mean  $\pm$  standard deviation [SD]  $8.4 \pm 1.4$ ,  $8.4 \pm$

1.3, and  $8.8 \pm 1.0$ , respectively;  $p = .06$ ) and was significantly higher in youth whose parents were obese versus overweight or underweight/normal weight (mean  $\pm$  SD  $8.2 \pm 1.2$ ,  $8.5 \pm 1.4$ , and  $8.9 \pm 1.5$ , respectively;  $p < .001$ ).

#### CONCLUSIONS:

Similar to the general population, overweight and obesity are prevalent among families of youth with T1DM. Weight status appears to influence self-REI in parents and glycemic control in youth with T1DM, suggesting the need for family-based dietary interventions

**178: Delahanty L, Kriska A, Edelstein S, Amodei N, Chadwick J, Copeland K, Galvin B, El Ghormli L, Haymond M, Kelsey MM, Lassiter C, Milaszewski K, Syme A, Mayer-Davis E. Self-reported dietary intake of youth with recent onset of type 2 diabetes: results from the TODAY study. *J Acad Nutr Diet*. 2013 Mar;113(3):431-9. doi: 10.1016/j.jand.2012.11.015. PubMed PMID: 23438494; PubMed Central PMCID: PMC3584416.**

#### Abstract

Despite the widely recognized importance of diet in managing diabetes, few studies have documented usual dietary intake in young people with type 2 diabetes. The objectives of our study were to assess dietary intake among a large, ethnically diverse cohort of young people with type 2 diabetes and compare intake to current recommendations. The Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY) study is a multicenter randomized clinical trial of 699 youth aged 10 to 17 years. At baseline, following a run-in period that included standard diabetes education, diet was assessed using a food frequency questionnaire between 2004 and 2009. Analysis of variance and nonparametric tests were used to compare mean and median nutrient intakes; logistic regression was used to compare the odds of meeting predefined dietary intake recommendation cutpoints between subgroups of age, sex, and race-ethnicity. Percent of energy from saturated fat was consistently 13% to 14% across all subgroups—substantially exceeding national recommendations. Overall, only 12% of youth met Healthy People 2010 guidelines for intake of <10% of energy from saturated fat and only 1% of youth met American Diabetes Association recommendations for intake of <7% of energy from saturated fat. Dietary intake fell substantially below other Healthy People 2010 targets; only 3% met calcium intake goals, 11% met fruit consumption goals, 5% met vegetable consumption goals, and 67% met grain intake goals. Overall, dietary intake in this large cohort of young people with type 2 diabetes fell substantially short of recommendations, in ways that were consistent by sex, age, and race-ethnicity. The data suggest a critical need for better approaches to improve dietary intake of these young people.

**179: Haugaard LK, Ajslev TA, Zimmermann E, Ängquist L, Sørensen TI. Being an only or last-born child increases later risk of obesity. *PLoS One*. 2013;8(2):e56357. doi: 10.1371/journal.pone.0056357. Epub 2013 Feb 20. PubMed PMID: 23437116; PubMed Central PMCID: PMC3577826.**

#### Abstract

##### BACKGROUND:

Studies have suggested that number of siblings and birth order is associated with obesity. However, studies combining these exposures are needed. This study aimed at investigating obesity in children and young adults in regard to different combinations of family size and birth order.

#### METHODS:

Two cohorts selected from the general population were investigated: The Copenhagen School Health Records Register (CSHRR) and a Draft Board (DB) sample with measured heights and weights in childhood (age 13 years) and young adulthood (age 19 years), respectively. Information on birth order, number of siblings, and relevant covariates were available on 29 327 children, as well as on 323 obese young men and 575 randomly selected controls of young men representing approximately 58 000. The relation between number of siblings and birth order, respectively, and having a Body Mass Index (BMI) z-score above or equal to the 95(th) percentile in childhood or having a BMI of at least 31.00 kg/m<sup>2</sup> in young adulthood was analysed using logistic regression analyses adjusted for relevant confounders.

#### RESULTS:

Only children had significantly higher odds of obesity both in childhood and in young adulthood compared with children with siblings, odds ratio (OR) =1.44 (95% Confidence Interval (CI): 1.26-1.66) and OR=1.76 (95% CI: 1.18-2.61), respectively. No association between first-born status and obesity was found. The OR of last-born children being obese was also significantly increased in childhood, e.g. OR=1.93 (95% CI: 1.09-3.43) of obesity if last-born in a family of four children. This was not found in young adulthood. Additionally, higher spacing to previous sibling (average 1872 vs. 1303 days;  $p=0.026$  in four children families) was observed in obese last-born compared to non-obese last-born children.

#### CONCLUSION:

Being an only or last-born child is associated with obesity. These associations may provide leads to targeted prevention of obesity in children.

**180: Lee JM, Gebremariam A, Woolford SJ, Tarini BA, Valerio MA, Bashir S, Eason AJ, Choi PY, Gurney JG. A risk score for identifying overweight adolescents with dysglycemia in primary care settings. J Pediatr Endocrinol Metab. 2013;26(5-6):477-88. doi: 10.1515/jpem-2012-0259. PubMed PMID: 23435184; PubMed Central PMCID: PMC3837697.**

#### Abstract

##### OBJECTIVE:

To develop a clinical risk scoring system for identifying adolescents with dysglycemia (prediabetes or diabetes) who need further confirmatory testing and to determine whether the addition of non-fasting tests would improve the prediction of dysglycemia.

##### STUDY DESIGN:

A sample of 176 overweight and obese adolescents (10-17 years) had a history/physical exam, a 2-h oral glucose tolerance test, and non-fasting tests [hemoglobin A1c, 1-h glucose challenge test (GCT), and random glucose test] performed. Given the low number of children with diabetes, we created several risk scoring systems combining the clinical characteristics with non-fasting tests for identifying adolescents with dysglycemia and compared the test performance.

##### RESULTS:

Sixty percent of participants were white and 32% were black; 39.2% had prediabetes and 1.1% had diabetes. A basic model including demographics, body mass index percentile, family history of diabetes, and acanthosis nigricans had reasonable test performance [area under the curve (AUC), 0.75; 95% confidence interval (95% CI), 0.68-0.82]. The addition of random glucose (AUC, 0.81; 95% CI, 0.75-0.87) or 1-h GCT (AUC, 0.82; 95% CI, 0.75-0.88) to the basic model significantly improved the

predictive capacity, but the addition of hemoglobin A1c did not (AUC, 0.76; 95% CI, 0.68-0.83). The clinical score thresholds to consider for the basic plus random glucose model are total score cutoffs of 60 or 65 (sensitivity 86% and 65% and specificity 60% and 78%, respectively) and for the basic plus 1-h GCT model are total score cutoffs of 50 or 55 (sensitivity 87% and 73% and specificity 59% and 76%, respectively).

**CONCLUSIONS:**

Pending a validation in additional populations, a risk score combining the clinical characteristics with non-fasting test results may be a useful tool for identifying children with dysglycemia in the primary care setting.

**181: Rosati P, Triunfo S, Scambia G. Child nutritional status: a representative survey in a metropolitan school. J Obes. 2013;2013:395671. doi: 10.1155/2013/395671. Epub 2013 Jan 28. PubMed PMID: 23431424; PubMed Central PMCID: PMC3568893.**

Abstract

**OBJECTIVE:**

To assess the prevalence of obesity, overweight, and thinness among children in an Italian school.

**METHODS:**

Five hundred ninety-five children (289 males and 306 females) were enrolled, aged between 6 and 19 years old, in Italian school in Rome. Body mass index (BMI) was calculated according to International Obesity Task Force (IOFT) cut-off points. By age criterion all participants have been classified in age classes.

**RESULTS:**

A normal BMI was recorded in 73.6% of all cases. Obesity, overweight, and thinness prevalence was 5.9%, 9.6%, and 10.9%, respectively, without statistical differences in both genders, except the prevalence of overweight that resulted statistically significant (13.1% males versus 6.2% females,  $P < 0.05$ ). Differences in the age groups have been found. About 23.4% of children between 7 to 11 years were defined obese and about 42.3% between 6 to 8 years thin grade 2, respectively.

**CONCLUSION:**

The study reports the low prevalence of overweight and obesity, in contrast to the unexpected thinness prevalence. The identification of specific age groups with abnormal nutritional status could be the first step to address future epidemiological investigations in order to plan strategic approach in selected age periods.

**182: Trasande L, Attina TM, Sathyanarayana S, Spanier AJ, Blustein J. Race/ethnicity-specific associations of urinary phthalates with childhood body mass in a nationally representative sample. Environ Health Perspect. 2013 Apr;121(4):501-6. doi: 10.1289/ehp.1205526. Epub 2013 Jan 24. PubMed PMID: 23428635; PubMed Central PMCID: PMC3620751.**

Abstract

**BACKGROUND:**

Phthalates have antiandrogenic effects and may disrupt lipid and carbohydrate metabolism.

Racial/ethnic subpopulations have been documented to have varying urinary phthalate concentrations and prevalences of childhood obesity.

**OBJECTIVE:**

We examined associations between urinary phthalate metabolites and body mass outcomes in a nationally representative sample of U.S. children and adolescents.

**METHODS:**

We performed stratified and whole-sample cross-sectional analyses of 2,884 children 6-19 years of age who participated in the 2003-2008 National Health and Nutrition Examination Survey. Multivariable linear and logistic analyses of body mass index z-score, overweight, and obesity were performed against molar concentrations of low-molecular-weight (LMW), high-molecular-weight (HMW), and di-2-ethylhexylphthalate (DEHP) metabolites, controlling for sex, television watching, caregiver education, caloric intake, poverty-income ratio, race/ethnicity, serum cotinine, and age group. We used sensitivity analysis to examine robustness of results to removing sample weighting, normalizing phthalate concentrations for molecular weight, and examining different dietary intake covariates.

**RESULTS:**

In stratified, multivariable models, each log unit (roughly 3-fold) increase in LMW metabolites was associated with 21% and 22% increases in odds (95% CI: 1.05-1.39 and 1.07-1.39, respectively) of overweight and obesity, and a 0.090-SD unit increase in BMI z-score (95% CI: 0.003-0.18), among non-Hispanic blacks. Significant associations were not identified in any other racial/ethnic subgroup or in the study sample as a whole after controlling for potential confounders, associations were not significant for HMW or DEHP metabolites, and results did not change substantially with sensitivity analysis.

**CONCLUSIONS:**

We identified a race/ethnicity-specific association of phthalates with childhood obesity in a nationally representative sample. Further study is needed to corroborate the association and evaluate genetic/epigenomic predisposition and/or increased phthalate exposure as possible explanations for differences among racial/ethnic subgroups.

**183: Robinson PL, Dominguez F, Teklehaimanot S, Lee M, Brown A, Goodchild M. Does distance decay modelling of supermarket accessibility predict fruit and vegetable intake by individuals in a large metropolitan area? J Health Care Poor Underserved. 2013 Feb;24(1 Suppl):172-85. doi: 10.1353/hpu.2013.0049. PubMed PMID: 23395954; PubMed Central PMCID: PMC3767292.**

**Abstract**

Obesity, a risk factor for hypertension, diabetes, and other chronic diseases is influenced by geographic accessibility to supermarkets, which has been shown to affect nutritional behaviors.

**PURPOSE:**

To determine how individual fruit and vegetable (FV) consumption was independently influenced by accessibility to supermarkets, and to quantify that relationship.

**METHODS:**

A distance decay based model was specified for a random sample (n=7,514) of urban residents. Associations between FV consumption and accessibility to supermarkets were explored, controlling for factors known to influence eating behaviors.

**RESULTS:**

There was an independent effect of accessibility to supermarkets, even after the inclusion of the significant controlling factors of age, gender, race/ethnicity, education, marital status, and knowledge of nutritional guidelines.

**CONCLUSION:**

Our model of accessibility was an effective predictor of FV consumption in an urban population, setting the stage for inclusion of supply and demand parameters, and estimation of local factors that contribute to differential obesity rates.

**184: Saydah S, Bullard KM, Imperatore G, Geiss L, Gregg EW. Cardiometabolic risk factors among US adolescents and young adults and risk of early mortality. *Pediatrics*. 2013 Mar;131(3):e679-86. doi: 10.1542/peds.2012-2583. Epub 2013 Feb 18. PubMed PMID: 23420920.**

**Abstract**

**OBJECTIVE:**

To determine the risk of mortality associated with cardiometabolic risk factors in a national sample of adolescents and young adults.

**METHODS:**

Prospective study of participants in the third NHANES (1988-1994), aged 12 to 39 years at the time of the survey (n = 9245). Risk factors included 3 measures of adiposity, glycated hemoglobin (HbA1c) level, cholesterol levels, blood pressure, self-reported smoking status, and cotinine level. Death before age 55 (n = 298) was determined by linkage to the National Death Index through 2006. Proportional hazards models, with age as the time scale, were used to determine the risk of death before age 55 years after adjusting for gender, race/ethnicity, and presence of comorbid conditions.

**RESULTS:**

After adjusting for age, gender, and race/ethnicity, results of categorical analyses showed that current smokers were at 86% greater risk for early death than those classified as never smokers; that those with a waist-to-height ratio >0.65 were at 139% greater risk than those with a WHR <0.5; and that those with an HbA1c level >6.5% were at 281% greater risk than those with an HbA1c level <5.7%. Neither high-density lipoprotein nor non-high-density lipoprotein cholesterol measures were associated with risk for early death.

**CONCLUSIONS:**

Our finding that risk for death before age 55 among US adolescents and young adults was associated with central obesity, smoking, and hyperglycemia supports reducing the prevalence of these risk factors among younger US residents.

**185: Mehairi AE, Khouri AA, Naqbi MM, Muhairi SJ, Maskari FA, Nagelkerke N, Shah SM. Metabolic syndrome among Emirati adolescents: a school-based study. *PLoS One*. 2013;8(2):e56159. doi: 10.1371/journal.pone.0056159. Epub 2013 Feb 13. PubMed PMID: 23418529; PubMed Central PMCID: PMC3572014.**

**Abstract**

**OBJECTIVES:**

Population-based data on metabolic syndrome (MetS) among children is lacking in the United Arab Emirates which has among the highest rates of diabetes in the world. In this study we determined the prevalence of MetS and its correlates in a sample of adolescents.

#### MATERIALS AND METHODS:

A cross-sectional school-based study was conducted on 1,018 adolescents (48.4% girls) aged 12-18 years from Al Ain Abu Dhabi Emirates. A self-administered questionnaire was used to assess socio-demographic characteristics, physical activity and dietary habits. Blood pressure, height, weight, waist circumference, fasting glucose, HDL-cholesterol and triglycerides were measured. MetS was defined using the International Diabetes Federation (IDF) criteria.

#### RESULTS:

The prevalence of metabolic syndrome was 13%. Boys compared to girls were more likely to have MetS (21% vs. 4%, odds ratio [OR]: 6.57, 95%CI: 4.01 to 10.75). The prevalence of MetS increased with increase in body mass index and reached 59 percent in obese boys. After multivariable adjustment boys who were overweight (adjusted OR: 2.72 [1.37 to 5.35]), or obese (AOR: 12.70 [7.31 to 22.05]), or spent two or more than two hours on screen in a day (AOR: 1.65 [1.01 to 2.69]) were more likely to have MetS. Girls who were overweight (AOR: 4.23 [1.32 to 13.62]) or obese (AOR: 8.32 [2.73 to 25.32]) were more likely to have MetS.

#### CONCLUSIONS:

The prevalence of MetS is high among UAE boys. Population-based strategies are needed to address the high burden of metabolic syndrome targeted at the identified risk factors.

**186: Khan FS, Lotia-Farrukh I, Khan AJ, Siddiqui ST, Sajun SZ, Malik AA, Burfat A, Arshad MH, Codlin AJ, Reininger BM, McCormick JB, Afridi N, Fisher-Hoch SP. The burden of non-communicable disease in transition communities in an Asian megacity: baseline findings from a cohort study in Karachi, Pakistan. PLoS One. 2013;8(2):e56008. doi: 10.1371/journal.pone.0056008. Epub 2013 Feb 13. PubMed PMID: 23418493; PubMed Central PMCID: PMC3572147.**

#### Abstract

##### BACKGROUND:

The demographic transition in South Asia coupled with unplanned urbanization and lifestyle changes are increasing the burden of non-communicable disease (NCD) where infectious diseases are still highly prevalent. The true magnitude and impact of this double burden of disease, although predicted to be immense, is largely unknown due to the absence of recent, population-based longitudinal data. The present study was designed as a unique 'Framingham-like' Pakistan cohort with the objective of measuring the prevalence and risk factors for hypertension, obesity, diabetes, coronary artery disease and hepatitis B and C infection in a multi-ethnic, middle to low income population of Karachi, Pakistan.

##### METHODS:

We selected two administrative areas from a private charitable hospital's catchment population for enrolment of a random selection of cohort households in Karachi, Pakistan. A baseline survey measured the prevalence and risk factors for hypertension, obesity, diabetes, coronary artery disease and hepatitis B and C infection.

##### RESULTS:

Six hundred and sixty-seven households were enrolled between March 2010 and August 2011. A majority of households lived in permanent structures (85%) with access to basic utilities (77%) and sanitation facilities (98%) but limited access to clean drinking water (68%). Households had high ownership of communication technologies in the form of cable television (69%) and mobile phones (83%). Risk factors for NCD, such as tobacco use (45%), overweight (20%), abdominal obesity (53%),



hypertension (18%), diabetes (8%) and pre-diabetes (40%) were high. At the same time, infectious diseases such as hepatitis B (24%) and hepatitis C (8%) were prevalent in this population.

**CONCLUSION:**

Our findings highlight the need to monitor risk factors and disease trends through longitudinal research in high-burden transition communities in the context of rapid urbanization and changing lifestyles. They also demonstrate the urgency of public health intervention programs tailored for these transition communities.

**187: Margerison-Zilko CE, Cubbin C. Dynamic poverty experiences and development of overweight in a prospective cohort of US children aged 4-14 years. Obesity (Silver Spring). 2013 Jul;21(7):1438-45. doi: 10.1002/oby.20333. Epub 2013 May 25. PubMed PMID: 23418139; PubMed Central PMCID: PMC3659176.**

**Abstract**

**OBJECTIVE:**

To examine the associations between poverty dynamics and the long-term risk of developing overweight or obesity.

**DESIGN AND METHODS:**

Our data are a representative sample of US children from the National Longitudinal Survey of Youth 1979 Child and Young Adult Survey (1986-2008). We used survival analysis to compare risk of developing overweight or obesity among 5,613 children aged 4-14 years from never poor households, transient poor households (those that became poor only once), recurrent poor households (those that became poor more than once), and persistent poor households (those that became poor and remained poor for at least 4 consecutive years) and examined interactions by race/ethnicity, gender, and age.

**RESULTS:**

Compared with children from never poor households, children from transient poor households (HR 0.79, 95% CI: 0.68-0.92), recurrent poor households (HR: 0.73, 95% CI: 0.62-0.87), and persistently poor households (HR: 0.62, 95% CI: 0.51-0.74) had significantly reduced risks of becoming overweight or obese. These associations did not vary by race/ethnicity, gender, or age.

**CONCLUSIONS:**

Our findings suggest that poverty experiences are associated with reduced risk of becoming overweight or obese among children of 4-14 years.

**188: Rosado JI, Johnson SB, McGinnity KA, Cuevas JP. Obesity among Latino children within a migrant farmworker community. Am J Prev Med. 2013 Mar;44(3 Suppl 3):S274-81. doi: 10.1016/j.amepre.2012.11.019. PubMed PMID: 23415193.**

**Abstract**

**BACKGROUND:**

Childhood obesity has increased substantially among Latino children, placing them at risk for its related health consequences. Limited attention has been given to childhood obesity among Latino migrant farm-working communities.

**PURPOSE:**

To examine, within a migrant farm-working community, (1) the prevalence of obesity among Latino children and parents and (2) parent perceptions of children's weight status and intentions to take corrective action.

**METHODS:**

Structured interviews were completed with the parents of 495 children seen for well-child office visits in the pediatric department of a community health center during a 15-month period between 2010 and 2011. Medical chart reviews were completed for each child participant.

**RESULTS:**

Forty-seven percent of the children were overweight (20%) or obese (27%). In comparison to preschool-aged children, those in elementary and middle school were more likely to be obese. In elementary school, girls were more likely than boys to be overweight or obese. Child obesity was associated with parent obesity. Parental concern about their child's weight was associated with child obesity but not with child overweight. Parental concern was associated with parent intention to address the child's weight, particularly in older children. Analysis was completed in 2012.

**CONCLUSIONS:**

Interventions are needed that address both childhood obesity and parent weight status among Latino migrant farmworkers. Prevention programs that address the weight status of Latino children who are overweight, but not necessarily obese, are also needed, as their parents tend to be no more concerned about a child who is overweight than one who is normal weight.

**189: Hannay J, Dudley R, Milan S, Leibovitz PK. Combining Photovoice and focus groups: engaging Latina teens in community assessment. Am J Prev Med. 2013 Mar;44(3 Suppl 3):S215-24. doi: 10.1016/j.amepre.2012.11.011. PubMed PMID: 23415186.**

**Abstract**

**BACKGROUND:**

Latino adolescents, especially girls, experience higher obesity rates and are more likely to be physically unfit than non-Latino white peers. Out-of-school programs to increase physical activity and fitness in older Latino teens are critical, but sustained engagement is challenging.

**PURPOSE:**

This study combined a community-based participatory research methodology, Photovoice, with focus groups to engage Latina teens and their parents in identifying barriers to physical activity and initiating policy change actions to address them. The study investigates the effectiveness of applying Photovoice as both an evaluation tool and a leadership/advocacy intervention in a community-based obesity prevention program.

**DESIGN:**

Focus group data were collected between July 2009 and October 2010 and analyzed between November 2010 and July 2011. Five focus groups were held with adults (n = 41: 95% Latino) and four with teens (n = 36: 81% Latino, 10% non-Hispanic white, 9% African-American).

**SETTING/PARTICIPANTS:**

All participants (19 teens, six adults) were Latino. Spanish-speaking staff of a community-based agency, program staff, high school guidance counselors, and a job development agency recruited participants. Teens aged 14-19 years enrolled in New Britain CT, high schools, and their parents were eligible.

**MAIN OUTCOME MEASURES:**

Data from Photovoice workshops (three with teens, two with parent-teen dyads) were collected and concurrently analyzed between July 2009 and August 2011.

**RESULTS:**

Teens criticized school-based physical exercise programs in favor of out-of-school exercise and career advice. Parental restrictions and work, transportation, and safety issues were cited as barriers to afterschool physical activity programs.

**CONCLUSIONS:**

Photovoice can empower teens and parents to address exercise barriers by promoting advocacy that leads to policy change (e.g., an out-of-school physical education option).

**190: Nguyen PV, Hong TK, Hoang T, Nguyen DT, Robert AR. High prevalence of overweight among adolescents in Ho Chi Minh City, Vietnam. BMC Public Health. 2013 Feb 15;13:141. doi: 10.1186/1471-2458-13-141. PubMed PMID: 23414441; PubMed Central PMCID: PMC3598401.**

**Abstract**

**BACKGROUND:**

Two previous surveys conducted in Ho Chi Minh City revealed an increasing prevalence of overweight and obese adolescents, from 5.9% in 2002 to 11.7% in 2004. From 2004 to 2010, the government set up and implemented health promotion programs to promote physical activity and good nutritional habits in order to prevent overweight and obesity in children and adolescents. Our study aimed to estimate the prevalence of overweight and obesity among adolescents in urban areas of Ho Chi Minh City in 2010.

**METHODS:**

A representative sample of 1,989 students aged 11-14 years was selected using a multistage cluster sampling method. 23 schools were randomly selected from the full list of all public junior high schools. In each selected school, 2 classes were chosen at random and all students from the class were examined. Age- and sex-adjusted overweight and obesity were defined using International Obesity Taskforce cut-offs.

**RESULTS:**

The prevalences of overweight and obesity were 17.8% and 3.2%, respectively. Prevalences of overweight and obesity were significantly higher in boys (22%, 5.4% ) than in girls (13.3%, 1.3%,  $p < 0.001$ ) and higher in children from districts with a high economic level (20.5% , 3.8% ) than in those from districts with a low economic level (12.1%, 3.8%,  $p < 0.001$ ). Additionally, children living in wealthier families were more overweight and obese than those living in less wealthy families. When using WHO cutoffs, the overall prevalences of overweight and obesity reached 19.6% and 7.9%, respectively.

**CONCLUSION:**

Our study's findings suggest that the prevalence of overweight and obesity among secondary school students remains high, especially among boys living in wealthier families. Public health programs should therefore be developed or improved in order to promote good eating habits and physical activity among youth in HCMC.

**191: Bibiloni Mdel M, Pons A, Tur JA. Defining body fatness in adolescents: a proposal of the AFAD-A classification. PLoS One. 2013;8(2):e55849. doi: 10.1371/journal.pone.0055849. Epub 2013 Feb 6. PubMed PMID: 23405220; PubMed Central PMCID: PMC3566104.**

Abstract

AIMS:

Body mass index (BMI) shows several limitations as indicator of fatness. Using the International Obesity Task Force (IOTF) reference and the World Health Organization (WHO) standard 2007 on the same dataset yielded widely different rates. At higher levels, BMI and the BMI cut-offs may be help in informing a clinical judgement, but at levels near the norm additional criteria may be needed. This study compares the prevalence of overweight and obesity using IOTF and WHO-2007 references and interprets body composition by comparing measures of BMI and body fatness (fat mass index, FMI; and waist-to-height ratio, WHtR) among an adolescent population.

METHODS AND RESULTS:

A random sample (n = 1231) of adolescent population (12-17 years old) was interviewed. Weight, height, waist circumference, triceps and subscapular skinfolds were used to calculate BMI, FMI, and WHtR. The prevalence of overweight and obesity were 12.3% and 15.4% (WHO standards) and 18.6% and 6.1% (IOTF definition). Despite that IOTF cut-offs misclassified less often than WHO standards, BMI categories were combined with FMI and WHtR resulting in the Adiposity & Fat Distribution for adolescents (AFAD-A) classification, which identified the following groups normal-weight normal-fat (73.2%), normal-weight overfat (2.1%), overweight normal-fat (6.7%), overweight overfat (11.9%) and obesity (6.1%), and also classified overweight at risk and obese adolescents into type-I (9.5% and 1.3%, respectively) and type-II (2.3% and 4.9%, respectively) depending if they had or not abdominal fatness.

CONCLUSIONS:

There are differences between IOTF and WHO-2007 international references and there is a misclassification when adiposity is considered. The BMI limitations, especially for overweight identification, could be reduced by adding an estimate of both adiposity (FMI) and fat distribution (WHtR). The AFAD-A classification could be useful in clinical and population health to identify overfat adolescent and those who have greater risk of developing weight-related cardiovascular diseases according to the BMI category.

**192: Lu KD, Breyse PN, Diette GB, Curtin-Brosnan J, Aloe C, Williams DL, Peng RD, McCormack MC, Matsui EC. Being overweight increases susceptibility to indoor pollutants among urban children with asthma. J Allergy Clin Immunol. 2013 Apr;131(4):1017-23, 1023.e1-3. doi: 10.1016/j.jaci.2012.12.1570. Epub 2013 Feb 10. PubMed PMID: 23403052; PubMed Central PMCID: PMC3889705.**

Abstract

BACKGROUND:

Both being overweight and exposure to indoor pollutants, which have been associated with worse health of asthmatic patients, are common in urban minority populations. Whether being overweight is a risk factor for the effects of indoor pollutant exposure on asthma health is unknown.

OBJECTIVES:

We sought to examine the effect of weight on the relationship between indoor pollutant exposure and asthma health in urban minority children.

**METHODS:**

One hundred forty-eight children (age, 5-17 years) with persistent asthma were followed for 1 year. Asthma symptoms, health care use, lung function, pulmonary inflammation, and indoor pollutants were assessed every 3 months. Weight category was based on body mass index percentile.

**RESULTS:**

Participants were predominantly African American (91%) and had public health insurance (85%). Four percent were underweight, 52% were normal weight, 16% were overweight, and 28% were obese. Overweight or obese participants had more symptoms associated with exposure to fine particulate matter measuring less than 2.5  $\mu\text{m}$  in diameter (PM<sub>2.5</sub>) than normal-weight participants across a range of asthma symptoms. Overweight or obese participants also had more asthma symptoms associated with nitrogen dioxide (NO<sub>2</sub>) exposure than normal-weight participants, although this was not observed across all types of asthma symptoms. Weight did not affect the relationship between exposure to coarse particulate matter measuring between 2.5 and 10  $\mu\text{m}$  in diameter and asthma symptoms. Relationships between indoor pollutant exposure and health care use, lung function, or pulmonary inflammation did not differ by weight.

**CONCLUSION:**

Being overweight or obese can increase susceptibility to indoor PM<sub>2.5</sub> and NO<sub>2</sub> in urban children with asthma. Interventions aimed at weight loss might reduce asthma symptom responses to PM<sub>2.5</sub> and NO<sub>2</sub>, and interventions aimed at reducing indoor pollutant levels might be particularly beneficial in overweight children.

**193: Borrell LN, Nguyen EA, Roth LA, Oh SS, Tcheurekdjian H, Sen S, Davis A, Farber HJ, Avila PC, Brigino-Buenaventura E, Lenoir MA, Lurmann F, Meade K, Serebrisky D, Rodriguez-Cintrón W, Kumar R, Rodriguez-Santana JR, Thyne SM, Burchard EG. Childhood obesity and asthma control in the GALA II and SAGE II studies. *Am J Respir Crit Care Med.* 2013 Apr 1;187(7):697-702. doi: 10.1164/rccm.201211-2116OC. Erratum in: *Am J Respir Crit Care Med.* 2013 Nov 1;88(9):1173. PubMed PMID: 23392439; PubMed Central PMCID: PMC3678111.**

**Abstract**

**RATIONALE:**

Obesity is associated with increased asthma morbidity, lower drug responsiveness to inhaled corticosteroids, and worse asthma control. However, most prior investigations on obesity and asthma control have not focused on pediatric populations, considered environmental exposures, or included minority children.

**OBJECTIVES:**

To examine the association between body mass index categories and asthma control among boys and girls; and whether these associations are modified by age and race/ethnicity.

**METHODS:**

Children and adolescents ages 8-19 years (n = 2,174) with asthma were recruited from the Genes-environments and Admixture in Latino Americans (GALA II) Study and the Study of African Americans, Asthma, Genes, and Environments (SAGE II). Ordinal logistic regression was used to estimate odds ratios (OR) and their confidence intervals (95% CI) for worse asthma control.

**MEASUREMENTS AND MAIN RESULTS:**

In adjusted analyses, boys who were obese had a 33% greater chance of having worse asthma control than their normal-weight counterparts (OR, 1.33; 95% CI, 1.04-1.71). However, for girls this association varied with race and ethnicity (P interaction = 0.008). When compared with their normal-weight counterparts, obese African American girls (OR, 0.65; 95% CI, 0.41-1.05) were more likely to have better controlled asthma, whereas Mexican American girls had a 1.91 (95% CI, 1.12-3.28) greater odds of worse asthma control.

**CONCLUSIONS:**

Worse asthma control is uniformly associated with increased body mass index in boys. Among girls, the direction of this association varied with race/ethnicity.

**194: Stephenson AL, Mannik LA, Walsh S, Brotherwood M, Robert R, Darling PB, Nisenbaum R, Moerman J, Stanojevic S. Longitudinal trends in nutritional status and the relation between lung function and BMI in cystic fibrosis: a population-based cohort study. Am J Clin Nutr. 2013 Apr;97(4):872-7. doi: 10.3945/ajcn.112.051409. Epub 2013 Feb 6. PubMed PMID: 23388659.**

**Abstract**

**BACKGROUND:**

A high-calorie diet has been a standard of care in cystic fibrosis (CF) for >3 decades. However, energy requirements may have changed with new treatments and milder genotypes.

**OBJECTIVES:**

The objectives of this study were to describe longitudinal trends in nutritional status and to evaluate the relation between nutritional status and lung function.

**DESIGN:**

This longitudinal cohort study included 909 individuals followed at the Adult CF Clinic in Toronto from 1985 to 2011. Nutritional status was classified on the basis of WHO BMI guidelines. Multivariable linear regression with the use of generalized estimating equations was applied to evaluate the relation between BMI and lung function.

**RESULTS:**

The proportion of underweight individuals decreased from 20.6% before 1990 to 11.1% in the most recent decade, whereas the proportion of overweight and obese subjects increased from 7.0% to 18.4% (P < 0.001). Overweight and obese subjects were older, had better lung function, had milder genotypes, and were more often male and pancreatic sufficient. Multivariable regression analyses showed that within the underweight group, an increase in BMI resulted in improved lung function, whereas this effect was half of that in overweight individuals. The greatest advantage of improved nutrition on lung function was observed in the underweight group and in pancreatic-insufficient patients.

**CONCLUSIONS:**

Modification to a high-fat diet may be required in some individuals with CF to optimize nutritional health. Higher BMI is associated with improvements in lung function, although the lung function benefit of increasing one's BMI (in kg/m<sup>2</sup>) to >25 is small and needs to be balanced against the known health risks of obesity.

**195: Toledo-Corral CM, Alderete TL, Hu HH, Nayak K, Esplana S, Liu T, Goran MI, Weigensberg MJ. Ectopic fat deposition in prediabetic overweight and obese minority adolescents. J Clin Endocrinol Metab. 2013 Mar;98(3):1115-21. doi: 10.1210/jc.2012-3806. Epub 2013 Feb 5. PubMed PMID: 23386647; PubMed Central PMCID: PMC3590481.**

Abstract

CONTEXT:

Optimizing effective prevention and treatment of type 2 diabetes in youth is limited by incomplete understanding of its pathophysiology and how this varies across ethnicities with high risk.

OBJECTIVE:

The aim of this study was to examine the contribution of visceral adipose tissue (VAT), hepatic fat fraction (HFF), and pancreatic fat fraction (PFF) to prediabetes in overweight/obese African American (AA) and Latino youth.

DESIGN AND SETTING:

We conducted a cross-sectional study in an academic pediatric care facility.

SUBJECTS:

A total of 148 healthy, overweight/obese adolescents (56 AA, 92 Latino; 72 males, 76 females; age,  $15.5 \pm 1.2$  y; BMI z-score,  $2.1 \pm 0.5$ ) participated in the study. They were normal glucose tolerant ( $n = 106$ ) and prediabetic ( $n = 42$ ), based on fasting glucose of 100-125 mg/dL and/or 2-hour glucose of 140-199 mg/dL, and/or hemoglobin A1C 6.0-6.4%.

MAIN OUTCOME MEASURES:

We measured sc abdominal adipose tissue, VAT, HFF, and PFF by 3-Tesla magnetic resonance imaging and measured total body fat by dual-energy x-ray absorptiometry.

RESULTS:

Adolescents with prediabetes had 30% higher HFF ( $P = .001$ ) and 31% higher PFF ( $P = .042$ ), compared to those with normal glucose tolerance after controlling for age, sex, pubertal stage, ethnicity, total percentage body fat, and VAT. Logistic regression showed that PFF predicted prediabetes in AAs and HFF predicted prediabetes in Latinos, with the odds of having prediabetes increased by 66% for every 1% increase in PFF in African Americans, and increased by 22% for every 1% increase in HFF in Latinos.

CONCLUSION:

These data demonstrate that ectopic fat phenotypes associated with prediabetes are established by adolescence. Ethnic differences in the deposition of ectopic fat in adolescents with prediabetes may differ, with pancreatic fat in AAs, vs hepatic fat in Latino adolescents, being associated with diabetes risk.

**196: Arrigo T, Chirico V, Salpietro V, Munafò C, Ferràù V, Gitto E, Lacquaniti A, Salpietro C. High-mobility group protein B1: a new biomarker of metabolic syndrome in obese children. Eur J Endocrinol. 2013 Mar 15;168(4):631-8. doi: 10.1530/EJE-13-0037. Print 2013 Apr. PubMed PMID: 23384711.**

Abstract

INTRODUCTION:

Obesity is associated with a chronic low-grade inflammation. High-mobility group box 1 protein (HMGB1) plays a key role in inflammation and immunostimulatory and chemotactic processes. The

aim of the study was to assess the role of HMGB1 in obese children and to evaluate its diagnostic profile in identifying childhood obesity-related complications, such as the metabolic syndrome (MS).

**PATIENTS AND METHODS:**

Sixty obese children were enrolled and compared with 40 healthy children (control). Homeostasis model assessment of insulin resistance (HOMA-IR), lipid profile, thyroid hormones, and pro- and anti-inflammatory peptides such as C-reactive protein (CRP), adiponectin, interleukin 6 (IL6), IL18, IL23, TNF $\alpha$ , resistin, and HMGB1 were evaluated. Receiver operating characteristics (ROC) analysis was employed to calculate the area under the curve (AUC) for HMGB1, IL6, and adiponectin to find the best cutoff values capable of identifying MS in obese children.

**RESULTS:**

HMGB1 levels were statistically higher in obese patients than in the control group (19.4 $\pm$ 6.8 vs 3.7 $\pm$ 1.2 ng/ml; P<0.0001). In obese patients, IL18, IL6, and resistin levels were significantly high, while adiponectin levels were low. At multivariate analysis, HMGB1 was found to be independently correlated with BMI, IL23, IL6, free triiodothyronine, HDL, and HOMA-IR. At ROC analysis, HMGB1 showed higher sensitivity and specificity (AUC, 0.992; sensitivity, 94.7%; specificity, 97.5%) than IL6 and adiponectin in identifying MS in obese children.

**CONCLUSION:**

HMGB1 plays an important role in the inflammatory process associated with childhood obesity. This peptide may be an important diagnostic marker for obesity-related complications, such as MS.

**197: Taylor JY, Caldwell CH, Baser RE, Matusko N, Faison N, Jackson JS.**

**Classification and correlates of eating disorders among Blacks: findings from the National Survey of American Life. J Health Care Poor Underserved. 2013**

**Feb;24(1):289-310. doi: 10.1353/hpu.2013.0027. PubMed PMID: 23377735; PubMed Central PMCID: PMC3564508.**

**Abstract**

**OBJECTIVE:**

To assess classification adjustments and examine correlates of eating disorders among Blacks.

**METHODS:**

The National Survey of American Life (NSAL) was conducted from 2001-2003 and consisted of adults (n=5,191) and adolescents (n=1,170). The World Mental Health Composite International Diagnostic Interview (WMH-CIDI-World Health Organization 2004-modified) and DSM-IV-TR eating disorder criteria were used.

**RESULTS:**

Sixty-six percent of African American and 59% Caribbean Black adults were overweight or obese, while 30% and 29% of adolescents were overweight or obese. Although lifetime rates of anorexia nervosa and bulimia nervosa were low, binge eating disorder was high for both ethnic groups among adults and adolescents. Eliminating certain classification criteria resulted in higher rates of eating disorders for all groups.

**CONCLUSION:**

Culturally sensitive criteria should be incorporated into future versions of Diagnostic Statistical Manual (DSM) classifications for eating disorders that consider within-group ethnic variations.



**198: Atabek ME, Eklioğlu BS, Akyürek N. Reevaluation of the prevalence of metabolic syndrome in an urban area of Turkey. J Clin Res Pediatr Endocrinol. 2013;5(1):50-4. doi: 10.4274/Jcrpe.778. Epub 2013 Jul 1. PubMed PMID: 23367493; PubMed Central PMCID: PMC3628393.**

Abstract

OBJECTIVE:

Our aim was to reveal a change in the prevalence of metabolic syndrome (MS) in the province of Konya in five years.

METHODS:

We studied 202 obese children and adolescents (body mass index >95th percentile) aged between 7 and 18 years. The diagnosis of impaired glucose tolerance, type 2 diabetes mellitus (T2DM), and MS were defined according to the modified World Health Organization criteria adapted for children.

RESULTS:

MS was found in 56.4 % with a significantly higher rate among adolescents aged 12-18 years (63.2%) than among prepubertal children aged 7-11 years (47%) ( $p=0.01$ ). The prevalence figures for insulin resistance, glucose intolerance, and T2DM were 60, 8, and 2% among prepubertal children and 81.8, 12.8, and 0% among adolescents, respectively. The prevalence of fasting hyperinsulinemia in adolescents was significantly higher than in prepubertal children ( $p<0.001$ ). Hypertension was significantly more common in adolescents (42.8%) than in prepubertal children (32.9%) ( $p=0.04$ ).

CONCLUSIONS:

We found that the incidence of MS in the city center of Konya approximately doubled in the last five years with increased rates of morbidity and abnormal lipid profiles.

**199: Kimani-Murage EW. Exploring the paradox: double burden of malnutrition in rural South Africa. Glob Health Action. 2013 Jan 24;6:19249. doi: 10.3402/gha.v6i0.19249. PubMed PMID: 23364082; PubMed Central PMCID: PMC3556706.**

Abstract

BACKGROUND:

This article is a review of the PhD thesis by Elizabeth Kimani-Murage that explores the double burden of malnutrition in rural South Africa. This is in the context of a worryingly rapid increase in obesity and obesity-related diseases in low- and middle-income countries (LMICs) including South Africa, and in the wake of on-going nutrition transition and lifestyle changes in these countries.

OBJECTIVE:

To understand the profiles of malnutrition among children and adolescents in a poor, high HIV prevalent, transitional society in a middle-income country.

METHODS:

A cross-sectional growth survey was conducted in 2007 targeting 4,000 children and adolescents aged 1-20 years. In addition, HIV testing was carried out on children aged 1-5 years and Tanner pubertal assessment among adolescents aged 9-20 years.

RESULTS:

The study shows stunting at an early age and adolescent obesity, particularly among girls, that co-exists in the same socio-geographic population. The study also shows that HIV is an independent modifiable risk factor for poor nutritional outcomes in children and makes a significant contribution to nutritional outcomes at the individual level. Significant predictors of undernutrition at an early age,

documented at individual, household, and community levels, include child's HIV status, age and birth weight, maternal age, age of household head, and area of residence. Significant predictors of overweight/obesity and risk for metabolic disease during adolescence, documented at individual and household levels include child's age, sex, and pubertal development, household-level food security, socio-economic status, and household head's highest education level.

**CONCLUSIONS:**

The combination of early stunting and adolescent obesity raises critical concerns in the wake of the rising public health importance of metabolic diseases in LMICs. This is because, both paediatric obesity and adult short stature are risk factors for metabolic syndrome and metabolic diseases in adulthood. Clearly, policies and interventions to address malnutrition in this and other transitional societies need to be double-pronged and gender-sensitive.

**KEYWORDS:**

HIV; South Africa; double burden of malnutrition; low- and middle-income countries; metabolic disease risk; nutrition transition; obesity; overweight; stunting; underweight; wasting.

**200: Katzmarzyk PT, Heymsfield SB, Bouchard C. Clinical utility of visceral adipose tissue for the identification of cardiometabolic risk in white and African American adults. Am J Clin Nutr. 2013 Mar;97(3):480-6. doi: 10.3945/ajcn.112.047787. Epub 2013 Jan 30. PubMed PMID: 23364010; PubMed Central PMCID: PMC3578400.**

**Abstract**

**BACKGROUND:**

Visceral adipose tissue (VAT) has been identified as a harmful fat depot, and sex and race differences in VAT have been reported in white and African Americans.

**OBJECTIVES:**

We determined the clinical utility of VAT in the identification of individuals at elevated cardiometabolic risk in white and African American adults and compared the clinical utility with measures obtained by using dual-energy X-ray absorptiometry (DXA) and anthropometric measures.

**DESIGN:**

The sample included 429 white women, 311 African American women, 406 white men, and 100 African American men who were 18-74 y of age. VAT was measured by using computed tomography, fat mass (FM) and percentage of body fat were measured by using DXA, and waist circumference (WC) and BMI were assessed. Receiver operating characteristic curves were used to compare the utility of measures in the identification of participants in the upper quintile of a continuous score derived from principal components analysis of fasting glucose, HDL cholesterol, triglycerides, and blood pressure.

**RESULTS:**

The clinical utility of measures varied across sex-by-race groups. In the overall sample, the areas under the curve were significantly higher for VAT and WC in comparison with the other indicators. Identified VAT thresholds were higher in white men (140 cm<sup>2</sup>) and women (141 cm<sup>2</sup>) than in African American men (82 cm<sup>2</sup>) and women (97 cm<sup>2</sup>).

**CONCLUSIONS:**

VAT and WC showed greater clinical utility than did other obesity measures. Because of the complexity of measuring VAT, the use of WC is recommended for the identification of adults with

elevated cardiometabolic risk factors. The Pennington Center Longitudinal Study was registered at [clinicaltrials.gov](http://clinicaltrials.gov) as NCT00959270.

**201: Rizzo AC, Goldberg TB, Silva CC, Kurokawa CS, Nunes HR, Corrente JE. Metabolic syndrome risk factors in overweight, obese, and extremely obese Brazilian adolescents. *Nutr J.* 2013 Jan 30;12:19. doi: 10.1186/1475-2891-12-19. PubMed PMID: 23363783; PubMed Central PMCID: PMC3602008.**

Abstract

BACKGROUND:

Obesity in infancy and adolescence has acquired epidemic dimensions worldwide and is considered a risk factor for a number of disorders that can manifest at an early age, such as Metabolic Syndrome (MS). In this study, we evaluated overweight, obese, and extremely obese adolescents for the presence of MS, and studied the prevalence of single factors of the syndrome in this population.

METHODS:

A total of 321 adolescents (174 females and 147 males) aged 10 to 16 years, attending the Adolescent Outpatient Clinic of Botucatu School of Medicine, Brazil, between April 2009 and April 2011 were enrolled in this study. Adolescents underwent anthropometric evaluation (weight, height, and abdominal circumference) and Body Mass Index (BMI) was estimated according to age and gender, following Disease Control and Prevention Centers recommendations (CDC, 2000). Blood pressure was measured and individuals with BMI  $\geq$  85th percentile were submitted to laboratory evaluation for Total Cholesterol, HDL and LDL Cholesterol, Triglycerides, Fasting Insulinemia, and Fasting Glycemia to identify MS factors, according to the criteria suggested by the International Diabetes Federation. Insulin resistance was calculated by HOMA-IR, Quicki, and Fasting Glycemia/Fasting Insulinemia (FGI).

RESULTS AND DISCUSSION:

Of the 321 adolescents, 95 (29.6%) were overweight, 129 (40.2%) were obese, and 97 (30.2%) were extremely obese. Around 18% were diagnosed with MS. The most prevalent risk factors were abdominal circumference  $\geq$ 90th percentile (55%), HDL  $<$  40 mg/dL (35.5%), High Pressure  $\geq$ 130/85 mm/Hg (21%), Triglycerides  $\geq$ 150 mg/dL (18.5%), and Fasting Glycemia  $\geq$ 100 mg/dL (2%). Insulin resistance was observed in 65% of the adolescents.

CONCLUSION:

An increased prevalence of overweight and obesity, together with cardiometabolic risk factors such as dyslipidemia and abnormal blood pressure, were observed in adolescents, contributing to the onset of metabolic syndrome at younger ages. Risk factors for MS were more prevalent in females.

**202: Woźniacka R, Bac A, Matusik S, Szczygieł E, Cizek E. Body weight and the medial longitudinal foot arch: high-arched foot, a hidden problem? *Eur J Pediatr.* 2013 May;172(5):683-91. doi: 10.1007/s00431-013-1943-5. Epub 2013 Jan 30. PubMed PMID: 23361963; PubMed Central PMCID: PMC3631513.**

Abstract

This study had two objectives. First, to determine the prevalence of hollow (high-arched) and flat foot among primary school children in Cracow (Poland). Second, to evaluate the relationship between the type of medial longitudinal arch (MLA; determined by the Clarke's angle) and degree of fatness. The prevalence of underweight, overweight, and obesity was determined by means of IOTF cut-offs with respect to age and gender. A sample of 1,115 children (564 boys and 551 girls) aged between 3 and

13 years was analyzed. In all age groups, regardless of gender, high-arched foot was diagnosed in the majority of children. A distinct increase in the number of children with high-arched foot was observed between 7- and 8-year olds. Regardless of the gender, high-arched foot was more common among underweight children. In the group of obese children, the biggest differences were attributed to gender. High-arched foot was the most frequently observed among boys. In all gender and obesity level groups, the flat foot was more common among boys than among girls.

**CONCLUSIONS:**

High-arched foot is the most common foot defect among children 3-13 years old regardless of gender. Flat foot is least frequently observed in children 3-13 years old. A statistic correlation between MLA and adiposity is observed. Stronger correlation is observed among girls.

**203: Liu Y, Croft JB, Wheaton AG, Perry GS, Chapman DP, Strine TW, McKnight-Eily LR, Presley-Cantrell L. Association between perceived insufficient sleep, frequent mental distress, obesity and chronic diseases among US adults, 2009 behavioral risk factor surveillance system. BMC Public Health. 2013 Jan 29;13:84. doi: 10.1186/1471-2458-13-84. PubMed PMID: 23360346; PubMed Central PMCID: PMC3562519.**

**Abstract**

**BACKGROUND:**

Although evidence suggests that poor sleep is associated with chronic disease, little research has been conducted to assess the relationships between insufficient sleep, frequent mental distress (FMD  $\geq 14$  days during the past 30 days), obesity, and chronic disease including diabetes mellitus, coronary heart disease, stroke, high blood pressure, asthma, and arthritis.

**METHODS:**

Data from 375,653 US adults aged  $\geq 18$  years in the 2009 Behavioral Risk Factor Surveillance System were used to assess the relationships between insufficient sleep and chronic disease. The relationships were further examined using a multivariate logistic regression model after controlling for age, sex, race/ethnicity, education, and potential mediators (FMD and obesity).

**RESULTS:**

The overall prevalence of insufficient sleep during the past 30 days was 10.4% for all 30 days, 17.0% for 14-29 days, 42.0% for 1-13 days, and 30.6% for zero day. The positive relationships between insufficient sleep and each of the six chronic disease were significant ( $p < 0.0001$ ) after adjustment for covariates and were modestly attenuated but not fully explained by FMD. The relationships between insufficient sleep and both diabetes and high blood pressure were also modestly attenuated but not fully explained by obesity.

**CONCLUSIONS:**

Assessment of sleep quantity and quality and additional efforts to encourage optimal sleep and sleep health should be considered in routine medical examinations. Ongoing research designed to test treatments for obesity, mental distress, or various chronic diseases should also consider assessing the impact of these treatments on sleep health.

**204: Canuto KJ, Spagnoletti B, McDermott RA, Cargo M. Factors influencing attendance in a structured physical activity program for Aboriginal and Torres Strait Islander women in an urban setting: a mixed methods process evaluation. Int J Equity Health. 2013 Jan 24;12:11. doi: 10.1186/1475-9276-12-11. PubMed PMID: 23347750; PubMed Central PMCID: PMC3561158.**

Abstract

BACKGROUND:

Aboriginal and Torres Strait Islander women experience higher rates of obesity, chronic disease, and are less active than non-Indigenous Australian women. Lifestyle programs designed to increase physical activity and encourage healthy eating are needed to ameliorate this disparity. The aim of this study was to identify participants' perceived barriers and enablers to attend group exercise classes as part of a 12-week fitness program.

METHODS:

To understand the factors that influence attendance, a mixed method process evaluation was undertaken in which a quantitative measure of attendance in the group exercise classes was used to identify cases for further qualitative investigation. Aboriginal and/or Torres Strait Islander women aged 18 to 64 years were recruited to a research trial of a fitness program. The 12-week program included two 60-minute group exercise classes per week, and four nutrition education workshops. Semi-structured interviews were conducted at program completion. Participants were stratified by attendance, and interviews from the highest and lowest 25 percentiles analysed. Rigour was strengthened through use of multiple data analysts, member checking and prolonged engagement in the field.

RESULTS:

Analyses of the post-program interviews revealed that participants enrolled in the program primarily for the perceived health benefits and all (with one exception) found the program met their needs and expectations. The atmosphere of classes was positive and comfortable and they reported developing good relationships with their fellow participants and program staff. Low attendees described more barriers to attendance, such as illness and competing work and family obligations, and were more likely to report logistical issues, such as inconvenient venue or class times.

CONCLUSIONS:

Attendance to the 'Aboriginal and Torres Strait Islander Women's Fitness Program' was primarily influenced by the participant's personal health, logistics and competing obligations. Low attendees reported more barriers during the 12-week period and identified fewer enabling factors than high attendees.

**205: Brandheim S, Rantakeisu U, Starrin B. BMI and psychological distress in 68,000 Swedish adults: a weak association when controlling for an age-gender combination. BMC Public Health. 2013 Jan 24;13:68. doi: 10.1186/1471-2458-13-68. PubMed PMID: 23347701; PubMed Central PMCID: PMC3564918.**

Abstract

BACKGROUND:

Study results concerning associations between body mass index (BMI) and psychological distress are conflicting. The purpose of this study was to describe the shape of the association between BMI and psychological distress in a large sample of Swedish adults.

#### METHODS:

Data was measured with the General Health Questionnaire-12 (GHQ-12), in 68,311 adults aged 18-74. Self-reported data was derived from a merger of the 2000, 2004 and 2008 Life and Health (Liv och Hälsa) questionnaires focusing general perceived distress as well as living conditions. Logistic regression analysis was used to describe the association between BMI and psychological distress when controlled for age and gender in combination.

#### RESULTS:

Women reported an overall higher psychological distress than men. A significant pattern of decreasing psychological distress with increasing age emerged among women in all BMI categories. Trends of this same pattern showed for men. Small or no differences were seen in psychological distress between those in normal weight, overweight, and obesity I categories (among women: 20.4%, 18.4%, 20.5%; among men: 12.8%, 11.2%, 12.9%). For both genders, any notable increase in psychological distress appeared first in the obesity II category (among women: 27.2%. Among men: 17.8%).

#### CONCLUSIONS:

Psychological distress decreases with increasing age regardless of BMI; a pattern more obvious for women. Being categorized with obesity II leads to a markedly higher psychological distress than being categorized with normal weight, overweight or obesity I. From this, we suggest that future obesity research focusing on psychological distress could investigate the role of stigma and norm susceptibility in relationships where people are evaluated through the eyes of the other.

**206: Black MH, Watanabe RM, Trigo E, Takayanagi M, Lawrence JM, Buchanan TA, Xiang AH. High-fat diet is associated with obesity-mediated insulin resistance and  $\beta$ -cell dysfunction in Mexican Americans. *J Nutr.* 2013 Apr;143(4):479-85. doi: 10.3945/jn.112.170449. Epub 2013 Jan 23. PubMed PMID: 23343677; PubMed Central PMCID: PMC3738243.**

#### Abstract

Consumption of energy-dense, nutrient-poor foods has contributed to the rising incidence of obesity and may underlie insulin resistance and  $\beta$ -cell dysfunction. Macronutrient intake patterns were examined in relation to anthropometric and metabolic traits in participants of BetaGene, a family-based study of obesity, insulin resistance, and  $\beta$ -cell dysfunction in Mexican Americans. Dietary intake, body composition, insulin sensitivity (SI), and  $\beta$ -cell function [Disposition Index (DI)] were assessed by food-frequency questionnaires, dual-energy X-ray absorptiometry, and intravenous glucose-tolerance tests, respectively. Patterns of macronutrient intake were identified by using a K-means model based on the proportion of total energy intake per day attributable to carbohydrate, fat, and protein and were tested for association with anthropometric and metabolic traits. Among 1150 subjects aged 18-65 y (73% female), tertiles of fat intake were associated with greater adiposity and lower SI, after adjustment for age, sex, and daily energy intake. Moreover, 3 distinct dietary patterns were identified: "high fat" (35% fat, 44% carbohydrate, 21% protein; n = 238), "moderate fat" (28% fat, 54% carbohydrate, 18% protein; n = 520), and "low fat" (20% fat, 65% carbohydrate, 15% protein; n = 392). Compared with the low-fat group, the high-fat group had higher age- and sex-adjusted mean body mass index, body fat percentage, and trunk fat and lower SI and DI. Further adjustment for daily energy intake by matching individuals across dietary pattern groups yielded similar results. None of the observed associations were altered after adjustment for physical activity; however, associations with SI and DI were attenuated after adjustment for adiposity. These findings

suggest that high-fat diets may contribute to increased adiposity and concomitant insulin resistance and  $\beta$ -cell dysfunction in Mexican Americans.

**207: Moreno G, Johnson-Shelton D, Boles S. Prevalence and prediction of overweight and obesity among elementary school students. J Sch Health. 2013 Mar;83(3):157-63. doi: 10.1111/josh.12011. PubMed PMID: 23343316; PubMed Central PMCID: PMC3556912.**

Abstract

BACKGROUND:

The high rates of childhood overweight and obesity in the United States have generated interest in schools as sites for monitoring body mass index (BMI) information. This study established baseline values for a 5-year longitudinal assessment of BMI of elementary school children and examined variation across the schools, because little is known about factors that affect the distribution of overweight and obesity within school districts.

METHODS:

Height and weight measurements were collected on 2317 elementary school children in 1 school district. BMI was calculated using the Centers for Disease Control and Prevention's NutStat program. Child characteristics included gender, age, eligibility for free and reduced lunch (proxy for socioeconomic status [SES]), school, grade, and ethnicity/race. Children were grouped into 2 BMI categories, <85th percentile or  $\geq$ 85th percentile (overweight/obesity). Logistic regression was used to examine potential predictors of overweight/obesity.

RESULTS:

Prevalence of  $\geq$ 85th percentile was 30.9%, 34.4%, 35.3%, 36.4%, 37.1%, and 44.5% for K-5, respectively. Prevalence of  $\geq$ 85th percentile was highest among Hispanic children. Ethnicity was the strongest predictor of inclusion in the  $\geq$ 85th percentile category followed by grade and free and reduced lunch eligibility.

CONCLUSION:

The data are consistent with the prevalence of overweight/obesity among American children and Hispanic children in particular. District prevalence of overweight/obesity is higher than available state statistics. Most of the BMI variation is accounted for by ethnicity, SES, and grade. The grade effect and high prevalence of overweight/obesity provide a rationale for BMI screening retention at the schools.

**208: Lee H, Harris KM, Lee J. Multiple levels of social disadvantage and links to obesity in adolescence and young adulthood. J Sch Health. 2013 Mar;83(3):139-49. doi: 10.1111/josh.12009. PubMed PMID: 23343314; PubMed Central PMCID: PMC3731140.**

Abstract

BACKGROUND:

The rise in adolescent obesity has become a public health concern, especially because of its impact on disadvantaged youth. This article examines the role of disadvantage at the family-, peer-, school-, and neighborhood-level, to determine which contexts are related to obesity in adolescence and young adulthood.

METHODS:

We analyzed longitudinal data from Waves I (1994-1995), II (1996), and III (2001-2002) of the National Longitudinal Study of Adolescent Health, a nationally representative population-based sample of adolescents in grades 7-12 in 1995 who were followed into young adulthood. We assessed the relationship between obesity in adolescence and young adulthood, and disadvantage (measured by low parent education in adolescence) at the family-, peer-, school-, and neighborhood-level using multilevel logistic regression.

**RESULTS:**

When all levels of disadvantage were modeled simultaneously, school-level disadvantage was significantly associated with obesity in adolescence for males and females and family-level disadvantage was significantly associated with obesity in young adulthood for females.

**CONCLUSIONS:**

Schools may serve as a primary setting for obesity prevention efforts. Because obesity in adolescence tracks into adulthood, it is important to consider prevention efforts at this stage in the life course, in addition to early childhood, particularly among disadvantaged populations.

**209: Nansel TR, Lipsky LM, Iannotti RJ. Cross-sectional and longitudinal relationships of body mass index with glycemic control in children and adolescents with type 1 diabetes mellitus. Diabetes Res Clin Pract. 2013 Apr;100(1):126-32. doi: 10.1016/j.diabres.2012.12.025. Epub 2013 Jan 20. PubMed PMID: 23339757; PubMed Central PMCID: PMC3634913.**

**Abstract**

**AIMS:**

Weight gain is an oft-cited outcome of improved glycemic control in adults with type 1 diabetes, though few studies have investigated this in youth. The purpose of this paper was to examine cross-sectional and longitudinal associations of body mass index (BMI, kg/m<sup>2</sup>) with glycemic control in youth with type 1 diabetes (n=340, 12.5 ± 1.7 year, 49% female, duration ≥ 1 year) participating in a 2-year multi-center intervention study targeting family diabetes management.

**METHODS:**

BMI was calculated from height and weight measured at clinic visits. Glycohemoglobin (HbA1c) at each visit was assayed centrally. Cross-sectional associations of baseline BMI with glycemic control, and of change in BMI and HbA1c with baseline values, were examined. Longitudinal associations of time-varying BMI and HbA1c were examined using a multilevel linear mixed effects model controlling for time-varying time (months), insulin dose (units/kg/day), regimen, Tanner stage, and time invariant baseline diabetes duration, BMI, treatment group and sociodemographic characteristics.

**RESULTS:**

Baseline HbA1c was unrelated to baseline BMI, but was related positively to subsequent BMI change (p=0.04) and inversely to HbA1c change (p=0.002). Baseline BMI was inversely related to BMI change (p=0.01) and unrelated to HbA1c change. In multilevel regression, BMI was related inversely to HbA1c (%) ( $\beta \pm SE = -0.11 \pm 0.02$ , p<0.001) and positively to insulin dose ( $0.23 \pm 0.07$ , p=0.001). In the treatment group only, BMI was positively related to pump regimen ( $0.18 \pm 0.08$ , p=0.02).

**CONCLUSIONS:**

Increased insulin administered to improve glycemic control may contribute to increased BMI in youth with type 1 diabetes, indicating the importance of determining ways to minimize weight gain while optimizing glycemic control.



**210: Armitage R, Lee J, Bertram H, Hoffmann R. A preliminary study of slow-wave EEG activity and insulin sensitivity in adolescents. Sleep Med. 2013 Mar;14(3):257-60. doi: 10.1016/j.sleep.2012.11.012. Epub 2013 Jan 20. PubMed PMID: 23337073; PubMed Central PMCID: PMC3582713.**

Abstract

OBJECTIVE:

The objective was to evaluate the relationship between the time course of slow wave EEG activity (SWA) during NREM sleep and insulin sensitivity in adolescents.

METHODS:

Nine normal weight and nine overweight (BMI>85th percentile) adolescents (13-18 years of age) participated. None of the participants had a history of sleep disordered breathing, confirmed by sleep study. Participants maintained a regularized sleep wake cycle for five days followed by overnight polysomnography in the lab or at home. An oral glucose tolerance test (OGTT) was administered after a 12h fast and within two weeks of the sleep study. Whole body insulin sensitivity (WBISI) and homeostasis model assessment (HOMA-IR) determined insulin resistance. Power spectral analysis quantified slow-wave EEG activity (.05-3.9 Hz) and exponential regression evaluated SWA across successive NREM periods.

RESULTS:

Those who were insulin resistant and had low insulin sensitivity had less Stages 2, 3 and 4 of NREM sleep, more Stage 1, but did not sleep less than those with low resistance and high sensitivity. SWA power was significantly lower in the first NREM period and the decay rate of SWA across NREM sleep was significantly slower in the low insulin sensitivity group. Similar results were obtained after removing the influence of BMI and Tanner score.

CONCLUSIONS:

Insulin sensitivity in adolescents is related to SWA power and its time course, not total sleep time, regardless of BMI.

**211: Habib SS. Body mass index and body fat percentage in assessment of obesity prevalence in Saudi adults. Biomed Environ Sci. 2013 Feb;26(2):94-9. doi: 10.3967/0895-3988.2013.02.003. PubMed PMID: 23336132.**

Abstract

OBJECTIVE:

To assess the obesity prevalence in Saudi adults according to the international standards of body mass index (BMI) and body fat percentage (BF%).

METHODS:

Five hundred and thirty healthy Saudi adults aged 18-72 years (mean 36.91 ± 15.22 years) were enrolled in this study. Their body composition was assessed by bioelectrical impedance analysis with a commercially available body composition analyzer. Standard BMI and BF% values were used to define obesity.

RESULTS:

The prevalence of underweight, normal underweight, overweight and obesity in Saudi adults according to the BMI criteria (<18.5 kg/m<sup>2</sup>, 18.5-24.4 kg/m<sup>2</sup>, 25-29.9 kg/m<sup>2</sup>, 30 kg/m<sup>2</sup> and above, respectively) was 2.5%, 30.2%, 33.6%, and 33.8%, respectively, whereas the obesity prevalence was 60% (n=318) in Saudi adults according to the BF% criteria (25% for males and 30% for females), which

was significantly higher than that according to BMI criteria. However, it was 50.6% (n=268) when the BMI cutoff point was 27.5 kg/m<sup>2</sup>, proposed by WHO for the Asian population. Kappa analysis showed that the obesity prevalence defined by BMI and BF% was higher in females than in males (k=0.530 vs k=0.418, P<0.0001). The sensitivity and specificity of BMI (30 kg/m<sup>2</sup> and 27.5 kg/m<sup>2</sup>) were 54.1% and 96.7% and 76.4% and 88.2%, respectively, for obesity. A lower BMI cutoff point (26.60 kg/m<sup>2</sup>) was proposed in this study, which gave the maximum sensitivity (84.3%) and specificity (85.4%), with a moderate kappa agreement (k=0.686). Moreover, the obesity prevalence at this cutoff point (56.4%) was significantly higher than that recommended by WHO.

**CONCLUSION:**

The specificity of BMI for obesity is high and its sensitivity is low in both sexes. Its sensitivity can be increased by changing BMI cutoff to a lower value. The choice of BF% reference is of great influence for the assessment of obesity prevalence according to the BMI.

**212: Slater SJ, Nicholson L, Chriqui J, Barker DC, Chaloupka FJ, Johnston LD.**

**Walkable communities and adolescent weight. Am J Prev Med. 2013 Feb;44(2):164-8.**

**doi: 10.1016/j.amepre.2012.10.015. PubMed PMID: 23332334; PubMed Central PMCID: PMC3553501.**

**Abstract**

**BACKGROUND:**

Neighborhood design features have been associated with health outcomes, including the prevalence of obesity.

**PURPOSE:**

This study examined the association between walkability and adolescent weight in a national sample of public secondary school students and the communities in which they live.

**METHODS:**

Data were collected through student surveys and community observations between February and August 2010, and analyses were conducted in Spring 2012. The sample size was 154 communities and 11,041 students. A community walkability index and measures of the prevalence of adolescent overweight and obesity were constructed. Multivariable analyses from a cross-sectional survey of a nationally representative sample of 8th-, 10th- and 12th-grade public school students in the U.S. were run.

**RESULTS:**

The odds of students being overweight (AOR 0.98, 95% CI=0.95, 0.99) or obese (AOR=0.97, 95% CI=0.95, 0.99) decreased if they lived in communities with higher walkability index scores.

**CONCLUSIONS:**

Results suggest that living in more-walkable communities is associated with reduced prevalence of adolescent overweight and obesity.

**213: Pulgarón ER. Childhood obesity: a review of increased risk for physical and psychological comorbidities. Clin Ther. 2013 Jan;35(1):A18-32. doi: 10.1016/j.clinthera.2012.12.014. PubMed PMID: 23328273; PubMed Central PMCID: PMC3645868.**

Abstract

BACKGROUND:

Worldwide estimates of childhood overweight and obesity are as high as 43 million, and rates continue to increase each year. Researchers have taken interest in the childhood obesity epidemic and the impact of this condition across health domains. The consequences of childhood and adolescent obesity are extensive, including both medical and psychosocial comorbidities.

OBJECTIVE:

The purpose of this review was to consolidate and highlight the recent literature on the comorbidities associated with childhood obesity, both nationally and internationally.

METHODS:

PubMed and PsychINFO searches were conducted on childhood obesity and comorbidities.

RESULTS:

The initial search of the terms obesity and comorbidity yielded >5000 published articles. Limits were set to include studies on children and adolescents that were published in peer-reviewed journals from 2002 to 2012. These limits narrowed the search to 938. Review of those articles resulted in 79 that are included in this review. The major medical comorbidities associated with childhood obesity in the current literature are metabolic risk factors, asthma, and dental health issues. Major psychological comorbidities include internalizing and externalizing disorders, attention-deficit hyperactivity disorder, and sleep problems.

CONCLUSIONS:

The high prevalence rates of childhood obesity have resulted in extensive research in this area. Limitations to the current childhood obesity literature include differential definitions of weight status and cut-off levels for metabolic risk factors across studies. Additionally, some results are based on self-report of diagnoses rather than chart reviews or physician diagnosis. Even so, there is substantial support for metabolic risk factors, internalizing disorders, attention-deficit hyperactivity disorder, and decreased health-related quality of life as comorbidities to obesity in childhood. Additional investigations on other diseases and conditions that might be associated with childhood obesity are warranted and intervention research in this area is critical.

**214: Saunders TJ, Tremblay MS, Després JP, Bouchard C, Tremblay A, Chaput JP. Sedentary behaviour, visceral fat accumulation and cardiometabolic risk in adults: a 6-year longitudinal study from the Quebec Family Study. PLoS One. 2013;8(1):e54225. doi: 10.1371/journal.pone.0054225. Epub 2013 Jan 9. PubMed PMID: 23326600; PubMed Central PMCID: PMC3541147.**

Abstract

BACKGROUND:

Sedentary behaviour has recently emerged as a unique risk factor for chronic disease morbidity and mortality. One factor that may explain this relationship is visceral adiposity, which is prospectively associated with increased cardiometabolic risk and mortality. The objective of the present study was to determine whether sedentary behaviour was associated with increased accumulation of visceral

fat or other deleterious changes in cardiometabolic risk over a 6-year follow-up period among adult participants in the Quebec Family Study.

**METHODS:**

The current study included 123 men and 153 women between the ages of 18 and 65. Total sedentary time and physical activity were assessed by self-report questionnaire. Cross-sectional areas of visceral and subcutaneous abdominal adipose tissue were assessed using computed tomography. Cardiometabolic biomarkers including fasting insulin, glucose, blood lipids, HOMA-Insulin Resistance, and oral glucose tolerance were also measured. All variables of interest were collected at both baseline and follow-up.

**RESULTS:**

After adjustment for age, sex, baseline BMI, physical activity, energy intake, smoking, education, income and menopausal status, baseline sedentary behaviour was not associated with changes in visceral adiposity or any other marker of cardiometabolic risk. In the longitudinal model which adjusted for all studied covariates, every 15-minute increase in sedentary behaviour from baseline to follow-up was associated with a 0.13 cm increase in waist circumference (95% CI = 0.02, 0.25). However, there was no association between changes in sedentary behaviour and changes in visceral adiposity or other markers of cardiometabolic risk.

**CONCLUSION:**

These results suggest that neither baseline sedentary behaviour nor changes in sedentary behaviour are associated with longitudinal changes in visceral adiposity in adult men and women. With the exception of waist circumference, the present study did not find evidence of a relationship between sedentary behaviour and any marker of cardiometabolic risk in this population.

**215: Pardo-Crespo MR, Narla NP, Williams AR, Beebe TJ, Sloan J, Yawn BP, Wheeler PH, Juhn YJ. Comparison of individual-level versus area-level socioeconomic measures in assessing health outcomes of children in Olmsted County, Minnesota. J Epidemiol Community Health. 2013 Apr;67(4):305-10. doi: 10.1136/jech-2012-201742. Epub 2013 Jan 15. PubMed PMID: 23322850; PubMed Central PMCID: PMC3905357.**

**Abstract**

**BACKGROUND:**

Socioeconomic status (SES) is an important determinant of health, but SES measures are frequently unavailable in commonly used datasets. Area-level SES measures are used as proxy measures of individual SES when the individual measures are lacking. Little is known about the agreement between individual-level versus area-level SES measures in mixed urban-rural settings.

**METHODS:**

We identified SES agreement by comparing information from telephone self-reported SES levels and SES calculated from area-level SES measures. We assessed the impact of this agreement on reported associations between SES and rates of childhood obesity, low birth weight <2500 g and smoking within the household in a mixed urban-rural setting.

**RESULTS:**

750 households were surveyed with a response rate of 62%: 51% male, 89% Caucasian; mean child age 9.5 years. Individual-level self-reported income was more strongly associated with all three childhood health outcomes compared to area-level SES. We found significant disagreement rates of 22-31%. The weighted Cohen's  $\kappa$  indices ranged from 0.15 to 0.22, suggesting poor agreement between individual-level and area-level measures.

#### CONCLUSION:

In a mixed urban-rural setting comprised of both rural and urbanised areas, area-level SES proxy measures significantly disagree with individual SES measures, and have different patterns of association with health outcomes from individual-level SES measures. Area-level SES may be an unsuitable proxy for SES when individual rather than community characteristics are of primary concern.

**216: Rai MF, Sandell LJ, Cheverud JM, Brophy RH. Relationship of age and body mass index to the expression of obesity and osteoarthritis-related genes in human meniscus. *Int J Obes (Lond)*. 2013 Sep;37(9):1238-46. doi: 10.1038/ijo.2012.221. Epub 2013 Jan 15. PubMed PMID: 23318714; PubMed Central PMCID: PMC3751987.**

#### Abstract

##### OBJECTIVE:

Aging and obesity contribute to the initiation and progression of osteoarthritis with little information on their relation to gene expression in joint tissues, particularly the meniscus. Here, we test the hypothesis that patient age and body mass index (BMI) correlate with the expression of osteoarthritis- and obesity-related gene signatures in the meniscus.

##### DESIGN:

Meniscus was obtained from patients (N=68) undergoing arthroscopic partial meniscectomy. The mRNA expression of 24 osteoarthritis-related and 4 obesity-related genes in meniscus was assessed by quantitative real-time PCR. The relationship between gene expression and patient age and BMI was analyzed using Spearman's rank-order correlation. Hierarchical cluster dendrogram and heat map were generated to study inter-gene associations.

##### RESULTS:

Age was negatively correlated ( $P < 0.05$ ) with the expression of MMP-1 ( $r = -0.447$ ), NF $\kappa$ B2 ( $r = -0.361$ ), NF $\kappa$ B1A ( $r = -0.312$ ), I $\kappa$ BA ( $r = -0.308$ ), IL-8 ( $r = -0.305$ ), ADAMTS-4 ( $r = -0.294$ ), APLN (apelin) ( $r = -0.250$ ) and IL-6 ( $r = -0.244$ ). Similarly, BMI was negatively correlated with the expression of APLN ( $r = -0.328$ ), ACAN ( $r = -0.268$ ) and MMP-1 ( $r = -0.261$ ). After adjusting for the correlation between age and BMI ( $r = 0.310$ ;  $P = 0.008$ ), the only independent effect of BMI on gene expression was for APLN ( $r = -0.272$ ). However, age had an independent effect on the expression on ADAMTS-4 ( $r = -0.253$ ), MMP-1 ( $r = -0.399$ ), IL-8 ( $r = -0.327$ ), COL1A1 ( $r = -0.287$ ), NF $\kappa$ B1A ( $r = -0.278$ ), NF $\kappa$ B2 ( $r = -0.312$ ) and I $\kappa$ BA ( $r = -0.299$ ). The gene correlation analysis identified four clusters of potentially relevant genes: transcription factors, matrix-degrading enzymes, cytokines and chemokines, and obesity genes.

##### CONCLUSION:

Age and BMI were negatively correlated with several osteoarthritis- and obesity-related genes. Although the bulk of these changes appeared to be driven by age, expression of APLN was related to BMI. Inter-gene correlation analysis implicated a common role for strongly correlated genes. Although age-related variations in gene expression appear to be more relevant than obesity-related differences for the role of the meniscus in osteoarthritis development, further investigation into the role of APLN in meniscus and joint health is warranted.

**217: Fesinmeyer MD, North KE, Lim U, Bůžková P, Crawford DC, Haessler J, Gross MD, Fowke JH, Goodloe R, Love SA, Graff M, Carlson CS, Kuller LH, Matise TC, Hong CP, Henderson BE, Allen M, Rohde RR, Mayo P, Schnetz-Boutaud N, Monroe KR, Ritchie MD, Prentice RL, Kolonel LN, Manson JE, Pankow J, Hindorff LA, Franceschini N, Wilkens LR, Haiman CA, Le Marchand L, Peters U. Effects of smoking on the genetic risk of obesity: the population architecture using genomics and epidemiology study. BMC Med Genet. 2013 Jan 11;14:6. doi: 10.1186/1471-2350-14-6. PubMed PMID: 23311614; PubMed Central PMCID: PMC3564691.**

Abstract

BACKGROUND:

Although smoking behavior is known to affect body mass index (BMI), the potential for smoking to influence genetic associations with BMI is largely unexplored.

METHODS:

As part of the 'Population Architecture using Genomics and Epidemiology (PAGE)' Consortium, we investigated interaction between genetic risk factors associated with BMI and smoking for 10 single nucleotide polymorphisms (SNPs) previously identified in genome-wide association studies. We included 6 studies with a total of 56,466 subjects (16,750 African Americans (AA) and 39,716 European Americans (EA)). We assessed effect modification by testing an interaction term for each SNP and smoking (current vs. former/never) in the linear regression and by stratified analyses.

RESULTS:

We did not observe strong evidence for interactions and only observed two interactions with p-values <0.1: for rs6548238/TMEM18, the risk allele (C) was associated with BMI only among AA females who were former/never smokers ( $\beta = 0.018$ ,  $p = 0.002$ ), vs. current smokers ( $\beta = 0.001$ ,  $p = 0.95$ ,  $p(\text{interaction}) = 0.10$ ). For rs9939609/FTO, the A allele was more strongly associated with BMI among current smoker EA females ( $\beta = 0.017$ ,  $p = 3.5 \times 10^{-5}$ ), vs. former/never smokers ( $\beta = 0.006$ ,  $p = 0.05$ ,  $p(\text{interaction}) = 0.08$ ).

CONCLUSIONS:

These analyses provide limited evidence that smoking status may modify genetic effects of previously identified genetic risk factors for BMI. Larger studies are needed to follow up our results.

**218: Al-Awadhi N, Al-Kandari N, Al-Hasan T, Almurjan D, Ali S, Al-Taiar A. Age at menarche and its relationship to body mass index among adolescent girls in Kuwait. BMC Public Health. 2013 Jan 12;13:29. doi: 10.1186/1471-2458-13-29. PubMed PMID: 23311596; PubMed Central PMCID: PMC3552970.**

Abstract

BACKGROUND:

Despite the increasing rates of childhood obesity and rapid change in socio-economic status, the mean age at menarche remains mostly unknown among contemporary girls in Kuwait and other countries in the Gulf region. This study aimed to estimate the mean age at menarche among schoolgirls in Kuwait and investigate the association between age at menarche and obesity.

METHODS:

A cross-sectional study was conducted on 1,273 randomly selected female high school students from all governorates in Kuwait. Overweight was defined as higher than or equal to the 85th percentile and obesity as higher than or equal to the 95th percentile using growth charts provided by the

Centres for Disease Control and Prevention (CDC, 2000). Data on menarche, socio-demographic status, physical activity and diet were collected using confidential self-administered questionnaire.

**RESULTS:**

Out of 1,273 students, 23 (1.8%) were absent or refused to participate. The mean age at menarche was 12.41 years (95% CI: 12.35-12.48). The prevalence of early menarche, defined as less than 11 years of age, was 8.5% (95% CI: 7.0-10.2%). The prevalence of obesity and overweight was 18.3% (95% CI: 16.2-20.6%) and 25.8% (95% CI: 23.42-28.30%), respectively. Age at menarche was inversely and significantly associated with odds of overweight and obesity after adjusting for potential confounders, odds ratio 0.84 (0.77-0.93); ( $p = 0.001$ ).

**CONCLUSION:**

Age at menarche among contemporary girls in Kuwait is similar to that in industrialized countries. There is an inverse association between age at menarche and obesity or overweight. Trends in menarcheal age should be monitored and time of sexual maturation and its related factors should be taken into account in strategies that aim to combat obesity.

**219: Song Y, Wang HJ, Ma J, Wang Z. Secular trends of obesity prevalence in urban Chinese children from 1985 to 2010: gender disparity. PLoS One. 2013;8(1):e53069. doi: 10.1371/journal.pone.0053069. Epub 2013 Jan 8. PubMed PMID: 23308137; PubMed Central PMCID: PMC3540080.**

**Abstract**

Based on the data from six Chinese National Surveys on Students Constitution and Health (CNSSCH) from 1985 to 2010, we explored the secular trend in the prevalence of obesity in urban Chinese children over a period of 25 years. The aim of this study was to examine the gender disparities in the prevalence of childhood obesity over time. The standardized prevalence of obesity in Chinese children increased rapidly during the past 25 years from 0.2% in 1985 to 8.1% in 2010. The increasing trend was significant in all age subgroups ( $p < 0.01$ ). Although the prevalence of obesity continuously increased in both boys and girls, the changing pace in boys was faster than that in girls. Age-specific prevalence odds ratios (PORs) of boys versus girls for obesity increased over time during the 25 year period. The prevalence of obesity in boys was significantly higher than in girls in all age-specific subgroups from 1991 and after. The gradually expanding gender disparity suggests the prevalence of obesity in boys contribute to a large and growing proportion of obese children. Therefore, it is critical for developing and implementing gender-specific preventive guidelines and public health policies in China.

**220: Cesani MF, Garraza M, Bergel Sanchís ML, Luis MA, Torres MF, Quintero FA, Oyhenart EE. A comparative study on nutritional status and body composition of urban and rural schoolchildren from Brandsen district (Argentina). PLoS One. 2013;8(1):e52792. doi: 10.1371/journal.pone.0052792. Epub 2013 Jan 7. PubMed PMID: 23308120; PubMed Central PMCID: PMC3538776.**

**Abstract**

The purpose of this study was to analyze whether nutritional status and body composition varies according to the environment of residence (urban or rural) of children in the Brandsen district (Argentina). Weight, height, arm circumference and tricipital and subscapular skinfolds were performed in 1368 schoolchildren aged 3 to 14. NHANES III reference was used to estimate

nutritional status -underweight, stunting, wasting, overweight, and obesity- and to evaluate body composition -deficit and excess of adipose (DA, EA) and muscular (DM, EM) tissues of the arm-. Central fat distribution (CFD) was estimated using the subscapular-tricipital index. A structured questionnaire was implemented to evaluate socio-environmental characteristics. Nutritional categories based on body size and body composition were compared between urban and rural areas of residence using Chi-squared tests ( $\chi^2$ ). The results indicated for the total sample: 1.1% underweight, 6.9% stunting, 0.4% wasting, 12.1% overweight, 9.7% obesity, 22.0% DM, 2.5% EM, 0.1% DA, 17.6% EA, and 8.5% CFD. Significant differences between urban and rural areas were found only for CFD. The socio-environmental analysis showed that while access to public services and housing quality was significantly better in the urban area, a considerable number of city households lived under deficient conditions, lacked health insurance and had low socioeconomic level. Fifty-three percent of the undernourished children had DM without urban-rural significant differences, and none of them showed DA. In the overweight plus obesity group, 62.8% presented EA, 6.4% EM, 4.7% DM, and 22.8% CFD. The highest percentages of DM and CFD were recorded in rural areas ( $p = 0.00$ ). We conclude that the child population shows the "double burden" of malnutrition. The environment of residence does not promote any differentiation in the nutritional status. Nevertheless, the increment of central adiposity and, in some cases of muscle deficit in rural children, suggests a consumption of unbalanced diet.

**221: Lesser LI, Zimmerman FJ, Cohen DA. Outdoor advertising, obesity, and soda consumption: a cross-sectional study. BMC Public Health. 2013 Jan 10;13:20. doi: 10.1186/1471-2458-13-20. PubMed PMID: 23305548; PubMed Central PMCID: PMC3556162.**

#### Abstract

##### BACKGROUND:

Recent research has shown that neighborhood characteristics are associated with obesity prevalence. While food advertising in periodicals and television has been linked to overweight and obesity, it is unknown whether outdoor advertising is related to obesity.

##### METHODS:

To test the association between outdoor food advertising and obesity, we analyzed telephone survey data on adults, aged 18-98, collected from 220 census tracts in Los Angeles and Louisiana. We linked self-reported information on BMI and soda consumption with a database of directly observed outdoor advertisements.

##### RESULTS:

The higher the percentage of outdoor advertisements promoting food or non-alcoholic beverages within a census tract, the greater the odds of obesity among its residents, controlling for age, race and educational status. For every 10% increase in food advertising, there was a 1.05 (95% CI 1.003 - 1.093,  $p < 0.03$ ) greater odds of being overweight or obese, controlling for other factors. Given these predictions, compared to an individual living in an area with no food ads, those living in areas in which 30% of ads were for food would have a 2.6% increase in the probability of being obese.

##### CONCLUSIONS:

There is a relationship between the percentage of outdoor food advertising and overweight/obesity.



**222: Tchernof A, Després JP. Pathophysiology of human visceral obesity: an update. *Physiol Rev.* 2013 Jan;93(1):359-404. doi: 10.1152/physrev.00033.2011. Review. PubMed PMID: 23303913.**

Abstract

Excess intra-abdominal adipose tissue accumulation, often termed visceral obesity, is part of a phenotype including dysfunctional subcutaneous adipose tissue expansion and ectopic triglyceride storage closely related to clustering cardiometabolic risk factors. Hypertriglyceridemia; increased free fatty acid availability; adipose tissue release of proinflammatory cytokines; liver insulin resistance and inflammation; increased liver VLDL synthesis and secretion; reduced clearance of triglyceride-rich lipoproteins; presence of small, dense LDL particles; and reduced HDL cholesterol levels are among the many metabolic alterations closely related to this condition. Age, gender, genetics, and ethnicity are broad etiological factors contributing to variation in visceral adipose tissue accumulation. Specific mechanisms responsible for proportionally increased visceral fat storage when facing positive energy balance and weight gain may involve sex hormones, local cortisol production in abdominal adipose tissues, endocannabinoids, growth hormone, and dietary fructose. Physiological characteristics of abdominal adipose tissues such as adipocyte size and number, lipolytic responsiveness, lipid storage capacity, and inflammatory cytokine production are significant correlates and even possible determinants of the increased cardiometabolic risk associated with visceral obesity. Thiazolidinediones, estrogen replacement in postmenopausal women, and testosterone replacement in androgen-deficient men have been shown to favorably modulate body fat distribution and cardiometabolic risk to various degrees. However, some of these therapies must now be considered in the context of their serious side effects. Lifestyle interventions leading to weight loss generally induce preferential mobilization of visceral fat. In clinical practice, measuring waist circumference in addition to the body mass index could be helpful for the identification and management of a subgroup of overweight or obese patients at high cardiometabolic risk.

**223: Assunção MC, Muniz LC, Dumith SC, Clark VL, Araújo CL, Gonçalves H, Menezes AM, Hallal PC. Predictors of body mass index change from 11 to 15 years of age: the 1993 Pelotas (Brazil) birth cohort study. *J Adolesc Health.* 2012 Dec;51(6 Suppl):S65-9. doi: 10.1016/j.jadohealth.2012.08.012. Epub 2012 Nov 10. PubMed PMID: 23283164; PubMed Central PMCID: PMC3508412.**

Abstract

PURPOSE:

We explored predictors of nutritional status change from 11 to 15 years of age by analyzing prospective data.

METHODS:

We collected data at 11 and 15 years of age from individuals born in 1993 in Pelotas, Brazil. We assessed nutritional status using body mass index (BMI) for age in z-score according to the World Health Organization 2007 standards. Independent variables collected at 11 years of age were socioeconomic position, adolescent's perception of own weight, body dissatisfaction, and weight loss dieting.

RESULTS:

Of the 4,032 adolescents whose nutritional status could be evaluated in the two follow-ups, 93% maintained their nutritional status classification from 11 to 15 years. A total of 102 (2.8%) became

obese and 181 (4.5%) ceased to be obese in the 4-year period. The prevalence of obesity decreased from 11 to 15 years of age in both boys and girls. Low-income girls were more likely to become obese from 11 to 15 years of age compared with high-income ones. Among boys, those with high income were more likely to cease being obese compared those with low income. Those who perceived themselves to be obese, who wished to have a smaller silhouette, and who were on diets to lose weight were more likely to become obese or to achieve a normal BMI category at 15 years of age.

**CONCLUSIONS:**

BMI tracks strongly in early adolescence. This finding suggests that interventions to more effectively change nutritional status should be implemented in childhood and should consider emotional aspects as well as social and biological ones.

**224: Wells JC, Dumith SC, Ekelund U, Reichert FF, Menezes AM, Victora CG, Hallal**

**PC. Associations of intrauterine and postnatal weight and length gains with adolescent body composition: prospective birth cohort study from Brazil. J**

**Adolesc Health. 2012 Dec;51(6 Suppl):S58-64. doi:**

**10.1016/j.jadohealth.2012.08.013. Epub 2012 Nov 10. PubMed PMID: 23283163; PubMed**

**Central PMCID: PMC3508414.**

**Abstract**

**PURPOSE:**

Early growth patterns have been associated with subsequent obesity risk. However, findings from middle-income populations suggest that early infant growth may benefit lean mass and height rather than adiposity. We tested the hypothesis that rapid weight or length gain in different growth periods would be associated with size and body composition in adolescence, in a prospective birth cohort from southern Brazil.

**METHODS:**

Body composition was assessed in 425 adolescents (52.2% male) at 14 years. Exposures were birth weight z-score and conditional growth in weight or length for the periods 0-6, 6-12 and 12-48 months. Differences in anthropometric and body composition outcomes between tertiles of growth in each period were tested by one-way analysis of variance.

**RESULTS:**

Size at birth and conditional weight and length at 6 months were associated with later height. The effect of infant weight gain on lean mass was greater for males than females, and effect on fat mass greater for females than males. By early childhood, rapid weight gain generated relatively similar effects on both tissue masses in both sexes. Rapid length gain had stronger effects on outcomes in males than females at each time point, and benefited lean mass more than adiposity. All effects were substantially attenuated after adjusting for current height. Early weight gain was more important than length gain at influencing body composition outcomes in adolescence.

**CONCLUSIONS:**

Rapid infant weight and length gains were primarily associated with larger size in adolescence rather than increased adiposity. From one year onwards, associations between rapid weight gain and fat and lean masses remained after adjustment for height.

**225: Gonçalves H, González DA, Araújo CP, Muniz L, Tavares P, Assunção MC, Menezes AM, Hallal PC. Adolescents' perception of causes of obesity: unhealthy lifestyles or heritage? J Adolesc Health. 2012 Dec;51(6 Suppl):S46-52. doi: 10.1016/j.jadohealth.2012.08.015. Epub 2012 Nov 10. PubMed PMID: 23283160; PubMed Central PMCID: PMC3508415.**

Abstract

PURPOSE:

To evaluate adolescents' perception of the causes of obesity, with emphasis on differences according to nutritional status and socioeconomic position.

METHODS:

We conducted qualitative research including 80 adolescents belonging to the 1993 Pelotas (Brazil) Birth Cohort Study, and their mothers. We classified adolescent boys and girls into four groups (girls-obese, girls-eutrophic, boys-obese, and boys-eutrophic) according to body mass index for age and sex, and systematically selected them according to family income at age 15 years. Research techniques included semistructured interviews and history of life. Topics covered in the interviews included early experiences with weight management, effect of weight on social relationships, family history, eating habits, and values.

RESULTS:

Low-income obese adolescents and their mothers perceive obesity as a heritage, caused by family genes, side effects of medication use, and stressful life events. However, low-income eutrophic adolescents emphasize the role of unhealthy diets on obesity development. Among the high-income adolescents, those who are obese attribute it to genetic factors and emotional problems, whereas those who are eutrophic mention unhealthy diets and lack of physical activity as the main causes of obesity.

CONCLUSIONS:

Perceptions of the causes of obesity in adolescents from a middle-income setting vary by gender, socioeconomic position, and nutritional status. Whereas some blame genetics as responsible for obesity development, others blame unhealthy diets and lifestyles, and others acknowledge the roles of early life experiences and family traditions in the process of obesity development.

**226: Noal RB, Menezes AM, Macedo SE, Dumith SC, Perez-Padilla R, Araújo CL, Hallal PC. Is obesity a risk factor for wheezing among adolescents? A prospective study in southern Brazil. J Adolesc Health. 2012 Dec;51(6 Suppl):S38-45. doi: 10.1016/j.jadohealth.2012.08.016. Epub 2012 Nov 10. PubMed PMID: 23283159; PubMed Central PMCID: PMC3500686.**

Abstract

PURPOSE:

To investigate the effect of obesity at the start of adolescence on the prevalence, incidence and maintenance of chest wheezing among individuals aged 11-15 years in a birth cohort in a developing country.

METHODS:

The seventh follow-up of the 1993 Pelotas birth cohort occurred in 2004 (individuals aged 10-11 years). Between January and August 2008, the eighth follow-up of the cohort was conducted. All the individuals of the original cohort who were alive (who were then adolescents aged between 14 and

15 years) were targets for the study. The International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire was used to define wheezing. In addition to the body mass index (BMI), used to define obesity by the World Health Organization (WHO) criteria, we assessed skinfold thickness.

**RESULTS:**

From the original cohort, 4,349 individuals were located (85.7% follow-up rate). The prevalence of chest wheezing at 11 and 15 years were 13.5% (95% CI: 12.5%-14.5%) and 12.1% (95% CI: 11.1%-13.1%), respectively. The prevalence of wheezing at both times was 4.5% (95% CI: 3.9%-5.1%) and the incidence of wheezing was 7.5% (95% CI: 6.7%-8.3%). Independent of the effect of various confounding variables, the prevalence of wheezing at 15 years was 50% greater among obese individuals than among eutrophic individuals at 11 years (RR 1.53; 95% CI: 1.14-2.05). The greater the skinfold tertile at 11 years, the higher the prevalence of wheezing at 15 years was ( $p = .011$ ). Weight status and skinfolds did not present any association with incident wheezing. After controlling for confounding factors, the risk of persistent wheezing among obese individuals at 11 years was 1.82 (95% CI: 1.30-2.54).

**CONCLUSIONS:**

Since obesity at the start of adolescence is associated with asthma symptom persistence, prevention and treatment of obesity may reduce avoidable healthcare costs and disease burden.

**227: Hallal PC, Clark VL, Assunção MC, Araújo CL, Gonçalves H, Menezes AM, Barros FC. Socioeconomic trajectories from birth to adolescence and risk factors for noncommunicable disease: prospective analyses. J Adolesc Health. 2012 Dec;51(6 Suppl):S32-7. doi: 10.1016/j.jadohealth.2012.06.022. Epub 2012 Nov 10. PubMed PMID: 23283158; PubMed Central PMCID: PMC3508416.**

**Abstract**

**PURPOSE:**

To evaluate the associations between family socioeconomic trajectories from 0 to 11 years of age and risk factors for noncommunicable disease at 15 years.

**METHODS:**

Individuals born in the city of Pelotas, Brazil, in 1993 are part of a birth cohort study. Socioeconomic position, collected at birth and at 11 years of age, was our main exposure. Risk factors for chronic disease were collected at 15 years. Body mass index was transformed into Z score using the World Health Organization standard. Transport and leisure-time physical activity, smoking, and alcohol consumption were assessed by self-report. Blood pressure was measured using a digital sphygmomanometer.

**RESULTS:**

Of 5,249 cohort members, 85.7% were located at the 15-year follow-up visit. Rich adolescents were more likely to be overweight, be obese, and not use active modes of transport to school. Poor adolescents were more likely to smoke. In relation to socioeconomic trajectories, the odds of obesity were 46% higher among those who were "always rich" compared with those who were "always poor"; the odds of use of an inactive mode of transportation were 326% greater among the "always rich" than the "always poor," whereas the reverse was observed for smoking (odds of 200%). The "always rich" had one-half the odds of walking or cycling to school compared with those who became wealthy in the studied period.

#### CONCLUSIONS:

Adolescent socioeconomic position is a stronger determinant of risk factors for noncommunicable diseases than socioeconomic trajectories. However, trajectories do matter, particularly in terms of use of active transportation to school.

**228: Meshram II, Arlappa N, Balkrishna N, Rao KM, Laxmaiah A, Brahmam GN. Prevalence of hypertension, its correlates and awareness among adult tribal population of Kerala state, India. J Postgrad Med. 2012 Oct-Dec;58(4):255-61. doi: 10.4103/0022-3859.105444. PubMed PMID: 23298919.**

#### Abstract

##### BACKGROUND:

Increasing prevalence of hypertension is a public health problem in India.

##### AIMS:

To study prevalence, correlates, and awareness of hypertension among tribal adult population in Kerala.

##### SETTING AND DESIGN:

A community-based, cross-sectional study was carried out in tribal areas of Kerala by adopting multistage random sampling procedure.

##### MATERIALS AND METHODS:

Data was collected on socio-demographic and behavioral factors, and anthropometric measurements were carried out. Body mass index (BMI) was categorized using the classification recommended for Asians. Waist circumference  $\geq 90$  cm for men and  $\geq 80$  cm for women was used cut off for defining an abdominal obesity. Bivariate and multivariate analysis was carried out to study association of hypertension with socio-demographic variables, personal habits, and obesity.

##### RESULTS:

A total of 4,193 adults (men 1,891, women: 2,302) of  $\geq 20$  years of age were covered. The overall prevalence of hypertension was 40% (n=1671). The prevalence of hypertension increases with increase in age among both the genders. Regression analysis showed that the risk of hypertension was significantly ( $P < 0.001$ ) lower among educated and among higher socio-economic status group. Sedentary activity had 1.3 times (CI=1.09-1.60) and alcohol consumption had 1.4 (CI=1.17-1.73) times higher risk of hypertension. The risk of hypertension was 1.7 times higher among overweight/obese subjects. Overall, only 10% (n=164) of the adult population was aware of hypertension status, and about 8% (n=129) were on regular treatment.

##### CONCLUSION:

It was observed that the prevalence of hypertension was higher among tribal adult population of Kerala and was associated with age, gender, education, HHs wealth index, physical inactivity, alcohol consumption, and overweight/obesity.

**229: Thompson AL, Adair LS, Bentley ME. Maternal characteristics and perception of temperament associated with infant TV exposure. *Pediatrics*. 2013 Feb;131(2):e390-7. doi: 10.1542/peds.2012-1224. Epub 2013 Jan 6. PubMed PMID: 23296440; PubMed Central PMCID: PMC3557404.**

Abstract

OBJECTIVE:

This study examines the development of television (TV) behaviors across the first 18 months of life and identifies maternal and infant predictors of infant TV exposure.

METHODS:

We used longitudinal TV exposure, maternal sociodemographic, and infant temperament data from 217 African-American mother-infant pairs participating in the Infant Care and Risk of Obesity Study. Longitudinal logistic models and ordered regression models with clustering for repeated measures across subjects adjusted for infant gender and visit were used to assess maternal and infant predictors of TV exposure and to test whether infants with both maternal and infant risk factors had higher odds of more detrimental TV exposure.

RESULTS:

Infants as young as 3 months old were exposed to an average of 2.6 hours of TV and/or videos daily, and nearly 40% of infants were exposed to >3 hours of TV daily by 12 months of age. Maternal TV viewing and maternal obesity and infant activity, fussiness, and crying were associated with greater infant TV exposure, whereas maternal education and infant activity were associated with having the TV on during most meals. Infants perceived as being more active or fussier had higher TV exposure, particularly if their mothers also had risk factors for higher TV exposure.

CONCLUSIONS:

Understanding the characteristics that shape TV exposure and its biological and behavioral sequelae is critical for early intervention. Maternal perception of infant temperament dimensions is related to TV exposure, suggesting that infant temperament measures should be included in interventions aimed at limiting early TV.

**230: Pelegrini A, Silva DA, Gaya AC, Petroski EL. Comparison of three criteria for overweight and obesity classification in Brazilian adolescents. *Nutr J*. 2013 Jan 7;12:5. doi: 10.1186/1475-2891-12-5. PubMed PMID: 23294869; PubMed Central PMCID: PMC3564842.**

Abstract

OBJECTIVE:

To describe and compare the nutritional status of adolescents using three criteria for nutritional status classification (Conde & Monteiro, International Obesity Task Force - IOTF and World Health Organization - WHO), to analyze the correlation between these three criteria as for the overweight proportion, and to investigate whether factors associated with overweight and obesity differ among the three criteria.

METHODS:

Demographic (gender, age, geographic area) and anthropometric (body weight, height) variables were measured in 33,728 adolescents aged 11 to 17 years. The following criteria were investigated: IOTF (2000); Conde & Monteiro (2006); and WHO (2007).

RESULTS:

The overall overweight prevalence was 20.6% for the Conde & Monteiro criteria; 15.3% for the IOTF criteria and 20.1% for the WHO criteria. Both for boys and girls, the estimated overweight prevalence using the Conde & Monteiro and WHO criteria were higher than that using the IOTF criteria. Higher concordance was found between the Conde & Monteiro (2006) and WHO (2007) criteria for all age groups. Regarding associated factors, similar associations were found for the three criteria for higher BMI classification: being male, 11-12 and 13-14 years of age and living in the Midwestern, Southeastern and Southern regions of Brazil.

**CONCLUSION:**

The criteria for BMI classification estimate overweight prevalence in a different way, and the criteria proposed by Conde & Monteiro resulted in higher prevalence in both sexes. Higher concordance between the Conde & Monteiro and WHO criteria was found for all age groups. The groups most vulnerable to showing overweight and obesity for the three criteria for BMI classification were males, age 11-12 and 13-14 years, and living in the Midwestern, Southeastern and Southern regions of Brazil. Overweight and obesity are considered a public health problem prevalent among adolescents in Brazil, regardless of the criteria adopted.

**231: Goldstein BI, Liu SM, Schaffer A, Sala R, Blanco C. Obesity and the three-year longitudinal course of bipolar disorder. *Bipolar Disord.* 2013 May;15(3):284-93. doi: 10.1111/bdi.12035. Epub 2013 Jan 3. PubMed PMID: 23286532; PubMed Central PMCID: PMC3620842.**

**Abstract**

**OBJECTIVES:**

Despite substantial cross-sectional evidence that obesity is associated with an increased medical and psychiatric burden in bipolar disorder (BD), few longitudinal studies have examined this topic.

**METHODS:**

Subjects with BD (n = 1600) who completed both Wave 1 and Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions were included. Analyses examined the association between obesity at Wave 1, and the subsequent course of BD, and of psychiatric and medical comorbidities, between Wave 1 and Wave 2.

**RESULTS:**

BD subjects with obesity (n = 506; 29.43%), compared to BD subjects without obesity (n = 1094; 70.57%) were significantly more likely to have a major depressive episode and to receive counseling for depression during follow-up, more likely to report a lifetime suicide attempt, and less likely to develop new-onset alcohol use disorders. These differences were no longer significant, however, after controlling for baseline demographic variables. No significant differences in new episodes or treatment of mania/hypomania were observed. After controlling for demographic variables, obese subjects remained significantly more likely to report any new-onset medical condition [odds ratio (OR) = 2.32, 95% confidence interval (CI): 1.63-3.30], new-onset hypertension (OR = 1.81, 95% CI: 1.16-2.82) and arthritis (OR = 1.64, 95% CI: 1.07-2.52). Obese subjects were significantly more likely to report physician-diagnosed diabetes (OR = 6.98, 95% CI: 4.27-11.40) and hyperlipidemia (OR = 2.32, 95% CI: 1.63-3.30) (assessed in Wave 2 only). The incidence of heart attacks was doubled among obese subjects, although this difference was not statistically significant.

**CONCLUSIONS:**

The association between obesity and increased prospective depressive burden appears to be explained by baseline demographic variables. By contrast, obesity independently predicts the

accumulation of medical conditions among adults with BD. Treatment of obesity could potentially mitigate the psychiatric and medical burden of BD.

**232: Altenburg TM, Hofsteenge GH, Weijs PJ, Delemarre-van de Waal HA, Chinapaw MJ. Self-reported screen time and cardiometabolic risk in obese Dutch adolescents. PLoS One. 2012;7(12):e53333. doi: 10.1371/journal.pone.0053333. Epub 2012 Dec 28. PubMed PMID: 23285284; PubMed Central PMCID: PMC3532349.**

Abstract

BACKGROUND:

It is not clear whether the association between sedentary time and cardiometabolic risk exists among obese adolescents. We examined the association between screen time (TV and computer time) and cardiometabolic risk in obese Dutch adolescents.

METHODS AND FINDINGS:

For the current cross-sectional study, baseline data of 125 Dutch overweight and obese adolescents (12-18 years) participating in the Go4it study were included. Self-reported screen time (Activity Questionnaire for Adolescents and Adults) and clustered and individual cardiometabolic risk (i.e. body composition, systolic and diastolic blood pressure, low-density (LDL-C), high-density (HDL-C) and total cholesterol (TC), triglycerides, glucose and insulin) were assessed in all participants. Multiple linear regression analyses were used to assess the association between screen time and cardiometabolic risk, adjusting for age, gender, pubertal stage, ethnicity and moderate-to-vigorous physical activity. We found no significant relationship between self-reported total screen time and clustered cardiometabolic risk or individual risk factors in overweight and obese adolescents. Unexpectedly, self-reported computer time, but not TV time, was slightly but significantly inversely associated with TC (B = -0.002; CI = [-0.003;-0.000]) and LDL-C (B = -0.002; CI = [-0.001;0.000]).

CONCLUSIONS:

In obese adolescents we could not confirm the hypothesised positive association between screen time and cardiometabolic risk. Future studies should consider computer use as a separate class of screen behaviour, thereby also discriminating between active video gaming and other computer activities.

**233: Lin SL, Tarrant M, Hui LL, Kwok MK, Lam TH, Leung GM, Schooling CM. The role of dairy products and milk in adolescent obesity: evidence from Hong Kong's "Children of 1997" birth cohort. PLoS One. 2012;7(12):e52575. doi: 10.1371/journal.pone.0052575. Epub 2012 Dec 20. PubMed PMID: 23285099; PubMed Central PMCID: PMC3527590.**

Abstract

BACKGROUND:

Observational studies, mainly from Western populations, suggest dairy consumption is inversely associated with adiposity. However, in these populations the intake range is limited and both diet and obesity may share social patterning. Evidence from non-Western developed settings with different social patterning, is valuable in distinguishing whether observed associations are biologically mediated or socially confounded.

OBJECTIVE:

To examine the associations of milk or other dairy product consumption with adolescent obesity.



#### METHODS:

We used multivariable linear regression models to examine the associations of milk or other dairy product consumption, obtained from a food frequency questionnaire, at 11 years with body mass index (BMI) z-scores at 13 years and waist hip ratio (WHR) at 11 years, in 5,968 adolescents from a Chinese birth cohort, comprising 88% of births in April and May 1997. We used multiple imputation for missing exposures and confounders.

#### RESULTS:

Only 65.7% regularly consumed milk and 72.4% other dairy products. Milk and other dairy product consumption was positively associated with socio-economic position but not with BMI z-score or WHR, with or without adjustment for sex, mother's birthplace, parental education, physical activity and other food consumption.

#### CONCLUSIONS:

The lack of association of milk and other dairy product consumption with adiposity in a non-Western setting was not consistent with the majority of evidence from Western settings. Observed anti-obesogenic effects in Western settings may be due to socially patterned confounding.

**234: Yu Z, Han S, Chu J, Xu Z, Zhu C, Guo X. Trends in overweight and obesity among children and adolescents in China from 1981 to 2010: a meta-analysis. *PLoS One*. 2012;7(12):e51949. doi: 10.1371/journal.pone.0051949. Epub 2012 Dec 17. PubMed PMID: 23284829; PubMed Central PMCID: PMC3524084.**

#### Abstract

##### BACKGROUND:

Overweight/obesity is a serious public health problem that affects a large part of the world population across all age and racial/ethnic groups. However, there has not been a meta-analysis of the prevalence of childhood and adolescent overweight/obesity in China during the past 30 years.

##### METHODS:

The China National Knowledge Infrastructure and Wanfang DATA, MEDLINE, EMBASE and Cumulative Index to Nursing and Allied Health Literature were searched for relevant studies published between January 1970 and June 2012. The prevalence of overweight/obesity over time was pooled using Stata/SE, version 9. Summary statistics (odds ratios, ORs) were used to compare sex-specific and urban-rural preponderance of overweight/obesity using Review Manager.

##### RESULTS:

After screening 1326 papers, we included 35 papers (41 studies), most of medium quality. The prevalence of overweight/obesity increased from 1.8% (95% confidence interval [CI], 0.4%-3.1%) and 0.4% (95% CI, -0.1% to -0.8%) respectively in 1981-1985 to 13.1% (95% CI, 11.2%-15.0%) and 7.5% (95% CI, 6.6%-8.4%) respectively in 2006-2010. The average annual increase was 8.3% and 12.4% respectively. Boys were more likely to be overweight/obese than girls (OR, 1.36; 95% CI, 1.24-1.49 and OR, 1.68; 95% CI, 1.52-1.86 respectively). The prevalence of overweight/obesity was higher in urban areas than in rural areas (OR, 1.66; 95% CI, 1.54-1.79 and OR, 1.97; 95% CI, 1.68-2.30 respectively). For age-specific subgroup analyses, both overweight and obesity increased more rapidly in the toddler stage than in other developmental stages. Sensitivity analyses showed that sample-size differences, study quality, overweight/obesity criteria and geographical distribution affected overweight/obesity prevalence.

#### CONCLUSIONS:

Toddlers and urban boys were at particularly high risk; the prevalence in these groups increased more rapidly than in their counterparts. Public health prevention strategies are urgently needed to modify health behaviors of children and adolescents and control overweight/obesity in China.

**235: Neuman M, Kawachi I, Gortmaker S, Subramanian SV. Urban-rural differences in BMI in low- and middle-income countries: the role of socioeconomic status. Am J Clin Nutr. 2013 Feb;97(2):428-36. doi: 10.3945/ajcn.112.045997. Epub 2013 Jan 2. PubMed PMID: 23283503; PubMed Central PMCID: PMC3742298.**

#### Abstract

##### BACKGROUND:

Urbanization is often cited as a main cause of increasing BMIs in low- and middle-income countries (LMICs), and urban residents in LMICs tend to have higher BMIs than do rural residents. However, urban-rural differences may be driven by differences in socioeconomic status (SES).

##### OBJECTIVE:

Using nationally representative data collected at 2 time points in 38 LMICs, we assessed the association between urban residence and BMI before and after adjustment for measures of individual- and household-level SES.

##### DESIGN:

We conducted a cross-sectional analysis of nationally representative samples of 678,471 nonpregnant women aged 15-49 y, with 225,312 women in the earlier round of surveys conducted between 1991 and 2004 and 453,159 women in the later round conducted between 1998 and 2010. We used linear and ordered multinomial analysis with a country fixed effect to obtain a pooled estimate and a country-stratified analysis.

##### RESULTS:

We found that mean BMI (kg/m<sup>2</sup>) in less-developed countries was generally higher within urban areas (excess BMI associated with urban residence before wealth index adjustment: 1.55; 95% CI: 1.52, 1.57). However, the urban association was attenuated after SES was accounted for (association after adjustment: 0.44; 95% CI: 0.41, 0.47). Individual- and household-level SES measures were independently and positively associated with BMI.

##### CONCLUSION:

The association between urban residence and obesity in LMICs is driven largely by higher individual- and community-level SES in urban areas, which suggests that urban residence alone may not cause increased body weight in developing countries.

**236: Arancibia G, García H, Jaime F, Bancalari R, Harris PR. [Association of metabolic syndrome markers with abnormal alanine aminotransferase levels in healthy children]. Rev Med Chil. 2012 Jul;140(7):896-901. doi: 10.4067/S0034-98872012000700010. Spanish. PubMed PMID: 23282702.**

#### Abstract

##### BACKGROUND:

There is a high prevalence of non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH) among pediatric patients. The identification of clinical predictors of these conditions would allow a timely treatment.

**AIM:**

To evaluate the relationship between serum alanine aminotransferase levels and parameters of metabolic syndrome in asymptomatic school students without hepatic illness.

**SUBJECTS AND METHODS:**

A randomized sample of 175 children aged between 9 and 14 years (54% females) was selected, from a database of 3010 students living in Santiago, Chile. Weight, height, abdominal circumference, systolic and diastolic blood pressure were measured. A fasting blood sample was obtained to measure glucose, total cholesterol, HDL, LDL-cholesterol, triglycerides, alanine aminotransferase (ALT) and insulin levels.

**RESULTS:**

Forty percent of participants were obese, 17% had metabolic syndrome and 13.1% had abnormal ALT levels. Compared with children with normal ALT levels, the latter had significantly higher waist obesity, body mass index, systolic and diastolic blood pressure and triglycerides. However on multivariate analysis, only waist obesity was independently associated with abnormal ALT levels (adjusted odds ratio 3.93, 95% confidence intervals 1.44-10.78,  $p = 0.008$ ).

**CONCLUSIONS:**

Only waist obesity was independently associated with abnormal ALT levels in this sample of children.

**237: Skinner AC, Miles D, Perrin EM, Coyne-Beasley T, Ford C. Source of parental reports of child height and weight during phone interviews and influence on obesity prevalence estimates among children aged 3-17 years. Public Health Rep. 2013 Jan-Feb;128(1):46-53. PubMed PMID: 23277659; PubMed Central PMCID: PMC3514720.**

**Abstract**

**OBJECTIVE:**

We compared parental reports of children's height and weight when the values were estimated vs. parent-measured to determine how these reports influence the estimated prevalence of childhood obesity.

**METHODS:**

In the 2007 and 2008 North Carolina Child Health Assessment and Monitoring Program surveys, parents reported height and weight for children aged 3-17 years. When parents reported the values were not measured (by doctor, school, or home), they were asked to measure their child and were later called back. We categorized body mass index status using standard CDC definitions, and we used Chi-square tests and the Stuart-Maxwell test of marginal homogeneity to examine reporting differences.

**RESULTS:**

About 80% ( $n=509$ ) of the 638 parents who reported an unmeasured height and/or weight participated in a callback and provided updated measures. Children originally classified as obese were subsequently classified as obese (67%), overweight (13%), and healthy weight (19%). An estimated 28% of younger children (<10 years of age) vs. 6% of older children (aged  $\geq 10$  years) were reclassified on callback. Having parents who guessed the height and weight of their children and then reported updated values did not significantly change the overall population estimates of obesity.

**CONCLUSION:**

Our findings demonstrate that using parent-reported height and weight values may be sufficient to provide reasonable estimates of obesity prevalence. Systematically asking the source of height and

weight information may help improve how it is applied to research of the prevalence of childhood obesity when gold-standard measurements are not available.

**238: Ball GD, Perez Garcia A, Chanoine JP, Morrison KM, Legault L, Sharma AM, Gokiert R, Holt NL. Should I stay or should I go? Understanding families' decisions regarding initiating, continuing, and terminating health services for managing pediatric obesity: the protocol for a multi-center, qualitative study. BMC Health Serv Res. 2012 Dec 31;12:486. doi: 10.1186/1472-6963-12-486. PubMed PMID: 23276163; PubMed Central PMCID: PMC3541180.**

#### Abstract

##### BACKGROUND:

At least two million Canadian children meet established criteria for weight management. Due to the adverse health consequences of obesity, most pediatric weight management research has examined the efficacy and effectiveness of interventions to improve lifestyle behaviors, reduce co-morbidities, and enable weight management. However, little information is available on families' decisions to initiate, continue, and terminate weight management care. This is an important knowledge gap since a substantial number of families fail to initiate care after being referred for weight management while many families who initiate care discontinue it after a brief period of time. This research aims to understand the interplay between individual, family, environmental, and systemic factors that influence families' decisions regarding the management of pediatric obesity.

##### METHODS/DESIGN:

Individual interviews will be conducted with children and youth with obesity (n = 100) and their parents (n = 100) for a total number of 200 interviews with 100 families. Families will be recruited from four Canadian multi-disciplinary pediatric weight management centers in Vancouver, Edmonton, Hamilton, and Montreal. Participants will be purposefully-sampled into the following groups: (i) Non-Initiators (5 families/site): referred for weight management within the past 6 months and did not follow-up the referral; (ii) Initiators (10 families/site): referred for weight management within the past 6 months and did follow-up the referral with at least one clinic appointment; and (iii) Continuers (10 families/site): participated in a formal weight management intervention within the past 12 months and did continue with follow-up care for at least 6 months. Interviews will be digitally recorded and analyzed using an ecological framework, which will enable a multi-level evaluation of proximal and distal factors that underlie families' decisions regarding initiation, continuation, and termination of care. Demographic and anthropometric/clinical data will also be collected.

##### DISCUSSION:

A better understanding of family involvement in pediatric weight management care will help to improve existing health services in this area. Study data will be used in future research to develop a validated survey that clinicians working in pediatric obesity management can use to understand and enhance their own health services delivery.

**239: Bутtenheim AM, Pebley AR, Hsuh K, Chung CY, Goldman N. The shape of things to come? Obesity prevalence among foreign-born vs. US-born Mexican youth in California. Soc Sci Med. 2013 Feb;78:1-8. doi: 10.1016/j.socscimed.2012.10.023. Epub 2012 Nov 6. PubMed PMID: 23273875; PubMed Central PMCID: PMC3888820.**

Abstract

Obesity among the Mexican-origin adult population in the US has been associated with longer stays in the US and with being US- vs. Mexican-born, two proxies for acculturation. This pattern is less clear for Mexican-origin children and young adults: recent evidence suggests that it may be reversed, with foreign-born Mexican youth in the US at higher risk of obesity than their US-born Mexican-American counterparts. The objective of this study is to evaluate the hypothesis that the immigrant advantage in obesity prevalence for Mexican-origin populations in the US does not hold for children and young adults. We use data from the Los Angeles Family and Neighborhood Survey (N = 1143) and the California Health Interview Survey (N = 25,487) for respondents ages 4-24 to calculate the odds of overweight/obesity by ethnicity and nativity. We find support for the hypothesis that overweight/obesity prevalence is not significantly lower for first-generation compared to second- and third-generation Mexican-origin youth. Significantly higher obesity prevalence among the first generation was observed for young adult males (ages 18-24) and adolescent females (ages 12-17). The previously-observed protective effect against obesity risk among recent adult immigrants does not hold for Mexican-origin youth.

**240: Palomo Atance E, Giralt Muiña P, Ballester Herrera MJ, Ruiz Cano R, León Martín A, Giralt Muiña J. [Prevalence of obesity and cardiovascular risk factors in a group of paediatric patients with type 1 diabetes]. An Pediatr (Barc). 2013 Jun;78(6):382-8. doi: 10.1016/j.anpedi.2012.11.011. Epub 2012 Dec 28. Spanish. PubMed PMID: 23273627.**

Abstract

OBJECTIVE:

To establish the prevalence of overweight-obesity and metabolic syndrome in a group of paediatric patients with type 1 diabetes (DM1), and to determine the effects on the lipoprotein profile and metabolic control.

METHODS:

A group of 115 patients (5-16 years) with DM1, and on intensive insulin therapy was studied. Weight, height, body mass index (BMI), waist circumference (WC), blood pressure (BP), glycosylated haemoglobin (HbA1c), total cholesterol (TC), HDL-cholesterol (HDL-c), LDL-cholesterol (LDL-c) and triglycerides (TG) were measured. The results were stratified by sex and age (< 11 years and ≥ 11 years).

RESULTS:

The prevalence of overweight and obesity (according to Hernández's reference values) was 28.69% and 18.26%, respectively, with female predominance in both cases. The prevalence of metabolic syndrome (according to the International Diabetes Federation criteria) was 3.22%. 3.47% The WC adjusted for age and sex was > 90th percentile in 3.47% of cases, and 2.6% had a systolic BP ≥ 130 mmHg and/or a diastolic BP ≥ 85 mmHg. An HDL-c < 40 mg/dl was seen in 4.34%, and 2.6% had TG ≥ 150 mg/dl. Obese patients had lower HDL-c levels and higher LDL-c levels than non-obese subjects.

There were no significant differences in HbA1c between patients with overweight-obesity and the rest.

**CONCLUSIONS:**

Overweight and obesity are common in paediatric patients with DM1. Nevertheless, the prevalence of metabolic syndrome and cardiovascular risk factors is lower than in adult patients. The group of diabetic children with obesity had a lipoprotein profile of cardiovascular risk.

**241: Armour BS, Courtney-Long E, Campbell VA, Wethington HR. Estimating disability prevalence among adults by body mass index: 2003-2009 National Health Interview Survey. *Prev Chronic Dis.* 2012;9:E178; quiz E178. doi: 10.5888/pcd9.120136. PubMed PMID: 23270667; PubMed Central PMCID: PMC3534133.**

**Abstract**

**INTRODUCTION:**

Obesity is associated with adverse health outcomes in people with and without disabilities; however, little is known about disability prevalence among people who are obese. The purpose of this study was to determine the prevalence and type of disability among obese adults in the United States.

**METHODS:**

We analyzed pooled data from sample adult modules of the 2003-2009 National Health Interview Survey (NHIS) to obtain national prevalence estimates of disability, disability type, and obesity by using 30 questions that screened for activity limitations, vision and hearing impairment, and cognitive, movement, and emotional difficulties. We stratified disability prevalence by category of body mass index (BMI, measured as kg/m<sup>2</sup>): underweight, less than 18.5; normal weight, 18.5 to 24.9; overweight, 25.0 to 29.9; and obese, 30.0 or higher.

**RESULTS:**

Among the 25.3% of adult men and 24.6% of women in our pooled sample who were obese, 35.2% and 46.9%, respectively, reported a disability. In contrast, 26.7% of men and 26.8% women of normal weight reported a disability. Disability was much higher among obese women than among obese men (46.9% vs 35.2%,  $P < .001$ ). Movement difficulties were the most common disabilities among obese men and women, affecting 25.3% of men and 37.9% of women.

**CONCLUSION:**

This research contributes to the literature on obesity by including disability as a demographic in characterizing people by body mass index. Because of the high prevalence of disability among those who are obese, public health programs should consider the needs of those with disabilities when designing obesity prevention and treatment programs.

**242: Turer CB, Lin H, Flores G. Prevalence of vitamin D deficiency among overweight and obese US children. *Pediatrics.* 2013 Jan;131(1):e152-61. doi: 10.1542/peds.2012-1711. Epub 2012 Dec 24. PubMed PMID: 23266927.**

**Abstract**

**OBJECTIVE:**

Adequate vitamin D is essential for skeletal health in developing children. Although excess body weight is associated with risk of vitamin D deficiency, the national prevalence of and risk factors associated with vitamin D deficiency in overweight and obese children are unknown.

**METHODS:**

The prevalence of vitamin D deficiency (defined as 25-hydroxyvitamin-D <20 ng/mL) was determined in a sample of 6- to 18-year-old children who were enrolled in a cross-sectional study (the 2003-2006 National Health and Nutrition Examination Survey) in which body weight and height were measured directly. Children were classified as healthy-weight, overweight, obese, or severely obese by using recommended age- and gender-specific BMI-percentile cut points. Associations between BMI-percentile classification and vitamin D deficiency were examined after adjustment for relevant confounders. Sample weights were used to generate nationally representative estimates.

**RESULTS:**

The prevalence of vitamin D deficiency in healthy-weight, overweight, obese, and severely obese children was 21% (20%-22%), 29% (27%-31%), 34% (32%-36%), and 49% (45%-53%), respectively. The prevalence of vitamin D deficiency in severely obese white, Latino, and African-American children was 27% (3%-51%), 52% (36%-68%), and 87% (81%-93%), respectively. Compared with healthy-weight children, overweight, obese, and severely obese children had significantly greater adjusted odds of vitamin D deficiency. Modifiable factors associated with vitamin D deficiency in overweight/obese children were identified.

**CONCLUSIONS:**

Vitamin D deficiency is highly prevalent in overweight and obese children. The particularly high prevalence in severely obese and minority children suggests that targeted screening and treatment guidance is needed.

**243: Elliott CA, Tanofsky-Kraff M, Mirza NM. Parent report of binge eating in Hispanic, African American and Caucasian youth. *Eat Behav.* 2013 Jan;14(1):1-6. doi: 10.1016/j.eatbeh.2012.10.007. Epub 2012 Oct 10. PubMed PMID: 23265393; PubMed Central PMCID: PMC3680352.**

**Abstract**

Binge eating is prevalent among weight loss treatment-seeking youth. However, there are limited data on the relationship between binge eating and weight in racial or ethnically diverse youth. We therefore examined 409 obese (BMI $\geq$ 95th percentile for age and sex) treatment-seeking Hispanic (29.1%), Caucasian (31.7%), and African American (39.2%), boys and girls (6-18 years). Weight, height, waist circumference, and body fat were measured to assess body composition. Depressive symptoms were measured with the Children's Depression Inventory and disordered eating cognitions were measured with the Children's Eating Attitudes Test. Accounting for age, sex, body fat mass, and height, the odds of parents reporting that their child engaged in binge eating were significantly higher among Caucasian compared to African American youth, with Hispanic youth falling non-significantly between these two groups. Youth with binge eating had greater body adiposity ( $p=.02$ ), waist circumference ( $p=.02$ ), depressive symptoms ( $p=.01$ ), and disordered eating attitudes ( $p=.04$ ), with no difference between racial or ethnic group. We conclude that, regardless of race or ethnicity, binge eating is prevalent among weight loss treatment-seeking youth and is associated with adiposity and psychological distress. Further research is required to elucidate the extent to which binge eating among racially and ethnically diverse youth differentially impacts weight loss outcome.

**244: Han E, Powell LM. Consumption patterns of sugar-sweetened beverages in the United States. *J Acad Nutr Diet*. 2013 Jan;113(1):43-53. doi: 10.1016/j.jand.2012.09.016. PubMed PMID: 23260723; PubMed Central PMCID: PMC3662243.**

Abstract

BACKGROUND:

Few previous studies have investigated consumption distributions of sugar-sweetened beverages (SSBs) over time and individual-level associations despite recent interest in SSBs regarding obesity control.

OBJECTIVE:

To assess consumption patterns and individual-level associations.

DESIGN:

Trend and cross-sectional analyses of 24-hour dietary recall data and demographic characteristics and socioeconomic status (SES) drawn from National Health and Nutrition Examination Survey (1999-2000, 2001-2002, 2003-2004, 2005-2006, and 2007-2008) data.

PARTICIPANTS/SETTING:

Children (aged 2 to 11 years, n=8,627), adolescents (aged 12 to 19 years, n=8,922), young adults (aged 20 to 34 years, n=5,933), and middle-aged and elder adults (aged  $\geq 35$  years, n=16,456).

STATISTICAL ANALYSES PERFORMED:

Age-stratified regression analyses for SSBs overall and by subtypes.

RESULTS:

The prevalence of heavy total SSB consumption ( $\geq 500$  kcal/day) increased among children (4% to 5%) although it decreased among adolescents (22% to 16%) and young adults (29% to 20%). Soda was the most heavily consumed SSB in all age groups except for children. Prevalence of soda consumption decreased, whereas heavy sports/energy drink consumption tripled (4% to 12%) among adolescents. Black children and adolescents showed higher odds of heavy fruit drink consumption (odds ratios 1.71 and 1.67) than whites. Low-income children had a higher odds of heavy total SSB consumption (odds ratio 1.93) and higher energy intake from total SSBs and fruit drinks (by 23 and 27 kcal/day) than high-income children. Adolescents with low- vs high-educated parents had higher odds of heavy total SSB consumption (odds ratio 1.28) and higher energy intake from total SSBs and soda (by 27 and 21 kcal/day). Low vs high SES was associated with a higher odds of heavy consumption of total SSBs, soda, and fruit drinks among adults.

CONCLUSIONS:

Prevalence of soda consumption fell, but consumption of nontraditional SSBs rose. Heterogeneity of heavy consumption by SSB types across racial/ethnic subpopulations and higher odds of heavy SSB consumption among low-SES populations should be considered in targeting policies to encourage healthful beverage consumption.



**245: Zhu WF, Liang L, Wang CL, Fu JF. Triglyceride and non-high-density lipoprotein cholesterol as predictors of cardiovascular disease risk factors in Chinese Han children. Indian Pediatr. 2013 Apr;50(4):394-8. Epub 2012 Oct 5. PubMed PMID: 23255687.**

Abstract

OBJECTIVE:

To investigate the role of serum cholesterol and triglyceride in the assessment of cardiovascular disease risk factors in children and adolescents.

STUDY DESIGN:

Case-control study.

SETTING:

Childrens Hospital of Zhejiang University School of Medicine, Hangzhou, China.

SUBJECTS:

Children from 6 years to 17 year old. 188 with simple obesity, and 431 with obesity and metabolic abnormalities. 274 age and gender-matched healthy children as controls.

METHODS:

Receiver operating characteristic curves were used to analyze the detection of cardiovascular disease risk factors by cholesterol and triglyceride in children and adolescents.

RESULTS:

The ranges of areas under receiver operating characteristic curves (AUC) for triglyceride and non-high-density lipoprotein cholesterol were 0.798-0.860 and 0.667-0.749, respectively to detect cardiovascular disease risk factors. The ranges of AUC for low-density lipoprotein cholesterol, total cholesterol, and high-density lipoprotein cholesterol were 0.631-0.718, 0.596-0.683, and 0.292-0.376, respectively.

CONCLUSION:

Triglyceride and non-high-density lipoprotein cholesterol are better than low-density lipoprotein cholesterol as predictors of cardiovascular disease risk factors in Chinese Han children and adolescents.

**246: Mirza NM, Palmer MG, Sinclair KB, McCarter R, He J, Ebbeling CB, Ludwig DS, Yanovski JA. Effects of a low glycemic load or a low-fat dietary intervention on body weight in obese Hispanic American children and adolescents: a randomized controlled trial. Am J Clin Nutr. 2013 Feb;97(2):276-85. doi: 10.3945/ajcn.112.042630. Epub 2012 Dec 19. PubMed PMID: 23255569; PubMed Central PMCID: PMC3545680.**

Abstract

BACKGROUND:

In Hispanic children and adolescents, the prevalence of obesity and insulin resistance is considerably greater than in non-Hispanic white children. A low-glycemic load diet (LGD) has been proposed as an effective dietary intervention for pediatric obesity, but to our knowledge, no published study has examined the effects of an LGD in obese Hispanic children.

OBJECTIVE:

We compared the effects of an LGD and a low-fat diet (LFD) on body composition and components of metabolic syndrome in obese Hispanic youth.

**DESIGN:**

Obese Hispanic children (7-15 y of age) were randomly assigned to consume an LGD or an LFD in a 2-y intervention program. Body composition and laboratory assessments were obtained at baseline and 3, 12, and 24 mo after intervention.

**RESULTS:**

In 113 children who were randomly assigned, 79% of both groups completed 3 mo of treatment; 58% of LGD and 55% of LFD subjects attended 24-mo follow-up. Compared with the LFD, the LGD decreased the glycemic load per kilocalories of reported food intakes in participants at 3 mo ( $P = 0.02$ ). Both groups had a decreased BMI z score ( $P < 0.003$ ), which was expressed as a standard z score relative to CDC age- and sex-specific norms, and improved waist circumference and systolic blood pressure ( $P < 0.05$ ) at 3, 12, and 24 mo after intervention. However, there were no significant differences between groups for changes in BMI, insulin resistance, or components of metabolic syndrome (all  $P > 0.5$ ).

**CONCLUSIONS:**

We showed no evidence that an LGD and an LFD differ in efficacy for the reduction of BMI or aspects of metabolic syndrome in obese Hispanic youth. Both diets decreased the BMI z score when prescribed in the context of a culturally adapted, comprehensive weight-reduction program.

**247: McCubbin LD, Antonio M. Discrimination and obesity among Native Hawaiians. Hawaii J Med Public Health. 2012 Dec;71(12):346-52. PubMed PMID: 23251872; PubMed Central PMCID: PMC3525333.**

**Abstract**

Among ethnic populations in Hawai'i, Native Hawaiians continue to be over-represented with the highest rates in: morbidity and mortality, chronic health conditions, and the health risks of being overweight and obese. Focused on these two health risks, the investigation reported in this article has a specific aim of empirically determining whether social stigma as manifested in the form of perceived overt or covert discrimination is a contributing factor. Current studies focused on select ethnic populations, particularly African Americans point to discrimination as an important but understudied predictor of adverse health outcomes. Acknowledging the paucity of research on discrimination and its role in the health of Native Hawaiians, this investigation utilizes data from the 2007 Hawaiian Health Survey which was coordinated by the Department of Health, and the Office of Health Status Monitoring and implemented by SMS Hawai'i. The weighted sample of Hawai'i adults included measures of race/ethnicity and of everyday discrimination and the BMI (Body Mass Index). Logistic regression analyses were applied to determine if: (a) discrimination was significantly related to being overweight and/or obesity; and (b) whether this relationship remained a salient predictor after key demographic factors of gender, age, education, income, and length of time in the Islands were taken into account. This study confirmed the negative influence of overt discrimination as well as the protective nature of covert discrimination in explaining the variability in obesity/overweight in Native Hawaiians. The implications of this study for strategic interventions and research are discussed.

**KEYWORDS:**

HHS; Health Risk; Native Hawaiian; Obesity/overweight; Overt/Covert Discrimination.

**248: Comuzzie AG, Cole SA, Laston SL, Voruganti VS, Haack K, Gibbs RA, Butte NF. Novel genetic loci identified for the pathophysiology of childhood obesity in the Hispanic population. PLoS One. 2012;7(12):e51954. doi: 10.1371/journal.pone.0051954. Epub 2012 Dec 14. PubMed PMID: 23251661; PubMed Central PMCID: PMC3522587.**

Abstract

Genetic variants responsible for susceptibility to obesity and its comorbidities among Hispanic children have not been identified. The VIVA LA FAMILIA Study was designed to genetically map childhood obesity and associated biological processes in the Hispanic population. A genome-wide association study (GWAS) entailed genotyping 1.1 million single nucleotide polymorphisms (SNPs) using the Illumina Infinium technology in 815 children. Measured genotype analysis was performed between genetic markers and obesity-related traits i.e., anthropometry, body composition, growth, metabolites, hormones, inflammation, diet, energy expenditure, substrate utilization and physical activity. Identified genome-wide significant loci: 1) corroborated genes implicated in other studies (MTNR1B, ZNF259/APOA5, XPA/FOXE1 (TTF-2), DARC, CCR3, ABO); 2) localized novel genes in plausible biological pathways (PCSK2, ARHGAP11A, CHRNA3); and 3) revealed novel genes with unknown function in obesity pathogenesis (MATK, COL4A1). Salient findings include a nonsynonymous SNP (rs1056513) in INADL ( $p = 1.2E-07$ ) for weight; an intronic variant in MTNR1B associated with fasting glucose ( $p = 3.7E-08$ ); variants in the APOA5-ZNF259 region associated with triglycerides ( $p = 2.5-4.8E-08$ ); an intronic variant in PCSK2 associated with total antioxidants ( $p = 7.6E-08$ ); a block of 23 SNPs in XPA/FOXE1 (TTF-2) associated with serum TSH ( $p = 5.5E-08$  to  $1.0E-09$ ); a nonsynonymous SNP ( $p = 1.3E-21$ ), an intronic SNP ( $p = 3.6E-13$ ) in DARC identified for MCP-1; an intronic variant in ARHGAP11A associated with sleep duration ( $p = 5.0E-08$ ); and, after adjusting for body weight, variants in MATK for total energy expenditure ( $p = 2.7E-08$ ) and in CHRNA3 for sleeping energy expenditure ( $p = 6.0E-08$ ). Unprecedented phenotyping and high-density SNP genotyping enabled localization of novel genetic loci associated with the pathophysiology of childhood obesity.

**249: Yang S, Hwang JS, Park HK, Lee HS, Kim HS, Kim EY, Lim JS. Serum lipid concentrations, prevalence of dyslipidemia, and percentage eligible for pharmacological treatment of Korean children and adolescents; data from the Korea National Health and Nutrition Examination Survey IV (2007-2009). PLoS One. 2012;7(12):e49253. doi: 10.1371/journal.pone.0049253. Epub 2012 Dec 14. PubMed PMID: 23251338; PubMed Central PMCID: PMC3522657.**

Abstract

OBJECTIVES:

Dyslipidemia is one of the important modifiable risk factors for cardiovascular disease. Thus, to know the prevalence of dyslipidemia is the 1(st) step to make guidelines of screening and management plan. Although, American Academy of Pediatrics updated the guidelines for lipid in childhood, Asian study is rare.

METHODS:

The authors aimed to make a reference of each serum lipid level of Korean children and adolescents (2,363 subjects aged 10 to 18 years) from the data of Korea National Health and Nutrition Examination Survey IV (2007-2009).

RESULTS:

The mean serum concentrations for total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), and high-density lipoprotein cholesterol (HDL-C) were 158 mg/dL, 90 mg/dL, 90 mg/dL, and 49 mg/dL, respectively. The 95th percentile values for TC, LDL-C, and TG were 203 mg/dL, 129 mg/dL, and 185 mg/dL, respectively. The 5th percentile value for HDL-C was 36 mg/dL. The prevalence of hypercholesterolemia, high LDL-C, high TG, and low HDL-C was 6.5%, 4.7%, 10.1%, and 7.1%, respectively. Considering the risk factors such as obesity, hypertension, smoking, and diabetes, approximately 0.41% of the subjects were potentially eligible for pharmacological treatment.

**CONCLUSIONS:**

This information may be useful in not only Korean but also Asian planning programs for the prevention of cardiovascular disease through lipid control from childhood.

**250: Reuter ÉM, Reuter CP, Burgos LT, Reckziegel MB, Nedel FB, Albuquerque IM, Pohl HH, Burgos MS. Obesity and arterial hypertension in schoolchildren from Santa Cruz do Sul--RS, Brazil. Rev Assoc Med Bras. 2012 Nov-Dec;58(6):666-72. English, Portuguese. PubMed PMID: 23250094.**

**Abstract**

**OBJECTIVE:**

To verify the prevalence of obesity and hypertension in schoolchildren from Santa Cruz do Sul - RS, Brazil, in 2005 and 2008.

**METHOD:**

The study was performed with two consecutive cross-sectional measurements, consisting of a stratified cluster sample, totaling 414 students, aged between 7 and 17 years, of which 215 (51.9%) were males and 199 (48.1%) were females. Obesity was assessed by body mass index (BMI) and percentage of body fat (%BF). Hypertension was measured by blood pressure values, both systolic (SBP) and diastolic (DBP).

**RESULTS:**

BMI assessment showed 18.6% and 22.3% of excess weight in males and 22.6% and 14.6% in females (in 2005 and 2008, respectively). Regarding obesity, the prevalence was 4.7% in both years for males and a reduction from 12.6% to 9.0% was observed in females. When analyzing the difference between assessments, there was significance in the BMI classification ( $p = 0.022$ ) and %BF ( $p = 0.017$ ) only in females. Statistically significant changes in SBP were found only in males ( $p < 0.001$ ).

**CONCLUSION:**

The levels of excess weight, obesity, and %BF in females, as well as the increased levels of systolic blood pressure in males, demonstrate the need for early intervention through more effective public health campaigns.

**251: Heslehurst N, Sattar N, Rajasingam D, Wilkinson J, Summerbell CD, Rankin J. Existing maternal obesity guidelines may increase inequalities between ethnic groups: a national epidemiological study of 502,474 births in England. BMC Pregnancy Childbirth. 2012 Dec 18;12:156. doi: 10.1186/1471-2393-12-156. PubMed PMID: 23249162; PubMed Central PMCID: PMC3554430.**

Abstract

BACKGROUND:

Asians are at increased risk of morbidity at a lower body mass index (BMI) than European Whites, particularly relating to metabolic risk. UK maternal obesity guidelines use general population BMI criteria to define obesity, which do not represent the risk of morbidity among Asian populations. This study compares incidence of first trimester obesity using Asian-specific and general population BMI criteria.

METHOD:

A retrospective epidemiological study of 502,474 births between 1995 and 2007, from 34 maternity units across England. Data analyses included a comparison of trends over time between ethnic groups using Asian-specific and general population BMI criteria. Logistic regression estimated odds ratios for first trimester obesity among ethnic groups following adjustment for population demographics.

RESULTS:

Black and South Asian women have a higher incidence of first trimester obesity compared with White women. This is most pronounced for Pakistani women following adjustment for population structure (OR 2.19, 95% C.I. 2.08, 2.31). There is a twofold increase in the proportion of South Asian women classified as obese when using the Asian-specific BMI criteria rather than general population BMI criteria. The incidence of obesity among Black women is increasing at the most rapid rate over time ( $p=0.01$ ).

CONCLUSION:

The twofold increase in maternal obesity among South Asians when using Asian-specific BMI criteria highlights inequalities among pregnant women. A large proportion of South Asian women are potentially being wrongly assigned to low risk care using current UK guidelines to classify obesity and determine care requirements. Further research is required to identify if there is any improvement in pregnancy outcomes if Asian-specific BMI criteria are utilised in the clinical management of maternal obesity to ensure the best quality of care is provided for women irrespective of ethnicity.

**252: Lanza HI, Echols L, Graham S. Deviating from the norm: body mass index (BMI) differences and psychosocial adjustment among early adolescent girls. J Pediatr Psychol. 2013 May;38(4):376-86. doi: 10.1093/jpepsy/jss130. Epub 2012 Dec 17. PubMed PMID: 23248348; PubMed Central PMCID: PMC3633251.**

Abstract

OBJECTIVE:

To examine whether deviation from one's ethnic group norm on body mass index (BMI) was related to psychosocial maladjustment among early adolescent girls, and whether specific ethnic groups were more vulnerable to maladjustment.

METHODS:

Hierarchical regression analyses were conducted on self- and peer-report measures from an ethnically diverse sample of sixth-grade girls (N = 2,636).

**RESULTS:**

African Americans and Latinas had a higher mean BMI than Asians and Whites. As deviation from their ethnic group BMI norm increased, girls reported greater social anxiety, depression, peer victimization, and lower self-worth, and had lower peer-reported social status. Associations were specific to girls deviating toward obesity status. Ethnic differences revealed that Asian girls deviating toward obesity status were particularly vulnerable to internalizing symptoms.

**CONCLUSIONS:**

Emotional maladjustment may be more severe among overweight/obese girls whose ethnic group BMI norm is furthest away from overweight/obesity status. Implications for obesity work with ethnically diverse adolescents were discussed.

**253: Reis JP, Hankinson AL, Loria CM, Lewis CE, Powell-Wiley T, Wei GS, Liu K.**

**Duration of abdominal obesity beginning in young adulthood and incident diabetes through middle age: the CARDIA study. *Diabetes Care*. 2013 May;36(5):1241-7. doi:**

**10.2337/dc12-1714. Epub 2012 Dec 17. PubMed PMID: 23248193; PubMed Central PMCID: PMC3631861.**

**Abstract**

**OBJECTIVE:**

To examine whether the duration of abdominal obesity determined prospectively using measured waist circumference (WC) is associated with the development of new-onset diabetes independent of the degree of abdominal adiposity.

**RESEARCH DESIGN AND METHODS:**

The Coronary Artery Risk Development in Young Adults Study is a multicenter, community-based, longitudinal cohort study of 5,115 white and black adults aged 18-30 years in 1985 to 1986. Years spent abdominally obese were calculated for participants without abdominal obesity (WC >102 cm in men and >88 cm in women) or diabetes at baseline (n = 4,092) and was based upon repeat measurements conducted 2, 5, 7, 10, 15, 20, and 25 years later.

**RESULTS:**

Over 25 years, 392 participants developed incident diabetes. Overall, following adjustment for demographics, family history of diabetes, study center, and time varying WC, energy intake, physical activity, smoking, and alcohol, each additional year of abdominal obesity was associated with a 4% higher risk of developing diabetes [hazard ratio (HR) 1.04 (95% CI 1.02-1.07)]. However, a quadratic model best represented the data. HRs for 0, 1-5, 6-10, 11-15, 16-20, and >20 years of abdominal obesity were 1.00 (referent), 2.06 (1.43-2.98), 3.45 (2.28-5.22), 3.43 (2.28-5.22), 2.80 (1.73-4.54), and 2.91 (1.60-5.29), respectively; P-quadratic < 0.001.

**CONCLUSIONS:**

Longer duration of abdominal obesity was associated with substantially higher risk for diabetes independent of the degree of abdominal adiposity. Preventing or at least delaying the onset of abdominal obesity in young adulthood may lower the risk of developing diabetes through middle age.

**254: Suglia SF, Clark CJ, Gary-Webb TL. Adolescent obesity, change in weight status, and hypertension: racial/ethnic variations. *Hypertension*. 2013 Feb;61(2):290-5. doi: 10.1161/HYPERTENSIONAHA.111.00214. Epub 2012 Dec 17. PubMed PMID: 23248147; PubMed Central PMCID: PMC3938160.**

Abstract

We sought to determine whether change in weight status between adolescence and young adulthood was associated with the risk of developing hypertension among adolescents and whether sex and racial/ethnic group differences existed in the National Longitudinal Study of Adolescent Health. The sample was restricted to participants who self-identified as black, Hispanic, or white non-Hispanic (n=8543). Height and weight were measured in adolescence (mean 16 years) and again in adulthood (mean 29 years). We categorized the weight of participants into 4 groups: stayed normal weight; gained weight (normal weight in adolescence and obese in adulthood); lost weight (overweight/obese in adolescence nonobese in adulthood); and chronically overweight/obese. Hypertension was defined as measured systolic blood pressure of at least 140 mm Hg or diastolic blood pressure of at least 90 mm Hg measured in adulthood or use of antihypertensive medications. A higher risk of hypertension was noted for all sex and racial/ethnic groups who became obese in adulthood. Furthermore, those who were chronically overweight/obese were at higher risk of hypertension for all groups, with odds ratios ranging from 2.7 in Hispanic men to 6.5 in Hispanic women. Except for black men, those who lost weight during follow-up had no significant increased risk compared with those who maintained normal weight. Overall, there was an increased risk of hypertension for those who gained weight in adulthood and among those who remained obese from adolescence to young adulthood. These data give further evidence for prevention strategies that begin earlier in life to reduce or delay the onset of chronic disease in young adults.

**255: Barreira TV, Staiano AE, Katzmarzyk PT. Validity assessment of a portable bioimpedance scale to estimate body fat percentage in white and African-American children and adolescents. *Pediatr Obes*. 2013 Apr;8(2):e29-32. doi: 10.1111/j.2047-6310.2012.00122.x. Epub 2012 Dec 13. PubMed PMID: 23239610; PubMed Central PMCID: PMC3602331.**

Abstract

OBJECTIVE:

The objective of the study was to determine accuracy of the Tanita SC-240 body composition analyser to measure paediatric percent body fat (%BF).

METHODS:

Eighty-nine African-American and white 5-18-year-olds participated in this study. %BF was estimated by dual-energy X-ray absorptiometry (DXA) and by the Tanita SC-240.

RESULTS:

Overall %BF was  $33.5 \pm 10.5\%$  (Tanita SC-240) vs.  $34.5 \pm 8.7\%$  (DXA). There was no significant difference between the two measures ( $P = 0.52$ , average error =  $-1.0\%$ , average absolute error =  $3.9\%$ ). The Tanita mean %BF estimates significantly differed from the DXA mean %BF in white boys ( $P = 0.001$ , Cohen's  $d = 0.40$ ) and white girls ( $P = 0.006$ , Cohen's  $d = 0.48$ ), but differences were of small effect. No differences in %BF estimates were found for African-American boys or girls.

CONCLUSIONS:

In this sample, the Tanita SC-240 demonstrated acceptable accuracy for estimating %BF when compared with DXA, supporting its use in field studies.

**256: Austin SB, Nelson LA, Birkett MA, Calzo JP, Everett B. Eating disorder symptoms and obesity at the intersections of gender, ethnicity, and sexual orientation in US high school students. Am J Public Health. 2013 Feb;103(2):e16-22. doi: 10.2105/AJPH.2012.301150. Epub 2012 Dec 13. PubMed PMID: 23237207; PubMed Central PMCID: PMC3558764.**

Abstract

OBJECTIVES:

We examined purging for weight control, diet pill use, and obesity across sexual orientation identity and ethnicity groups.

METHODS:

Anonymous survey data were analyzed from 24 591 high school students of diverse ethnicities in the federal Youth Risk Behavioral Surveillance System Survey in 2005 and 2007. Self-reported data were gathered on gender, ethnicity, sexual orientation identity, height, weight, and purging and diet pill use in the past 30 days. We used multivariable logistic regression to estimate odds of purging, diet pill use, and obesity associated with sexual orientation identity in gender-stratified models and examined for the presence of interactions between ethnicity and sexual orientation.

RESULTS:

Lesbian, gay, and bisexual (LGB) identity was associated with substantially elevated odds of purging and diet pill use in both girls and boys (odds ratios [OR] range = 1.9-6.8). Bisexual girls and boys were also at elevated odds of obesity compared to same-gender heterosexuals (OR = 2.3 and 2.1, respectively).

CONCLUSIONS:

Interventions to reduce eating disorders and obesity that are appropriate for LGB youths of diverse ethnicities are urgently needed.

**257: Kordas K, Fonseca Centeno ZY, Pachón H, Jimenez Soto AZ. Being overweight or obese is associated with lower prevalence of anemia among Colombian women of reproductive age. J Nutr. 2013 Feb;143(2):175-81. doi: 10.3945/jn.112.167767. Epub 2012 Dec 12. PubMed PMID: 23236023.**

Abstract

Overweight and micronutrient deficiencies have manifested in the same individuals. This study investigated the association among iron deficiency (ID), anemia, and weight status among nonpregnant Colombian females aged 13-49 y (n = 3267). Data from the 2005 National Survey of the Nutrition Situation were used. The prevalence of ID (plasma ferritin <12.0 µg/L; individuals with CRP >0.012 g/L excluded) and anemia (altitude-adjusted hemoglobin <120 g/L) was estimated separately. The likelihood of having ID or anemia was tested as a function of overweight (BMI-age Z-score 1-1.9 SD for 13-17 y, BMI 25.0-29.9 kg/m<sup>2</sup> for 18-49 y) and obesity (≥2 SD for 13-17 y, ≥30 kg/m<sup>2</sup> for 18-49 y) using multivariate logistic regressions accounting for survey design. Additionally, demographic predictors of combined overweight/obesity with ID or anemia were identified. The prevalence of overweight and obesity was 29.2 and 13.1%, respectively, whereas that of ID and anemia was 16.1 and 32.5%, respectively. Contrary to previous reports, overweight and obese women had a lower



likelihood of anemia [OR (95% CI) = 0.8 (0.7, 0.9) and 0.8 (0.6, 1.0), respectively] than normal-weight women. Overweight/obesity combined with ID or anemia was present among 6.3 and 12.8% of women, respectively. Although overweight and obesity were associated with a lower likelihood of anemia, a sizeable group of women was identified as experiencing both over- and undernutrition. Because of the potential for exacerbated health problems in the presence of over- and undernutrition, these conditions should continue to be monitored.

**258: Grimes CA, Riddell LJ, Campbell KJ, Nowson CA. Dietary salt intake, sugar-sweetened beverage consumption, and obesity risk. *Pediatrics*. 2013 Jan;131(1):14-21. doi: 10.1542/peds.2012-1628. Epub 2012 Dec 10. PubMed PMID: 23230077.**

Abstract

OBJECTIVE:

To determine the association among dietary salt, fluid, and sugar-sweetened beverage (SSB) consumption and weight status in a nationally representative sample of Australian children aged 2 to 16 years.

METHODS:

Cross-sectional data from the 2007 Australian National Children's Nutrition and Physical Activity Survey. Consumption of dietary salt, fluid, and SSB was determined via two 24-hour dietary recalls. BMI was calculated from recorded height and weight. Regression analysis was used to assess the association between salt, fluid, SSB consumption, and weight status.

RESULTS:

Of the 4283 participants, 62% reported consuming SSBs. Older children and those of lower socioeconomic status (SES) were more likely to consume SSBs (both  $P$ s < .001). Dietary salt intake was positively associated with fluid consumption ( $r = 0.42$ ,  $P < .001$ ); each additional 1 g/d of salt was associated with a 46 g/d greater intake of fluid, adjusted for age, gender, BMI, and SES ( $P < .001$ ). In those consuming SSBs ( $n = 2571$ ), salt intake was positively associated with SSB consumption ( $r = 0.35$ ,  $P < .001$ ); each additional 1 g/d of salt was associated with a 17 g/d greater intake of SSB, adjusted for age, gender, SES, and energy ( $P < .001$ ). Participants who consumed more than 1 serving ( $\geq 250$  g) of SSB were 26% more likely to be overweight/obese (odds ratio: 1.26, 95% confidence interval: 1.03-1.53).

CONCLUSIONS:

Dietary salt intake predicted total fluid consumption and SSB consumption within consumers of SSBs. Furthermore, SSB consumption was associated with obesity risk. In addition to the known benefits of lowering blood pressure, salt reduction strategies may be useful in childhood obesity prevention efforts.

**259: Sonnevile KR, Horton NJ, Micali N, Crosby RD, Swanson SA, Solmi F, Field AE. Longitudinal associations between binge eating and overeating and adverse outcomes among adolescents and young adults: does loss of control matter? JAMA Pediatr. 2013 Feb;167(2):149-55. doi: 10.1001/2013.jamapediatrics.12. PubMed PMID: 23229786; PubMed Central PMCID: PMC3654655.**

Abstract

OBJECTIVE:

To investigate the association between overeating (without loss of control) and binge eating (overeating with loss of control) and adverse outcomes.

DESIGN:

Prospective cohort study.

SETTING:

Adolescents and young adults living throughout the United States.

PARTICIPANTS:

Sixteen thousand eight hundred eighty-two males and females participating in the Growing Up Today Study who were 9 to 15 years old at enrollment in 1996.

MAIN EXPOSURE:

Overeating and binge eating assessed via questionnaire every 12 to 24 months between 1996 and 2005.

MAIN OUTCOME MEASURES:

Risk of becoming overweight or obese, starting to binge drink frequently, starting to use marijuana, starting to use other drugs, and developing high levels of depressive symptoms. Generalized estimating equations were used to estimate associations. All models controlled for age and sex; additional covariates varied by outcome.

RESULTS:

Among this large cohort of adolescents and young adults, binge eating was more common among females than males. In fully adjusted models, binge eating, but not overeating, was associated with incident overweight/obesity (odds ratio, 1.73; 95% CI, 1.11-2.69) and the onset of high depressive symptoms (odds ratio, 2.19; 95% CI, 1.40-3.45). Neither overeating nor binge eating was associated with starting to binge drink frequently, while both overeating and binge eating predicted starting to use marijuana and other drugs.

CONCLUSIONS:

Although any overeating, with or without loss of control, predicted the onset of marijuana and other drug use, we found that binge eating is uniquely predictive of incident overweight/obesity and the onset of high depressive symptoms. These findings suggest that loss of control is an important indicator of severity of overeating episodes.

**260: Kahn HS, Bullard KM, Barker LE, Imperatore G. Differences between adiposity indicators for predicting all-cause mortality in a representative sample of United States non-elderly adults. PLoS One. 2012;7(11):e50428. doi: 10.1371/journal.pone.0050428. Epub 2012 Nov 30. PubMed PMID: 23226283; PubMed Central PMCID: PMC3511554.**

Abstract

BACKGROUND:

Adiposity predicts health outcomes, but this relationship could depend on population characteristics and adiposity indicator employed. In a representative sample of 11,437 US adults (National Health and Nutrition Examination Survey, 1988-1994, ages 18-64) we estimated associations with all-cause mortality for body mass index (BMI) and four abdominal adiposity indicators (waist circumference [WC], waist-to-height ratio [WHtR], waist-to-hip ratio [WHR], and waist-to-thigh ratio [WTR]). In a fasting subsample we considered the lipid accumulation product (LAP; [WC enlargement\*triglycerides]).

METHODS AND FINDINGS:

For each adiposity indicator we estimated linear and categorical mortality risks using sex-specific, proportional-hazards models adjusted for age, black ancestry, tobacco exposure, and socioeconomic position. There were 1,081 deaths through 2006. Using linear models we found little difference among indicators (adjusted hazard ratios [aHRs] per SD increase 1.2-1.4 for men, 1.3-1.5 for women). Using categorical models, men in adiposity midrange (quartiles 2+3; compared to quartile 1) were not at significantly increased risk (aHRs<1.1) unless assessed by WTR (aHR 1.4 [95%CI 1.0-1.9]). Women in adiposity midrange, however, tended toward elevated risk (aHRs 1.2-1.5), except for black women assessed by BMI, WC or WHtR (aHRs 0.7-0.8). Men or women in adiposity quartile 4 (compared to midrange) were generally at risk (aHRs>1.1), especially black men assessed by WTR (aHR 1.9 [1.4-2.6]) and black women by LAP (aHR 2.2 [1.4-3.5]). Quartile 4 of WC or WHtR carried no significant risk for diabetic persons (aHRs 0.7-1.1), but elevated risks for those without diabetes (aHRs>1.5). For both sexes, quartile 4 of LAP carried increased risks for tobacco-exposed persons (aHRs>1.6) but not for non-exposed (aHRs<1.0).

CONCLUSIONS:

Predictions of mortality risk associated with top-quartile adiposity vary with the indicator used, sex, ancestry, and other characteristics. Interpretations of adiposity should consider how variation in the physiology and expandability of regional adipose-tissue depots impacts health.

**261: Mulassi AH, Borracci RA, Calderón JG, Vinay P, Mulassi M. Social networks on smoking, alcohol use and obesity among adolescents attending a school in the city of Lobos, Buenos Aires. Arch Argent Pediatr. 2012 Dec;110(6):474-84. doi: 10.1590/S0325-00752012000600004. English, Spanish. PubMed PMID: 23224304.**

Abstract

INTRODUCTION:

The objective was to study different social networks of adolescents regarding the use of tobacco, alcohol use or obesity, in order to know to what extent friends and schoolmates influenced them in keeping or quitting these habits.

MATERIALS AND METHODS:

Two hundred and ninety six adolescents aged 14-18 years attending an urban school in the province of Buenos Aires were surveyed and clinically studied. Information was obtained on anthropometric parameters, tobacco and alcohol use and friendship relations were assessed so as to construct different social networks.

**RESULTS:**

18.8% of female adolescents and 16.5% of male adolescents were smokers; 23.3 and 39.4% drank alcohol and 15.3 and 19.0% were overweight. The networks showed that both smokers and alcohol users have close connections and a high level of centrality. The analysis showed that there is a strong affinity among people sharing the same habits.

**CONCLUSIONS:**

The study of adolescent social networks allowed to show the relation of affinity among people having the habit of smoking, alcohol use or presenting obesity. Both smokers and alcohol users are closely connected in the network, while obese adolescents seem to stay marginal. Knowledge on social networks and the possibility of working on their members could be used to disseminate healthy behaviors among adolescents.

**262: The NS, Richardson AS, Gordon-Larsen P. Timing and duration of obesity in relation to diabetes: findings from an ethnically diverse, nationally representative sample. Diabetes Care. 2013 Apr;36(4):865-72. doi: 10.2337/dc12-0536. Epub 2012 Dec 5. PubMed PMID: 23223352; PubMed Central PMCID: PMC3609525.**

**Abstract**

**OBJECTIVE:**

The influence on diabetes of the timing and duration of obesity across the high-risk period of adolescence to young adulthood has not been investigated in a population-based, ethnically diverse sample.

**RESEARCH DESIGN AND METHODS:**

A cohort of 10,481 individuals aged 12-21 years enrolled in the U.S. National Longitudinal Study of Adolescent Health (1996) was followed over two visits during young adulthood (18-27 years, 2001-2002; 24-33 years, 2007-2009). Separate logistic regression models were used to examine the associations of diabetes (A1C  $\geq$ 6.5% or diagnosis by a health care provider) in young adulthood with 1) obesity timing (never obese, onset <16 years, onset 16 to <18 years, onset  $\geq$ 18 years) and 2) obesity duration over time (never obese, incident obesity, fluctuating obesity, and persistent obesity), testing differences by sex and race/ethnicity.

**RESULTS:**

Among 24- to 33-year-old participants, 4.4% had diabetes (approximately half were undiagnosed), with a higher prevalence in blacks and Hispanics than whites. In multivariable analyses, women who became obese before age 16 were more likely to have diabetes than women who became obese at or after age 18 (odds ratio 2.77 [95% CI 1.39-5.52]), even after accounting for current BMI, waist circumference, and age at menarche. Persistent (vs. adult onset) obesity was associated with increased likelihood of diabetes in men (2.27 [1.41-3.64]) and women (2.08 [1.34-3.24]).

**CONCLUSIONS:**

Diabetes risk is particularly high in individuals who were obese as adolescents relative to those with adult-onset obesity, thus highlighting the need for diabetes prevention efforts to address pediatric obesity.

**263: Purnell JQ, Zinman B, Brunzell JD; DCCT/EDIC Research Group. The effect of excess weight gain with intensive diabetes mellitus treatment on cardiovascular disease risk factors and atherosclerosis in type 1 diabetes mellitus: results from the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Study (DCCT/EDIC) study. *Circulation*. 2013 Jan 15;127(2):180-7. doi: 10.1161/CIRCULATIONAHA.111.077487. Epub 2012 Dec 4. PubMed PMID: 23212717; PubMed Central PMCID: PMC3819101.**

Abstract

BACKGROUND:

Intensive diabetes mellitus therapy of type 1 diabetes mellitus reduces diabetes mellitus complications but can be associated with excess weight gain, central obesity, and dyslipidemia. The purpose of this study was to determine whether excessive weight gain with diabetes mellitus therapy of type 1 diabetes mellitus is prospectively associated with atherosclerotic disease.

METHODS AND RESULTS:

Subjects with type 1 diabetes mellitus (97% white, 45% female, mean age 35 years) randomly assigned to intensive or conventional diabetes mellitus treatment during the Diabetes Control and Complications Trial (DCCT) underwent intima-media thickness (n = 1015) and coronary artery calcium score (n = 925) measurements during follow-up in the Epidemiology of Diabetes Interventions and Complications (EDIC) Study. Intensive treatment subjects were classified by quartile of body mass index change during the DCCT. Excess gainers (4th quartile, including conventional treatment subjects meeting this threshold) maintained greater body mass index and waist circumference, needed more insulin, had greater intima-media thickness (+5%, P < 0.001 EDIC year 1, P = 0.003 EDIC year 6), and trended toward greater coronary artery calcium scores (odds ratio, 1.55; confidence interval, 0.97 to 2.49; P = 0.07) than minimal gainers. DCCT subjects meeting metabolic syndrome criteria for waist circumference and blood pressure had greater intima-media thickness in both EDIC years (P = 0.02 to < 0.001); those meeting high-density lipoprotein criteria had greater coronary artery calcium scores (odds ratio, 1.6; confidence interval, 1.1 to 2.4; P = 0.01) during follow-up. Increasing frequency of a family history of diabetes mellitus, hypertension, and hyperlipidemia was associated with greater intima-media thickness with intensive but not conventional treatment.

CONCLUSIONS:

Excess weight gain in DCCT is associated with sustained increases in central obesity, insulin resistance, dyslipidemia and blood pressure, as well as more extensive atherosclerosis during EDIC.

**264: Washburn L, Nixon P, Russell G, Snively BM, O'Shea TM. Adiposity in adolescent offspring born prematurely to mothers with preeclampsia. *J Pediatr*. 2013 May;162(5):912-7.e1. doi: 10.1016/j.jpeds.2012.10.044. Epub 2012 Dec 1. PubMed PMID: 23211927; PubMed Central PMCID: PMC3785107.**

Abstract

OBJECTIVE:

To evaluate the relationship between maternal preeclampsia resulting in premature delivery and adiposity in the offspring during adolescence.

STUDY DESIGN:

The 172 study participants were 14 years old and had very low birth weight. We compared height, weight, body mass index (BMI), percent fat, waist circumference, and triceps and subscapular skin

fold thicknesses between those born prematurely secondary to preeclampsia (n = 51; 22 male) and those born prematurely after normotensive pregnancies (n = 121; 55 male). Multiple linear regression analysis was used to adjust for potential confounders (maternal BMI, antenatal steroid exposure, and race) and to evaluate potential explanatory variables (fetal, infancy, and childhood weight gain, and caloric intake, level of fitness, and physical activity at 14 years).

**RESULTS:**

When adjusted for potential prenatal confounders (antenatal steroid exposure and race), adolescent male offspring of preeclamptic pregnancies had higher BMI (4.0 kg/m<sup>2</sup> [1.5, 6.6]) (mean difference [95% CI]), waist circumference (11.8 cm [3.8, 19.7]), triceps (4.6 mm [0.6, 8.6]) and subscapular skinfold thicknesses (6.2 mm [1.5, 10.9]), and percent body fat (4.1% [-0.1, 8.3]). Adjusting for infancy and childhood weight gain attenuated these group differences. There were no group differences among females.

**CONCLUSION:**

Male adolescent offspring born prematurely of women with preeclampsia have higher measures of adiposity than those born prematurely of normotensive pregnancies.

**265: Ginsburg C, Griffiths PL, Richter LM, Norris SA. Residential mobility, socioeconomic context and body mass index in a cohort of urban South African adolescents. Health Place. 2013 Jan;19:99-107. doi: 10.1016/j.healthplace.2012.09.016. Epub 2012 Nov 7. PubMed PMID: 23211581; PubMed Central PMCID: PMC3895683.**

**Abstract**

Adolescents who are changing residence, as well as their social and economic circumstances may experience lifestyle changes that have an effect on body composition outcomes such as undernutrition, overweight or obesity. This paper uses data from Birth to Twenty, a birth cohort of South African urban children, to determine the relationship between residential mobility and body mass index (BMI) amongst Black adolescents aged 15 (n=1613), and to examine the role of changes in household socioeconomic status (SES). The prevalence of overweight and obesity in the sample was 25% in females and 8% in males. Amongst the females, a strong positive association between residential mobility and BMI was observed for those who also experienced an increase in household SES between birth and 15 years ( $\beta=0.42$ ,  $SE=0.13$ ), while no effect was identified for males. The study shows the potential for environmental change and increased resources to influence the risk for obesity. It also highlights the value in considering the range of social environmental factors and changes across the early life course that might play a part in evolving nutritional patterns in urban transitioning environments.

**266: Morandi A, Meyre D, Lobbens S, Kleinman K, Kaakinen M, Rifas-Shiman SL, Vatin V, Gaget S, Pouta A, Hartikainen AL, Laitinen J, Ruokonen A, Das S, Khan AA, Elliott P, Maffei C, Gillman MW, Järvelin MR, Froguel P. Estimation of newborn risk for child or adolescent obesity: lessons from longitudinal birth cohorts. *PLoS One*. 2012;7(11):e49919. doi: 10.1371/journal.pone.0049919. Epub 2012 Nov 28. PubMed PMID: 23209618; PubMed Central PMCID: PMC3509134.**

Abstract

OBJECTIVES:

Prevention of obesity should start as early as possible after birth. We aimed to build clinically useful equations estimating the risk of later obesity in newborns, as a first step towards focused early prevention against the global obesity epidemic.

METHODS:

We analyzed the lifetime Northern Finland Birth Cohort 1986 (NFBC1986) (N = 4,032) to draw predictive equations for childhood and adolescent obesity from traditional risk factors (parental BMI, birth weight, maternal gestational weight gain, behaviour and social indicators), and a genetic score built from 39 BMI/obesity-associated polymorphisms. We performed validation analyses in a retrospective cohort of 1,503 Italian children and in a prospective cohort of 1,032 U.S. children.

RESULTS:

In the NFBC1986, the cumulative accuracy of traditional risk factors predicting childhood obesity, adolescent obesity, and childhood obesity persistent into adolescence was good: AUROC = 0.78[0.74-0.82], 0.75[0.71-0.79] and 0.85[0.80-0.90] respectively (all  $p < 0.001$ ). Adding the genetic score produced discrimination improvements  $\leq 1\%$ . The NFBC1986 equation for childhood obesity remained acceptably accurate when applied to the Italian and the U.S. cohort (AUROC = 0.70[0.63-0.77] and 0.73[0.67-0.80] respectively) and the two additional equations for childhood obesity newly drawn from the Italian and the U.S. datasets showed good accuracy in respective cohorts (AUROC = 0.74[0.69-0.79] and 0.79[0.73-0.84]) (all  $p < 0.001$ ). The three equations for childhood obesity were converted into simple Excel risk calculators for potential clinical use.

CONCLUSION:

This study provides the first example of handy tools for predicting childhood obesity in newborns by means of easily recorded information, while it shows that currently known genetic variants have very little usefulness for such prediction.

**267: Lim S, Jang HC, Park KS, Cho SI, Lee MG, Joung H, Mozumdar A, Liguori G. Changes in metabolic syndrome in American and Korean youth, 1997-2008. *Pediatrics*. 2013 Jan;131(1):e214-22. doi: 10.1542/peds.2012-0761. Epub 2012 Dec 3. PubMed PMID: 23209102.**

Abstract

BACKGROUND:

Metabolic syndrome (MetSyn) in children and adolescence is increasing worldwide; however, its pattern may be different between Asians and Americans. We compare the prevalence and patterns of MetSyn between American and Korean children and adolescents between roughly 1998 and 2007.

METHODS:

Data from the American and Korean versions of the NHANES (NHANES and KNHANES) were used for this study. The main outcome is prevalence and pattern of MetSyn among participants separately in

each country. In each survey, stratified multistage probability sampling designs and weighting adjustments were conducted to represent the entire population. The revised National Cholesterol Education Program criteria were used to define MetSyn.

**RESULTS:**

Totals of 934, 1781, and 1690 Americans aged 12 to 19 participated in NHANES 1988-1994, NHANES 1999-2002, and NHANES 2003-2006, respectively; and 1225, 976, 705, and 456 Koreans aged 12 to 19 have participated in KNHANES 1998, 2001, 2005, and 2007. The age-adjusted prevalence of MetSyn in American NHANES decreased from 7.3% to 6.7% and 6.5%, whereas in Korean NHANES there was an increase from 4.0% to 5.9%, 6.6%, and 7.8% in each country's respective study. Increases in dyslipidemia and abdominal obesity contributed to the increased prevalence in Korea, whereas in the United States, decreases in low high-density lipoprotein cholesterolemia and high blood pressure contributed to a decreased prevalence.

**CONCLUSIONS:**

Considering different phenotype changes, different approaches should be conducted at the national level to reduce the burden and consequences of MetSyn between Korea and the United States.

**268: Li Q, Chang ET, Bassig BA, Dai M, Qin Q, Gao Y, Zhang Y, Zheng T. Body size and risk of Hodgkin's lymphoma by age and gender: a population-based case-control study in Connecticut and Massachusetts. *Cancer Causes Control*. 2013 Feb;24(2):287-95. doi: 10.1007/s10552-012-0100-1. Epub 2012 Dec 4. PubMed PMID: 23208661; PubMed Central PMCID: PMC3557669.**

**Abstract**

**PURPOSE:**

Descriptive studies have indicated a rising trend in Hodgkin's lymphoma (HL) incidence in young adults, especially females. Increasing evidence has suggested that some risk factors associated with HL may vary by age or gender. Recent studies have reported an increased risk of HL associated with increasing body mass index (BMI), but the results have been inconsistent. The objectives of this study were to examine whether the associations between measures of body size (height, weight, and BMI) and HL risk vary by age and/or gender.

**METHODS:**

A population-based case-control study was conducted in Connecticut and Massachusetts. A total of 567 HL cases and 679 controls were recruited in 1997-2000. Unconditional logistic regression was used to calculate odds ratios (ORs) and 95 % confidence intervals (CIs).

**RESULTS:**

Among younger women <35 years old, being overweight (25-29.9 kg/m<sup>2</sup>) versus normal weight (18.5-24.9 kg/m<sup>2</sup>) was significantly associated with an increased risk of HL (OR = 2.1, 95 % CI = 1.1-4.0). The risk increased with increasing weight and BMI (p trends <0.01). Among women ≥35 years old, by contrast, higher weight and BMI were associated with a reduced risk of HL (p trends <0.01). Conversely, there was no significant association between BMI and risk of HL in younger or older males.

**CONCLUSIONS:**

These findings show that the associations between body size and risk of HL vary by gender and age, and require confirmation in other populations.



**269: Tamers SL, Okechukwu C, Allen J, Yang M, Stoddard A, Tucker-Seeley R, Sorensen G. Are social relationships a healthy influence on obesogenic behaviors among racially/ethnically diverse and socio-economically disadvantaged residents? *Prev Med.* 2013 Jan;56(1):70-4. doi: 10.1016/j.ypmed.2012.11.012. Epub 2012 Nov 28. PubMed PMID: 23200880; PubMed Central PMCID: PMC3540137.**

Abstract

OBJECTIVE:

To examine associations between social support and ties (family, friend, and neighbors) individually and jointly with diet and physical activity among an ethnically-diverse, low-income population.

METHODS:

The Health in Common study (2005-2009) was designed to examine risk factors among individuals residing in low-income housing in the Boston, MA area. Cross-sectional surveys (n = 828) were administered in residents' homes. Linear/logistic multivariable analyses were employed with clustering of individuals within housing sites controlled as a random effect.

RESULTS:

In multivariable analyses, total social support was significantly associated with higher red meat consumption per day (p = 0.029). Having more friends was significantly associated with more daily fruit and vegetable intake (p = 0.007) and higher levels of daily vigorous physical activity (p = 0.011). Those who reported having a greater number of family ties also reported higher daily consumption of sugary drinks (p = 0.013) and fast food (p = 0.011). More neighbor social ties were associated with more fast food per day (p = 0.024).

CONCLUSIONS:

Social relationships can have both positive and negative associations with health behaviors. Understanding these relationships could help to inform the design of interventions that promote healthy behavior change among vulnerable populations.

**270: Huang DY, Lanza HI, Wright-Volel K, Anglin MD. Developmental trajectories of childhood obesity and risk behaviors in adolescence. *J Adolesc.* 2013 Feb;36(1):139-48. doi: 10.1016/j.adolescence.2012.10.005. Epub 2012 Nov 28. PubMed PMID: 23199644; PubMed Central PMCID: PMC3530618.**

Abstract

Using group-based trajectory modeling, this study examined 5156 adolescents from the child sample of the 1979 National Longitudinal Survey of Youth to identify developmental trajectories of obesity from ages 6-18 and evaluate associations of such trajectories with risk behaviors and psychosocial health in adolescence. Four distinctive obesity trajectories were identified: "Chronically Obese," "Decreasing," "Increasing," and "Non-obese." Males were overrepresented in the Chronically Obese and Increasing groups; females were overrepresented in the Decreasing group. African-Americans were overrepresented in the Chronically Obese, Increasing, and Decreasing groups; in contrast, Whites were overrepresented in the Non-obese group. Obesity trajectories were not associated with greater trends in alcohol use, marijuana use, or delinquency, but Chronically Obese adolescents showed a greater increase in cigarette smoking over time compared to other trajectories. The Increasing trajectory, representing a transition into obesity status from childhood to adolescence, was associated with poorer psychosocial health compared to other trajectories.

**271: Linares Segovia B, Gutiérrez Tinoco M, Izquierdo Arrizon A, Guízar Mendoza JM, Amador Licona N. Long-term consequences for offspring of paternal diabetes and metabolic syndrome. *Exp Diabetes Res.* 2012;2012:684562. doi: 10.1155/2012/684562. Epub 2012 Nov 5. PubMed PMID: 23193389; PubMed Central PMCID: PMC3501830.**

Abstract

BACKGROUND:

Recent studies have reported an increase in the prevalence of obesity and metabolic syndrome in children and adolescents. However, few have focused how diabetes mellitus and metabolic syndrome together in parents can influence on obesity and metabolic disturbances in offspring.

OBJECTIVE:

To know the risk obesity and metabolic disturbance in children, adolescents, and young adults whose parents have diabetes mellitus and metabolic syndrome.

METHODS:

A comparative survey was made in healthy children of parents with diabetes mellitus and metabolic syndrome compared with offspring of healthy parents. We performed anthropometry and evaluated blood pressure, glucose, total cholesterol, HDL cholesterol, and triglycerides levels in plasma. We registered parent antecedents to diabetes mellitus and metabolic syndrome and investigated the prevalence of overweight, obesity, and metabolic disturbances in offspring.

RESULTS:

We studied 259 subjects of 7 to 20 years of age. The prevalence of overweight and obesity was 27% and 37%, respectively. The highest proportion of BMI >95th of the entire group was found in offspring with both diabetic parents. Glucose and total cholesterol levels were lower in the group with healthy parents compared with the group with diabetic mother and metabolic syndrome but with healthy father. HDL cholesterol was higher in the group with both healthy parents than in the group with diabetic mother and metabolic syndrome but healthy father.

CONCLUSIONS:

The offspring of parents with diabetes plus metabolic syndrome showed higher proportion of variables related to metabolic syndrome compared with healthy parents.

**272: Zhu H, Chao J, Kotak I, Guo D, Parikh SJ, Bhagatwala J, Dong Y, Patel SY, Houk C, Chao L, Dong Y. Plasma kallistatin is associated with adiposity and cardiometabolic risk in apparently healthy African American adolescents. *Metabolism.* 2013 May;62(5):642-6. doi: 10.1016/j.metabol.2012.10.012. Epub 2012 Nov 26. PubMed PMID: 23190873; PubMed Central PMCID: PMC3757514.**

Abstract

OBJECTIVE:

It is generally recognized that obesity and cardiometabolic risk are more prevalent in African Americans. Kallistatin, a novel tissue kallikrein inhibitor, has anti-inflammatory and anti-oxidant properties. Thus, the goal of this study was to examine the relationships among plasma kallistatin levels, adiposity and cardiometabolic risk factors in African American adolescents.

MATERIALS/METHODS:

Plasma kallistatin levels were determined in 318 apparently healthy African American adolescents (aged 14-19 years, 48.1% females) by enzyme-linked immunosorbent assay.

#### RESULTS:

Plasma kallistatin levels did not differ between males ( $27.9 \pm 11.2 \mu\text{g/mL}$ ) and females ( $26.8 \pm 11.0 \mu\text{g/mL}$ ) ( $p=0.47$ ). Plasma kallistatin levels were inversely correlated with percent body fat (% BF,  $r=-0.13$ ,  $p=0.04$ ), total cholesterol ( $r=-0.28$ ,  $p<0.01$ ), low density lipoprotein cholesterol (LDL,  $r=-0.30$ ,  $p<0.01$ ) and interleukin-6 ( $r=-0.14$ ,  $p=0.05$ ), but positively correlated with adiponectin ( $r=0.16$ ,  $p=0.03$ ) and high density lipoprotein (HDL,  $r=0.17$ ,  $p=0.02$ ). These correlations remained significant after adjustment for age, sex and body mass index percentiles. Stepwise multiple linear regression analysis showed that LDL cholesterol alone explained 14.2% of the variance in kallistatin, while % BF and adiponectin explained an additional 3.6% and 2.8% of the variance, respectively.

#### CONCLUSIONS:

The present study demonstrates that plasma kallistatin levels are inversely associated with adiposity, adverse lipid profiles and inflammation in apparently healthy African American adolescents. As a potent antioxidant and anti-inflammation agent, kallistatin may also hold therapeutic promise in cardiometabolic disorders.

**273: Lee S, Young DR, Pratt CA, Jobe JB, Chae SE, McMurray RG, Johnson CC, Going SB, Elder JP, Stevens J. Effects of parents' employment status on changes in body mass index and percent body fat in adolescent girls. *Child Obes.* 2012 Dec;8(6):526-32. doi: 10.1089/chi.2011.0087. PubMed PMID: 23181918; PubMed Central PMCID: PMC3647591.**

#### Abstract

##### BACKGROUND:

Parents' employment status is frequently cited as a possible predictor of child weight status. Despite the importance of the topic, only a few studies have been conducted. No longitudinal studies have been conducted in the United States.

##### METHODS:

A cohort of 1201 girls from the Trial of Activity for Adolescent Girls was used. Height, weight, and percent body fat (PBF) were measured at the 6th and 8th grades. Parents' employment status (measured at 6th grade) was categorized into working full time (reference), part time, unemployed, working or staying at home, and don't know. Mixed-model regression was used to reflect the hierarchical design of our study and adjusted for age, race, parents' education level, free or reduced-price school lunch status, and living arrangement.

##### RESULTS:

Girls whose mothers worked part time or stayed at home had a decreased risk of excess weight gain [relative risk (RR) = 0.94, 95% confidence interval (CI) 0.88, 1.00; RR = 0.89, 95% CI 0.79, 1.00, respectively] compared to girls whose mothers worked full time. Girls whose fathers were unemployed had a moderately increased risk of excess weight gain (RR = 1.13, 95% CI 1.00, 1.26) compared to girls whose fathers worked full time. Having an unemployed mother or part-time or stay-at-home father was not associated with excess weight gain. Parents' employment status was not associated with excess PBF gain.

##### CONCLUSIONS:

Our findings suggest that the availability of the mother has a greater influence on the weight of the daughter than the availability of the father. There is a need for a better understanding of how parents' employment status influences excess weight gain in adolescent girls.

**274: Porter M, Wegienka G, Havstad S, Nageotte CG, Johnson CC, Ownby DR, Zoratti EM. Relationship between childhood body mass index and young adult asthma. *Ann Allergy Asthma Immunol.* 2012 Dec;109(6):408-411.e1. doi: 10.1016/j.anai.2012.09.009. PubMed PMID: 23176878; PubMed Central PMCID: PMC3769639.**

Abstract

BACKGROUND:

The relationship between obesity and asthma is an area of debate.

OBJECTIVE:

To investigate the association of elevated body mass index (BMI) at a young age and young adult asthma.

METHODS:

BMI, questionnaires, and serologic tests results were analyzed in participants of a predominantly white, middle-class, population-based birth cohort from Detroit, Michigan at 6 to 8 and 18 years of age. Asthma diagnosis was based on medical record data. Allergen specific IgE was analyzed using UniCAP, with atopy defined as 1 or more allergen specific IgE levels of 0.35 kU/L or higher. Overweight was defined as a BMI in 85th percentile or higher.

RESULTS:

A total of 10.6% of overweight males at 6 to 8 years of age had current asthma at 18 to 20 years of age compared with 3.2% of males who were normal or underweight (relative risk [RR], 3.3; 95% confidence interval [CI], 1.0-11.0; P=.048). A total of 19.6% of females who were overweight at 6 to 8 years of age had asthma compared with 10.3% of females who were normal or underweight (RR, 1.9; 95% CI, 0.9-3.9; P=.09). After adjustment for atopy at 6 to 8 years of age, overweight males had an adjusted RR of 4.7 (95% CI, 1.4-16.2; P=.01), and overweight females had an adjusted RR of 1.7 (95% CI, 0.8-3.3; P=.15). Change in BMI between 6 to 8 years of age and 18 to 20 years of age was also examined. Patients with persistently elevated BMI exhibited increased risk of asthma as young adults (RR, 2.4; 95% CI, 1.2-4.7) but not with an increasing BMI (RR, 0.8; 95% CI, 0.3-2.2) or a decreasing BMI (RR, 0.8; 95% CI, 0.3-2.2).

CONCLUSION:

Overweight males 6 to 8 years of age have increased risk of asthma as young adults. Being overweight remains a predictor of asthma after adjustment for early atopy. A similar but not statistically significant trend was also seen among overweight females. Overweight body habitus throughout childhood is a risk factor for young adult asthma.

**275: Halloran DR, Marshall NE, Kunovich RM, Caughey AB. Obesity trends and perinatal outcomes in black and white teenagers. *Am J Obstet Gynecol.* 2012 Dec;207(6):492.e1-7. doi: 10.1016/j.ajog.2012.09.023. Epub 2012 Sep 28. PubMed PMID: 23174388; PubMed Central PMCID: PMC3569854.**

Abstract

OBJECTIVE:

Our objective was to explore the trends in prepregnancy body mass index (BMI) for black and white teenagers over time and the association between elevated BMI and outcomes based on race.

STUDY DESIGN:

This was a retrospective cohort study of singleton infants (n = 38,158) born to black (34%) and white (66%) teenagers (<18 years of age). We determined the prevalence of elevated prepregnancy BMI between 1993 and 2006 and the association between elevated prepregnancy BMI (primary exposure) and maternal and perinatal outcomes based on race (2000-2006).

**RESULTS:**

The percentage of white teenagers with elevated prepregnancy BMI increased significantly from 17-26%. White and black overweight and obese teenagers were more likely to have pregnancy-related hypertension than normal-weight teenagers; postpartum hemorrhage was increased only in obese black teenagers, and infant complications were increased only in overweight and obese white teenagers.

**CONCLUSION:**

Because the percentage of elevated prepregnancy BMI has increased in white teenagers, specific risks for poor maternal and perinatal outcomes in the overweight and obese teenagers varies by race.

**276: Harrington DM, Staiano AE, Broyles ST, Gupta AK, Katzmarzyk PT. Waist circumference measurement site does not affect relationships with visceral adiposity and cardiometabolic risk factors in children. *Pediatr Obes.* 2013 Jun;8(3):199-206. doi: 10.1111/j.2047-6310.2012.00106.x. Epub 2012 Nov 21. PubMed PMID: 23172858; PubMed Central PMCID: PMC3582770.**

**Abstract**

**WHAT IS ALREADY KNOWN ABOUT THIS SUBJECT:**

A number of anatomic sites are used for the measurement of waist circumference. A number of studies have documented differences in the absolute values of waist circumference measurements across these common sites in adults. It is unclear whether waist circumference measurement site alters the relationship with abdominal adiposity and cardiometabolic risk factors in children.

**WHAT THIS STUDY ADDS:**

The absolute values of waist circumference at four anatomic locations (minimal, midway, iliac, umbilicus) differed and this affected prevalence of high ( $\geq 90$ th percentile) waist circumference. The relationships between waist circumference values at four anatomic locations and both depot-specific adiposity and cardiometabolic risk factors were similar across race and sex groups.

**BACKGROUND:**

Different waist circumference (WC) measurement sites are used in clinical and epidemiological settings.

**OBJECTIVES:**

To examine differences in WC measurement at four anatomic sites and how each WC measurement relates to visceral adipose tissue (VAT) and cardiometabolic risk factors in children.

**METHODS:**

A total of 371 white and African-American children aged 5 to 18 years had WC measured at four sites: minimal waist, midpoint between the iliac crest and the lowest rib, superior border of the iliac crest and the umbilicus. Abdominal VAT was measured using magnetic resonance imaging and cardiometabolic risk factors were defined using National Heart, Lung and Blood Institute guidelines. Relationships between WC sites and VAT and risk factors were explored in each race-by-sex group.

**RESULTS:**

All WC sites were highly correlated ( $r = 0.97$  to  $0.99$ ). Differences in absolute mean WC values existed in all race-by-sex groups, and this affected the prevalence of high WC ( $\geq 90$ th percentile). Values were

lowest for minimal waist and highest for umbilicus. Age-controlled partial correlations between WC and logVAT VAT were 0.81-0.89 (all  $P < 0.001$ ) and between WC and cardiometabolic risk factors were -0.24 to -0.41 and 0.19 to 0.52 (all  $P < 0.05$ ).

**CONCLUSIONS:**

While the absolute values of WC at four anatomic locations differed, the relationships between WC values and both VAT and cardiometabolic risk factors were similar within all race-by-sex groups.

**277: Bowring AL, Peeters A, Freak-Poli R, Lim MS, Gouillou M, Hellard M. Measuring the accuracy of self-reported height and weight in a community-based sample of young people. BMC Med Res Methodol. 2012 Nov 21;12:175. doi: 10.1186/1471-2288-12-175. PubMed PMID: 23170838; PubMed Central PMCID: PMC3561081.**

**Abstract**

**BACKGROUND:**

Self-reported anthropometric data are commonly used to estimate prevalence of obesity in population and community-based studies. We aim to: 1) Determine whether survey participants are able and willing to self-report height and weight; 2) Assess the accuracy of self-reported compared to measured anthropometric data in a community-based sample of young people.

**METHODS:**

Participants (16-29 years) of a behaviour survey, recruited at a Melbourne music festival (January 2011), were asked to self-report height and weight; researchers independently weighed and measured a sub-sample. Body Mass Index was calculated and overweight/obesity classified as  $\geq 25$  kg/m<sup>2</sup>. Differences between measured and self-reported values were assessed using paired t-test/Wilcoxon signed ranks test. Accurate report of height and weight were defined as  $< 2$  cm and  $< 2$  kg difference between self-report and measured values, respectively. Agreement between classification of overweight/obesity by self-report and measured values was assessed using McNemar's test.

**RESULTS:**

Of 1405 survey participants, 82% of males and 72% of females self-reported their height and weight. Among 67 participants who were also independently measured, self-reported height and weight were significantly less than measured height ( $p=0.01$ ) and weight ( $p<0.01$ ) among females, but no differences were detected among males. Overall, 52% accurately self-reported height, 30% under-reported, and 18% over-reported; 34% accurately self-reported weight, 52% under-reported and 13% over-reported. More females (70%) than males (35%) under-reported weight ( $p=0.01$ ). Prevalence of overweight/obesity was 33% based on self-report data and 39% based on measured data ( $p=0.16$ ).

**CONCLUSIONS:**

Self-reported measurements may underestimate weight but accurately identified overweight/obesity in the majority of this sample of young people.

**278: Tovar A, Chasan-Taber L, Bermudez OI, Hyatt RR, Must A. Acculturation and gestational weight gain in a predominantly Puerto Rican population. BMC Pregnancy Childbirth. 2012 Nov 21;12:133. doi: 10.1186/1471-2393-12-133. PubMed PMID: 23170785; PubMed Central PMCID: PMC3534522.**

Abstract

BACKGROUND:

Identifying risk factors that affect excess weight gain during pregnancy is critical, especially among women who are at a higher risk for obesity. The goal of this study was to determine if acculturation, a possible risk factor, was associated with gestational weight gain in a predominantly Puerto Rican population.

METHODS:

We utilized data from Proyecto Buena Salud, a prospective cohort study of Hispanic women in Western Massachusetts, United States. Height, weight and gestational age were abstracted from medical records among participants with full-term pregnancies (n=952). Gestational weight gain was calculated as the difference between delivery and prepregnancy weight. Acculturation (measured via a psychological acculturation scale, generation in the US, place of birth and spoken language preference) was assessed in early pregnancy.

RESULTS:

Adjusting for age, parity, perceived stress, gestational age, and prepregnancy weight, women who had at least one parent born in Puerto Rico/Dominican Republic (PR/DR) and both grandparents born in PR/DR had a significantly higher mean total gestational weight gain (0.9 kg for at least one parent born in PR/DR and 2.2 kg for grandparents born in PR/DR) and rate of weight gain (0.03 kg/wk for at least one parent born in PR/DR and 0.06 kg/wk for grandparents born in PR/DR) vs. women who were of PR/DR born. Similarly, women born in the US had significantly higher mean total gestational weight gain (1.0 kg) and rate of weight gain (0.03 kg/wk) vs. women who were PR/ DR born. Spoken language preference and psychological acculturation were not significantly associated with total or rate of pregnancy weight gain.

CONCLUSION:

We found that psychological acculturation was not associated with gestational weight gain while place of birth and higher generation in the US were significantly associated with higher gestational weight gain. We interpret these findings to suggest the potential importance of the US "obesogenic" environment in influencing unhealthy pregnancy weight gains over specific aspects of psychological acculturation.

**279: Feferbaum R, de Abreu LC, Leone C. Fluid intake patterns: an epidemiological study among children and adolescents in Brazil. BMC Public Health. 2012 Nov 20;12:1005. doi: 10.1186/1471-2458-12-1005. PubMed PMID: 23167254; PubMed Central PMCID: PMC3507861.**

Abstract

BACKGROUND:

Energy from liquids is one of the most important factors that could impact on the high prevalence of children and adolescents obesity around the world. There are few data on the liquid consumption in Brazil. The aim of this study is to evaluate the volume and quality of liquids consumed by Brazilian

children and adolescents and to determine the proportion of their daily energy intake composed of liquids.

**METHODS:**

A multicenter study was conducted in five Brazilian cities; the study included 831 participants between 3 and 17 years of age. A four-day dietary record specific to fluids was completed for each individual, and the volume of and Kcal from liquid intake were evaluated. The average number of Kcal in each beverage was determined based on label information, and the daily energy intake data from liquids were compared with the recommendations of the National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária- ANVISA), the Brazilian food regulation authority, according to each subject's age.

**RESULTS:**

As the children aged, the volume of carbonated beverages that they consumed increased significantly, and their milk intake decreased significantly. For children between the ages of 3 and 10, milk and dairy products contributed the greatest daily number of Kcal from liquids. Sugar sweetened beverages which included carbonated beverages, nectars and artificial beverages, accounted for 37% and 45% of the total Kcal from liquid intake in the 3- to 6-year-old and 7- to 10- year-old groups, respectively. Among adolescents (participants 11- to 17- years old), most of the energy intake from liquids came from carbonated beverages, which accounted for an average of 207 kcal/day in this group (42% of their total energy intake from liquids). Health professionals should be attentive to the excessive consumption of sugar sweetened beverages in children and adolescents. The movement toward healthier dietary patterns at the individual and population levels may help to improve programs for preventing overweight and obesity in children and adolescents.

**CONCLUSION:**

From childhood to adolescence the daily volume of liquid ingested increased reaching a total of 2.0 liters on average. Of this volume, the daily volume of milk ingested decreased while the carbonated drinks, sweetened, nectars and artificial beverages increased significantly. The proportion of water remained constant in about 1/3 of the total volume. From 3 to 17 years of age the energy intake from carbonated beverages increased by about 20%. The carbonated drinks on average corresponded to a tenth of the daily requirements of energy of adolescents.

**280: Eisenberg ME, Wall M, Neumark-Sztainer D. Muscle-enhancing behaviors among adolescent girls and boys. *Pediatrics*. 2012 Dec;130(6):1019-26. doi: 10.1542/peds.2012-0095. Epub 2012 Nov 19. PubMed PMID: 23166333; PubMed Central PMCID: PMC3507247.**

**Abstract**

**OBJECTIVE:**

Media images of men and women have become increasingly muscular, and muscle-enhancing techniques are available to youth. Identifying populations at risk for unhealthy muscle-enhancing behaviors is of considerable public health importance. The current study uses a large and diverse population-based sample of adolescents to examine the prevalence of muscle-enhancing behaviors and differences across demographic characteristics, weight status, and sports team involvement.

**METHODS:**

Survey data from 2793 diverse adolescents (mean age = 14.4) were collected at 20 urban middle and high schools. Use of 5 muscle-enhancing behaviors was assessed (changing eating, exercising, protein



powders, steroids and other muscle-enhancing substances), and a summary score reflecting use of 3 or more behaviors was created. Logistic regression was used to test for differences in each behavior across age group, race/ethnicity, socioeconomic status, BMI category, and sports team participation. RESULTS:

Muscle-enhancing behaviors were common in this sample for both boys and girls. For example, 34.7% used protein powders or shakes and 5.9% reported steroid use. Most behaviors were significantly more common among boys. In models mutually adjusted for all covariates, grade level, Asian race, BMI category, and sports team participation were significantly associated with the use of muscle-enhancing behaviors. For example, overweight (odds ratio = 1.45) and obese (odds ratio = 1.90) girls had significantly greater odds of using protein powders or shakes than girls of average BMI. CONCLUSIONS:

The use of muscle-enhancing behaviors is substantially higher than has been previously reported and is cause for concern. Pediatricians and other health care providers should ask their adolescent patients about muscle-enhancing behaviors.

**281: Ribas SA, Santana da Silva LC. Anthropometric indices: predictors of dyslipidemia in children and adolescents from north of Brazil. Nutr Hosp. 2012 Jul-Aug;27(4):1228-35. doi: 10.3305/nh.2012.27.4.5798. PubMed PMID: 23165566.**

Abstract

INTRODUCTION:

Atherosclerosis represents a disease that begins in childhood, and alterations in lipid concentration play a fundamental role in the development of this condition.

OBJECTIVE:

To evaluate which of the currently applied obesity parameters (the body index mass, the percentage of body fat, the waist circumference and the upper arm fat area) can predict the risk for dyslipidemia in Brazilian children and adolescents.

METHODS:

Cross-sectional study, standardized anthropometric data and lipid profile were collected from 874 subjects between the ages of 6 and 19 years. Logistic regression models were used to evaluate the degree of association between the anthropometric measurements and the lipid profile, controlling for potentially confounding variables, such as age and gender.

RESULTS:

Individuals with excess body weight, elevated percentage of body fat, waist circumference and upper arm fat above the 90th percentile showed a positive correlation with alterations in the lipid profile. After adjusting for age and income, a body mass index above the 85th percentile and an elevated percentage of body fat were the variables most strongly associated with dyslipidemia in the youngest subjects (odds ratio (OR) = 2.00,  $p < 0.001$  and OR = 1.47,  $p = 0.014$ , respectively). Children (64.5%) and adolescents aged 10-12 years (51.0%) had the highest rates of dyslipidemia.

CONCLUSION:

Compared with other variables, such as the percentage of body fat, the body mass index was the best predictor of dyslipidemia in children and adolescents.

**282: Aguilar Cordero MJ, González Jiménez E, Padilla López CA, Guisado Barrilao R, Sánchez López AM. [Overweight and obesity as a prognosis factor of desmotivation in children and adolescents]. Nutr Hosp. 2012 Jul-Aug;27(4):1166-9. doi: 10.3305/nh.2012.27.4.5853. Spanish. PubMed PMID: 23165558.**

Abstract

Spain has become the country in the European Union with the fourth highest number of overweight and obese children. This condition directly affects physical health as well as mental health. The objective of this research study was to evaluate motivational aspects in one group of obese or overweight adolescents and another group of normal-weight adolescents. For this purpose a descriptive observational study was carried out in an educational institution in Guadix (Granada). The universe was composed of 200 children of ages 10 to 14. A sample of 24 children was selected by means of proportional random sampling with an error of 0.19, and was divided into the following groups (i) 12 normal-weight children; (ii) 12 obese children. Motivation was measured by means of the School Motivation Analysis Test (SMAT), a multidimensional measuring instrument based on Cattell's dynamic model of motivation and emotions. Our study evaluated five motivational parameters: TAO (total autism-optimism), TGI (total general information), TIN (total integration), TPI (total personal interest), and TCO (total conflict). Our results showed that for each of the SMAT variables, the overweight and obese children obtained an average value of 4.5 in contrast to the normal-weight children, who obtained an average value of 5.9. This indicates that overweight and obese children have low motivational states and a higher level of frustration. They also tend to distort reality by alleging the existence of obstacles that prevent them from achieving their goals.

**283: Ferreira C, Lavinhas C, Fernandes L, Camilo M, Ravasco P. Nutritional risk and status of surgical patients; the relevance of nutrition training of medical students. Nutr Hosp. 2012 Jul-Aug;27(4):1086-91. doi: 10.3305/nh.2012.27.4.5826. PubMed PMID: 23165546.**

Abstract

BACKGROUND:

The prevalence of undernutrition among surgical patients is thought to be high, and negatively influencing outcomes. However, recent evidence shows the increase of overweight/obesity in hospitalised patients.

AIMS:

A pilot cross-sectional study was conducted in 50 patients of a Surgical Department of the University Hospital of Santa Maria (CHLN) that aimed: 1) to assess nutritional risk and status through validated methods; 2) to explore the presence of overweight/obesity; 3) to evaluate the prevalence of metabolic risk associated with obesity.

METHODS:

Nutritional risk was assessed by Malnutrition Universal Screening Tool (MUST), nutritional status by Body Mass Index (BMI), waist circumference (WC), & Subjective Global Assessment (SGA). Statistical significance was set for  $p < 0.05$ .

RESULTS:

58% of patients were overweight/obese and 54% had high cardio-metabolic risk, according to waist circumference; 30% of patients had significantly lost weight ( $\geq 5\%$ ), whereas 28% gained weight. By MUST, 46% of patients were at low risk and 34% at high risk. By SGA, 58% patients were well

nourished and 40% had moderate/severe undernutrition. A longer length of stay was associated with moderate/high risk by MUST, and undernutrition by SGA ( $p = 0.01$ ).

**CONCLUSIONS:**

Undernutrition or obesity pose surgical risks. The lack of nutrition discipline in the medical curricula, limits the multiprofessional management and a better understanding of the more adequate approaches to these patients. Further, the change in the clinical scenario argues for more studies to clarify the prevalence and consequences of sarcopenic obesity in surgical patients.

**284: Houchins JA, Tan SY, Campbell WW, Mattes RD. Effects of fruit and vegetable, consumed in solid vs beverage forms, on acute and chronic appetitive responses in lean and obese adults. Int J Obes (Lond). 2013 Aug;37(8):1109-15. doi: 10.1038/ijo.2012.183. Epub 2012 Nov 20. PubMed PMID: 23164702; PubMed Central PMCID: PMC3582731.**

**Abstract**

**BACKGROUND:**

The effects of fruits and vegetables in solid vs beverage forms on human appetite and food intake, acutely and chronically, are unclear.

**METHODS:**

This 21-week, randomized, crossover study assessed appetitive ratings following the inclusion of fruits and vegetables, in solid and beverage form, into the habitual diet of healthy lean ( $n=15$ ) and overweight/obese ( $n=19$ ) adults with low customary consumption. The primary acute outcomes were satiation (amount of challenge meal consumed), satiety (latency of subsequent eating event) and dietary compensation after a 400 kcal fruit preload. Ratings of appetite were also obtained before and after 8 weeks of required increased fruit and vegetable consumption (20% estimated energy requirement).

**RESULTS:**

Acutely, overweight/obese participants reported smaller reductions of hunger after consuming the fruit preload in beverage compared with solid form (preload  $\times$  form  $\times$  body mass index effects,  $P=0.03$ ). Participants also consumed significantly less of a challenge meal (in both gram and energy) after the ingestion of the solid fruit preload ( $P<0.005$ ). However, the subsequent meal latency was not significantly different between the solid and the beverage fruit preloads. Total daily energy intake was significantly higher when the obese participants consumed the beverage fruit preload compared with the solid ( $P<0.001$ ). Daily energy intake was markedly, but not significantly, higher among the lean with the beverage vs solid food form. Hunger and fullness ratings remained stable when participants consumed fruits and vegetables in solid or beverage form for 8 weeks each.

**CONCLUSION:**

Acute post-ingestive appetitive responses were weaker following consumption of fruits in beverage vs solid food forms. Consumption of beverage or solid fruit and vegetable food loads for 8 weeks did not chronically alter appetitive responses.

**285: Ruhl CE, Everhart JE. Diurnal variation in serum alanine aminotransferase activity in the US population. J Clin Gastroenterol. 2013 Feb;47(2):165-73. doi: 10.1097/MCG.0b013e31826df40a. PubMed PMID: 23164687; PubMed Central PMCID: PMC3545081.**

Abstract

GOALS AND BACKGROUND:

Serum alanine aminotransferase (ALT) activity has been reported to be greater in the afternoon than the early morning, but data are scarce. We examined diurnal variation of ALT in a national population-based sample.

STUDY:

Participants in the 1999 to 2008 US National Health and Nutrition Examination Survey were randomly assigned to morning (AM; n = 4474 adolescents, 11,235 adults) or afternoon/evening (PM; n = 4887 adolescents, 11,735 adults) examinations. We examined ALT distributions graphically and compared both geometric mean ALT and the prevalence of elevated ALT, defined as >31 IU/L for adolescent boys, >24 IU/L for adolescent girls, >43 IU/L for adult men, and >30 IU/L for adult women, between AM and PM examination groups.

RESULTS:

The examination groups were similar with the exception in the AM group of a longer fasting time and slightly higher prevalence of diabetes among adolescents and viral hepatitis B among adult women. ALT distributions were similar between examination sessions among the 4 groups. Among adolescents and men, neither mean ALT nor prevalence of abnormal ALT differed by examination group. Among women, mean ALT was statistically significant, but minimally higher in the PM group (19.6 IU/L) than the AM group (19.1 IU/L; P = 0.009). Among 1 subgroup, women with chronic viral hepatitis, there was a higher prevalence of abnormal ALT in the PM group (P = 0.018 in unadjusted analysis). Adjusting for liver injury risk factors had little effect on the difference in mean ALT.

CONCLUSIONS:

In general, clinically significant diurnal variation in ALT activity was not found in the US population.

**286: Rieth MA, Moreira MB, Fuchs FD, Moreira LB, Fuchs SC. Fruits and vegetables intake and characteristics associated among adolescents from Southern Brazil. Nutr J. 2012 Nov 16;11:95. doi: 10.1186/1475-2891-11-95. PubMed PMID: 23158078; PubMed Central PMCID: PMC3574059.**

Abstract

BACKGROUND:

Increased body weight has been associated with an unhealthy diet, low consumption of fruits and vegetables. Our objective was to investigate whether adolescents had low intake of fruits and vegetables, and whether gender, age and education could affect the feeding patterns.

METHODS:

A population-based sample of adolescents, aged 12-19 years, were randomly selected in southern Brazil and included in this cross-sectional study. The total daily consumption of fruits, vegetables, rice and beans were investigated in standardized household interviews, using a food frequency questionnaire and questions, being categorized as five or more servings per day as the five-a-day diet. ANOVA, ANCOVA, and modified Poisson regression were used in the analysis.

RESULTS:

Adolescents (n = 568) were included, 49.5% boys, 14.3% had overweight and 8.8% obesity. Approximately 23% of participants consumed five daily servings of fruits and vegetables. It was observed that 36.7% of boys and 31.0% of girls consumed less than one serving of fruit per day, and 58.4% and 44.6%, respectively, consumed less than one serving of vegetables. The consumption of vegetables, fruits, and rice and beans were not independently associated with gender. Overweight was associated with higher intake of five-a-day, independently of confounding factors.

**CONCLUSIONS:**

Adolescents from southern Brazil have lower frequency of consumption of five servings a day of fruits and vegetables combined.

**287: Choi YS, Berry-Caban C, Stratman R, Fleming JH. Prevalence of high body mass index among children and adolescents at a US military treatment facility, 2008-2009. *Prev Chronic Dis.* 2012;9:E166. doi: 10.5888/pcd9.120051. PubMed PMID: 23153773; PubMed Central PMCID: PMC3505115.**

**Abstract**

We assessed the prevalence of high body mass index (BMI) in a large cohort of military children. We compared BMI data from electronic medical records of military children aged 2 to 18 years with BMI data from the National Health and Nutrition Examination Survey (NHANES). The 23,778 military children studied were significantly less likely than the NHANES children to be overweight (27.1% vs 31.8%) or obese (11.9% vs 16.9%). Even though military parents are required to maintain fitness and weight standards, the absolute difference between military and civilian children was small.

**288: Ercan S, Dallar YB, Önen S, Engiz Ö. Prevalence of obesity and associated risk factors among adolescents in Ankara, Turkey. *J Clin Res Pediatr Endocrinol.* 2012 Dec;4(4):204-7. doi: 10.4274/jcrpe.714. Epub 2012 Nov 12. PubMed PMID: 23149433; PubMed Central PMCID: PMC3537287.**

**Abstract**

**OBJECTIVE:**

The purpose of this study was to investigate the prevalence of and the risk factors associated with obesity among adolescents in Ankara, Turkey.

**METHODS:**

The study was conducted in 26 schools in Ankara during the time period from September 2010 to March 2011. A total of 8848 adolescents aged 11-18 years were chosen using a population-based stratified cluster sampling method. Body mass index (BMI) of the participants was compared with the BMI references for Turkish children and adolescents to estimate the prevalence of overweight and obesity. A standardized questionnaire aiming to determine the sociodemographic characteristics, computer use, television (TV) watching, physical activity, and presence of obesity in the family was applied to the study group.

**RESULTS:**

The results showed that the overall prevalence of obesity among adolescents was 7.7% (8.4 % for females and 7.0% for males). It was observed that BMI increased as computer use increased. A greater proportion of the overweight and obese adolescents watched TV and use computer for more than 2 hours/day as compared to their normal-weight counterparts. The normal-weight subjects

were found to show a higher participation in regular physical activity. Obesity prevalence among the families of obese adolescents was 56.5%.

**CONCLUSIONS:**

The prevalence of adolescent obesity in Ankara, Turkey is lower as compared to many European countries and to the United States. Computer use, watching TV, physical activity and family factors are important risk factors for obesity.

**289: van Gameren-Oosterom HB, van Dommelen P, Schönbeck Y, Oudesluys-Murphy AM, van Wouwe JP, Buitendijk SE. Prevalence of overweight in Dutch children with Down syndrome. *Pediatrics*. 2012 Dec;130(6):e1520-6. doi: 10.1542/peds.2012-0886. Epub 2012 Nov 12. PubMed PMID: 23147968.**

**Abstract**

**OBJECTIVE:**

Prevalence of overweight in children is increasing, causing various health problems. This study aims to establish growth references for weight and to assess the prevalence rates of overweight and obesity in a nationwide sample of Dutch children with Down syndrome (DS), taking into account the influence of comorbidity.

**METHODS:**

In 2009, longitudinal growth data from Dutch children with trisomy 21 who were born after 1982 were retrospectively collected from medical records of 25 Dutch regional specialized DS centers. "Healthy" was defined as not having concomitant disorders or having only a mild congenital heart defect. Weight and BMI references were calculated by using the LMS method, and prevalence rates of overweight and obesity by using cutoff values for BMI as defined by the International Obesity Task Force. Differences in prevalence rates were tested by multilevel logistic regression analyses to adjust for gender and age.

**RESULTS:**

Growth data of 1596 children with DS were analyzed. Compared with the general Dutch population, healthy children with DS were more often overweight (25.5% vs 13.3% in boys, and 32.0% vs 14.9% in girls) and obese (4.2% vs 1.8%, and 5.1% vs 2.2%, respectively). Prevalence rates of overweight between DS children with or without concomitant disorders did not vary significantly.

**CONCLUSIONS:**

Dutch children with DS have alarmingly high prevalence rates of overweight and obesity during childhood and adolescence. Health care professionals should be aware of the risk of overweight and obesity in children with DS to prevent complications.

**290: Castro TG, Barufaldi LA, Schlüssel MM, Conde WL, Leite MS, Schuch I. Waist circumference and waist circumference to height ratios of Kaingáng indigenous adolescents from the State of Rio Grande do Sul, Brazil. *Cad Saude Publica*. 2012 Nov;28(11):2053-62. PubMed PMID: 23147947.**

**Abstract**

The aim of this study was to describe the distribution of waist circumference (WC) and WC to height (WCTH) values among Kaingáng indigenous adolescents in order to estimate the prevalence of high WCTH values and evaluate the correlation between WC and WCTH and body mass index (BMI)-for-age. A total of 1,803 indigenous adolescents were evaluated using a school-based cross-sectional

study. WCTH values > 0.5 were considered high. Higher mean WC and WCTH values were observed for girls in all age categories. WCTH values > 0.5 were observed in 25.68% of the overall sample of adolescents. Mean WC and WCTH values were significantly higher for adolescents with BMI/age z-scores > 2 than for those with normal z-scores. The correlation coefficients of WC and WCTH for BMI/age were  $r = 0.68$  and  $0.76$ , respectively, for boys, and  $r = 0.79$  and  $0.80$ , respectively, for girls. This study highlights elevated mean WC and WCTH values and high prevalence of abdominal obesity among Kaingang indigenous adolescents.

**291: Wang H, Wang J, Liu MM, Wang D, Liu YQ, Zhao Y, Huang MM, Liu Y, Sun J, Dong GH. Epidemiology of general obesity, abdominal obesity and related risk factors in urban adults from 33 communities of Northeast China: the CHPSNE study. BMC Public Health. 2012 Nov 12;12:967. doi: 10.1186/1471-2458-12-967. PubMed PMID: 23146089; PubMed Central PMCID: PMC3509037.**

Abstract

BACKGROUND:

Obesity increases the risk of many diseases. However, there has been little literature about the epidemiology of obesity classified by body mass index (BMI) or waist (abdominal obesity) among urban Chinese adults. This study is to fill the gap by assessing the prevalence of obesity and associated risk factors among urban Chinese adults.

METHODS:

A representative sample of 25,196 urban adults aged 18 to 74 years in Northeast China was selected and measurements of height, weight and waist circumference (WC) were taken from 2009-2010. Definitions of overweight and obesity by the World Health Organization (WHO) were used.

RESULTS:

The overall prevalence rates of general obesity and overweight classified by BMI were 15.0% (15.7% for men and 14.3% for women,  $p < 0.01$ ) and 19.2% (20.8% for men and 17.7% for women,  $p < 0.01$ ), respectively, and the overall prevalence rate of abdominal obesity was 37.6% (31.1% for men and women 43.9% for women,  $p < 0.01$ ). Multivariable logistic regression showed that the elderly and those who had a history of parental obesity, alcohol drinking, or former cigarette smoking were at high risk of obesity classified by BMI or WC, whereas those with a higher level of education, higher family income, or a healthy and balanced diet were at low risk of obesity. Analysis stratified by gender showed that men with a higher level education level, a white-collar job, a cadre job, or higher family income were the high risk group, and women with a higher level of education or higher family income were the low risk group.

CONCLUSIONS:

Obesity and overweight have become epidemic in urban populations in China; associations of risk factors with obesity differ between men and women.

**292: Bovet P, Arlabosse T, Viswanathan B, Myers G. Association between obesity indices and cardiovascular risk factors in late adolescence in the Seychelles. BMC Pediatr. 2012 Nov 7;12:176. doi: 10.1186/1471-2431-12-176. PubMed PMID: 23134594; PubMed Central PMCID: PMC3507891.**

Abstract

BACKGROUND:

The ability of different obesity indices to predict cardiovascular risk is still debated in youth and few data are available in sub Saharan Africa. We compared the associations between several indices of obesity and cardiovascular risk factors (CVRFs) in late adolescence in the Seychelles.

METHODS:

We measured body mass index (BMI), waist circumference, waist/hip ratio (WHiR), waist/height ratio (WHtR) and percent fat mass (by bioimpedance) and 6 CVRFs (blood pressure, LDL-cholesterol, HDL-cholesterol, triglycerides, fasting blood glucose and uric acid) in 423 youths aged 19-20 years from the general population.

RESULTS:

The prevalence of overweight/obesity and several CVRFs was high, with substantial sex differences. Except for glucose in males and LDL-cholesterol in females, all obesity indices were associated with CVRFs. BMI consistently predicted CVRFs at least as well as the other indices. Linear regression on BMI had standardized regression coefficients of 0.25-0.36 for most CVRFs ( $p < 0.01$ ) and ROC analysis had an AUC between 60%-75% for most CVRFs. BMI also predicted well various combinations of CVRFs: 36% of male and 16% of female lean subjects (BMI  $< P50$ ) had  $\geq 2$  CVRFs compared to 74% of male and 46% of female overweight subjects (BMI  $> P90$ ).

CONCLUSION:

There was an elevated prevalence of obesity and of several CVRFs in youths in Seychelles. BMI predicted single or combined CVRFs at least as well as other simple obesity indices.

**293: O'Reilly ÉJ, Wang H, Weisskopf MG, Fitzgerald KC, Falcone G, McCullough ML, Thun M, Park Y, Kolonel LN, Ascherio A. Premorbid body mass index and risk of amyotrophic lateral sclerosis. Amyotroph Lateral Scler Frontotemporal Degener. 2013 Apr;14(3):205-11. doi: 10.3109/21678421.2012.735240. Epub 2012 Oct 29. PubMed PMID: 23134505; PubMed Central PMCID: PMC3615420.**

Abstract

Our objective was to determine if amyotrophic lateral sclerosis (ALS) risk varies according to body mass index (BMI) captured up to three decades earlier. At baseline 537,968 females and 562,942 males in five ongoing cohorts reported height, current weight and weight at age 18/21 years. During 14-28 years of follow-up, 1153 participants developed ALS. Cohort-specific Cox proportional hazards models were used to estimate rates that were then pooled with random-effects models. Results showed that lower BMI at baseline was associated with ALS; for each 5-unit increase in BMI, ALS rates were 21% lower (95% CI 14% 27%). Compared to individuals with healthy BMI, ALS rates were significantly lower among the overweight (RR = 0.76 (95% CI 0.62-0.93)) and obese (RR = 0.73 (95% CI 0.55-0.96)). Among never smokers the association persisted: RR = 0.75 (95% CI 0.65-0.85) for each 5-unit increase. Excluding the first seven years of follow-up, the associations were materially unchanged suggesting that weight loss from undiagnosed disease does not fully explain the findings. Overall, 75% of males and females had a healthy BMI at age 18/21 years, 15% of males and 8% of



females were overweight or obese; there was no association with ALS although numbers with an unhealthy weight were small. In conclusion, these findings support an association between lower premorbid BMI and ALS.

**295: Stanley T, Bredella MA, Pierce L, Misra M. The ratio of parathyroid hormone to vitamin D is a determinant of cardiovascular risk and insulin sensitivity in adolescent girls. *Metab Syndr Relat Disord*. 2013 Feb;11(1):56-62. doi: 10.1089/met.2012.0102. Epub 2012 Nov 6. PubMed PMID: 23130887; PubMed Central PMCID: PMC3593691.**

Abstract

BACKGROUND:

Vitamin D insufficiency and higher testosterone are common in obese girls and may adversely affect glucose homeostasis and cardiovascular risk. Data are conflicting regarding the impact of parathyroid hormone (PTH) on these factors. Our objective was to determine associations of 25-hydroxyvitamin D (25-OHD), PTH, and testosterone with measures of glucose homeostasis and cardiovascular risk in adolescent girls after controlling for regional adiposity, with the hypothesis that lower 25-OHD, a higher PTH or PTH/25-OHD ratio, and higher testosterone would be associated with lower insulin sensitivity and greater cardiovascular risk.

METHODS:

A total of 15 obese girls and 15 matched normal weight controls (12-18 years) underwent fasting measurements of 25-OHD, PTH, testosterone, sex hormone-binding globulin (SHBG), high-sensitivity C-reactive protein (hsCRP), oral glucose tolerance testing, and quantification of visceral (VAT) and subcutaneous (SAT) fat by magnetic resonance imaging (MRI).

RESULTS:

There were no associations of 25-OHD with measures of glucose homeostasis or hsCRP. In contrast, PTH and PTH/25-OHD were associated negatively with homeostasis model assessment of insulin resistance (HOMA-IR) and positively with quantitative insulin sensitivity check index (QUICKI) in obese girls but not controls. These associations remained significant after controlling for body mass index standard deviation score (BMI-SDS), but not for VAT. On regression modeling, PTH/25-OHD was positively associated with hsCRP after controlling for BMI-SDS or VAT. Free testosterone positively predicted the corrected insulin response.

CONCLUSIONS:

In obese girls, PTH/25-OHD is positively associated with measures of insulin sensitivity and hsCRP. Further studies are needed to investigate the relationship between PTH and glucose homeostasis in obesity.

**296: Gulati AK, Kaplan DW, Daniels SR. Clinical tracking of severely obese children: a new growth chart. *Pediatrics*. 2012 Dec;130(6):1136-40. doi: 10.1542/peds.2012-0596. Epub 2012 Nov 5. PubMed PMID: 23129082.**

Abstract

The 2000 Centers for Disease Control and Prevention growth charts are unable to accurately define and display BMI percentiles beyond the 97th percentile. At Children's Hospital Colorado, we created new growth charts that allow clinicians to track and visualize BMI values in severely obese children.

This growth chart defines a child's BMI as a "percentage of the 95th percentile." It has the potential to allow clinicians to define subgroups of severe obesity, monitor trends in obese children, and measure treatment success or failure.

**297: Aguirre Castaneda R, Nader N, Weaver A, Singh R, Kumar S. Response to vitamin D3 supplementation in obese and non-obese Caucasian adolescents. *Horm Res Paediatr.* 2012;78(4):226-31. doi: 10.1159/000343446. Epub 2012 Oct 31. PubMed PMID: 23128469; PubMed Central PMCID: PMC3557792.**

Abstract

BACKGROUND/AIMS:

Vitamin D deficiency is highly prevalent in obese children, and obese children tend to respond poorly to vitamin D supplementation. The objective of the study was to compare the response to vitamin D(3) supplementation (2,000 IU once daily for 12 weeks) between obese and non-obese Caucasian adolescents.

METHODS:

The study design was open label non-randomized. It was carried out at a single center. Eighteen obese adolescents (aged 12-18 years) and the same number of age-, gender- and season-matched non-obese adolescents received vitamin D(3) (2,000 IU/day) orally for 12 weeks. Total serum 25-hydroxyvitamin D [25(OH)D], parathyroid hormone, calcium and phosphorus were measured at baseline and at the end of the 12-week period.

RESULTS:

The mean baseline 25(OH)D level was higher in the non-obese compared to the obese subjects (mean 28.9 vs. 25.2 ng/ml;  $p = 0.029$ ). The increment in 25(OH)D levels following vitamin D supplementation was significantly lower in the obese adolescents (mean change 5.8 vs. 9.8 ng/ml;  $p = 0.019$ ).

CONCLUSIONS:

Higher doses of vitamin D are required to treat vitamin D deficiency in obese adolescents compared to their non-obese peers.

**298: Sardinha LB, Santos DA, Silva AM, Coelho-e-Silva MJ, Raimundo AM, Moreira H, Santos R, Vale S, Baptista F, Mota J. Prevalence of overweight, obesity, and abdominal obesity in a representative sample of Portuguese adults. *PLoS One.* 2012;7(10):e47883. doi: 10.1371/journal.pone.0047883. Epub 2012 Oct 31. PubMed PMID: 23118905; PubMed Central PMCID: PMC3485315.**

Abstract

This study determined the prevalence of overweight, obesity, and abdominal obesity in the Portuguese adults and examined the relationship between above mentioned prevalences and educational level. Body mass, stature, and waist circumference were measured in a representative sample of the Portuguese population aged 18-103 years ( $n = 9,447$ ; 18-64 years:  $n = 6,908$ ;  $\geq 65$  years:  $n = 2,539$ ). Overweight and obesity corresponded to a body mass index ranging between 25-29.9 kg/m<sup>2</sup> and  $\geq 30$  kg/m<sup>2</sup>, respectively. Abdominal obesity was assessed as  $>102$  cm for males and  $>88$  cm for females. After adjusting for educational level, the combined prevalences of overweight and obesity were 66.6% in males and 57.9% in females (18-64 years). Respective values in older adults ( $\geq 65$  years) were 70.4% for males and 74.7% for females. About 19.3% of adult males and 37.9% of adult females presented abdominal obesity. Correspondent values in older adults were

32.1%, for males, and 69.7%, for females. In adults, low educational level was related to an increased risk for overweight (OR = 2.54; 95% CI: 2.08-3.09), obesity (OR = 2.76; 95% CI: 2.20-3.45), and abdominal obesity (OR = 5.48; 95% CI: 4.60-6.52). This reinforces the importance of adjusting public health strategies for educational level.

**299: Daviglius ML, Talavera GA, Avilés-Santa ML, Allison M, Cai J, Criqui MH, Gellman M, Giachello AL, Gouskova N, Kaplan RC, LaVange L, Penedo F, Perreira K, Pirzada A, Schneiderman N, Wassertheil-Smoller S, Sorlie PD, Stamler J. Prevalence of major cardiovascular risk factors and cardiovascular diseases among Hispanic/Latino individuals of diverse backgrounds in the United States. JAMA. 2012 Nov 7;308(17):1775-84. doi: 10.1001/jama.2012.14517. PubMed PMID: 23117778; PubMed Central PMCID: PMC3777250.**

#### Abstract

##### CONTEXT:

Major cardiovascular diseases (CVDs) are leading causes of mortality among US Hispanic and Latino individuals. Comprehensive data are limited regarding the prevalence of CVD risk factors in this population and relations of these traits to socioeconomic status (SES) and acculturation.

##### OBJECTIVES:

To describe prevalence of major CVD risk factors and CVD (coronary heart disease [CHD] and stroke) among US Hispanic/Latino individuals of different backgrounds, examine relationships of SES and acculturation with CVD risk profiles and CVD, and assess cross-sectional associations of CVD risk factors with CVD.

##### DESIGN, SETTING, AND PARTICIPANTS:

Multicenter, prospective, population-based Hispanic Community Health Study/Study of Latinos including individuals of Cuban (n = 2201), Dominican (n = 1400), Mexican (n = 6232), Puerto Rican (n = 2590), Central American (n = 1634), and South American backgrounds (n = 1022) aged 18 to 74 years. Analyses involved 15,079 participants with complete data enrolled between March 2008 and June 2011.

##### MAIN OUTCOME MEASURES:

Adverse CVD risk factors defined using national guidelines for hypercholesterolemia, hypertension, obesity, diabetes, and smoking. Prevalence of CHD and stroke were ascertained from self-reported data.

##### RESULTS:

Age-standardized prevalence of CVD risk factors varied by Hispanic/Latino background; obesity and current smoking rates were highest among Puerto Rican participants (for men, 40.9% and 34.7%; for women, 51.4% and 31.7%, respectively); hypercholesterolemia prevalence was highest among Central American men (54.9%) and Puerto Rican women (41.0%). Large proportions of participants (80% of men, 71% of women) had at least 1 risk factor. Age- and sex-adjusted prevalence of 3 or more risk factors was highest in Puerto Rican participants (25.0%) and significantly higher ( $P < .001$ ) among participants with less education (16.1%), those who were US-born (18.5%), those who had lived in the United States 10 years or longer (15.7%), and those who preferred English (17.9%). Overall, self-reported CHD and stroke prevalence were low (4.2% and 2.0% in men; 2.4% and 1.2% in women, respectively). In multivariate-adjusted models, hypertension and smoking were directly associated with CHD in both sexes as were hypercholesterolemia and obesity in women and diabetes

in men (odds ratios [ORs], 1.5-2.2). For stroke, associations were positive with hypertension in both sexes, diabetes in men, and smoking in women (ORs, 1.7-2.6).

**CONCLUSION:**

Among US Hispanic/Latino adults of diverse backgrounds, a sizeable proportion of men and women had adverse major risk factors; prevalence of adverse CVD risk profiles was higher among participants with Puerto Rican background, lower SES, and higher levels of acculturation.

**300: Moreno LA, Moliner-Urdiales D, Ruiz JR, Mesana MI, Vicente-Rodríguez G, Rodríguez G, Fleta J, León JF, García-Fuentes M, Castillo MJ, González-Gross M, Marcos A; AVENA study group; HELENA study group. Five year trends on total and abdominal adiposity in Spanish adolescents. Nutr Hosp. 2012 May-Jun;27(3):731-8. doi: 10.3305/nh.2012.27.3.5726. PubMed PMID: 23114937.**

**Abstract**

**OBJECTIVE:**

To assess five years trends in total and abdominal fat in Spanish adolescents.

**DESIGN:**

Two cross-sectional studies: adolescents from the city of Zaragoza (Spain) assessed during 2001-2002 and 2006-2007.

**SUBJECTS:**

399 adolescents in 2001-02 and 392 adolescents in 2006-07.

**MAIN OUTCOME MEASUREMENTS:**

Socio-economic status was assessed using the education level of both parents. A complete anthropometric assessment was performed in both surveys using the same methodology: weight, height, skinfold thickness (biceps, triceps, subscapular, suprailiac, thigh and calf) and circumferences (waist and hip). The body mass index (BMI) and the sum of 6 skinfold thicknesses were calculated. Body fat percentage (BF%) was also calculated by the formulas described by Slaughter et al.

**RESULTS:**

After adjusting for age and pubertal status, only females showed a significantly decrease in weight, BMI and waist circumference, and a significant increase in the sum of 6 skinfolds (all  $P < 0.05$  and Cohen's  $d \geq 0.25$ ) in 2006-2007, when compared to values obtained in 2001-2002. Males did not show any significant change between the two surveys. Concerning centile values, a slight general reduction was observed in weight, BMI and waist circumference for both males and females. On the contrary, the sum of 6 skinfolds and the BF% were higher in 2006-2007 than in 2001-2002.

**CONCLUSION:**

According to these results, there might be a levelling-off in the trends of BMI, BF% and waist circumference in male adolescents from Zaragoza. In females, despite a trend towards higher body fat mass, there was a trend towards lower BMI and waist circumference values.

**301: Pulsipher MA, Chitphakdithai P, Logan BR, Shaw BE, Wingard JR, Lazarus HM, Waller EK, Seftel M, Stroncek DF, Lopez AM, Maharaj D, Hematti P, O'Donnell PV, Loren AW, Leitman SF, Anderlini P, Goldstein SC, Levine JE, Navarro WH, Miller JP, Confer DL. Acute toxicities of unrelated bone marrow versus peripheral blood stem cell donation: results of a prospective trial from the National Marrow Donor Program. *Blood*. 2013 Jan 3;121(1):197-206. doi: 10.1182/blood-2012-03-417667. Epub 2012 Oct 29. PubMed PMID: 23109243; PubMed Central PMCID: PMC3538330.**

Abstract

Although peripheral blood stem cells (PBSCs) have replaced bone marrow (BM) as the most common unrelated donor progenitor cell product collected, a direct comparison of concurrent PBSC versus BM donation experiences has not been performed. We report a prospective study of 2726 BM and 6768 PBSC donors who underwent collection from 2004 to 2009. Pain and toxicities were assessed at baseline, during G-CSF administration, on the day of collection, within 48 hours of donation, and weekly until full recovery. Peak levels of pain and toxicities did not differ between the 2 donation processes for most donors. Among obese donors, PBSC donors were at increased risk of grade 2 to 4 pain as well as grade 2 to 4 toxicities during the pericollection period. In contrast, BM donors were more likely to experience grade 2 to 4 toxicities at 1 week and pain at 1 week and 1 month after the procedure. BM donors experienced slower recovery, with 3% still not fully recovered at 24 weeks, whereas 100% of PBSC donors had recovered. Other factors associated with toxicity included obesity, increasing age, and female sex. In summary, this study provides extensive detail regarding individualized risk patterns of PBSC versus BM donation toxicity, suggesting donor profiles that can be targeted with interventions to minimize toxicity.

**302: Waring ME, Moore Simas TA, Liao X. Gestational weight gain within recommended ranges in consecutive pregnancies: a retrospective cohort study. *Midwifery*. 2013 May;29(5):550-6. doi: 10.1016/j.midw.2012.04.014. Epub 2012 Oct 24. PubMed PMID: 23103319; PubMed Central PMCID: PMC3561501.**

Abstract

OBJECTIVE:

to examine whether, among parous women, adherence to gestational weight gain (GWG) recommendations in the most recent previous pregnancy is associated with adherence to GWG recommendations in the current pregnancy.

DESIGN:

retrospective cohort study.

SETTING:

review of labour and delivery records from a Massachusetts tertiary-care centre.

PARTICIPANTS:

1,325 women who delivered two consecutive singletons from April 2006 to March 2010.

MEASUREMENTS:

pre-pregnancy weight status and adherence to GWG recommendations were categorised using 1990 Institute of Medicine (IOM) guidelines. Analyses were stratified by weight status before the second pregnancy.

FINDINGS:

56% and 46% of women gained more than 1990 IOM recommendations during the first and second of consecutive pregnancies; 57% gained within the same adherence category in both pregnancies. Excessive GWG during the first pregnancy was strongly associated with excessive gain during the second pregnancy (adjusted odds ratio [AOR]=5.4 [95% CI: 1.7-16.4] for underweight, 3.7 [95% CI: 2.4-5.5] for normal weight, 3.0 [95% CI: 1.2-7.6] for overweight, and 5.3 [95% CI: 2.4-11.7] for obese women). Inadequate gain in the first of consecutive pregnancies was strongly associated with subsequent inadequate GWG for underweight women (AOR=13.7; 95% CI: 3.9-48.0), normal weight women (AOR=2.9; 95% CI: 1.7-5.1), and obese women (AOR=3.6; 95% CI: 1.4-9.3). Results were similar in sensitivity analyses using IOM 2009 guidelines.

**KEY CONCLUSIONS:**

adherence to GWG recommendations in consecutive pregnancies is highly concordant.

**IMPLICATIONS FOR PRACTICE:**

consideration of GWG during previous pregnancies may facilitate discussions about GWG during prenatal care.

**303: Gigante DP, Victora CG, Matijasevich A, Horta BL, Barros FC. Association of family income with BMI from childhood to adult life: a birth cohort study. Public Health Nutr. 2013 Feb;16(2):233-9. doi: 10.1017/S1368980012003229. Epub 2012 Jul 4. PubMed PMID: 23102455; PubMed Central PMCID: PMC3541535.**

**Abstract**

**OBJECTIVE:**

To investigate the association of family income at birth with BMI among young adults who have been followed since birth.

**DESIGN:**

A birth cohort study.

**SETTING:**

In 1982, all children born in Pelotas, southern Brazil, were included in a perinatal survey and visited at ages 1, 2, 4, 15, 18-19 and 23 years.

**SUBJECTS:**

Cohort members (n 4297) were traced and interviewed in 2004-2005. In all follow-ups, participants were weighed and measured, and BMI and prevalence of obesity were calculated for each age. Family income was obtained in minimum wages in 1982 and as a continuous variable, in reais, in later follow-ups. Skin colour was self-reported in 2004-2005.

**RESULTS:**

Mean BMI and prevalence of obesity differed between males and females. In males, a direct relationship was found throughout life and among females this relationship was modified by age. During childhood, BMI was higher among girls from higher income groups and this association was inverted at age 23 years. At this same age, mean BMI among black women was 1.3 kg/m<sup>2</sup> higher than among white women, even after adjustment for current family income.

**CONCLUSIONS:**

The findings show in men that the relationship between income and BMI is similar to that seen in less developed areas, whereas among adult women the relationship is similar to that observed in developed countries. In addition to the effect of socio-economic status, skin colour also has an influence on the BMI of adult women.

**304: Kubik MY, Farbakhsh K, Lytle LA. A healthy trend: less food used in fundraising and as rewards and incentives in Minnesota middle and high schools. Public Health Nutr. 2013 Apr;16(4):683-6. doi: 10.1017/S1368980012003114. Epub 2012 Jul 4. PubMed PMID: 23102274; PubMed Central PMCID: PMC3566355.**

Abstract

OBJECTIVE:

To assess change in the 4-year prevalence (2006-2009) of the use of food in school fundraising and as rewards and incentives for students, following implementation of federal legislation in the USA in 2006.

DESIGN:

Serial cross-sectional design using trend analysis to assess school-level data collected over four consecutive years from 2006/2007 to 2009/2010.

SETTING:

Minneapolis/St. Paul, MN.

SUBJECTS:

Convenience sample of middle and high schools participating in two longitudinal, aetiological studies that examined youth, their environment and obesity-related factors.

RESULTS:

A significant and sustained decrease was demonstrated in the use of low-nutrient, energy-dense foods in school fundraising activities and the use of food and food coupons as rewards and incentives by teachers and school staff.

CONCLUSIONS:

Results support the utility of policy and legislative action as a tool for creating healthy, sustainable environmental change.

**305: Peeters A, Backholer K. Is the health burden associated with obesity changing? Am J Epidemiol. 2012 Nov 15;176(10):840-5. doi: 10.1093/aje/kws328. Epub 2012 Oct 25. PubMed PMID: 23100248.**

Abstract

Prioritization of obesity prevention and management policy is based on one's understanding of the health risks associated with increasing body weight. However, there is evidence that the magnitude of these health risks may be changing over time. Here, the authors analyze the theoretical drivers of these changes and then examine whether there is empirical evidence to support the theory. They conclude that, although the mortality risks associated with increasing body weight may be decreasing over time, the overall health burden appears likely to increase.

**306: Hairston KG, Ducharme JL, Treuth MS, Hsueh WC, Jastreboff AM, Ryan KA, Shi X, Mitchell BD, Shuldiner AR, Snitker S. Comparison of BMI and physical activity between old order Amish children and non-Amish children. Diabetes Care. 2013 Apr;36(4):873-8. doi: 10.2337/dc12-0934. Epub 2012 Oct 23. PubMed PMID: 23093661; PubMed Central PMCID: PMC3609522.**

Abstract

OBJECTIVE:

The Old Order Amish (OOA) is a conservative Christian sect of European origin living in Pennsylvania. Diabetes is rare in adult OOA despite a mean BMI rivaling that in the general U.S. non-Hispanic white population. The current study examines childhood factors that may contribute to the low prevalence of diabetes in the OOA by comparing OOA children aged 8-19 years with National Health and Nutrition Examination Survey (NHANES) data and children from Maryland's Eastern Shore (ES), a nearby, non-Amish, rural community. We hypothesized that pediatric overweight is less common in OOA children, that physical activity (PA) and BMI are inversely correlated, and that OOA children are more physically active than ES children.

RESEARCH DESIGN AND METHODS:

We obtained anthropometric data in 270 OOA children and 229 ES children (166 non-Hispanic white, 60 non-Hispanic black, 3 Hispanic). PA was measured by hip-worn accelerometers in all ES children and in 198 OOA children. Instrumentation in 43 OOA children was identical to ES children.

RESULTS:

OOA children were approximately 3.3 times less likely than non-Hispanic white ES children and NHANES estimates to be overweight (BMI  $\geq$ 85th percentile, Centers for Disease Control and Prevention). Time spent in moderate/vigorous PA (MVPA) was inversely correlated to BMI z-score ( $r = -0.24$ ,  $P = 0.0006$ ). PA levels did not differ by ethnicity within the ES group, but OOA children spent an additional 34 min/day in light activity ( $442 \pm 56$  vs.  $408 \pm 75$ ,  $P = 0.005$ ) and, impressively, an additional 53 min/day in MVPA ( $106 \pm 54$  vs.  $53 \pm 32$ ,  $P < 0.0001$ ) compared with ES children. In both groups, boys were more active than girls but OOA girls were easily more active than ES boys.

CONCLUSIONS:

We confirmed all three hypotheses. Together with our previous data, the study implies that the OOA tend to gain their excess weight relatively late in life and that OOA children are very physically active, both of which may provide some long-term protection against diabetes.

**307: Espín Ríos MI, Pérez Flores D, Sánchez Ruíz JF, Salmerón Martínez D. [Prevalence of childhood obesity in the Murcia Region; an assessment of different references for body mass index]. An Pediatr (Barc). 2013 Jun;78(6):374-81. doi: 10.1016/j.anpedi.2012.09.007. Epub 2012 Oct 23. Spanish. PubMed PMID: 23092820.**

Abstract

INTRODUCTION:

Childhood obesity is a problem of high magnitude with serious repercussions on health, which justifies estimating its prevalence at local level to identify conditioning factors and to take preventive actions. The main objective of the present work is to estimate the prevalence of overweight and obesity in the children in the general population of the Murcia Region, using the body mass index (BMI) and applying the International Obesity Task Force (IOTF) criteria, and to compare these results with the ones obtained from other frequently used references in Spain.



#### MATERIAL AND METHODS:

The BMI of 178,894 children aged from 2 to 14 years was determined. The prevalence of overweight and obesity was compared to the IOTF, to the studies of the World Health Organization, as well as those of the Orbergozo Foundation (FO), and the Cross-sectional Spanish Growth Study (ETEC) references. The agreement between the different results was evaluated using the kappa index.

#### RESULTS:

The evaluation using the IOTF cut-off points gave an overweight prevalence of 20.6% (95% CI: 20.4-20.8), an obesity prevalence of 11.4% (95% CI: 11.2-11.5) and an overweight plus obesity prevalence of 32% (95% CI: 31.8-32.2), with this last one being higher in girls (33.2%) than in boys (30.9%). The highest agreement is between IOTF and FO-2011 ( $\kappa=.795$ ) and between FO-2011 and ETEC ( $\kappa=.794$ ).

#### CONCLUSION:

A high prevalence of overweight and obesity in children in the Region of Murcia was found. The ETEC and the FO-2011 study showed the highest agreement with the results obtained using the IOTF criteria.

**308: Parks EP, Kumanyika S, Moore RH, Stettler N, Wrotniak BH, Kazak A. Influence of stress in parents on child obesity and related behaviors. *Pediatrics*. 2012 Nov;130(5):e1096-104. doi: 10.1542/peds.2012-0895. Epub 2012 Oct 22. PubMed PMID: 23090343; PubMed Central PMCID: PMC3483892.**

#### Abstract

##### OBJECTIVE:

To assess associations of the number of parent stressors and parent-perceived stress with obesity and related behaviors in their children.

##### METHODS:

This cross-sectional analysis used data from the 2006 Southeastern Pennsylvania Household Health Survey in which 2119 parents/caregivers answered questions about themselves and their children (ages 3-17 years). Survey data were used to assess the main exposure variables: the number of stressors (measured using a stressor index) and parent-perceived stress (the response to a general stress question); child covariates (age, race/ethnicity, health quality, and gender); adult covariates (education, BMI, gender, poor sleep quality) and study outcomes (child obesity, fast-food consumption, fruit and vegetable consumption, and physical activity). To account for developmental differences, analyses were also stratified by age group (3-5, 6-8, 9-12, and 13-17 years). Analyses used multiple logistic regression, with results expressed as odds ratios and 95% confidence intervals.

##### RESULTS:

The number of parent stressors was related to child obesity in unadjusted (1.12, 1.03-1.22,  $P = .007$ ) and adjusted models (1.12, 1.03-1.23,  $P = .010$ ). Parent-perceived stress was related to fast-food consumption in unadjusted (1.07, 1.03-1.10,  $P < .001$ ) and adjusted (1.06, 1.02-1.10,  $P < .001$ ) models.

##### CONCLUSIONS:

The number of parent stressors was directly related to child obesity. Parent-perceived stress was directly related to child fast-food consumption, an important behavioral indicator of obesity risk. Clinical care models and future research that address child obesity should explore the potential benefits of addressing parent stressors and parent-perceived stress.

**309: Valerio G, Gallè F, Mancusi C, Di Onofrio V, Guida P, Tramontano A, Ruotolo E, Liguori G. Prevalence of overweight in children with bone fractures: a case control study. BMC Pediatr. 2012 Oct 22;12:166. doi: 10.1186/1471-2431-12-166. PubMed PMID: 23088687; PubMed Central PMCID: PMC3502372.**

Abstract

BACKGROUND:

Children's fractures have been enlisted among orthopaedics complaints of childhood obesity. Unhealthy lifestyle behaviours may contribute to increased risk. This study described the prevalence of overweight/obesity in children and adolescents reporting a recent fracture in relation to gender, dynamic of trauma, and site of fracture.

METHODS:

Four-hundred-forty-nine children and adolescents with fracture and 130 fracture-free controls were recruited from a large children's hospital. The interaction between overweight and gender, dynamic of trauma, site of fracture was explored. Sports participation, television viewing, and calcium intake were also investigated.

RESULTS:

Overweight/obesity rate was increased in girls with fracture either at the upper or the lower limb ( $p=0.004$ ), while it was increased only in boys with fracture at the lower limb ( $p<0.02$ ).

Overweight/obesity rate did not differ between groups with low or moderate trauma. TV viewing  $\geq 2$  hrs was more frequent in children with fractures than controls (61.5% vs 34.5%,  $p=0.015$ ) in the overweight/obese group.

CONCLUSIONS:

The increased prevalence of overweight/obesity in children with fractures is related to gender and site of fracture. Higher levels of sedentary behaviours characterize overweight children reporting fractures.

**310: Labonté ME, Dewailly E, Chateau-Degat ML, Couture P, Lamarche B. Population-based study of high plasma C-reactive protein concentrations among the Inuit of Nunavik. Int J Circumpolar Health. 2012;71. doi: 10.3402/ijch.v71i0.19066. Epub 2012 Oct 17. PubMed PMID: 23087913; PubMed Central PMCID: PMC3475996.**

Abstract

BACKGROUND:

The shift away from traditional lifestyle in the Inuit population over the past few decades has been associated with an increased prevalence of coronary heart disease (CHD) risk factors such as obesity, high blood pressure (BP) and diabetes. However, the impact of this transition on the pro-inflammatory marker high-sensitivity C-reactive protein (hs-CRP) has not been documented.

OBJECTIVES:

To examine the prevalence of elevated plasma hs-CRP concentrations in Inuit from Nunavik in the province of Quebec (Canada) and identify anthropometric, biochemical and lifestyle risk factors associated with elevated hs-CRP.

DESIGN:

A population-representative sample of 801 Inuit residents from 14 villages of Nunavik, aged between 18 and 74 years, was included in the analyses. Subjects participated in a clinical session and

completed questionnaires on lifestyle. Multivariate logistic regression was used to determine risk factors for elevated hs-CRP.

**RESULTS:**

Elevated plasma hs-CRP concentrations ( $\geq 2$  mg/L) were present in 32.7% (95% confidence interval (CI) 29.5-35.8) of the Inuit adult population and were more prevalent among women than among men (36.7% vs. 29.0%,  $p=0.007$ ). Multivariate logistic regression analysis indicated that every 1 mmHg increase in systolic BP was associated with a 3% increase in the odds of having hs-CRP concentrations  $\geq 2$  mg/L in the Inuit population (95% CI 1.01-1.04). The combination of older age ( $\geq 50$  vs.  $<30$  years) and elevated waist circumference (gender-specific cut-off values) in a multivariate logistic model was also associated with a 13.3-fold increase in the odds of having plasma hs-CRP concentrations  $\geq 2$  mg/L (95% CI 5.8-30.9).

**CONCLUSIONS:**

These data indicate that elevated hs-CRP is relatively prevalent among Inuit with values that are similar to those seen in Canadian Caucasian populations. Sex, age, waist circumference and systolic BP are major factors that increase the risk of this inflammatory phenotype among Inuit from Nunavik, despite their different lifestyle background compared with Caucasians.

**KEYWORDS:**

C-reactive protein; Inuit; Nunavik; aging; prevalence; risk factors; sex; systolic blood pressure; waist circumference.

**311: Mispireta ML. [Determining factors of overweight and obesity in children at school age in Peru]. Rev Peru Med Exp Salud Publica. 2012 Jul-Sep;29(3):361-5. Spanish. PubMed PMID: 23085798.**

**Abstract**

Obesity in children at school age is an increasing problem in Peru. It concentrates in urban areas, mainly in Lima where one out of three children is overweight. An initial study in 80 schools in Lima showed that the lack of physical activity would have a greater impact on overweight and obesity in school children than the amount of food intake. More detailed studies are required. In spite of the limited information available regarding its determining factors, it is necessary to implement culturally-sensitive measures to fight this problem as part of the current nutritional policies, and prevent the problem from spreading, making sure the sustainability of the health system is not affected.

**312: Liria R. [Consequences of obesity in children and teenagers: a problem that requires attention]. Rev Peru Med Exp Salud Publica. 2012 Jul-Sep;29(3):357-60. Spanish. PubMed PMID: 23085797.**

**Abstract**

Obesity is a worldwide pandemic and children are a vulnerable group. In America, it was estimated that in 2010, 15.2% of 18 year-old children could suffer from this. Obesity in children and teenagers has a negative impact on health and on the load of diseases at this stage of life, and later on in adulthood, having a negative impact on the economy of a country due to the rise of risks of chronic diseases, health expenses and indirect costs as a result of the disease. Peru is going through an epidemiological transition, with unsolved malnutrition problems and high child obesity rates (10% of children under five), thus being one of the countries with a higher increase of child obesity in recent

years in Latin America. Childhood and adolescence are considered critical periods because eating habits and physical activity start at this point; and because most obese children and teenagers will maintain those habits until they reach adulthood. For this reason, it is essential to seek strategies and interventions that prevent overweight and obesity among children and teenagers in order to improve the health conditions of a country.

**313: Herrera-Huerta EV, García-Montalvo EA, Méndez-Bolaina E, López-López JG, Valenzuela OL. [Overweight and obesity in indigenous nahuas from Ixtaczoquitlán, Veracruz, Mexico]. Rev Peru Med Exp Salud Publica. 2012 Jul-Sep;29(3):345-9. Spanish. PubMed PMID: 23085795.**

Abstract

The study was aimed at determining the prevalence of overweight and obesity in indigenous nahuas from Ixtaczoquitlán, Veracruz, Mexico. For this purpose, a cross-cut study was conducted between 2010 and 2011, in which the body mass index (BMI) was calculated. To define overweight and obesity, the categories of the World Health Organization (WHO) and the Mexican Official Standard (NOM, Spanish acronym) were used. 227 nahuas (77,5% women) were included. According to WHO's guidelines, the rate for overweight among nahuas was 41%, and 36.5% for obesity; according to NOM, it was 11.4 and 69.2% respectively. In conclusion, the prevalence of overweight and obesity among indigenous nahuas is high. Studies should be conducted to determine the prevalence and risk factors in order to develop prevention strategies based on this information to improve the health quality of these populations.

**314: Álvarez-Dongo D, Sánchez-Abanto J, Gómez-Guizado G, Tarqui-Mamani C. [Overweight and obesity: prevalence and determining social factors of overweight in the Peruvian population (2009-2010)]. Rev Peru Med Exp Salud Publica. 2012 Jul-Sep;29(3):303-13. Spanish. PubMed PMID: 23085790.**

Abstract

OBJECTIVES:

Estimate the prevalence of overweight, obesity and the determining social factors of overweight in the Peruvian population.

MATERIALS AND METHODS:

A cross-cut study was conducted which included family members from homes in the sample of the National Household Survey, 2009-2010. Stratified random and multistage sampling was used. The sample included 69 526 members; the anthropometric measurements were done based on the international methodology. To evaluate overweight and obesity, weight-for-height (children <5 years), BMI for age (children and teenagers from 5 to 19 years old), and BMI for adults were used. An analysis of complex samples was made in SPSS and the weighting factor was adjusted. Descriptive statistics and logistic regression were calculated with a 95% confidence interval.

RESULTS:

Overweight and obesity were higher in young adults (62.3%) and lower in children <5 years old (8.2%). The determining social factors for overweight according to age group were: not being poor (child <5 years old, children 5-9 years old, teenagers and the elderly), living in urban areas (child <5 years old, teenagers, young adults, adults and the elderly) and being a woman (children 5-9 years old, adults and the elderly).

CONCLUSIONS:

Overweight and obesity are indeed a public health issue in Peru. Not being poor and living in urban areas are determining social factors of overweight among Peruvian people.

**315: Welsh JA, Karpen S, Vos MB. Increasing prevalence of nonalcoholic fatty liver disease among United States adolescents, 1988-1994 to 2007-2010. J Pediatr. 2013 Mar;162(3):496-500.e1. doi: 10.1016/j.jpeds.2012.08.043. Epub 2012 Oct 17. PubMed PMID: 23084707; PubMed Central PMCID: PMC3649872.**

Abstract

OBJECTIVE:

To assess recent trends in nonalcoholic fatty liver disease (NAFLD) prevalence among US adolescents.

STUDY DESIGN:

Cross-sectional data from 12 714 12-19 year olds (exclusions: chronic hepatitis, hepatotoxic medications) in the National Health and Examination Survey between 1988-1994 and 2007-2010 were used to estimate trends in suspected NAFLD, defined as overweight (body mass index  $\geq$ 85th percentile) plus elevated alanine aminotransferase levels (boys  $>$ 25.8 U/L; girls  $>$ 22.1 U/L). Linear trends in prevalence and the independent effect of demographic indicators and adiposity on NAFLD risk were tested using regression models. Complex sampling methods and P values of  $<$ .05 were used to assess statistical significance.

RESULTS:

Suspected NAFLD prevalence (SE) rose from 3.9% (0.5) in 1988-1994 to 10.7% (0.9) in 2007-2010 ( $P <$  .0001), with increases among all race/ethnic subgroups, males and females, and those obese ( $P$  trend  $\leq$ .0006 for all). Among those obese, the multivariate adjusted odds of suspected NAFLD were higher with increased age, body mass index, Mexican American race, and male sex; the adjusted odds in 2007-2010 were 2.0 times those in 1988-1994. In 2007-2010, 48.1% (3.7) of all obese males and 56.0% (3.5) of obese Mexican American males had suspected NAFLD.

CONCLUSION:

Prevalence of suspected NAFLD has more than doubled over the past 20 years and currently affects nearly 11% of adolescents and one-half of obese males. The rapid increase among those obese, independent of body mass index, suggests that other modifiable risk factors have influenced this trend.

**316: Bethea TN, Lopez RP, Cozier YC, White LF, McClean MD. The relationship between rural status, individual characteristics, and self-rated health in the Behavioral Risk Factor Surveillance System. J Rural Health. 2012 Fall;28(4):327-38. doi: 10.1111/j.1748-0361.2012.00414.x. Epub 2012 May 31. PubMed PMID: 23083079; PubMed Central PMCID: PMC3481191.**

Abstract

PURPOSE:

To examine rural status and social factors as predictors of self-rated health in community-dwelling adults in the United States.

METHODS:

This study uses multinomial logistic and cumulative logistic models to evaluate the associations of interest in the 2006 U.S. Behavioral Risk Factor Surveillance System, a cross-sectional survey of 347,709 noninstitutionalized adults.

**FINDINGS:**

Self-rated health was poorer among rural residents, compared to urban residents (OR = 1.77, 95% CI: 1.54, 1.90). However, underlying risk factors such as obesity, low income, and low educational attainment were found to vary by rural status and account for the observed increased risk (OR = 1.03, 95% CI: 0.94, 1.12). There was little evidence of effect modification by rural status, though the association between obesity and self-rated health was stronger among urban residents (OR = 2.50, 95% CI: 2.38, 2.64) than among rural residents (OR = 2.18, 95% CI: 2.03, 2.34).

**CONCLUSIONS:**

Our findings suggest that differences in self-rated health by rural status were attributable to differential distributions of participant characteristics and not due to differential effects of those characteristics.

**317: Jiménez-Cruz A, de Escobar-Aznar YM, Castillo-Ruiz O, Gonzalez-Ramirez R, Bacardi-Gascón M. Beliefs about causes and consequences of obesity among women in two Mexican cities. J Health Popul Nutr. 2012 Sep;30(3):311-6. PubMed PMID: 23082633; PubMed Central PMCID: PMC3489947.**

**Abstract**

Personal beliefs might be barriers to the prevention and treatment of obesity. To assess the beliefs about causes and consequences of and possible solutions to obesity among 18-40 years old women in two Mexican cities and to analyze the association with demographic variables, we developed a questionnaire and assessed the women's weight status. The questionnaire was applied at two outpatient healthcare centres and assessed the responses by the Likert scale. Results were analyzed by demographics, using the chi-square and Spearman correlations. One thousand one hundred adult women participated in the study. Mean age was 27.8 years, and mean BMI (kg/m<sup>2</sup>) was 27.05. The prevalence of overweight and obesity was 35% and 24% respectively. The most mentioned causes of obesity were eating oil and fat (4.1), fried foods (4.1), and eating too much (4.00). The most reported consequences were diseases (4.1), discrimination (3.9), and early death (3.7). The main solutions were physical activity (4.2), healthful eating (4.2), and personal motivation (4.1). Age of participants higher than 30 years, living with a partner, having more than 6 years of education, and having overweight and obesity were predictors of more knowledge about the causes, consequences, and solutions. These Mexican women from low SES had reasonably good knowledge about the causes and consequences of obesity. Although improving education might be beneficial to prevent obesity, changes in environmental contingencies are also necessary to prevent this epidemic.

**318: Chen F, Wang Y, Shan X, Cheng H, Hou D, Zhao X, Wang T, Zhao D, Mi J. Association between childhood obesity and metabolic syndrome: evidence from a large sample of Chinese children and adolescents. PLoS One. 2012;7(10):e47380. doi: 10.1371/journal.pone.0047380. Epub 2012 Oct 17. PubMed PMID: 23082159; PubMed Central PMCID: PMC3474816.**

Abstract

Data about metabolic syndrome (MetS) in children is limited in China. We aimed to assess the prevalence of MetS related components, and their association with obesity. Data were collected as part of a representative study on MetS among 19593 children, aged 6-18 years old in Beijing. General obesity was assessed by body mass index (BMI) and central obesity by waist circumference. Finger capillary blood tests were used to assess triglyceride (TG), total cholesterol (TC) and impaired fasting glucose (IFG). Vein blood samples were collected from a subsample of 3814 children aged 10-18 years to classify MetS. MetS was defined according to the International Diabetes Federation 2007 definition. The associations between MetS related components and the degree and type of obesity were tested using logistic regression models. The prevalence of overweight, obesity, high blood pressure, elevated TG, TC and IFG were 13.6%, 5.8%, 8.5%, 8.8%, 1.2% and 2.5%, respectively. Compared with normal weight children, overweight and obese children were more likely to have other MetS related components. In the subsample of 3814 children aged 10-18 years, the prevalence of MetS was much higher in obese subjects than in their normal weight counterparts (27.6% vs. 0.2%). Children with both general and central obesity had the highest prevalence of MetS. Compared with normal weight children, overweight and obese children were more likely to have MetS (overweight: OR=67.33, 95%CI=21.32-212.61; obesity: OR=249.99, 95% CI=79.51-785.98). Prevalence of MetS related components has reached high level among Beijing children who were overweight or obese. The association between metabolic disorders and obesity was strong.

**319: Arora M, Nazar GP, Gupta VK, Perry CL, Reddy KS, Stigler MH. Association of breakfast intake with obesity, dietary and physical activity behavior among urban school-aged adolescents in Delhi, India: results of a cross-sectional study. BMC Public Health. 2012 Oct 17;12:881. doi: 10.1186/1471-2458-12-881. PubMed PMID: 23075030; PubMed Central PMCID: PMC3549919.**

Abstract

BACKGROUND:

In developed countries, regular breakfast consumption is inversely associated with excess weight and directly associated with better dietary and improved physical activity behaviors. Our objective was to describe the frequency of breakfast consumption among school-going adolescents in Delhi and evaluate its association with overweight and obesity as well as other dietary, physical activity, and sedentary behaviors.

METHODS:

DESIGN:

Cross-sectional study.

SETTING:

Eight schools (Private and Government) of Delhi in the year 2006.

PARTICIPANTS:

1814 students from 8th and 10th grades; response rate was 87.2%; 55% were 8th graders, 60% were boys and 52% attended Private schools.

**MAIN OUTCOME MEASURES:**

Body mass index, self-reported breakfast consumption, diet and physical activity related behaviors, and psychosocial factors.

**DATA ANALYSIS:**

Mixed effects regression models were employed, adjusting for age, gender, grade level and school type (SES).

**RESULTS:**

Significantly more Government school (lower SES) students consumed breakfast daily as compared to Private school (higher SES) students (73.8% vs. 66.3%;  $p < 0.01$ ). More 8th graders consumed breakfast daily vs. 10th graders (72.3% vs. 67.0%;  $p < 0.05$ ). A dose-response relationship was observed such that overall prevalence of overweight and obesity among adolescents who consumed breakfast daily (14.6%) was significantly lower vs. those who only sometimes (15.2%) or never (22.9%) consumed breakfast ( $p < 0.05$  for trend). This relationship was statistically significant for boys (15.4% vs. 16.5% vs. 26.0%;  $p < 0.05$  for trend) but not for girls. Intake of dairy products, fruits and vegetables was 5.5 (95% CI 2.4-12.5), 1.7 (95% CI 1.1-2.5) and 2.2 (95% CI 1.3-3.5) times higher among those who consumed breakfast daily vs. those who never consumed breakfast. Breakfast consumption was associated with greater physical activity vs. those who never consumed breakfast. Positive values and beliefs about healthy eating; body image satisfaction; and positive peer and parental influence were positively associated with daily breakfast consumption, while depression was negatively associated.

**CONCLUSION:**

Daily breakfast consumption is associated with less overweight and obesity and with healthier dietary- and physical activity-related behaviors among urban Indian students. Although prospective studies should confirm the present results, intervention programs to prevent or treat childhood obesity in India should consider emphasizing regular breakfast consumption.

**320: Sikorski C, Lupp M, Brähler E, König HH, Riedel-Heller SG. Obese children, adults and senior citizens in the eyes of the general public: results of a representative study on stigma and causation of obesity. PLoS One. 2012;7(10):e46924. doi: 10.1371/journal.pone.0046924. Epub 2012 Oct 12. PubMed PMID: 23071664; PubMed Central PMCID: PMC3470564.**

**Abstract**

Obese individuals are blamed for their excess weight based on causal attribution to the individual. It is unclear whether obese individuals of different age groups and gender are faced with the same amount of stigmatization. This information is important in order to identify groups of individuals at risk for higher stigmatization and discrimination. A telephone interview was conducted in a representative sample of 3,003 participants. Experimental manipulation was realized by vignettes describing obese and normal-weight children, adults and senior citizens. Stigmatizing attitudes were measured by semantic differential. Causal attribution was assessed. Internal factors were rated with highest agreement rates as a cause for the vignette's obesity. Lack of activity behavior and eating too much are the most supported causes. Importance of causes differed for the different vignettes. For the child, external causes were considered more important. The overweight vignette was rated consistently more negatively. Higher educational attainment and personal obesity were associated with lower stigmatizing attitudes. The vignette of the obese child was rated more negatively



compared to that of an adult or senior citizen. Obesity is seen as a controllable condition, but for children external factors are seen as well. Despite this finding, they are faced with higher stigmatizing attitudes in the general public, contradicting attribution theory assumptions. Internal and external attribution were found to be inter-correlated. Obese children are the population most at risk for being confronted with stigmatization, making them a target point in stigma-reduction campaigns.

**321: Li S, Chen W, Srinivasan SR, Xu J, Berenson GS. Relation of childhood obesity/cardiometabolic phenotypes to adult cardiometabolic profile: the Bogalusa Heart Study. Am J Epidemiol. 2012 Oct 1;176 Suppl 7:S142-9. doi: 10.1093/aje/kws236. PubMed PMID: 23035138; PubMed Central PMCID: PMC3530363.**

Abstract

Not all obese adults have cardiometabolic abnormalities. It is unknown whether this is true in children and, if true, whether children who have metabolically healthy overweight/obesity (MHO) will also have favorable cardiometabolic profiles in adulthood. These aspects were examined in 1,098 individuals who participated as both children (aged 5-17 years) and adults (aged 24-43 years) in the Bogalusa Heart Study between 1997 and 2002 in Bogalusa, Louisiana. MHO was defined as being in the top body mass index quartile, while low density lipoprotein cholesterol, triglycerides, mean arterial pressure, and glucose were in the bottom 3 quartiles, and high density lipoprotein cholesterol was in the top 3 quartiles. Forty-six children (4.2%) had MHO, and they were more likely to retain MHO status in adulthood compared with children in other categories ( $P < 0.0001$ ). Despite markedly increased obesity in childhood and in adulthood, these same MHO children and adults showed a cardiometabolic profile generally comparable to that of nonoverweight/obese children ( $P > 0.05$  in most cases). Moreover, there was no difference in carotid intima-media thickness in adulthood between MHO children and nonoverweight/obese children. Further, carotid intima-media thickness in adulthood was lower in MHO children than in metabolically abnormal, overweight/obese children ( $P = 0.003$ ). In conclusion, the MHO phenotype starts in childhood and continues into adulthood.

**322: Okafor UV, Efetie ER, Nwoke O, Okezie O, Umeh U. Anaesthetic and obstetric challenges of morbid obesity in caesarean deliveries--a study in South-eastern Nigeria. Afr Health Sci. 2012 Mar;12(1):54-7. PubMed PMID: 23066420; PubMed Central PMCID: PMC3462507.**

Abstract

BACKGROUND:

Morbid obesity of parturient has become very important in perinatal medicine because of a worldwide obesity epidemic. Morbid obesity of parturient is reportedly associated with severely increased anaesthetic and obstetric risk.

OBJECTIVE:

To determine the prevalence rate, anaesthetic and obstetric complications in morbidly obese parturient that had caesarean delivery in a Nigerian tertiary care centre.

METHODS:

The obstetric theatre records and case files were reviewed for caesarean deliveries in the University of Nigeria Teaching Hospital, Enugu, Nigeria from May 2008 to December 2010. A sample size of 250 patients, calculated based on a prevalence rate of 19%, confidence interval of 95% , a power of 80%

and a finite population of zero was used to determine the prevalence rate of morbid obesity (Body Mass Index of greater than or equal to 35 kg/m<sup>2</sup>).

**RESULTS:**

There were thirty-one patients with morbid obesity (12.4%). The average Body Mass Index (BMI) was 38.3 kg/m<sup>2</sup>(SD ± 2.99). Other findings included macrosomia (7 or 25.8%), gestational diabetes (13%) and pregnancy induced hypertension (7 or 22.5%). There were two neonatal deaths but no maternal deaths.

**CONCLUSION:**

The prevalence rate of morbid obesity is about 10% in Nigerian women of child bearing age. This mirrors a World Health Organisation report published in the World Health Organisation Global Information Base.

**KEYWORDS:**

anaesthetic; morbid obesity; obstetric.

**323: St George SM, Wilson DK. A qualitative study for understanding family and peer influences on obesity-related health behaviors in low-income African-American adolescents. Child Obes. 2012 Oct;8(5):466-76. doi: 10.1089/chi.2012.0067. PubMed PMID: 23061501; PubMed Central PMCID: PMC3647590.**

**Abstract**

**BACKGROUND:**

Given the cultural and developmental relevance of family members and peers in the lives of African-American adolescents, the present study used a bioecological framework to qualitatively explore the parenting context as well as specific family factors (support, rules, monitoring) and peer factors (support) related to weight status, physical activity (PA), and healthy eating in low-income African-American boys versus girls.

**METHODS:**

Qualitative data were obtained from African-American adolescents through focus groups. Adolescents (n = 45, 100% African American, 51% girls, 12.6 ± 1.2 years, 51% overweight/obese) were from two underserved communities in South Carolina (median income ≈\$17,000-\$22,000, high crime levels). Sessions were audiotaped, transcribed, and coded by independent pairs of raters (r = 0.75). QSR NVivo 8 was used to analyze data, and themes were categorized separately for boys and girls.

**RESULTS:**

Adolescents reported themes of family warmth and control practices consistent with an authoritative style of parenting. Although adolescents wanted increased autonomy, they viewed parental monitoring as a favorable part of their relationship. Boys reported receiving more constructive feedback from parents about weight status and greater overall support for PA and diet than did girls. Girls reported more honest feedback from peers about weight status than did boys. Overall, adolescents acknowledged the unique opportunities of parents and peers in improving their health behaviors.

**CONCLUSIONS:**

Findings suggest parents and peers interact in different ways with African-American boys and girls regarding their weight status and health behaviors. Future obesity prevention efforts in minority youth may need to target parenting skills that provide greater support to African-American girls. In addition, given peers influence PA and diet differently in boys and girls, interventions should strategically include parenting strategies that involve monitoring peer-adolescent interactions.

**324: Roberts KC, Shields M, de Groh M, Aziz A, Gilbert JA. Overweight and obesity in children and adolescents: results from the 2009 to 2011 Canadian Health Measures Survey. Health Rep. 2012 Sep;23(3):37-41. PubMed PMID: 23061263.**

Abstract

BACKGROUND:

The 2009 to 2011 Canadian Health Measures Survey provides the most recent measured body mass index (BMI) data for children and adolescents. However, different methodologies exist for classifying BMI among children and youth. Based on the most recent World Health Organization classification, nearly a third of 5- to 17-year-olds were overweight or obese. The prevalence of obesity differed between boys and girls (15.1% versus 8.0%), most notably those aged 5 to 11, among whom the percentage of obese boys (19.5%) was more than three times that of obese girls (6.3%). These estimates indicate a higher prevalence of overweight/obesity among children than do estimates based on International Obesity Task Force cut-offs. Although the prevalence of overweight and obesity among children in Canada has not increased over the last decade, it remains a public health concern, given the tendency for excess weight to persist through to adulthood and lead to negative health outcomes.

**325: Johnson P, Risica PM, Gans KM, Kirtania U, Kumanyika SK. Association of perceived racial discrimination with eating behaviors and obesity among participants of the SisterTalk study. J Natl Black Nurses Assoc. 2012 Jul;23(1):34-40. PubMed PMID: 23061168; PubMed Central PMCID: PMC3773811.**

Abstract

The purpose of this study was to assess the association of perceived racial discrimination with emotional eating behaviors, weight status, and stress levels among obese African-American women, who volunteered to enter a weight control study (SisterTalk) in the New England region of the United States. The sample of women was taken from the baseline data of participants in SisterTalk, a randomized, controlled trial of a cable TV-delivered weight control program. Using the Krieger instrument, telephone and in-person surveys were used to assess perceived discrimination, emotional eating behaviors, and stress. Height and weight were measured to calculate BMI in order to assess weight status. ANOVA models were constructed to assess the association of discrimination with demographics. Correlations were calculated for discrimination, stress, emotional eating, and weight variables. ANOVA models were also constructed to assess discrimination with emotional eating, after adjusting for appropriate demographic variables. Perceived discrimination was associated with education and stress levels but was not associated with weight status (BMI). The frequency of eating when depressed or sad, and eating to manage stress, were both significantly higher among women who reported higher perceived discrimination and higher stress levels. Discrimination may contribute to stress that leads to eating for reasons other than hunger among African-American women, although the causal direction of associations cannot be determined with cross sectional data. Associations of discrimination with weight status were not found, although it is likely that emotional eating behaviors related to perceived discrimination are unhealthy. Future research should examine these relationships more closely in longitudinal studies.

**326: Magriples U, Boynton MH, Kershaw TS, Duffany KO, Rising SS, Ickovics JR. Blood pressure changes during pregnancy: impact of race, body mass index, and weight gain. Am J Perinatol. 2013 May;30(5):415-24. doi: 10.1055/s-0032-1326987. Epub 2012 Oct 11. Erratum in: Am J Perinatol. 2013 Feb;30(2):161. Duffany, Kathleen O [added]. PubMed PMID: 23059493; PubMed Central PMCID: PMC3938313.**

Abstract

OBJECTIVE:

To investigate the effect of race, body mass index (BMI), and weight gain on blood pressure in pregnancy and postpartum.

STUDY DESIGN:

Secondary analysis of pregnant women aged 14 to 25 who received prenatal care at a university-affiliated public clinic in New Haven, Connecticut and delivered singleton term infants (n = 418). Longitudinal multivariate analysis was used to evaluate blood pressure trajectories from pregnancy through 12 weeks postpartum.

RESULTS:

Obese and overweight women had significantly higher blood pressure readings as compared with women with normal BMI (all p < 0.05). African American women who had high pregnancy weight gain had the greatest increase in mean arterial and diastolic blood pressures in pregnancy and postpartum.

CONCLUSION:

Blood pressure trajectories in pregnancy and postpartum are significantly affected by race, BMI, and weight gain. Given the young age of this cohort, targeted efforts must be made for postpartum weight reduction to reduce cardiovascular risk.

**327: Okpere AN, Anochie IC, Eke FU. Prevalence of microalbuminuria among secondary school children. Afr Health Sci. 2012 Jun;12(2):140-7. doi: 10.4314/ahs.v12i2.10. PubMed PMID: 23056019; PubMed Central PMCID: PMC3462545.**

Abstract

BACKGROUND:

Microalbuminuria is an early sign of kidney and cardiovascular damage. Therefore, early detection in asymptomatic individuals may be helpful in preventing deterioration in renal function.

METHODS:

We carried out a cross-sectional study of 820 secondary school students aged 10 - 19 years from September to November 2008. The urine samples of 615 (75.0%) without overt proteinuria and haematuria were tested for microalbuminuria using the micral test strips. Values of greater than 20mg/L were considered positive.

RESULTS:

There were 299 (48.6%) males and 316 (51.4%) females, with a M:F ratio of 1:1.1. The prevalence of microalbuminuria as seen in 214 of the students was 33.2%. It was significantly higher in females (45.3%), obese subjects (35.4%), those with hypertension (70.6%), those with positive family history of hypertension (59.5%), and diabetes mellitus (46.4%). Microalbuminuria was found in 1 of the 2 subjects who had features of DM and in one subject with sickle cell anemia.

CONCLUSION:

The prevalence of microalbuminuria in Nigerian adolescents is high. We recommend routine screening for microalbuminuria in adolescents for early detection and prevention of renal damage.

**KEYWORDS:**

Nigeria; children; hypertension; microalbuminuria; obesity.

**328: Grijalva-Eternod CS, Wells JC, Cortina-Borja M, Salse-Ubach N, Tondeur MC, Dolan C, Meziani C, Wilkinson C, Spiegel P, Seal AJ. The double burden of obesity and malnutrition in a protracted emergency setting: a cross-sectional study of Western Sahara refugees. PLoS Med. 2012;9(10):e1001320. doi: 10.1371/journal.pmed.1001320. Epub 2012 Oct 2. PubMed PMID: 23055833; PubMed Central PMCID: PMC3462761.**

**Abstract**

**BACKGROUND:**

Households from vulnerable groups experiencing epidemiological transitions are known to be affected concomitantly by under-nutrition and obesity. Yet, it is unknown to what extent this double burden affects refugee populations dependent on food assistance. We assessed the double burden of malnutrition among Western Sahara refugees living in a protracted emergency.

**METHODS AND FINDINGS:**

We implemented a stratified nutrition survey in October–November 2010 in the four Western Sahara refugee camps in Algeria. We sampled 2,005 households, collecting anthropometric measurements (weight, height, and waist circumference) in 1,608 children (6–59 mo) and 1,781 women (15–49 y). We estimated the prevalence of global acute malnutrition (GAM), stunting, underweight, and overweight in children; and stunting, underweight, overweight, and central obesity in women. To assess the burden of malnutrition within households, households were first classified according to the presence of each type of malnutrition. Households were then classified as undernourished, overweight, or affected by the double burden if they presented members with under-nutrition, overweight, or both, respectively. The prevalence of GAM in children was 9.1%, 29.1% were stunted, 18.6% were underweight, and 2.4% were overweight; among the women, 14.8% were stunted, 53.7% were overweight or obese, and 71.4% had central obesity. Central obesity (47.2%) and overweight (38.8%) in women affected a higher proportion of households than did GAM (7.0%), stunting (19.5%), or underweight (13.3%) in children. Overall, households classified as overweight (31.5%) were most common, followed by undernourished (25.8%), and then double burden-affected (24.7%).

**CONCLUSIONS:**

The double burden of obesity and under-nutrition is highly prevalent in households among Western Sahara refugees. The results highlight the need to focus more attention on non-communicable diseases in this population and balance obesity prevention and management with interventions to tackle under-nutrition. Please see later in the article for the Editors' Summary.

**329: Kessler J, Koebnick C, Smith N, Adams A. Childhood obesity is associated with increased risk of most lower extremity fractures. Clin Orthop Relat Res. 2013 Apr;471(4):1199-207. doi: 10.1007/s11999-012-2621-z. PubMed PMID: 23054515; PubMed Central PMCID: PMC3586019.**

Abstract

BACKGROUND:

A number of studies have found an increased risk of lower extremity injuries in obese patients. Most studies, however, are unable to provide stable population-based estimates based on the degree of obesity and few assess the risk pertaining to more detailed fracture location in the lower extremities.

QUESTIONS/PURPOSES:

We therefore investigated the relationship between obesity and lower extremity fractures in different age and fracture locations in a stable population.

METHODS:

This is a population-based, cross-sectional study from the electronic medical records of 913,178 patients aged 2 to 19 years. The body mass index (BMI) for each patient in the cohort was used to stratify patients into five weight classes (underweight, normal weight, overweight, moderate obesity, and extreme obesity) based on BMI for age. Records were assessed for the occurrence of lower extremity fractures for each cohort member. The associations among the five weight classes and specific lower extremity fractures were estimated using multiple logistic regression models and expressed with odds ratios (ORs) and 95% confidence intervals (CIs) using multivariate analysis to adjust for patient demographic variables.

RESULTS:

Overweight, moderately obese, and extremely obese patients all had an increased OR of fractures of the foot (OR, 1.14, 1.23, and 1.42, respectively, with 95% CI, 1.04-1.24, 1.12-1.35, and 1.26-1.61, respectively) along with the ankle, knee, and leg (OR, 1.27, 1.28, and 1.51, respectively, with 95% CI, 1.16-1.39, 1.15-1.42, and 1.33-1.72, respectively). The association was strongest in the 6- to 11-year-old age group. We found no association between increasing BMI and increased risk of fractures of the femur and hip.

CONCLUSIONS:

Increasing BMI is associated with increased odds of foot, ankle, leg, and knee fractures in children.

LEVEL OF EVIDENCE:

Level III, prognostic study. See Guidelines for Authors for a complete description of levels of evidence.

**330: Morikawa Y, Tabata M, Kido T, Koyama Y. Occupational class inequalities in behavioral and biological risk factors for cardiovascular disease among workers in medium- and small-scale enterprises. Ind Health. 2012;50(6):529-39. Epub 2012 Oct 8. PubMed PMID: 23047077.**

Abstract

The aim of this cross-sectional study was to examine whether occupational class inequalities existed in the behavioral and biological risk factors for cardiovascular disease among workers in medium- and small-scale enterprises. We asked 1,900 enterprises in the Ishikawa prefecture who were users of an external health check-up facility to supply anonymous individual data in 2009. The 446 enterprises consented to the invitation. The study population was 12,625 individuals (8,104 males and 4,521 females) 16-59 yr of age. We compared indices among occupational classes. The indices of lipid and

glucose metabolism were used only for subjects 40-59 yr of age. The results of this study revealed occupational class inequalities in the prevalence of current smoking, heavy drinking and hypertension in men. These inequalities were more prominent among men in the younger age group than in the older age group. In men, the most disadvantaged occupational class was transportation workers, followed by laborers. Occupational class inequalities in smoking were also found among female workers. However, the influences of occupational class on obesity and indices of lipid or glucose metabolism were inconsistent. A strategy for health promotion that targets the disadvantaged population is necessary for the prevention of cardiovascular disease.

**331: Dabbaghian V, Mago VK, Wu T, Fritz C, Alimadad A. Social interactions of eating behaviour among high school students: a cellular automata approach. BMC Med Res Methodol. 2012 Oct 9;12:155. doi: 10.1186/1471-2288-12-155. PubMed PMID: 23046793; PubMed Central PMCID: PMC3598476.**

Abstract

BACKGROUND:

Overweight and obesity in children and adolescents is a global epidemic posing problems for both developed and developing nations. The prevalence is particularly alarming in developed nations, such as the United States, where approximately one in three school-aged adolescents (ages 12-19) are overweight or obese. Evidence suggests that weight gain in school-aged adolescents is related to energy imbalance exacerbated by the negative aspects of the school food environment, such as presence of unhealthy food choices. While a well-established connection exists between the food environment, presently there is a lack of studies investigating the impact of the social environment and associated interactions of school-age adolescents. This paper uses a mathematical modelling approach to explore how social interactions among high school adolescents can affect their eating behaviour and food choice.

METHODS:

In this paper we use a Cellular Automata (CA) modelling approach to explore how social interactions among school-age adolescents can affect eating behaviour, and food choice. Our CA model integrates social influences and transition rules to simulate the way individuals would interact in a social community (e.g., school cafeteria). To replicate these social interactions, we chose the Moore neighbourhood which allows all neighbours (eights cells in a two-dimensional square lattice) to influence the central cell. Our assumption is that individuals belong to any of four states; Bring Healthy, Bring Unhealthy, Purchase Healthy, and Purchase Unhealthy, and will influence each other according to parameter settings and transition rules. Simulations were run to explore how the different states interact under varying parameter settings.

RESULTS:

This study, through simulations, illustrates that students will change their eating behaviour from unhealthy to healthy as a result of positive social and environmental influences. In general, there is one common characteristic of changes across time; students with similar eating behaviours tend to form groups, represented by distinct clusters. Transition of healthy and unhealthy eating behaviour is non-linear and a sharp change is observed around a critical point where positive and negative influences are equal.

CONCLUSIONS:

Conceptualizing the social environment of individuals is a crucial step to increasing our understanding of obesogenic environments of high-school students, and moreover, the general population.

Incorporating both contextual, and individual determinants found in real datasets, in our model will greatly enhance calibration of future models. Complex mathematical modelling has a potential to contribute to the way public health data is collected and analyzed.

**332: Héroux M, Iannotti RJ, Currie D, Pickett W, Janssen I. The food retail environment in school neighborhoods and its relation to lunchtime eating behaviors in youth from three countries. Health Place. 2012 Nov;18(6):1240-7. doi: 10.1016/j.healthplace.2012.09.004. Epub 2012 Sep 15. PubMed PMID: 23041489; PubMed Central PMCID: PMC3501585.**

#### Abstract

This study examined the relation between the chain food retail environment surrounding schools, youths' lunchtime eating behavior, and youths' obesity levels across three countries. Participants consisted of 26,778 students 13-15 years old from 687 schools across Canada, Scotland and the US. The density of convenience stores, chain fast food restaurants, and chain cafés within 1 km of each school was measured. Lunchtime eating behaviors, weight, and height were self-reported. Although the density of chain food retailers was highest in the US, fewer American students (2.6%) routinely ate their lunch at a food retailer during the school week than did Canadian (7.7%) and Scottish (43.7%) students. The density of chain food retailers was associated with eating lunch at a food retailer in Canada only whereby students attending schools with 1-2, 3-4, and 5+ chain food retailers within 1 km from their schools were 1.39 (95% CI: 0.84-2.29), 1.87 (95% CI: 1.10-3.20), and 2.50 (95% CI: 1.56-4.01) times more likely to eat at a chain food retailer compared to students attending schools with no nearby chain food retailers. No associations were found between chain food retailer density and obesity.

**333: Gyllenhammer LE, Vanni AK, Byrd-Williams CE, Kalan M, Bernstein L, Davis JN. Objective habitual physical activity and estradiol levels in obese Latina adolescents. J Phys Act Health. 2013 Jul;10(5):727-33. Epub 2012 Oct 4. PubMed PMID: 23038707; PubMed Central PMCID: PMC3779056.**

#### Abstract

##### BACKGROUND:

Lifetime physical activity (PA) is associated with decreased breast cancer (BC) risk; reports suggest that PA during adolescence contributes strongly to this relationship. PA lowers production of sex hormones, specifically estradiol, or decreases insulin resistance (IR), thereby lowering risk. Overweight Latina adolescents are insulin resistant and exhibit low levels of PA, potentially increasing their future BC risk.

##### METHODS:

37 obese Latina adolescents ( $15.7 \pm 1.1$  yrs) provided measures of PA using accelerometry; plasma follicular phase estradiol, sex-hormone binding globulin, total and free testosterone, dehydroepiandrosterone-sulfate (DHEAS); IR using HOMA-IR; and body composition via DEXA. Partial correlations and stepwise linear regressions assessed cross-sectional relationships between sex hormones, IR and PA. Body composition, and age were included a priori as covariates.

##### RESULTS:

Estradiol was negatively associated with accelerometer counts per minute (CPM;  $r = -0.4$ ;  $P = .02$ ), percent time spent in moderate PA (%MPA;  $r = -0.5$ ;  $P = .006$ ), and percent time in moderate or



vigorous PA (%MVPA;  $r = -0.5$ ;  $P = .007$ ). DHEAS was positively associated with CPM ( $r = .4$ ,  $P = .009$ ), %MPA ( $r = .3$ ,  $P = .04$ ), and %MVPA ( $r = .3$ ,  $P = .04$ ). Other sex hormones and IR were not associated with PA measures.

**CONCLUSION:**

This study is the first to show that higher habitual PA was inversely associated with estradiol in obese adolescents.

**334: Veldwijk J, Proper KI, Hoeven-Mulder HB, Bemelmans WJ. The prevalence of physical, sexual and mental abuse among adolescents and the association with BMI status. BMC Public Health. 2012 Oct 4;12:840. doi: 10.1186/1471-2458-12-840. PubMed PMID: 23033819; PubMed Central PMCID: PMC3507854.**

**Abstract**

**BACKGROUND:**

Studies among adults show an association between abuse and Body Mass Index (BMI) status. When an aberrant BMI status as a consequence of abuse is already prevalent in adolescence, early detection and treatment of abuse might prevent these adolescents from developing serious weight problems and other long-term social, emotional and physical problems in adulthood. Therefore, this study investigated the prevalence of physical, sexual and mental abuse among adolescents and examined the association of these abuse subtypes with BMI status.

**METHODS:**

In total, data of 51,856 secondary school students aged 13-16 who had completed a questionnaire on health, well-being and lifestyle were used. BMI was classified into four categories, underweight, normal weight, overweight and obesity. Adolescents reported if they had ever been physically, sexually or mentally abused. Crude and adjusted General Estimation Equation (GEE) analyses were performed to investigate the association between abuse subtypes and BMI status. Analyses were adjusted for ethnicity and parental communication, and stratified for gender and educational level.

**RESULTS:**

Eighteen percent of the adolescents reported mental abuse, 7% reported sexual abuse, and 6% reported physical abuse. For underweight, overweight and obese adolescents these percentages were 17%, 25%, and 44%; 7%, 8%, and 16%; and 6%, 8%, 18% respectively. For the entire population, all these subtypes of abuse were associated with being overweight and obese (OR=3.67, 1.79 and 1.50) and all but sexual abuse were associated with underweight (OR=1.21 and 1.12). Stratified analyses showed that physical and sexual abuse were significantly associated with obesity among boys (OR=1.77 and 2.49) and among vocational school students (OR=1.60 and 1.69), and with underweight among girls (OR=1.26 and 0.83).

**CONCLUSION:**

Mental abuse was reported by almost half of the obese adolescents and associated with underweight, overweight and obesity. Longitudinal analyses are recommended to explore the causality of and the mechanisms explaining this association between abuse and overweight.

**335: Murguía-Romero M, Jiménez-Flores R, Villalobos-Molina R, Méndez-Cruz AR. Estimating the geographical distribution of the prevalence of the metabolic syndrome in young Mexicans. *Geospat Health*. 2012 Sep;6(3):S43-50. PubMed PMID: 23032282.**

Abstract

The geographical distribution of the metabolic syndrome (MetS) prevalence in young Mexicans (aged 17-24 years) was estimated stepwise starting from its prevalence based on the body mass index (BMI) in a study of 3,176 undergraduate students of this age group from Mexico City. To estimate the number of people with MetS by state, we multiplied its prevalence derived from the BMI range found in the Mexico City sample by the BMI proportions (range and state) obtained from the Mexico 2006 national survey on health and nutrition. Finally, to estimate the total number of young people with MetS in Mexico, its prevalence by state was multiplied by the share of young population in each state according to the National Population and Housing Census 2010. Based on these figures, we estimated the national prevalence of MetS at 15.8%, the average BMI at 24.1 (standard deviation = 4.2), and the prevalence of overweight people (BMI  $\geq$ 25) of that age group at 39.0%. These results imply that 2,588,414 young Mexicans suffered from MetS in 2010. The Yucatan peninsula in the south and the Sonora state in the north showed the highest rates of MetS prevalence. The calculation of the MetS prevalence by BMI range in a sample of the population, and extrapolating it using the BMI proportions by range of the total population, was found to be a useful approach. We conclude that the BMI is a valuable public health tool to estimate MetS prevalence in the whole country, including its geographical distribution.

**336: Guo X, Zheng L, Li Y, Yu S, Sun G, Yang H, Zhou X, Zhang X, Sun Z, Sun Y. Differences in lifestyle behaviors, dietary habits, and familial factors among normal-weight, overweight, and obese Chinese children and adolescents. *Int J Behav Nutr Phys Act*. 2012 Oct 2;9:120. doi: 10.1186/1479-5868-9-120. PubMed PMID: 23031205; PubMed Central PMCID: PMC3522535.**

Abstract

BACKGROUND:

Pediatric obesity has become a global public health problem. Data on the lifestyle behaviors, dietary habits, and familial factors of overweight and obese children and adolescents are limited. The present study aims to compare health-related factors among normal-weight, overweight, and obese Chinese children and adolescents.

METHODS:

We conducted a cross-sectional study consisted of 4262 children and adolescents aged 5-18 years old from rural areas of the northeast China. Anthropometric measurements and self-reported information on health-related variables, such as physical activities, sleep duration, dietary habits, family income, and recognition of weight status from the views of both children and parents, were collected by trained personnel.

RESULTS:

The prevalence rates of overweight and obesity were 15.3 and 6.4%, respectively. Compared to girls, boys were more commonly overweight (17.5% vs. 12.9%) and obese (9.5% vs. 3.1%). Approximately half of the parents with an overweight or obese child reported that they failed to recognize their child's excess weight status, and 65% of patients with an overweight child reported that they would

not take measures to decrease their child's body weight. Obese children and adolescents were more likely to be nonsnackers [odds ratio (OR): 1.348; 95% confidence interval (CI): 1.039-1.748] and to have a family income of 2000 CNY or more per month (OR: 1.442; 95% CI: 1.045-1.99) and less likely to sleep longer ( $\geq 7.5$  h) (OR: 0.475; 95% CI: 0.31-0.728) than the normal-weight participants.

**CONCLUSIONS:**

Our study revealed a high prevalence of overweight and obesity in a large Chinese pediatric population. Differences in sleep duration, snacking, family income, and parental recognition of children's weight status among participants in different weight categories were observed, which should be considered when planning prevention and treatment programs for pediatric obesity.

**337: Rampal S, Mahadeva S, Guallar E, Bulgiba A, Mohamed R, Rahmat R, Arif MT, Rampal L. Ethnic differences in the prevalence of metabolic syndrome: results from a multi-ethnic population-based survey in Malaysia. PLoS One. 2012;7(9):e46365. doi: 10.1371/journal.pone.0046365. Epub 2012 Sep 28. PubMed PMID: 23029497; PubMed Central PMCID: PMC3460855.**

**Abstract**

**INTRODUCTION:**

The prevalence of metabolic syndrome is increasing disproportionately among the different ethnicities in Asia compared to the rest of the world. This study aims to determine the differences in the prevalence of metabolic syndrome across ethnicities in Malaysia, a multi-ethnic country.

**METHODS:**

In 2004, we conducted a national cross-sectional population-based study using a stratified two-stage cluster sampling design (N = 17,211). Metabolic syndrome was defined according to the International Diabetes Federation/National Heart, Lung and Blood Institute/American Heart Association (IDF/NHLBI/AHA-2009) criteria. Multivariate models were used to study the independent association between ethnicity and the prevalence of the metabolic syndrome.

**RESULTS:**

The overall mean age was 36.9 years, and 50.0% participants were female. The ethnic distribution was 57.0% Malay, 28.5% Chinese, 8.9% Indian and 5.0% Indigenous Sarawakians. The overall prevalence of the metabolic syndrome was 27.5%, with a prevalence of central obesity, raised triglycerides, low high density lipoprotein cholesterol, raised blood pressure and raised fasting glucose of 36.9%, 29.3%, 37.2%, 38.0% and 29.1%, respectively. Among those <40 years, the adjusted prevalence ratios for metabolic syndrome for ethnic Chinese, Indians, and Indigenous Sarawakians compared to ethnic Malay were 0.81 (95% CI 0.67 to 0.96), 1.42 (95% CI 1.19 to 1.69) and 1.37 (95% CI 1.08 to 1.73), respectively. Among those aged  $\geq 40$  years, the corresponding prevalence ratios were 0.86 (95% CI 0.79 to 0.92), 1.25 (95% CI 1.15 to 1.36), and 0.94 (95% CI 0.80, 1.11). The P-value for the interaction of ethnicity by age was 0.001.

**CONCLUSIONS:**

The overall prevalence of metabolic syndrome in Malaysia was high, with marked differences across ethnicities. Ethnic Chinese had the lowest prevalence of metabolic syndrome, while ethnic Indians had the highest. Indigenous Sarawakians showed a marked increase in metabolic syndrome at young ages.

**339: Mina R, Casolin A. The Australian National Standard for rail workers five years on. *Occup Med (Lond)*. 2012 Dec;62(8):642-7. doi: 10.1093/occmed/kqs170. Epub 2012 Sep 27. PubMed PMID: 23024251.**

Abstract

**BACKGROUND:**

Following the introduction of the National Standard for Health Assessment of Rail Safety Workers, RailCorp train drivers were found to have levels of obesity and hypertension greater than the Australian population prevalence. Cardiovascular risk factors and conditions were the most prevalent health issue and had the greatest impact on fitness for duty.

**AIMS:**

To determine whether there has been a change in the prevalence of health conditions in train drivers 5 years after the introduction of the Standard.

**METHODS:**

A file review was conducted of all RailCorp drivers and driver recruits assessed between 1 February 2009 and 31 January 2010.

**RESULTS:**

The files of 1094 subjects were reviewed. The proportions of drivers with systolic blood pressure  $\geq 140$  mmHg (35% in 2004/05; 22% in 2009/10,  $P < 0.001$ ), total cholesterol  $\geq 5.5$  mmol/L (39%; 32%,  $P < 0.001$ ) and who smoked (25%; 20%,  $P < 0.01$ ) all decreased significantly. The proportions of drivers who were obese (40% in 2004/05; 47% in 2009/10,  $P < 0.001$ ) and who had diabetes (7%; 11%,  $P < 0.01$ ) and pre-diabetes (2%; 5%,  $P < 0.001$ ) all increased significantly.

**CONCLUSIONS:**

The rate of increase of obesity in drivers is similar to the general population and is also observed in recruits. Increases in the prevalence of diabetes and pre-diabetes are likely to reflect the increased prevalence of obesity and the impact of regular screening. These were offset by improvements in systolic blood pressure, total cholesterol and smoking status, with a neutral overall effect on cardiac risk score.

**340: Levine LD, Landsberger EJ, Bernstein PS, Chazotte C, Srinivas SK. Is obesity an independent barrier to obtaining prenatal care? *Am J Perinatol*. 2013 May;30(5):401-5. doi: 10.1055/s-0032-1326984. Epub 2012 Sep 21. PubMed PMID: 23023556; PubMed Central PMCID: PMC3670139.**

Abstract

**OBJECTIVE:**

Obesity is a demonstrated barrier to obtaining health care. Its impact on obtaining prenatal care (PNC) is unknown. Our objective was to determine if obesity is an independent barrier to accessing early and adequate PNC.

**STUDY DESIGN:**

We performed a retrospective cohort study of women who initiated PNC and delivered at our institution in 2005. Body mass index (BMI) was categorized by World Health Organization guidelines: underweight ( $< 18.5$  kg/m<sup>2</sup>), normal weight (18.5 to 24.9 kg/m<sup>2</sup>), overweight (25.0 to 29.9 kg/m<sup>2</sup>), and obese ( $\geq 30$  kg/m<sup>2</sup>). Maternal history and delivery information were obtained through chart abstraction. Differences in gestational age at first visit (GA-1) and adequate PNC were evaluated by BMI category. Data were compared using  $\chi^2$  and nonparametric analyses.

#### RESULTS:

Overall, 410 women were evaluated. The median GA-1 was 11.1 weeks and 69% had adequate PNC. There was no difference in GA-1 or adequate PNC by BMI category ( $p = 0.17$  and  $p = 0.66$ , respectively). When BMI groups were dichotomized into obese and nonobese women, there was no difference in GA-1 or adequate PNC ( $p = 0.41$ ).

#### CONCLUSION:

In our population, obesity is not an independent barrier to receiving early and adequate PNC. Future work is warranted in evaluating the association between obesity and PNC and the perceived barriers to obtaining care.

**341: Loth KA, MacLehose RF, Fulkerson JA, Crow S, Neumark-Sztainer D. Eat this, not that! Parental demographic correlates of food-related parenting practices. *Appetite*. 2013 Jan;60(1):140-7. doi: 10.1016/j.appet.2012.09.019. Epub 2012 Sep 26. Erratum in: *Appetite*. 2013 Apr;63:146. PubMed PMID: 23022556; PubMed Central PMCID: PMC3889702.**

#### Abstract

To understand how parents of adolescents attempt to regulate their children's eating behaviors, the prevalence of specific food-related parenting practices (restriction, pressure-to-eat) by sociodemographic characteristics (parent gender, race/ethnicity, education level, employment status, and household income) were examined within a population-based sample of parents ( $n=3709$ ) of adolescents. Linear regression models were fit to estimate the association between parent sociodemographic characteristics and parental report of food restriction and pressure-to-eat. Overall, findings suggest that use of controlling food-related parenting practices, such as pressuring children to eat and restricting children's intake, is common among parents of adolescents, particularly among parents in racial/ethnic minority subgroups, parents with less than a high school education, and parents with a low household income. Results indicate that that social or cultural traditions, as well as parental access to economic resources, may contribute to a parent's decision to utilize specific food-related parenting practices. Given that previous research has found that restriction and pressure-to-eat food-related parenting practices can negatively impact children's current and future dietary intake, differences in use of these practices by sociodemographic characteristics may contribute, in part, to the disparities that exist in the prevalence of overweight and obesity among adolescents by their race/ethnicity and socioeconomic status.

**342: Asghari G, Mirmiran P, Rashidkhani B, Asghari-Jafarabadi M, Mehran M, Azizi F. The association between diet quality indices and obesity: Tehran Lipid and Glucose Study. *Arch Iran Med*. 2012 Oct;15(10):599-605. PubMed PMID: 23020534.**

#### Abstract

##### BACKGROUND:

The aim of this study was to investigate the ability of diet quality indices in predicting obesity and abdominal obesity in a population in nutrition transition.

##### METHODS:

This study explored the association of the Mediterranean Diet Scale (MDS), Healthy Eating Index-2005 (HEI-2005), and Diet Quality Index-International (DQI-I) with body mass index (BMI) and waist

circumference (WC) in a cross-sectional study after 6.7 years of follow-up in the Tehran Lipid and Glucose Study (TLGS) population.

**RESULTS:**

Out of 192 subjects who had BMI < 25kg/m<sup>2</sup> and of 283 subjects who were free of abdominal obesity at baseline, 39.6% developed overweight and obesity and 43.1% developed abdominal obesity, respectively during 6.7 years of follow-up in the study population. In cross-sectional analysis, after adjusting for age, sex, energy intake, physical activity and smoking status, multivariate analysis of covariance did not show any significant results regarding the relation of the diet quality indices, BMI and WC. According to follow-up analysis, none of the indices had significant associations with BMI and WC after adjustments for confounders and baseline values of BMI and WC.

**CONCLUSION:**

Adherence to MDS, HEI-2005, and DQI-I could not predict BMI and WC in Iranian participants after 6.7 years of follow-up.

**343: Sygit K, Kořątaj W, Goździwska M, Sygit M, Kořątaj B, Karwat ID.**

**Lifestyle as an important factor in control of overweight and obesity among schoolchildren from the rural environment. *Ann Agric Environ Med.***

**2012;19(3):557-61. PubMed PMID: 23020056.**

**Abstract**

**INTRODUCTION:**

Lifestyle of an individual is responsible for sixty percent of his/her state of health. Many studies of this problem indicate that in the style of life of schoolchildren, anti-health behaviours dominate over health promoting behaviours.

**OBJECTIVE:**

The objective of the presented study was recognition of the lifestyle of the rural adolescents with overweight and obesity.

**MATERIAL AND METHODS:**

The study covered adolescents aged 15-19, living in the rural environments of the West Pomeranian Region. Finally, the analysis covered 2,165 schoolchildren, and was performed with the use of a self-designed questionnaire form and the BMI was applied.

**RESULTS:**

The study showed that overweight occurred more often in the group of examined girls than boys, while obesity was twice as frequent among boys than among girls. Overweight schoolchildren (35.1%) had an adequate diet, while those obese--inadequate (78.3%). In the group of schoolchildren with overweight, passive leisure prevailed over active forms of leisure, 83.8% and 16.2%, respectively. Passive leisure was also dominant among obese respondents. Among as many as 81.8% of schoolchildren with overweight, physical activity was mediocre, while only 8.1% of them were active. The highest percentage of respondents with obesity were totally inactive physically. Obese schoolchildren relatively often experienced stressful situations. It is an alarming fact that both overweight and obese schoolchildren relatively often used psychoactive substances.

**CONCLUSIONS:**

A considerable number of respondents with overweight and obesity applied an adequate diet, preferred passive forms of leisure, experienced stressful situations, were characterized by low physical activity, and systematically used psychoactive substances.

**344: Coelho LG, Cândido AP, Machado-Coelho GL, Freitas SN. Association between nutritional status, food habits and physical activity level in schoolchildren. J Pediatr (Rio J). 2012 Sep-Oct;88(5):406-12. doi: doi:10.2223/JPED.2211. Epub 2012 Sep 26. English, Portuguese. PubMed PMID: 23014848.**

Abstract

OBJECTIVES:

To analyze the relation between nutritional status, food habits and physical activity level in schoolchildren.

METHODS:

A cross-sectional study was carried out with 661 schoolchildren, from 6 to 14 years old, enrolled in public and private schools located in the urban area of Ouro Preto, state of Minas Gerais, Brazil. A semi-structured questionnaire was applied to collect data on demographic, socio-economic, anthropometric and level of physical activity variables. Schoolchildren were classified according to criteria for body mass index by age, body fat percentage and physical activity level, respectively. Dietary data were collected through a validated food frequency questionnaire specific for children and adolescents. Food consumption was evaluated according to an adaptation of the Recommended Foods Score, whose objective is the assessment of overall diet quality with a focus on healthy food consumption.

RESULTS:

We observed high frequency of overweight according to body mass index per age (20.1%) and body fat percentage (22.8%), as well as physical inactivity (80.3%) among schoolchildren. We also found low scores on the Recommended Foods Score in 77.2% of students. There was no significant relation between overweight and physical inactivity or food consumption ( $p > 0.05$ ).

CONCLUSION:

Schoolchildren had a high frequency of overweight, which, alone, was not associated with the high physical inactivity and the low quality diet observed. Therefore, more studies should be performed to identify other factors besides those already described, which may be influencing overweight in this population.

**345: Johnson W, Chumlea WC, Czerwinski SA, Demerath EW. Secular trends in the fat and fat-free components of body mass index in children aged 8-18 years born 1958-1995. Ann Hum Biol. 2013 Jan;40(1):107-10. doi: 10.3109/03014460.2012.720710. Epub 2012 Sep 26. PubMed PMID: 23013058; PubMed Central PMCID: PMC3988663.**

Abstract

BACKGROUND:

It is unknown whether the secular trend in childhood BMI reflects increases in fat-free mass as well as fat mass.

METHODS:

This study decomposed BMI trends in 488 participants in the Fels Longitudinal Study born between 1958-1995 and aged 8-17.99 years into their fat and fat-free components. Generalized estimating equations estimated birth year cohort (1958-1970, 1971-1983, 1984-1995) effects on 2208 observations of BMI, fat mass index (FMI = fat mass (kg)/height (m)(2)) and fat-free mass index (FFMI = fat-free mass (kg)/height (m)(2)).

RESULTS:

BMI in boys increased across cohorts, with those born between 1984-1995 being 2 kg/m<sup>2</sup> larger than those born between 1958-1970 ( $p = 0.001$ ) and increases in FMI were highly significant ( $p$ -values  $< 0.001$ ). FFMI did not differ by cohort. In girls, there was a significant advantage in BMI (1.2 kg/m<sup>2</sup>) and FFMI (0.8 kg/m<sup>2</sup>) of the 1984-1995 cohort compared to the 1971-1983 cohort ( $p$ -values  $< 0.05$ ).

CONCLUSIONS:

Because the long term trend in childhood BMI in boys appears to be driven by an increase in total body adiposity, evidence is provided to support current knowledge on the predicted deleterious long-term consequences of the childhood obesity epidemic in boys. Research is needed to confirm whether recent changes in BMI in girls are due to increases in fat-free mass resulting from changes in behaviour and lifestyle not yet manifest in boys.

**346: Turchiano M, Sweat V, Fierman A, Convit A. Obesity, metabolic syndrome, and insulin resistance in urban high school students of minority race/ethnicity. Arch Pediatr Adolesc Med. 2012 Nov;166(11):1030-6. doi: 10.1001/archpediatrics.2012.1263. PubMed PMID: 23007727; PubMed Central PMCID: PMC3615436.**

Abstract

OBJECTIVES:

To determine the point prevalences of metabolic syndrome (MetS) and its components among healthy weight, overweight, and obese inner-city public high school students, to compare the prevalences of MetS when using 2 different definitions (one with the impaired fasting glucose [IFG] level and the other with a homeostasis model assessment of insulin resistance [HOMA-IR] of 3.99 or higher to define the glucose regulation component), and to compare the degree to which HOMA-IR and fasting glucose level are associated with the other MetS components.

DESIGN:

Cross-sectional analysis.

SETTING:

Two New York City public high schools, from April 2008 through August 2011.

PARTICIPANTS:

Convenience sample of 1185 high school youth, comprising predominantly Hispanic and African American students from low-income households, participating in The Banishing Obesity and Diabetes in Youth Project, a medical screening and education program.

MAIN OUTCOME MEASURES:

Prevalences of the following individual MetS components: IFG threshold, HOMA-IR, hypertension, central adiposity, hypertriglyceridemia, and low high-density lipoprotein cholesterol. Rates of MetSIFG and MetSHOMA-IR were also assessed.

RESULTS:

MetSIFG and MetSHOMA-IR point prevalences were both 0.3% in the healthy weight group; they were 2.6% and 5.9%, respectively, in the overweight group and were 22.9% and 35.1%, respectively, in the obese group ( $P < .05$  for both). An IFG threshold of 100 mg/dL or higher was found in 1.0% of participants, whereas a HOMA-IR of 3.99 or higher was found in 19.5% of participants.

CONCLUSIONS:

An elevated HOMA-IR is much more sensitive than an IFG threshold in identifying adolescents with metabolic dysregulation. Using a HOMA-IR threshold of 3.99 identifies more youth with MetS than



using an IFG threshold of 100 mg/dL. In addition to increasing the sensitivity of MetS detection, HOMA-IR has a much higher association with the other MetS components than the IFG threshold and may better reflect a unified underlying pathologic process useful to identify youth at risk for disease.

**347: Neovius K, Johansson K, Kark M, Tynelius P, Rasmussen F. Trends in self-reported BMI and prevalence of obesity 2002-10 in Stockholm County, Sweden. Eur J Public Health. 2013 Apr;23(2):312-5. doi: 10.1093/eurpub/cks128. Epub 2012 Sep 22. PubMed PMID: 23002231.**

Abstract

BACKGROUND:

Trends in obesity have been reported to level off in several Western countries. The aim of this study was to investigate trends in body mass index (BMI) and prevalence of obesity between 2002 and 2010 in Stockholm County, Sweden.

METHODS:

Three cross-sectional questionnaires from the Stockholm Health Surveys were used for this study. A total of 31 182, 34 707 and 30 767 men and women aged between 18 and 64 years completed the questionnaire regarding sociodemographic factors, health parameters, physical activity, smoking habits and anthropometry in 2002, 2006 and 2010, respectively (response rate: 62.5, 61.3 and 55.6%, respectively). Linear regression was used to investigate changes in mean BMI. Relative risk regression models were used to investigate changes in prevalence of obesity, defined as BMI  $\geq$  30 kg/m<sup>2</sup>. All analyses were stratified on age and further adjusted for smoking, education and socioeconomic position.

RESULTS:

Between 2002 and 2006, a stabilization was found in BMI and prevalence of obesity in both men and women. But from 2006 to 2010, BMI and prevalence of obesity had increased, also among the young. In 2010, the prevalence of obesity was 12.2% among men and 10.3% among women.

CONCLUSION:

After a period of stabilization in 2002-06, BMI and prevalence of obesity are increasing in Stockholm County, Sweden.

**348: Shang XW, Liu AL, Zhang Q, Hu XQ, Du SM, Ma J, Xu GF, Li Y, Guo HW, Du L, Li TY, Ma GS. Report on childhood obesity in China (9): sugar-sweetened beverages consumption and obesity. Biomed Environ Sci. 2012 Apr;25(2):125-32. PubMed PMID: 22998817.**

Abstract

OBJECTIVE:

To explore the associations between sugar-sweetened beverage (SSB) consumption and obesity as well as obesity-related cardiometabolic disorders among children in China.

METHODS:

A total of 6974 (boys 3558, girls 3412) children aged 6-13 years participated in the study. Each participant's height, weight, waist circumference, fasting glucose, triglycerides, total cholesterol, high-density lipoprotein cholesterol, and low-density lipoprotein cholesterol were measured. The type of beverage consumption was determined using a self-administered questionnaire.

RESULTS:

SSBs were consumed regularly by 46.1% of the children. The prevalence [adjusted odds ratio (95% confidence interval (CI)) of obesity was 7.6% [as the reference group (ref.)], 10.1% [1.36(1.07, 1.74)], and 11.6% [1.46(1.21, 1.75)], among children who regularly drank milk, other beverages and SSBs, respectively. Regularly drinking SSBs elevated the likelihood of abdominal obesity [adjusted odds ratio (95% CI): 1.36 (1.17, 1.59)]. The prevalence [adjusted odds ratio (95% CI)] of obesity among children who regularly drank sports/caloric beverages, carbonated beverages, sweet tea, and plant protein beverages was 16.8% [2.00(1.31, 3.07)], 12.7% [1.52(1.23, 1.88)], 11.5% [1.52(1.18, 1.95)], and 10.4% [1.41(1.03, 1.94)], respectively, which was higher than that of regular milk drinkers [7.6 % (ref.)]. The prevalence [adjusted odds ratio (95% CI)] of abdominal obesity among children who regularly drank sweet tea, fruit/vegetable juices, and carbonated beverages was 17.7% [1.55(1.26, 1.90)], 16.2% [1.36(1.09, 1.70)], and 15.3% [1.24(1.03, 1.50)], respectively, which was much higher than that of regular milk drinkers [12.8% (ref.)].

**CONCLUSIONS:**

Regular SSB consumption was positively related to obesity and abdominal obesity. This relationship should be investigated further using a longitudinal study design.

**349: Weden MM, Brownell P, Rendall MS. Prenatal, perinatal, early life, and sociodemographic factors underlying racial differences in the likelihood of high body mass index in early childhood. Am J Public Health. 2012 Nov;102(11):2057-67. doi: 10.2105/AJPH.2012.300686. Epub 2012 Sep 20. PubMed PMID: 22994179; PubMed Central PMCID: PMC3477944.**

**Abstract**

**OBJECTIVES:**

We investigated early childhood disparities in high body mass index (BMI) between Black and White US children.

**METHODS:**

We compared differences in Black and White children's prevalence of sociodemographic, prenatal, perinatal, and early life risk and protective factors; fit logistic regression models predicting high BMI ( $\geq$  95th percentile) at age 4 to 5 years to 2 nationally representative samples followed from birth; and performed separate and pooled-survey estimations of these models.

**RESULTS:**

After adjustment for sample design-related variables, models predicting high BMI in the 2 samples were statistically indistinguishable. In the pooled-survey models, Black children's odds of high BMI were 59% higher than White children's (odds ratio [OR] = 1.59; 95% confidence interval [CI]= 1.32, 1.92). Sociodemographic predictors reduced the racial disparity to 46% (OR = 1.46; 95% CI = 1.17, 1.81). Prenatal, perinatal, and early life predictors reduced the disparity to nonsignificance (OR = 1.18; 95% CI = 0.93, 1.49). Maternal prepregnancy obesity and short-duration or no breastfeeding were among predictors for which racial differences in children's exposures most disadvantaged Black children.

**CONCLUSIONS:**

Racial disparities in early childhood high BMI were largely explained by potentially modifiable risk and protective factors.

**350: Dudley DA, Okely AD, Pearson P, Cotton WG, Caputi P. Changes in physical activity levels, lesson context, and teacher interaction during physical education in culturally and linguistically diverse Australian schools. Int J Behav Nutr Phys Act. 2012 Sep 18;9:114. doi: 10.1186/1479-5868-9-114. PubMed PMID: 22989149; PubMed Central PMCID: PMC3515340.**

Abstract

BACKGROUND:

Recent data show that only 15% of Australian adolescents participate in adequate amounts of physical activity (PA) and those students from Asian and Middle-Eastern backgrounds in Grades 6-12 are significantly less active than their English-speaking background peers. Schools have recently been recognised as the most widely used and cost-effective setting for promoting PA among youth and one domain within schools where PA can occur regularly for all youth, regardless of cultural background or socio-economic status, is during physical education (PE).

METHODS:

This study describes changes in physical activity (PA), lesson context and teacher interaction in physical education over the first two years in culturally and linguistically diverse secondary schools. Grade 7 PE classes in six schools were randomly observed using systematic direct observation (n = 81) and then followed up over the same period (n = 51) twelve months later.

RESULTS:

There was no significant decline in moderate-to-vigorous physical activity (MVPA) during PE (MD = -4.8%; p = .777), but a significant decline and medium negative effect in time spent in vigorous physical activity (VPA) (MD = -7.9%; p = .009) during PE was observed. Significant declines and large negative effects over time in percentage of PE time spent in management (MD = -8.8%; p < .001) and the number of observations where teachers promoted PA (MD = -20.7%; p < .001).

CONCLUSIONS:

The decline of VPA and teacher promotion of PA in culturally and linguistically diverse schools is of concern. Given the declines in VPA and the increases in time spent in game play, further research is needed to ascertain whether PE instruction could be improved by focussing on skill instruction and fitness in a games-based PE instruction model. Further research for increasing teacher promotion of PA during PE is needed.

**351: Zienczuk N, Young TK, Cao ZR, Egeland GM. Dietary correlates of an at-risk BMI among Inuit adults in the Canadian high arctic: cross-sectional international polar year Inuit health survey, 2007-2008. Nutr J. 2012 Sep 18;11:73. doi: 10.1186/1475-2891-11-73. PubMed PMID: 22989025; PubMed Central PMCID: PMC3502283.**

Abstract

BACKGROUND:

The study's objective was to investigate the dietary correlates of an at-risk body mass index (BMI) among Inuit adults from thirty-six communities across the Canadian Arctic using data from the cross-sectional International Polar Year Inuit Health Survey, conducted in 2007-2008.

METHODS:

The survey included assessments of 24-hr dietary recall, sociodemographics, physical activity, and anthropometry. Dietary characteristics of overweight and obesity were similar and therefore combined into one at-risk BMI category ( $\geq 25$  kg/m<sup>2</sup>) for analyses. The relationship between an at-

risk BMI and energy intake from macronutrients, high sugar drinks, high-fat foods, saturated fatty acids, and traditional foods were examined entering each dietary variable separately into a logistic regression model as an independent variable. Analyses were adjusted for age, sex, region, kcalories, walking, smoking and alcohol consumption. Further multivariable models considered selected dietary variables together in one model.

**RESULTS:**

An at-risk BMI was present for 64% with a prevalence of overweight and obesity of 28% and 36%, respectively. Consumption of high-sugar drinks (>15.5% E) was significantly related with having an at-risk BMI (OR = 1.6; 95% CI 1.2; 2.2), whereas the % E from total carbohydrate evaluated as a continuous variable and as quartiles was inversely related to an at-risk BMI (P -trend < 0.05) in multivariable analyses. While % E from high-fat foods was positively related to an at-risk BMI, the findings were not significant in a model controlling for high-sugar drinks and % E from carbohydrates.

**CONCLUSIONS:**

The prevalence of overweight and obesity is of public health concern among Inuit. The current findings highlight the obesogenic potential of high-sugar drink consumption in an ethnically distinct population undergoing rapid cultural changes and raises concerns regarding carbohydrate restricted diets. Health promotion programs aimed at preventing the development of an unhealthy body weight should focus on physical activity and the promotion of healthy diets with reduced intake of sugar drinks.

**352: Cokkinides VE, Bandi P, Siegel RL, Jemal A. Cancer-related risk factors and preventive measures in US Hispanics/Latinos. CA Cancer J Clin. 2012 Nov-Dec;62(6):353-63. doi: 10.3322/caac.21155. Epub 2012 Sep 17. PubMed PMID: 22987448.**

**Abstract**

In this article, we provide prevalence data on major cancer-related risk factors, early detection testing, and vaccination among Hispanics using nationally representative surveys. Compared with non-Hispanic whites, Hispanic adults are less likely to be current smokers (13% vs 22%) or frequent alcohol drinkers, but they are more likely to be obese (32% vs 26%) and to have lower levels of mammography use within the past year (46% vs 51%), colorectal screening as per recommended intervals (47% vs 61%), and Papanicolaou (Pap) test use within the past 3 years (74% vs 79%). Within the Hispanic population, the prevalence of these risk factors and early detection methods substantially vary by country of origin. For example, Cuban men (20.7%) and Puerto Rican men (19%) had the highest levels of current smoking than any other Hispanic subgroups, while Mexican women had the lowest levels of mammogram use (44%) and Pap test use (71%). Hispanic migrants have a higher prevalence of hepatitis B virus and *Helicobacter pylori*, which cause liver and stomach cancer, respectively. Among Hispanic adolescents, tobacco use (eg, 20.8% use of any tobacco products), alcohol use (42.9%), and obesity (23.2%) remain highly prevalent risk factors. Although 56% of Hispanic adolescents initiate human papillomavirus vaccination, only 56% of them completed the 3-dose series. Differences in risk factors and early detection testing among Hispanic groups should be considered in clinical settings and for cancer control planning.

**353: Silva F, Ferreira E, Gonçalves R, Cavaco A. [Pediatric obesity: the reality of one consultation]. Acta Med Port. 2012 Mar-Apr;25(2):91-6. Epub 2012 Jun 25. Portuguese. PubMed PMID: 22985919.**

Abstract

**BACKGROUND:**

The prevalence of paediatric obesity is constantly rising. The association to cardiovascular risk, diabetes and psychosocial disturbances is a concern. Precocious identification and intervention is essential to reduce the negative impact on adult life.

**MATERIAL AND METHODS:**

Evaluation of the expression of comorbidities and the multidisciplinary intervention on nutritional status and body composition in obese children and adolescents, at six months follow-up on the Paediatric Obesity consultation. Retrospective analysis from the clinical files of under 17 years-old patients, followed from January 2005 to December 2008.

**RESULTS:**

We followed 67 children and adolescents, mostly female. Overweight emerged at 4.6 years and the first evaluation in our consult occurred at 9.1 years-old, on average. Primary health care colleagues referred most patients (47.8%). The commonest predictor of obesity was parental obesity (60%). Planned physical activity was poorer in the lowest school years. Severe obesity was the most prevalent type of obesity (70%). Both genders showed a different fat distribution (female: non-central; male: central). Frequent findings on physical examination were: striae, adipomastia, acanthosis nigricans and orthopedic changes. In the first evaluation, although 6% of patients have shown high blood pressure, 34.4% insulin resistance and 56.7% dyslipidemia, only 7.7% met criteria for metabolic syndrome. Other associated comorbidities were psychosocial problems (23.9%), asthma (16.4%), orthopedic (10.5%) and gastrointestinal (3%) diseases. BMI percentile reduction occurred in 51% of cases, after 6 months of intervention. The increase on physical activity was reported by 56.7% of patients. Bioelectrical impedance showed an average fat mass reduction of 0.8%. At the end of the studied period, dropout rate from this consultation was admirably high (28.4%).

**CONCLUSION:**

Multidisciplinary involvement of all health professionals, schools and family is essential for paediatric obesity intervention. Anthropometric evaluation should always include the waist circumference and BMI estimate. Bioelectrical impedance can be used to evaluate the individual changes in body composition. Changing lifestyle habits is still the most effective treatment as success will mainly depend on the patient and family motivation.

**354: Nasreddine L, Naja F, Chamieh MC, Adra N, Sibai AM, Hwalla N. Trends in overweight and obesity in Lebanon: evidence from two national cross-sectional surveys (1997 and 2009). BMC Public Health. 2012 Sep 17;12:798. doi: 10.1186/1471-2458-12-798. PubMed PMID: 22984791; PubMed Central PMCID: PMC3527186.**

Abstract

**BACKGROUND:**

Even though the obesity epidemic continues to grow in various parts of the world, recent reports have highlighted disparities in obesity trends across countries. There is little empirical evidence on

the development and growth of obesity in Lebanon and other countries of the Eastern Mediterranean Region. Acknowledging the need for effective obesity preventive measures and for accurate assessment of trends in the obesity epidemic, this study aims at examining and analyzing secular trends in the prevalence of overweight and obesity over a 12-year period in Lebanon.

**METHODS:**

Based on weight and height measurements obtained from two national cross-sectional surveys conducted in 1997 and 2009 on subjects 6 years of age and older, BMI was calculated and the prevalence of obesity was determined based on BMI for adults and BMI z-scores for children and adolescents, according to WHO criteria. Age -and sex- adjusted odds ratios for overweight and obesity were determined, with the 1997 year as the referent category. Annual rates of change in obesity prevalence per sex and age group were also calculated.

**RESULTS:**

The study samples included a total of 2004 subjects in the 1997 survey and 3636 in the 2009 survey. Compared to 1997, mean BMI values were significantly higher in 2009 among all age and sex groups, except for 6-9 year old children. Whereas the prevalence of overweight appeared stable over the study period in both 6-19 year old subjects (20.0% vs. 21.2%) and adults aged 20 years and above (37.0% vs. 36.8%), the prevalence of obesity increased significantly (7.3% vs. 10.9% in 6-19 year olds; 17.4% vs. 28.2% in adults), with the odds of obesity being 2 times higher in 2009 compared to 1997, in both age groups (OR = 1.96, 95% CI:1.29-2.97 and OR = 2.01, 95% CI: 1.67-2.43, respectively). The annual rates of change in obesity prevalence ranged between +4.1% in children and adolescents and +5.2% in adults.

**CONCLUSION:**

The study's findings highlight an alarming increase in obesity prevalence in the Lebanese population, over the 12-year study period, and alert to the importance of formulating policies and nutritional strategies to curb the obesity rise in the country.

**355: Vosátková M, Ceřovská J, Zamrazilová H, Hoskvcová P, Dvořáková M, Zamrazil V. Prevalence of obesity and metabolic syndrome in adult population of selected regions of the Czech Republic. Relation to eating habits and smoking. Prague Med Rep. 2012;113(3):206-16. PubMed PMID: 22980561.**

**Abstract**

Prevalence of the metabolic syndrome is around 25% in Europe but its occurrence grows in both genders with increasing age and weight. Lifestyle factors may contribute to the risk of developing metabolic syndrome. The objective of this study was to determine the relationship between metabolic syndrome and eating habits as well as length of sleep and smoking. Participants (519 women and 286 men aged 18-65 years) were chosen by random selection and questioned about their eating habits, sleep length and smoking. This information was combined with anthropometric and clinical parameters of metabolic syndrome. The female group was divided into two subgroups depending on climacteric stage (before and after menopause). Metabolic syndrome prevalence does not differ between regions in neither female (29.9%) nor male (32.5%) group. Body mass index  $\geq 25$  was detected in 50.4% of all women and 65.7% of men; 23.5% of all women and 21.7% men had body mass index  $\geq 30$ . In conclusion, metabolic syndrome prevalence was proved to depend on eating habits and family heredity. Positive correlation between the above mentioned factors demonstrated itself in the total sample but not in individual regions. Metabolic syndrome prevalence in Czech adults is comparable with neighbouring countries. No significant interregional differences in metabolic

syndrome prevalence within the Czech Republic were detected. In conclusion, relationship between eating habits and metabolic syndrome was confirmed.

**356: Gropper SS, Simmons KP, Connell LJ, Ulrich PV. Changes in body weight, composition, and shape: a 4-year study of college students. *Appl Physiol Nutr Metab.* 2012 Dec;37(6):1118-23. doi: 10.1139/h2012-139. Epub 2012 Sep 17. PubMed PMID: 22978391.**

Abstract

The objectives of this study were to examine changes in body weight, body mass index (BMI), body composition, and shape in a group of male and female students over the 4-year college period. Anthropometric assessments including height and weight (via standard techniques), body composition (via bioelectrical impedance analysis), and body shape (via 3-dimensional body scanning) were conducted at the beginning of the freshman year and end of the senior year in 131 college students. Four-year changes included significant ( $p < 0.0001$ ) gains in weight (3.0 kg), BMI (1.0 kg·m<sup>-2</sup>), body fat (3.6%), and absolute fat mass (3.2 kg). Males gained significantly ( $p < 0.0001$ ) greater amounts of weight, BMI, percent and absolute fat mass, and fat-free mass than females. Weight change ranged from (-)8.7 to (+)16.8 kg. About 70% of the participants gained weight, which averaged 5.3 kg; significant ( $p < 0.0001$ ) gains in BMI, fat-free mass, absolute fat mass, and percent body fat and significant ( $p < 0.0005$ ) increases in neck, chest-bust, waist, hips, seat, and biceps circumferences were also observed in this weight gain group. The percentage of participants classified as overweight-obese increased from 18% to 31%. The number of females and males with  $\geq 30\%$  and 20% body fat, respectively, increased from  $n = 14$  to  $n = 26$  (with  $n = 4$  exhibiting normal weight obesity) over the 4-year period. The waist circumference changes were significantly ( $p < 0.0001$ ) correlated with both weight and percent body fat changes. In conclusion, the increasing prevalence of obesity and normal weight obesity among this college population suggests the need for additional health promotion strategies on college campuses.

**357: Musa DI, Toriola AL, Monyeki MA, Lawal B. Prevalence of childhood and adolescent overweight and obesity in Benue State, Nigeria. *Trop Med Int Health.* 2012 Nov;17(11):1369-75. doi: 10.1111/j.1365-3156.2012.03083.x. Epub 2012 Sep 14. PubMed PMID: 22974459.**

Abstract

OBJECTIVE:

To evaluate demographic variation in the prevalence of overweight (OW) and obesity (OB) among 3240 children and adolescents (girls:  $n = 1714$ ; boys:  $n = 1526$ ) aged 9-16 years attending primary and secondary schools in Benue State of Nigeria.

METHODS:

Participants' anthropometric characteristics (body weight, stature, body mass index: BMI and lean body mass: LBM) were determined using standard protocols. OW and OB were estimated using International Obesity task Force diagnostic criteria. Data were analysed with one-way anova and binary logistic regression method.

RESULTS:

Overall, 88.5%, 9.7% and 1.8% of the adolescents had normal BMI and were OW and obese, respectively. Prevalence of OW was higher among girls (20.3%) than boys (16.2%), whereas a



relatively higher incidence of OB was noted among the boys (3.5%). Girls in urban areas had a significantly higher BMI ( $t_{524} = 3.61, P = 0.002$ ) than their rural peers, but the rural girls were more significantly OW than their urban counterparts (BMI:  $t_{1186} = 2.506$ ). Logistic regression models assessing the influence of age, gender and location on OW/OB in children ( $\chi^2(3, N = 1014) = 6.185, P = 0.103$ ) and adolescents ( $\chi^2(3, N = 2226) = 1.435, P = 0.697$ ) did not turn up significant results. In the gender-specific analysis, the younger boys' model was also not significant ( $\chi^2(2, N = 488) = 1.295, P = 0.523$ ) in contrast to the girls' ( $\chi^2(2, N = 526) = 15.637, P = 0.0005$ ), thus discriminating between OW and healthy weight among the children. Overall, the model explained 2.9-4.4% of the variance in weight status and correctly classified 76.8% of the cases. Age wise, the model yielded a significant odds ratio of 1.49, suggesting that the likelihood of being OW increases by a factor of 1.5 with a unit increase in age. Also, the likelihood of an urban girl becoming OW or obese was 0.57 times that of a rural girl.

#### CONCLUSIONS:

In general, girls in urban areas had higher prevalence of OW and OB than girls in rural settings. Among the boys, similar but less marked trends were found, except that the rural boys tended to be more OW on average than their peers in urban areas. In view of its public health significance, it is important to periodically evaluate the prevalence of weight disorders in children and adolescents so that appropriate preventative strategies can be instituted.

**358: Mogri M, Dhindsa S, Quattrin T, Ghanim H, Dandona P. Testosterone concentrations in young pubertal and post-pubertal obese males. Clin Endocrinol (Oxf). 2013 Apr;78(4):593-9. doi: 10.1111/cen.12018. PubMed PMID: 22970699; PubMed Central PMCID: PMC3524388.**

#### Abstract

##### OBJECTIVE:

Obesity in adult males is associated with hypogonadotropic hypogonadism. We evaluated the effect of obesity on plasma testosterone concentrations in pubertal and post-pubertal young males.

##### DESIGN AND METHODS:

Morning fasting blood samples were obtained from 25 obese [body mass index (BMI)  $\geq 95$ th percentile] and 25 lean (BMI  $< 85$ th percentile) males between the ages 14-20 years with Tanner staging  $\geq 4$ . Total (TT) and free testosterone (FT) and estradiol concentrations were measured by liquid chromatography tandem mass spectrometry and equilibrium dialysis. Free testosterone was also calculated using SHBG and albumin. C-reactive protein (CRP), insulin and glucose concentrations were measured and homoeostasis model of insulin resistance (HOMA-IR) was calculated.

##### RESULTS:

After controlling for age and Tanner staging, obese males had a significantly lower total testosterone (10.5 vs 21.44 nmol/l), free testosterone (0.22 vs 0.39 nmol/l) and calculated free testosterone (0.26 vs 0.44 nmol/l) concentrations as compared to lean males ( $P < 0.001$  for all). Obese males had higher CRP concentrations (2.8 vs 0.8 mg/l;  $P < 0.001$ ), and HOMA-IR (3.8 vs 1.1;  $P < 0.001$ ) than lean males. Free testosterone concentrations were positively related to age and negatively to BMI, HOMA-IR and CRP concentrations. Total and free estradiol concentrations were significantly lower in males with subnormal testosterone concentrations.

##### CONCLUSION:

Testosterone concentrations of young obese pubertal and post-pubertal males are 40-50% lower than those with normal BMI. Obesity in young males is associated with low testosterone



concentrations, which are not secondary to an increase in estradiol concentrations. Our results need to be confirmed in a larger number of subjects.

**359: McCormack SE, Shaham O, McCarthy MA, Deik AA, Wang TJ, Gerszten RE, Clish CB, Mootha VK, Grinspoon SK, Fleischman A. Circulating branched-chain amino acid concentrations are associated with obesity and future insulin resistance in children and adolescents. *Pediatr Obes.* 2013 Feb;8(1):52-61. doi: 10.1111/j.2047-6310.2012.00087.x. Epub 2012 Sep 7. PubMed PMID: 22961720; PubMed Central PMCID: PMC3519972.**

#### Abstract

What is already known about this subject Circulating concentrations of branched-chain amino acids (BCAAs) can affect carbohydrate metabolism in skeletal muscle, and therefore may alter insulin sensitivity. BCAAs are elevated in adults with diet-induced obesity, and are associated with their future risk of type 2 diabetes even after accounting for baseline clinical risk factors. What this study adds Increased concentrations of BCAAs are already present in young obese children and their metabolomic profiles are consistent with increased BCAA catabolism. Elevations in BCAAs in children are positively associated with insulin resistance measured 18 months later, independent of their initial body mass index.

#### BACKGROUND:

Branched-chain amino acid (BCAA) concentrations are elevated in response to overnutrition, and can affect both insulin sensitivity and secretion. Alterations in their metabolism may therefore play a role in the early pathogenesis of type 2 diabetes in overweight children.

#### OBJECTIVE:

To determine whether paediatric obesity is associated with elevations in fasting circulating concentrations of BCAAs (isoleucine, leucine and valine), and whether these elevations predict future insulin resistance.

#### METHODS:

Sixty-nine healthy subjects, ages 8-18 years, were enrolled as a cross-sectional cohort. A subset of subjects who were pre- or early-pubertal, ages 8-13 years, were enrolled in a prospective longitudinal cohort for 18 months (n = 17 with complete data).

#### RESULTS:

Elevations in the concentrations of BCAAs were significantly associated with body mass index (BMI) Z-score (Spearman's Rho 0.27, P = 0.03) in the cross-sectional cohort. In the subset of subjects that followed longitudinally, baseline BCAA concentrations were positively associated with homeostasis model assessment for insulin resistance measured 18 months later after controlling for baseline clinical factors including BMI Z-score, sex and pubertal stage (P = 0.046).

#### CONCLUSIONS:

Elevations in the concentrations of circulating BCAAs are significantly associated with obesity in children and adolescents, and may independently predict future insulin resistance.

**360: Flinn A, Macken AP, Cullen W, Leddin D, Dunne C, O'Gorman CS. Children in hospital in Ireland--what do they eat and what do they weigh: a cross-sectional study. BMC Res Notes. 2012 Sep 6;5:491. doi: 10.1186/1756-0500-5-491. PubMed PMID: 22954320; PubMed Central PMCID: PMC3441275.**

Abstract

Overweight and obesity is a growing problem in Ireland. Many parents are unaware when their child is overweight or obese. Our objectives were to examine parents' perceptions of a healthy diet and their children's BMI; and to evaluate the food offered to children in our paediatric in-patient unit.

FINDINGS:

A retrospective questionnaire was distributed to 95 patients and their families admitted over one month. Seventy-eight had BMI values calculated (42 males, 36 females). Twenty-one children (26.9%) were overweight/obese: 14/21 parents (66.7%) thought their child had a normal weight. Sixty percent of children served dinner in the hospital were given fried potatoes. Four had fruit/vegetables. Forty-six parents brought food into hospital, of these 14 brought purchased food.

CONCLUSIONS:

This study highlights the problem of child obesity in Ireland and parental underestimation of this problem. The nutritional value of food served to children in hospital needs to be improved and hospital admissions used as opportunities to promote healthy eating habits.

**361: Robbins JM, Mallya G, Polansky M, Schwarz DF. Prevalence, disparities, and trends in obesity and severe obesity among students in the Philadelphia, Pennsylvania, school district, 2006-2010. Prev Chronic Dis. 2012;9:E145. doi: 10.5888/pcd9.120118. PubMed PMID: 22954057; PubMed Central PMCID: PMC3475532.**

Abstract

INTRODUCTION:

Epidemic increases in obesity negatively affect the health of US children, individually and at the population level. Although surveillance of childhood obesity at the local level is challenging, height and weight data routinely collected by school districts are valuable and often underused public health resources.

METHODS:

We analyzed data from the School District of Philadelphia for 4 school years (2006-2007 through 2009-2010) to assess the prevalence of and trends in obesity and severe obesity among public school children.

RESULTS:

The prevalence of obesity decreased from 21.5% in 2006-2007 to 20.5% in 2009-2010, and the prevalence of severe obesity decreased from 8.5% to 7.9%. Both obesity and severe obesity were more common among students in grades 6 through 8 than among children in lower grades or among high school students. Hispanic boys and African American girls had the highest prevalence of obesity and severe obesity; Asian girls had much lower rates of obesity and severe obesity than any other group. Although obesity and severe obesity declined during the 4-year period in almost all demographic groups, the decreases were generally smaller in the groups with the highest prevalence, including high school students, Hispanic males, and African American females.

CONCLUSION:

Although these data suggest that the epidemic of childhood obesity may have begun to recede in Philadelphia, unacceptably high rates of obesity and severe obesity continue to threaten the health and futures of many school children.

**362: Katon J, Maynard C, Reiber G. Attempts at weight loss in U.S. women with and without a history of gestational diabetes mellitus. Womens Health Issues. 2012 Sep;22(5):e447-53. doi: 10.1016/j.whi.2012.07.004. PubMed PMID: 22944900; PubMed Central PMCID: PMC3475416.**

Abstract

BACKGROUND AND OBJECTIVE:

Gestational diabetes mellitus (GDM) is a risk factor for type 2 diabetes. Relatively modest weight loss can delay or prevent the onset of type 2 diabetes. The objective of this study was to determine, using a nationally representative survey, whether among women without diabetes, those with a history of GDM (hGDM) were more likely than those without hGDM to be currently attempting weight loss.

METHODS:

This study used data from the 2003 Behavioral Risk Factor Surveillance System, a national, population-based, random-sample telephone survey. Women aged 18 to 44 years without diabetes who answered questions related to current weight loss activity were included in the analysis. The primary outcome was currently attempting weight loss. Logistic regression was used to analyze the association between hGDM and currently attempting weight loss.

RESULTS:

We included 53,608 women without diabetes: 1,260 (2%) with hGDM, and 52,348 (98%) without hGDM. Among women with hGDM, 53% were currently attempting weight loss compared with 47% of women without hGDM. Overall, after adjusting for age, race/ethnicity, education, marital status, and medical insurance, compared with women without hGDM, those with hGDM had 20% higher odds of currently attempting weight loss (95% confidence interval [CI], 0.97-1.49); however, among obese women (body mass index  $\geq 30$  kg/m<sup>2</sup>), compared with women without hGDM, those with hGDM had 46% lower odds of currently attempting weight loss (95% CI, 0.35-0.82).

CONCLUSIONS:

Obese women with hGDM are less likely to be currently attempting weight loss compared with those without hGDM. Effective interventions for obese women with hGDM are needed.

**363: Witek P, Zieliński G, Szamotulska K, Witek J, Zgliczyński W. Complications of Cushing's disease - prospective evaluation and clinical characteristics. Do they affect the efficacy of surgical treatment? Endokrynol Pol. 2012;63(4):277-85. PubMed PMID: 22933163.**

Abstract

INTRODUCTION:

Hypercortisolaemia is the cornerstone of Cushing's disease (CD). It leads to the occurrence of typical somatic symptoms as well as cardiovascular and metabolic complications, which significantly increase morbidity and mortality and decrease quality of life in CD.

MATERIAL AND METHODS:

A prospective study included 36 patients with CD who were assessed in terms of duration of their disease symptoms as well as the incidence of: arterial hypertension, glucose intolerance and

diabetes, overweight, obesity and decreased bone mineral density (BMD). The relation was assessed between these particular complications and their impact on the efficacy of surgical treatment for CD. RESULTS:

The prevalence in the study group of arterial hypertension was 79%, and diabetes was 16.7%, whereas the proportion of pre-diabetic states was 33%. 36.1% of patients fulfilled the criteria of obesity and an additional 44% were overweight. Decreased BMD was reported in 72.2% of patients. There was a confirmed relationship between the duration of CD symptoms and the occurrence of overt diabetes ( $p < 0.01$ ) and any type of glucose homeostasis alterations ( $p = 0.04$ ). In this studied group with CD, there was also an association demonstrated between the occurrence of arterial hypertension and overweight or obesity ( $p = 0.03$ ). Simultaneously, there was no relationship between the duration of symptoms or the presence of particular organ complications and the efficacy of surgical treatment for CD.

CONCLUSIONS:

Longer duration of CD is associated with a higher risk of glucose intolerance and/or diabetes. The overweight/obesity presented in the majority of patients increases the risk of secondary hypertension in CD. However, the efficacy of transsphenoidal surgery does not depend directly on either disease duration or type of occurring complications.

**364: Vazquez BG, Alikhan A, Weaver AL, Wetter DA, Davis MD. Incidence of hidradenitis suppurativa and associated factors: a population-based study of Olmsted County, Minnesota. J Invest Dermatol. 2013 Jan;133(1):97-103. doi: 10.1038/jid.2012.255. Epub 2012 Aug 30. PubMed PMID: 22931916; PubMed Central PMCID: PMC3541436.**

Abstract

There are no population-based incidence studies of hidradenitis suppurativa (HS). Using the medical record linkage system of the Rochester Epidemiology Project, we sought to determine the incidence of the disease, as well as other associations and characteristics, among HS patients diagnosed in Olmsted County, Minnesota, between 1968 and 2008. Incidence was estimated using the decennial census data for the county. Logistic regression models were fit to evaluate associations between patient characteristics and disease severity. A total of 268 incident cases were identified, with an overall annual age- and sex-adjusted incidence of 6.0 per 100,000. Age-adjusted incidence was significantly higher in women compared with men (8.2 (95% confidence interval (CI), 7.0-9.3) vs. 3.8 (95% CI, 3.0-4.7). The highest incidence was among young women aged 20-29 years (18.4 per 100,000). The incidence has risen over the past four decades, particularly among women. Women were more likely to have axillary and upper anterior torso involvement, whereas men were more likely to have perineal or perianal disease. In addition, 54.9% (140/255) patients were obese; 70.2% were current or former smokers; 42.9% carried a diagnosis of depression; 36.2% carried a diagnosis of acne; and 6% had pilonidal disease. Smoking and gender were significantly associated with more severe disease.

**365: Tchicaya A, Lorentz N. Socioeconomic inequality and obesity prevalence trends in Luxembourg, 1995-2007. BMC Res Notes. 2012 Aug 29;5:467. doi: 10.1186/1756-0500-5-467. PubMed PMID: 22931792; PubMed Central PMCID: PMC3494539.**

Abstract

**BACKGROUND:**

Overweight and obesity are becoming increasingly critical problems in most developed countries. Approximately 20% of adults in most European countries are obese. This study examines the prevalence of overweight and obesity in Luxembourg and their association with different demographic, socioeconomic (SES), and behavioural factors.

**METHODS:**

The data used in this study were taken from 2 surveys on household income and living conditions conducted in 1995 and 2007. The target population was household residents aged 16 years and older, and body mass index (BMI) data were self-reported. Average BMI, overweight, and obesity prevalence rates were calculated according to each demographic (gender, nationality, marital status), SES (educational level, profession, and place of residence), and behavioural (physical activity and diet) factors. A multivariate logistic regression analysis was conducted to measure the relationship between obesity and demographic, SES, and behavioural factors. All analyses were conducted according to gender, and data used were weighted.

**RESULTS:**

Between 1995 and 2007, the average BMI remained nearly constant among men and women in the entire study population. Obesity prevalence increased by 24.5% through the study period (14.3% in 1995 to 17.8% in 2007). Obesity prevalence increased by 18.5% for men (15.1% in 1995 to 17.9% in 2007) and by 30% for women (13.6% in 1995 to 17.7% in 2007). Between 1995 and 2007, obesity increased sharply by 48.2% (from 11% to 16.3%) in Portuguese men, 76.7% (from 13.3% to 23.5%) in Portuguese women, 79.7% (from 17.2% to 30.9%) in widowed men, and 84.3% (from 12.1% to 22.3%) in divorced women. Multivariate logistic regression analysis showed that the relationship between the educational level and obesity was not statistically significant for men, but was significant for women.

**CONCLUSIONS:**

The prevalence of overweight and obesity is high in Luxembourg and has changed slightly in recent years. SES inequalities in obesity exist and are most compelling among women. The fight against obesity should focus on education, with emphasis on the socially disadvantaged segment of the population.

**366: Peart T, Crawford PB. Trends in nutrition and exercise counseling among adolescents in the health care environment. J Environ Public Health. 2012;2012:949303. doi: 10.1155/2012/949303. Epub 2012 Aug 9. PubMed PMID: 22927870; PubMed Central PMCID: PMC3425802.**

Abstract

**PURPOSE:**

Obesity is a serious health threat, particularly among racial/ethnic minorities and those who are uninsured, yet little is known about the implementation of nutrition or exercise counseling or the combination of both among these groups. Trends in counseling by race/ethnicity and types of insurance were examined.

**METHODS:**

Trend analyses were conducted with the California Health Interview Surveys among those ages 12-17 for the period 2003-2009.

**RESULTS:**

Race/Ethnicity: Receipt of both counseling methods declined from 2003-2009 for all racial/ethnic groups, except Hispanics and Whites, for whom increases in counseling began after 2007. Hispanics and African Americans generally reported higher levels of nutrition than exercise counseling, while Whites generally reported higher levels of exercise than nutrition counseling for the study period.

INSURANCE TYPE: Receipt of both counseling methods appeared to decline from 2003-2009 among all insurance types, although after 2007, a slight increase was observed for the low-cost/free insurance group. Those with private health insurance generally received more exercise counseling than nutrition counseling over the study period.

**CONCLUSIONS:**

Counseling among all racial/ethnic groups and insurance types is warranted, but particularly needed for African Americans, American Indian/Alaska Natives, and the uninsured as they are at highest risk for developing obesity. Institutional and policy changes in the health care environment will be beneficial in helping to promote obesity-related counseling.

**367: De La Cruz-Muñoz N, Lopez-Mitnik G, Arheart KL, Miller TL, Lipshultz SE, Messiah SE. Effectiveness of bariatric surgery in reducing weight and body mass index among Hispanic adolescents. *Obes Surg.* 2013 Feb;23(2):150-6. doi: 10.1007/s11695-012-0730-0. PubMed PMID: 22918552; PubMed Central PMCID: PMC3538108.**

**Abstract**

**BACKGROUND:**

Ethnic minority adolescents, Hispanics in particular, are disproportionately affected by extreme obesity and its associated co-morbidities. Bariatric surgery is one of the few effective treatments for morbid obesity, yet little information about weight outcomes after surgery in this demographic are available. We determined the effectiveness of bariatric surgery in reducing weight and body mass index (BMI) in adolescents, a majority of whom were non-Mexican American Hispanic and originated from Central and/or South America and the Caribbean Basin region.

**METHODS:**

Adolescents (16-to-19 years old) who had undergone gastric bypass or adjustable gastric band surgery between 2001 and 2010 and who had complete follow-up data available (91 %) were included in the analysis. Mean weight and BMI before and 1-year after surgery were compared.

**RESULTS:**

Among 71 adolescents (80 % Hispanic, 77 % female), mean BMI and weight, and z-scores and percentile transformations were all significantly lower after surgery for the entire sample ( $P < 0.001$ ). Gastric bypass surgery showed significantly better weight loss outcomes for all anthropometric measures versus adjustable gastric band surgery ( $P < 0.05$ ). Weight loss was similar among Hispanics and non-Hispanics. No peri-operative complications were reported. Three patients who stopped taking supplements as prescribed experienced iron deficiency anemia within the year following surgery.

**CONCLUSIONS:**

Our results show that bariatric surgery, gastric bypass procedure in particular, can markedly reduce weight among a predominantly Hispanic adolescent patient sample. These findings indicate that bariatric surgery has the potential to be safe and effective in substantially reducing weight in a group of adolescents who are at a particularly high risk for obesity-related health consequences.

**368: Vitiello B, Riddle MA, Yenokyan G, Axelson DA, Wagner KD, Joshi P, Walkup JT, Luby J, Birmaher B, Ryan ND, Emslie G, Robb A, Tillman R. Treatment moderators and predictors of outcome in the Treatment of Early Age Mania (TEAM) study. *J Am Acad Child Adolesc Psychiatry*. 2012 Sep;51(9):867-78. doi: 10.1016/j.jaac.2012.07.001. Epub 2012 Jul 31. PubMed PMID: 22917200; PubMed Central PMCID: PMC3427533.**

Abstract

OBJECTIVE:

Both the diagnosis and treatment of bipolar disorder in youth remain the subject of debate. In the Treatment of Early Age Mania (TEAM) study, risperidone was more effective than lithium or divalproex in children diagnosed with bipolar mania and highly comorbid with attention-deficit/hyperactivity disorder (ADHD). We searched for treatment moderators and predictors of outcome.

METHOD:

TEAM was a multi-site, 8-week, randomized clinical trial of risperidone, lithium, or divalproex in 279 medication-naïve patients, aged 6 through 15 years, with a DSM-IV diagnosis of bipolar disorder currently in manic or mixed phase. Outcome measures included binary end-of-treatment responder status and change in the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS) Mania Rating Scale (KMRS). Baseline demographics and clinical characteristics were tested as modifiers of treatment effect and as overall predictors of outcome.

RESULTS:

Moderator effects were detected for site, ADHD, and obesity. Across sites, the response ratio (RR) for risperidone versus lithium ranged from 1.2 (95% confidence interval [CI] = 0.8-1.7) to 8.3 (95% CI = 1.1-60.8), and for risperidone versus divalproex from 1.3 (95% CI = 0.8-2.2) to 10.5 (95% CI = 1.4-77.7). The RR for risperidone versus lithium was 2.1 for patients with ADHD, but 1.0 for those without ADHD, and 2.3 (95% CI = 1.6-3.3) for nonobese patients, but 1.1 (95% CI = 0.6-2.0) for obese ones. Older age and less severe ADHD symptoms were associated with greater improvement on the KMRS.

CONCLUSIONS:

Risperidone was more effective than lithium or divalproex across the demographics and clinical characteristics of the sample, but the magnitude of its effect was influenced by site-related characteristics and presence of ADHD. Clinical trial registration information--Treatment of Early Age Mania; <http://clinicaltrials.gov/>; NCT00057681.

**370: Rendall MS, Weden MM, Fernandes M, Vaynman I. Hispanic and black US children's paths to high adolescent obesity prevalence. *Pediatr Obes.* 2012 Dec;7(6):423-35. doi: 10.1111/j.2047-6310.2012.00080.x. Epub 2012 Aug 21. PubMed PMID: 22911935; PubMed Central PMCID: PMC3601657.**

Abstract

OBJECTIVE:

The study aims to identify the ages contributing most to the development of higher obesity prevalence in the 8th grade (approximately age 14) among Hispanic and black children than among non-Hispanic white children in the United States.

METHODS:

Using the nationally representative Early Childhood Longitudinal Study (ECLS-K), a sample of 17,420 children in kindergarten in 1999, followed in 1st, 3rd, 5th and 8th grades through 2007, was analysed. First, 'normal', 'overweight' and 'obese' weight-status categories in each grade were assigned from US Centers for Disease Control body mass index percentiles. Second, probabilities of being in each of the three weight-status categories in kindergarten and of transitioning between categories after kindergarten were estimated by logistic regression. These probabilities were then used as parameters of a weight-status trajectory simulation model from which a decomposition analysis was performed.

RESULTS:

Obesity prevalence in the 8th grade was equally high among Hispanic (25.0%, 95% confidence interval [CI]: 22.3, 27.8%) and black children (25.1%; 95% CI: 20.9, 29.6%) compared to white children (17.4%; 95% CI: 15.9, 19.0%). As much as 73% of the Hispanic-white 8th grade obesity disparity was generated by 3rd grade and 44% by kindergarten. In contrast, only 15% of the black-white obesity 8th grade disparity was generated by kindergarten, whereas 75% was generated between the 3rd and 8th grades and 53% between the 5th and 8th grades.

CONCLUSIONS:

Although adolescent obesity is equally prevalent among Hispanic and black children, obesity emerges and is sustained earlier in Hispanic children. Diagnosis and prevention strategies should be designed accordingly.

**371: Silva DA, Pelegrini A, Silva AF, Grigollo LR, Petroski EL. [Abdominal obesity and associated factors among adolescents: comparison of two economically different Brazilian regions]. *Arq Bras Endocrinol Metabol.* 2012 Jul;56(5):291-9. Portuguese. PubMed PMID: 22911281.**

Abstract

OBJECTIVE:

To determine differences and similarities in the prevalence of abdominal obesity and its associated factors among adolescents of two economically different Brazilian regions.

SUBJECTS AND METHODS:

A cross-sectional study was conducted with 1,065 students aged 14 to 17 years, including 601 from the Center West of Santa Catarina, and 464 from the North Minas Gerais. Abdominal obesity was determined by means of the waist circumference measurement. Independent variables included sociodemographic data, body adiposity, and behavior related to physical activity.

RESULTS:



The prevalence of abdominal obesity was higher in the Center West of Santa Catarina (6.3%; 95%CI: 4.4-8.3) than in the North of Minas Gerais (2.1%; 95%CI: 0.8-3.5). Being a male and excess body adiposity were factors associated with abdominal obesity in the two regions.

**CONCLUSION:**

There are differences in the prevalence of abdominal obesity among adolescents from two economically distinct regions of Brazil. However, the factors associated with obesity were similar in the two regions.

**372: Ayala R, Grande S, Bustelos R, Ribera C, García-Sesma A, Jimenez C, Moreno E, Martínez-López J. Obesity is an independent risk factor for pre-transplant portal vein thrombosis in liver recipients. BMC Gastroenterol. 2012 Aug 21;12:114. doi: 10.1186/1471-230X-12-114. PubMed PMID: 22909075; PubMed Central PMCID: PMC3502589.**

**Abstract**

**BACKGROUND:**

Portal vein thrombosis is a frequent complication in end-stage cirrhosis with a considerable peri-operative risk for liver transplant candidates. We aimed to characterize the pre-transplant portal vein thrombosis in a cohort of liver transplant recipients, and to identify independent risk factors for this complication.

**METHODS:**

380 consecutive primary orthotopic liver transplants were performed in the Digestive Surgery Department of "12 de Octubre" Hospital (Madrid, Spain), between January 2001 and December 2006. The main risk factors considered were smoking, obesity, metabolic disorders, previous immobility, surgery or trauma, nephrotic syndrome, associated tumor, inflammatory disease, neoplasm myeloproliferative. Furthermore we have reported genetic thrombophilia results for 271 recipients.

**RESULTS:**

Sixty-two (16.3%) patients developed pre-transplant portal vein thrombosis and its presence had no impact in the overall survival of liver recipients. Obesity was the only independent risk factor for pre-transplant portal vein thrombosis.

**CONCLUSION:**

We recommend close control of cardiovascular factors in patients with liver cirrhosis in order to avoid associated thrombosis.

**373: Kokorowski PJ, Routh JC, Hubert KC, Graham DA, Nelson CP. Association of urolithiasis with systemic conditions among pediatric patients at children's hospitals. J Urol. 2012 Oct;188(4 Suppl):1618-22. doi: 10.1016/j.juro.2012.02.019. Epub 2012 Aug 18. PubMed PMID: 22906655; PubMed Central PMCID: PMC4005878.**

**Abstract**

**PURPOSE:**

Urolithiasis is associated with systemic medical conditions in adults but associations have not been well studied in children. We investigated the association of urolithiasis with diabetes mellitus, hypertension and obesity among children with and without urolithiasis.

**MATERIALS AND METHODS:**

We performed a matched case-control study using the PHIS (Pediatric Health Information System) database. ICD-9 codes identified urolithiasis cases from 2004 to 2009. Four randomly selected controls were matched by age, hospital, patient care setting and year of treatment. Diagnoses from all hospital encounters were ascertained for comorbid conditions. Univariate and multivariable conditional logistic regression was used to assess the associations of urolithiasis with diabetes mellitus, hypertension and obesity.

**RESULTS:**

We identified 9,843 urolithiasis cases and 39,047 controls. On univariate analysis stone formers had significantly higher odds of obesity (OR 1.44, 95% CI 1.27-1.64) and hypertension (OR 2.12, 95% CI 1.88-2.40) compared to controls. The odds of type I diabetes mellitus was lower among cases compared to controls (OR 0.38, 95% CI 0.30-0.48). After adjusting for gender, race, insurance type and number of visits using logistic regression, children with urolithiasis still had higher odds of obesity (AOR 1.30, 95% CI 1.12-1.51) and hypertension (AOR 1.61, 95% CI 1.40-1.86) as well as lower odds of type I diabetes mellitus (AOR 0.32, 95% CI 0.25-0.41) compared to controls.

**CONCLUSIONS:**

Among pediatric patients at freestanding children's hospitals, urolithiasis is associated with higher odds of obesity and hypertension and lower odds of type I diabetes mellitus. These findings may be helpful in further elucidating the etiology of pediatric urolithiasis.

**374: Andersen LG, Baker JL, Sørensen TI. Contributions of incidence and persistence to the prevalence of childhood obesity during the emerging epidemic in Denmark. PLoS One. 2012;7(8):e42521. doi: 10.1371/journal.pone.0042521. Epub 2012 Aug 10. PubMed PMID: 22900026; PubMed Central PMCID: PMC3416857.**

**Abstract**

**BACKGROUND:**

Prevalence of obesity is the result of preceding incidence of newly developed obesity and persistence of obesity. We investigated whether increasing incidence and/or persistence during childhood drove the prevalence of childhood obesity during the emerging epidemic.

**METHODS:**

Height and weight were measured at ages 7 and 13 years in 192,992 Danish school children born 1930-1969. Trends in the incidence (proportion obese at 13 years among those not obese at 7 years) and persistence (proportion obese at 13 years among those obese at 7 years) across birth cohort periods (1930-41 with low stable prevalence of obesity, 1942-51 with increasing prevalence, 1952-69 with the higher, but stable prevalence) were investigated. Logistic regression was used to examine the associations between BMI at 7 years as a continuous trait, allowing interactions with the birth cohorts, and occurrence of obesity at 13 years.

**RESULTS:**

The prevalence of obesity was similar at 7 and 13 years and increased across birth cohorts in boys from around 0.1% to 0.5% and in girls from around 0.3% to 0.7%. The incidence of obesity between ages 7 and 13 years increased from 0.15% to 0.35% in boys and from 0.20% to 0.44% in girls. The persistence increased from 28.6% to 41.4% in boys and from 16.4% to 31.0% in girls. Despite a decrease over time, the remission of obesity occurred in >60% of obese children in the last birth cohort. However, the odds ratios of obesity at age 13 years in relation to the full range of BMI at 7 years remained unchanged across the birth cohort periods.

**CONCLUSIONS/SIGNIFICANCE:**

The development of the obesity epidemic in children was due to an increase in both incidence and persistence of obesity. Contrary to prevailing expectations, a large, although declining, proportion of children obese at an early age underwent remission during childhood.

**375: Shier V, An R, Sturm R. Is there a robust relationship between neighbourhood food environment and childhood obesity in the USA? Public Health. 2012 Sep;126(9):723-30. doi: 10.1016/j.puhe.2012.06.009. Epub 2012 Aug 13. PubMed PMID: 22898435; PubMed Central PMCID: PMC3472803.**

Abstract

OBJECTIVES:

To examine the robustness of the relationship between neighbourhood food environment and youth body mass index (BMI) percentile using alternative measures of food environment and model specifications.

STUDY DESIGN:

Observational study using individual-level longitudinal survey data of children in fifth and eighth grades merged with food outlet data based on student residential census tracts.

METHODS:

The relationship between food environment and BMI was examined with two individual outcomes (BMI percentile in eighth grade and change in BMI percentile from fifth to eighth grade) and three alternative measures of food environment (per-capita counts of a particular outlet type, food environment indices, and indicators for specific combinations of outlet types).

RESULTS:

No consistent evidence was found across measures (counts of a particular type of food outlet per population, food environment indices, and indicators for the presence of specific combinations of types of food stores) and outcomes to support the hypothesis that improved access to large supermarkets results in lower youth BMI; or that greater exposure to fast food restaurants, convenience stores and small food stores increases BMI.

CONCLUSIONS:

To the extent that there is an association between food environment and youth BMI, the existence of more types of food outlets in an area, including supermarkets, is associated with higher BMI.

**376: Schienkiewitz A, Mensink GB, Scheidt-Nave C. Comorbidity of overweight and obesity in a nationally representative sample of German adults aged 18-79 years. BMC Public Health. 2012 Aug 15;12:658. doi: 10.1186/1471-2458-12-658. PubMed PMID: 22894173; PubMed Central PMCID: PMC3526457.**

Abstract

BACKGROUND:

Overweight has increased in many countries over the past 20 years and excessive body weight is an established risk factor for adverse health outcomes and chronic diseases. This study aimed to determine comorbidity associated with overweight and obesity in a nationally representative sample of German adults.

METHODS:

In the German National Health Interview and Examination Survey 1998 standardized measures of body weight, height and waist circumference (WC) were obtained for 7,124 men and women 18 to 79

years of age. Information on pre-existing health conditions, health-related behaviors, and sociodemographic characteristics was collected using physician-administered computer-assisted interviews and self-administered questionnaires. World Health Organization (WHO) cut-off criteria were applied to define overweight (BMI 25.0-29.9 kg/m<sup>2</sup>) and obesity (BMI ≥30.0 kg/m<sup>2</sup>) and abdominal obesity (men: WC ≥102 cm; women: WC ≥88 cm).

**RESULTS:**

The crude prevalence of persons with cardiometabolic risk factors, diabetes mellitus, cardiovascular disease (CVD), gall bladder disease, and osteoarthritis showed a significant stepwise increase from the lowest to the highest BMI category in both sexes. In multiple logistic regression models adjusting for age, social status, and smoking, significant associations with overweight and obesity persisted for cardiometabolic risk factors and osteoarthritis. For example, obese persons had a three- to fourfold higher chance of having any cardiometabolic risk factor compared to normal weight persons (odds ratio (OR) = 4.07, 95% CI: 3.16-5.25 for men; OR = 3.40 (2.60-4.46) for women). Only in women, overweight and obesity as well as abdominal obesity, independent of BMI category, were significantly and consistently associated with diabetes (overweight: OR = 1.85 (1.03-3.30); obesity: OR = 2.94 (1.63-5.31); abdominal obesity: OR = 1.44 (1.08-1.92) and gall bladder disease (overweight: OR = 1.65 (1.22-2.25); obesity: OR = 3.06 (2.26-4.14); abdominal obesity: OR = 1.73 (1.25-2.39)).

**CONCLUSION:**

Current estimates of disease burden underline the public health importance and clinical relevance related to overweight and obesity and needs to take into account comorbidity aspects.

**377: Oliveira Lde P, Pereira ML, Azevedo A, Lunet N. Risk factors for cardiovascular disease among the homeless and in the general population of the city of Porto, Portugal. Cad Saude Publica. 2012 Aug;28(8):1517-29. PubMed PMID: 22892971.**

**Abstract**

We described the distribution of risk factors for cardiovascular disease among homeless people living in the city of Porto, Portugal. Comparisons were made between subsamples of homeless people recruited in different settings and between the overall homeless sample group and a sample of the general population. All "houseless" individuals attending one of two homeless hostels or two institutions providing meal programs on specific days were invited to participate and were matched with subjects from the general population. We estimated sex, age and education-adjusted prevalence ratios or mean differences. The prevalence of previous illicit drug consumption and imprisonment was almost twice as high among the homeless from institutions providing meal programs. This group also showed lower mean systolic and diastolic blood pressure. Prevalence of smoking was almost 50% higher in the overall homeless group. Mean body mass index and waist circumference were also lower in the homeless group and its members were almost five times less likely to report dyslipidemia. Our findings contribute to defining priorities for interventions directed at this segment of society and to reducing inequalities in this extremely underprivileged population.

**378: Li P, Yang F, Xiong F, Huo T, Tong Y, Yang S, Mao M. Nutritional status and risk factors of overweight and obesity for children aged 9-15 years in Chengdu, Southwest China. BMC Public Health. 2012 Aug 10;12:636. doi: 10.1186/1471-2458-12-636. PubMed PMID: 22892270; PubMed Central PMCID: PMC3488485.**

Abstract

BACKGROUND:

Obesity is widespread in the world including developing countries. However malnutrition in poor areas is still a serious problem. Few investigations, especially in a large sample, have been performed in Western area of China. This study aimed to evaluate the nutritional status of school children aged 9-15 years in large Southwest city of China, and identify the differential impact of aberrant birth categories and family history of obesity related disease on childhood overweight and obesity development.

METHODS:

A multistage random cluster sampling was performed to evaluate the prevalence of thinness, overweight and obesity, which were defined by the new age-, sex-, specific BMI reference developed by World Health Organization (WHO) (2007). And then a frequency matched case-control study was performed to identify the risk factors of overweight and obesity.

RESULTS:

7,194 children (3,494 boys, 3,700 girls) were recruited, and 1,282 (17.8%) had excess bodyweight (14.5% overweight, 3.3% obesity). The combined prevalence gradually decreased with age, and were more prevalent among boys than girls ( $P < 0.05$ ). Meanwhile 6.3% were found thinness and there were little differences in genders ( $P > 0.05$ ). Preterm large for gestational age (OR = 2.746), maternal history of obesity related disease (OR = 1.713), paternal history of obesity related disease (OR = 1.583), preterm appropriate for gestational age (OR = 1.564), full term small for gestational age (OR = 1.454) and full term large for gestational age (OR = 1.418) were recognized as significant risk factors in the multivariate regression analysis ( $P < 0.05$ ).

CONCLUSIONS:

While overweight and obesity was dramatically spreading, malnutrition still remained a serious problem. This unmatched nutritional status should be emphasized in backward cities of China. Children born of both preterm and LGA, whose parents particularly mothers had a history of obesity related disease, should be emphatically intervened as early as possible.

**379: Taber DR, Chiqui JF, Perna FM, Powell LM, Chaloupka FJ. Weight status among adolescents in States that govern competitive food nutrition content. Pediatrics. 2012 Sep;130(3):437-44. doi: 10.1542/peds.2011-3353. Epub 2012 Aug 13. PubMed PMID: 22891223; PubMed Central PMCID: PMC3428756.**

Abstract

OBJECTIVES:

To determine if state laws regulating nutrition content of foods and beverages sold outside of federal school meal programs ("competitive foods") are associated with lower adolescent weight gain.

METHODS:

The Westlaw legal database identified state competitive food laws that were scored by using the Classification of Laws Associated with School Students criteria. States were classified as having strong,

weak, or no competitive food laws in 2003 and 2006 based on law strength and comprehensiveness. Objective height and weight data were obtained from 6300 students in 40 states in fifth and eighth grade (2004 and 2007, respectively) within the Early Childhood Longitudinal Study-Kindergarten Class. General linear models estimated the association between baseline state laws (2003) and within-student changes in BMI, overweight status, and obesity status. Fixed-effect models estimated the association between law changes during follow-up (2003-2006) and within-student changes in BMI and weight status.

**RESULTS:**

Students exposed to strong laws at baseline gained, on average, 0.25 fewer BMI units (95% confidence interval: -0.54, 0.03) and were less likely to remain overweight or obese over time than students in states with no laws. Students also gained fewer BMI units if exposed to consistently strong laws throughout follow-up ( $\beta = -0.44$ , 95% confidence interval: -0.71, -0.18). Conversely, students exposed to weaker laws in 2006 than 2003 had similar BMI gain as those not exposed in either year.

**CONCLUSIONS:**

Laws that regulate competitive food nutrition content may reduce adolescent BMI change if they are comprehensive, contain strong language, and are enacted across grade levels.

**380: Höglund B, Lindgren P, Larsson M. Pregnancy and birth outcomes of women with intellectual disability in Sweden: a national register study. Acta Obstet Gynecol Scand. 2012 Dec;91(12):1381-7. doi: 10.1111/j.1600-0412.2012.01509.x. Epub 2012 Sep 18. PubMed PMID: 22881406; PubMed Central PMCID: PMC3549474.**

**Abstract**

**OBJECTIVE:**

To investigate the antenatal health and demographic factors as well as pregnancy and delivery outcomes in women with intellectual disability (ID) in Sweden.

**DESIGN:**

A population-based register study.

**SETTING:**

The National Patient Register (NPR) linked to the Medical Birth Register (MBR).

**SAMPLE:**

Women with ID classified as International Classification of Diseases (ICD) 8-10 who gave birth in 1999-2007 (n = 326), identified from the NPR linked to the MBR, were compared with all first-time, singleton mothers without ID or any other psychiatric diagnoses during this period in Sweden (n = 340 624).

**METHODS:**

Population-based data were extracted from the NPR and the MBR.

**MAIN OUTCOME MEASURES:**

Health and socio-demography at first antenatal visit, mode of delivery, pain relief during labor, preterm birth and discharge from hospital.

**RESULTS:**

A higher proportion of women with ID were teenagers (18.4 vs. 3.3%), obese (20.1 vs. 8.6%) and single (36.6 vs. 6.2%) compared with women without ID, and women with ID smoked more often (27.9 vs. 7.9%). Women with ID had more often a preterm birth (12.2 vs. 6.1%), a cesarean section (CS) (24.5 vs. 17.7%) and used less nitrous oxide as pain relief during labor (59.5 vs. 75.8%). Women

with ID had a higher risk for preterm birth [odds ratio (OR) 1.68], CS (OR1.55), non-use of nitrous oxide (OR 1.89) and discharge from hospital to a place other than home (OR 2.24).

**CONCLUSION:**

Pregnant women with ID should be considered a risk group suggesting that better tailored pre- and intrapartum care and support are needed for these women.

**381: Butler AA, Tam CS, Stanhope KL, Wolfe BM, Ali MR, O'Keeffe M, St-Onge MP, Ravussin E, Havel PJ. Low circulating adropin concentrations with obesity and aging correlate with risk factors for metabolic disease and increase after gastric bypass surgery in humans. J Clin Endocrinol Metab. 2012 Oct;97(10):3783-91. doi: 10.1210/jc.2012-2194. Epub 2012 Aug 7. PubMed PMID: 22872690; PubMed Central PMCID: PMC3462944.**

**Abstract**

**CONTEXT:**

Mouse studies suggest that adropin, a peptide hormone, is required for metabolic homeostasis and prevention of obesity-associated insulin resistance. Whether obesity and insulin resistance are associated with low plasma adropin levels in humans is not known.

**OBJECTIVES:**

Our objective was to investigate the hypothesis that obesity and indicators of insulin resistance are associated with low adropin levels and determine whether weight loss regulates adropin levels.

**DESIGN AND PARTICIPANTS:**

Plasma was obtained from 85 female [age 21-67 yr, body mass index (BMI) 19.4-71.5 kg/m<sup>2</sup>] and 45 male (age 18-70 yr, BMI 19.1-62.6 kg/m<sup>2</sup>) volunteers for other clinical studies. The impact of Roux-en-Y gastric bypass was investigated in 19 obese females (BMI 37-65 kg/m<sup>2</sup>) using samples collected at baseline and 1-12 months after surgery.

**RESULTS:**

Adropin levels correlate negatively with BMI ( $r=-0.335$ ,  $P<0.001$ ) and age ( $r=-0.263$ ,  $P=0.003$ ). Age-adjusted adropin levels are higher in males [4.1 ng/ml; 95% confidence interval (CI)=3.6-4.6 ng/ml] than females (3.0 ng/ml; 95% CI=2.6-3.4 ng/ml) ( $P=0.001$ ). In all subjects, lower age-adjusted adropin levels were observed in overweight (3.3 ng/ml; 95% CI=2.8-3.8 ng/ml,  $P=0.033$ ) and obese (2.7 ng/ml; 95% CI=2.1-3.3 ng/ml,  $P=0.001$ ) compared with healthy-weight subjects (4.1 ng/ml; 95% CI=3.6-4.5 ng/ml). This effect was gender specific (weight category $\times$ gender,  $P<0.001$ ) and was observed in males only. Aging and diagnosis with two or more metabolic syndrome risk factors was associated with low adropin levels, irrespective of sex. Adropin concentrations increased after Roux-en-Y gastric bypass, peaking 3 months after surgery ( $P<0.01$ ).

**CONCLUSIONS:**

Although males exhibit higher adropin levels that are reduced by obesity, aging and markers of insulin resistance are associated with low plasma adropin irrespective of sex.

**382: Cunningham SA, Vaquera E, Long JL. Race, ethnicity, and the relevance of obesity for social integration. Ethn Dis. 2012 Summer;22(3):317-23. PubMed PMID: 22870575; PubMed Central PMCID: PMC3674955.**

Abstract

OBJECTIVE:

To examine race and ethnic differences in the importance of obesity for social integration using the National Longitudinal Study of Adolescent Health (Add Health).

DESIGN:

A cross-sectional study utilizing survey-adjusted statistics and multivariate logistic and linear regression models. Models were stratified by sex and included interaction terms capturing race, ethnicity and obesity.

SETTING:

United States of America.

PARTICIPANTS:

A nationally representative sample of 15,355 respondents grades 7 through 12 who participated in both the In-School and In-Home Wave I surveys of Add Health.

MAIN OUTCOME MEASURES:

Four self-reported and schoolmate-reported indicators of social integration.

RESULTS:

The consequences of obesity for social integration are greatest for White adolescents, who were selected by almost 2 fewer schoolmates as friends and had half the odds of having their friendships reciprocated compared with non-obese White adolescents. The social disadvantage of obesity was lower for non-White adolescents; though they are selected by significantly fewer schoolmates as friends and were less likely to have their friendships reciprocated, they did not face additional discrimination from being both obese and minority.

CONCLUSIONS:

There are significant differences between obese and non-obese adolescents by race and ethnicity in friendships. As friendships are among the most valued assets in adolescence, understanding the impact of obesity on access to friendships for diverse adolescents is a necessary component to understanding the complex motivations that guide health-related behavior at these formative ages.

**383: Ambrosini GL, Emmett PM, Northstone K, Howe LD, Tilling K, Jebb SA. Identification of a dietary pattern prospectively associated with increased adiposity during childhood and adolescence. Int J Obes (Lond). 2012 Oct;36(10):1299-305. doi: 10.1038/ijo.2012.127. Epub 2012 Aug 7. PubMed PMID: 22868831; PubMed Central PMCID: PMC3466487.**

Abstract

BACKGROUND:

Specific dietary risk factors for excess adiposity in young people are poorly understood. However, studies in adults suggest dietary energy density, fat and fibre are critical dietary factors.

OBJECTIVE:

To examine longitudinal relationships between a dietary pattern (DP) characterised by dietary energy density, % total energy from fat and fibre density and fat mass (FM) in children from 7 to 15 years of age.



#### DESIGN:

Subjects were 6772 children from the UK Avon Longitudinal Study of Parents and Children. Dietary intake was assessed using a 3-day food diary at 7, 10 and 13 years of age. An energy-dense, high-fat, low-fibre DP was identified using reduced rank regression and subjects scored for the DP at each age. FM was measured at 11, 13 and 15 years and FM index (FMI) calculated as FM/height(x).

Longitudinal models were adjusted for dietary misreporting, physical activity and maternal factors.

#### RESULTS:

DP z-scores at all ages were positively associated with later FMI. A 1 s.d. unit increase in DP z-score was longitudinally associated with an average increase in FMI z-score of 0.04 s.d. units (95% confidence interval (CI), 0.01-0.07). For each 1 s.d. unit increase in DP z-score, the odds of being in the highest quintile for FMI (as a marker of excess adiposity) increased by 13% (95% CI, 1-27%).

#### CONCLUSIONS:

Dietary habits during childhood are associated with increased adiposity in adolescence, with specific implications for dietary energy density, fat and fibre intake. Improving diet quality may reduce the risk of obesity in young people.

**384: Oduwole AA, Ladapo TA, Fajolu IB, Ekure EN, Adeniyi OF. Obesity and elevated blood pressure among adolescents in Lagos, Nigeria: a cross-sectional study. BMC Public Health. 2012 Aug 7;12:616. doi: 10.1186/1471-2458-12-616. PubMed PMID: 22867531; PubMed Central PMCID: PMC3490830.**

#### Abstract

##### BACKGROUND:

Childhood obesity and associated hypertension are major public health concerns globally. This study aimed to determine the prevalence of obesity and the associated risk of high blood pressure among Nigerian adolescents.

##### METHODS:

A cross-sectional school-based study of 885 apparently healthy adolescents was performed. Weight, height and blood pressure (BP) were measured using standard methods. Body mass index (BMI) was calculated and categorized by age, sex and percentile. Obesity and overweight were defined as:  $\geq$  95th and 85th to  $<$  95th percentiles, respectively, for age, sex and height. Subjects were sub-categorized into age 10-13 years (A) and 14-17 years (B). The odds ratio for pre-hypertensive and hypertensive range BP by age and BMI were generated. Significance was set at  $P < 0.05$ .

##### RESULTS:

The prevalence of overweight and obesity were 13.8% and 9.4%, respectively. The prevalence of hypertensive range systolic BP in obese versus normal BMI females was 16% versus 23% ( $p=0.00$ ) and 12.1% versus 6.4% ( $p=0.27$ ) in males. The prevalence of hypertensive range diastolic BP in obese versus normal BMI females was 12% versus 1.4% ( $p=0.00$ ) and 15.2% versus 3.5% ( $p=0.01$ ) in males. BMI in group B was significantly associated with pre-hypertensive and hypertensive range systolic BP in overweight ( $P = 0.01$ ,  $P = 0.002$ ) and obese subjects ( $P = 0.00$ ,  $P = 0.00$ ) and with hypertensive range diastolic BP ( $P = 0.00$ ) only in obese subjects. The only significant association in group A was between obesity and pre-hypertensive range diastolic BP ( $P = 0.00$ ).

##### CONCLUSION:

The prevalence of hypertensive range BP among obese Nigerian adolescents was high. Screening for childhood obesity and hypertension, and long-term follow-up of obese adolescents into adulthood are recommended.

**385: Seliske L, Pickett W, Janssen I. Urban sprawl and its relationship with active transportation, physical activity and obesity in Canadian youth. Health Rep. 2012 Jun;23(2):17-25. PubMed PMID: 22866536.**

Abstract

BACKGROUND:

Urban sprawl is a potential environmental influence on youth overweight/obesity. However, little is known about the association between urban sprawl and behaviours that influence obesity such as active transportation and physical activity.

METHODS:

The study population consisted of 7,017 respondents aged 12 to 19 to the 2007/2008 Canadian Community Health Survey, living in Canada's 33 census metropolitan areas (CMAs). Factor analysis was used to obtain an urban sprawl score for each CMA, incorporating dwelling density, percentage of single or detached dwelling units, and percentage of the population living in the urban core. Multi-level logistic regression examined whether urban sprawl was associated with frequent active transportation (30 or more minutes a day), moderate-to-vigorous physical activity (MVPA) (60 or more minutes a day), and overweight/obesity.

RESULTS:

Urban sprawl was associated with active transportation among 12- to 15-year-olds, with the relative odds of engaging in at least 30 minutes of active transportation per day increasing by 24% (95% CI: 10-39%) for each standard deviation (SD) increase in the urban sprawl score. For the entire sample aged 12 to 19, higher urban sprawl was associated with MVPA (odds ratio per SD increase = 1.10, 95% CI: 1.01-1.20), but not with overweight/obesity (odds ratio per SD increase = 1.06, 95% CI: 0.94-1.18).

INTERPRETATION:

Urban sprawl was associated with active transportation and MVPA in Canadian youth, although in the opposite direction to what has been reported in the literature for adults.

**386: Shirasawa T, Ochiai H, Nishimura R, Morimoto A, Shimada N, Ohtsu T, Hoshino H, Tajima N, Kokaze A. Secular trends in blood pressure among Japanese schoolchildren: a population-based annual survey from 1994 to 2010. J Epidemiol. 2012;22(5):448-53. Epub 2012 Aug 4. PubMed PMID: 22863986; PubMed Central PMCID: PMC3798640.**

Abstract

BACKGROUND:

Monitoring secular trends in blood pressure (BP) among children is important in predicting subsequent hypertension and cardiovascular disease. We investigated secular trends in BP using data from population-based annual screenings of Japanese schoolchildren.

METHODS:

The participants were 10 894 children (all fourth graders between 1994 and 2010 and all seventh graders between 1997 and 2010) living in the town of Ina in Saitama Prefecture, Japan. Body height, weight, and BP were measured, after which children were classified as non-overweight, overweight, or obese. Trends in variables relative to calendar year were analyzed using regression models.

RESULTS:

Systolic BP was significantly associated with calendar year among fourth- and seventh-grade boys (-0.350 and -0.434 mm Hg/year, respectively) and fourth- and seventh-grade girls (-0.513 and -0.473 mm Hg/year, respectively) (all  $P < 0.001$ ), respectively, over time. Systolic BP and calendar year were significantly negatively correlated regardless of physique or sex among all fourth graders, but not among obese seventh-grade girls. In addition, diastolic BP and calendar year did not significantly correlate among seventh-grade overweight or obese boys or obese seventh-grade girls.

**CONCLUSIONS:**

BP decreased among fourth-grade schoolchildren in Ina during the past 17 years, regardless of sex or physique. However, BP and calendar year did not significantly correlate among obese seventh graders.

**387: Kendzor DE, Caughy MO, Owen MT. Family income trajectory during childhood is associated with adiposity in adolescence: a latent class growth analysis. BMC Public Health. 2012 Aug 5;12:611. doi: 10.1186/1471-2458-12-611. PubMed PMID: 22863369; PubMed Central PMCID: PMC3549776.**

**Abstract**

**BACKGROUND:**

Childhood socioeconomic disadvantage has been linked with obesity in cross-sectional research, although less is known about how changes in socioeconomic status influence the development of obesity. Researchers have hypothesized that upward socioeconomic mobility may attenuate the health effects of earlier socioeconomic disadvantage; while downward socioeconomic mobility might have a negative influence on health despite relative socioeconomic advantages at earlier stages. The purpose of the current study was to characterize trajectories of family income during childhood, and to evaluate the influence of these trajectories on adiposity at age 15.

**METHODS:**

Data were collected as part of the Study of Early Child Care and Youth Development (SECCYD) between 1991 and 2007 at 10 sites across the United States. A latent class growth analysis (LCGA) was conducted to identify trajectories of family income from birth to 15 years of age. Analyses of covariance (ANCOVAs) were conducted to determine whether measures of adiposity differed by trajectory, while controlling for relevant covariates.

**RESULTS:**

The LCGA supported a 5-class trajectory model, which included two stable, one downward, and two upward trajectories. ANCOVAs indicated that BMI percentile, waist circumference, and skinfold thicknesses at age 15 differed significantly by trajectory, such that those who experienced downward mobility or stable low income had greater adiposity relative to the more advantaged trajectories. Conversely, upwardly mobile children and those with consistently adequate incomes had similar and more positive outcomes relative to the most disadvantaged trajectories.

**CONCLUSIONS:**

Findings suggest that promoting upward socioeconomic mobility among disadvantaged families may have a positive impact on obesity-related outcomes in adolescence.

**388: Marques-Vidal P, Ravasco P, Paccaud F. Differing trends in the association between obesity and self-reported health in Portugal and Switzerland. Data from national health surveys 1992-2007. BMC Public Health. 2012 Aug 1;12:588. doi: 10.1186/1471-2458-12-588. PubMed PMID: 22852585; PubMed Central PMCID: PMC3532318.**

Abstract

BACKGROUND:

The escalating prevalence of obesity might prompt obese subjects to consider themselves as normal, as this condition is gradually becoming as frequent as normal weight. In this study, we aimed to assess the trends in the associations between obesity and self-rated health in two countries.

METHODS:

Data from the Portuguese (years 1995-6, 1998-6 and 2005-6) and Swiss (1992-3, 1997, 2002 and 2007) National Health Surveys were used, corresponding to more than 130,000 adults (64,793 for Portugal and 65,829 for Switzerland). Body mass index and self-rated health were derived from self-reported data.

RESULTS:

Obesity levels were higher in Portugal (17.5% in 2005-6 vs. 8.9% in 2007 in Switzerland,  $p < 0.001$ ) and increased in both countries. The prevalence of participants rating their health as "bad" or "very bad" was higher in Portugal than in Switzerland (21.8% in 2005-6 vs 3.9% in 2007,  $p < 0.001$ ). In both countries, obese participants rated more frequently their health as "bad" or "very bad" than participants with regular weight. In Switzerland, the prevalence of "bad" or "very bad" rates among obese participants, increased from 6.5% in 1992-3 to 9.8% in 2007, while in Portugal it decreased from 41.3% to 32.3%. After multivariate adjustment, the odds ratio (OR) of stating one self's health as "bad" or "very bad" among obese relative to normal weight participants, almost doubled in Switzerland: from 1.38 (95% confidence interval, CI: 1.01-1.87) in 1992-3 to 2.64 (95% CI: 2.14-3.26) in 2007, and similar findings were obtained after sample weighting. Conversely, no such trend was found in Portugal: 1.35 (95% CI: 1.23-1.48) in 1995-6 and 1.52 (95% CI: 1.37-1.70) in 2005-6.

CONCLUSION:

Obesity is increasing in Switzerland and Portugal. Obesity is increasingly associated with poorer self-health ratings in Switzerland but not in Portugal.

**389: Bingham CM, Lahti-Koski M, Puukka P, Kinnunen M, Jallinoja P, Absetz P. Effects of a healthy food supply intervention in a military setting: positive changes in cereal, fat and sugar containing foods. Int J Behav Nutr Phys Act. 2012 Jul 31;9:91. doi: 10.1186/1479-5868-9-91. PubMed PMID: 22849620; PubMed Central PMCID: PMC3511183.**

Abstract

BACKGROUND:

In Finland, all men are liable to military service and a clear majority completes service. The increasing prevalence of obesity also among soldiers concerns conscripts' food choices. Conscripts are served nutritionally planned regular main meals but individual choices take place in free-time eating. This study assesses the effects in conscripts' eating habits in an intervention targeting the supply of healthy foods available in the military setting.

METHODS:

Participants were 604 18-21-year old male conscripts of whom 242 belonged to Control Group and 362 to Intervention Group. Participants of Control Group were historical controls performing military service one year before Intervention Group. The intervention targeted selection, placement, and attractiveness of healthy foods in garrison refectories and soldier's home cafeterias, the two main food providers in the military. Dietary intake data was collected by self-administered questionnaire at three time points: before/beginning of military service (T0), 8 weeks (T1) and 6 months (T2) of military service. Outcome measures were food consumption frequencies and four dietary indexes (Cereal Index, Fruit and Vegetable Index, Fat Index and Sugar Index) developed to characterize the diet. Changes between study groups in outcome variables and in time were analysed by repeated-measures analysis of covariance.

**RESULTS:**

Significant ( $p < 0.05$ ) intervention effects and time-intervention interactions mostly in favor of Intervention Group were found. In Intervention Group, Cereal Index was significantly higher at T2 and the overall level of porridges and cereals was higher during follow-up when comparing to Control Group. Also, the overall levels of Fat Index, potato chips, soft drinks and desserts as well as sweet pastries at T1 were significantly lower in Intervention Group. At the same time, Fruit and Vegetable Index and the level of fruit and berries were lower in Intervention Group during follow-up.

**CONCLUSIONS:**

In the military setting, healthier food choices can be promoted by intervening on the main food environments by improving the supply of healthy foods. However, impacting on conscripts' individual selection as fruit and vegetable consumption is more challenging.

**390: Li DK, Ferber JR, Odouli R, Quesenberry CP Jr. A prospective study of in-utero exposure to magnetic fields and the risk of childhood obesity. *Sci Rep.* 2012;2:540. doi: 10.1038/srep00540. Epub 2012 Jul 27. PubMed PMID: 22844581; PubMed Central PMCID: PMC3406339.**

**Abstract**

We conducted a prospective study to examine whether in-utero exposure to magnetic fields (MFs) increases the risk of childhood obesity. Participating women carried a meter measuring MF levels during pregnancy and 733 of their children were followed up to 13 years to collect clinically recorded information on growth patterns with 33 weight measurements per child on average. Prenatal exposure to high MF level was associated with increased risk of being obese in offspring than those with lower MF level (odds ratio = 1.69, 95% confidence interval: 1.01-2.84). The association demonstrated a dose-response relationship and was stronger (more than 2.3 fold increased risk) among children who were followed up to the end of the study. The association existed only for persistent obesity, but not for transitory (unlikely) obesity. Maternal exposure to high MF during pregnancy may be a new and previously unknown factor contributing to the world-wide epidemic of childhood obesity/overweight.

**391: Baragou S, Djibril M, Atta B, Damorou F, Pio M, Balogou A. Prevalence of cardiovascular risk factors in an urban area of Togo: a WHO STEPS-wise approach in Lome, Togo. *Cardiovasc J Afr.* 2012 Jul;23(6):309-12. doi: 10.5830/CVJA-2011-071. PubMed PMID: 22836151; PubMed Central PMCID: PMC3734750.**

Abstract

OBJECTIVE:

To determine the prevalence of hypertension and other cardiovascular risk factors in the general adult population of Lome.

METHODS:

A cross-sectional household survey was conducted in Lome from October 2009 to January 2010, which focused on hypertension and other cardiovascular risk factors in 2 000 subjects 18 years and older. The World Health Organisation's STEPS-wise approach on non-communicable diseases was used. During the first session, blood pressure (BP) was measured on three successive occasions, one minute apart, and the mean was recorded. A second measurement session was done three weeks later in patients with BP  $\geq$  140/90 mmHg during the first session. Hypertension was defined as BP  $>$  140/90 mmHg after the second session, or on antihypertensive treatment. The other risk factors were studied by clinical and blood analysis.

RESULTS:

We found 532 hypertensive patients out of a total of 2 000 subjects. The prevalence of hypertension was 26.6%. The mean age of hypertensive patients was  $45 \pm 10$  years, ranging from 18 to 98 years. The prevalence of other cardiovascular risk factors was: stress (43%), sedentary lifestyle (41%), hypercholesterolaemia (26%), obesity (25.2%), hypertriglyceridaemia (21%), smoking (9.3%), alcohol use (11%) and diabetes (7.3%).

CONCLUSIONS:

The prevalence of hypertension and other cardiovascular risk factors in the population of Lome is high. These findings should draw the attention of authorities to define a national policy to combat hypertension and other cardiovascular risk factors.

**392: Booth HP, Prevost AT, Gulliford MC. Epidemiology of clinical body mass index recording in an obese population in primary care: a cohort study. *J Public Health (Oxf).* 2013 Mar;35(1):67-74. doi: 10.1093/pubmed/fds063. Epub 2012 Jul 24. PubMed PMID: 22829663.**

Abstract

BACKGROUND:

Protecting and promoting the health of obese people is an important public health concern. This study evaluated the recording of body mass index and medical diagnostic codes for obesity in obese patients in UK primary care.

METHODS:

A cohort study was implemented in the UK General Practice Research Database. Subjects were aged 18-100 years and were diagnosed with obesity between 1997 and 2007. The frequency of obesity monitoring was evaluated.

RESULTS:

There were 67 000 obese patients at 127 family practices. The proportion of obese patients with no annual body mass index (BMI) record reached 65% of men and 63% of women in 2000, declining to

55 and 48% in 2009. Medical diagnostic codes for obesity were infrequently recorded. The mean BMI of obese patients increased to 35.5 kg/m<sup>2</sup> [95% confidence interval (CI): 35.4-35.7] in men and 37.0 kg/m<sup>2</sup> (95% CI: 36.9-37.1) in women by 2009. In 2009, 37% of obese men with BMI records, and 39% of women, showed a BMI increase of ≥1 kg/m<sup>2</sup> since the previous reading.

**CONCLUSIONS:**

Obese patients do not have BMI values recorded regularly. The mean BMI of obese patients, and the proportion gaining weight over time, is increasing. Improved strategies for monitoring and managing obesity are required.

**393: Rawlins E, Baker G, Maynard M, Harding S. Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study. J Hum Nutr Diet. 2013 Apr;26(2):132-44. doi: 10.1111/j.1365-277X.2012.01280.x. Epub 2012 Jul 25. PubMed PMID: 22827466; PubMed Central PMCID: PMC3618369.**

**Abstract**

**BACKGROUND:**

Ethnicity is a consistent correlate of obesity; however, little is known about the perceptions and beliefs that may influence engagement with obesity prevention programmes among ethnic minority children. Barriers to (and facilitators of) healthy lifestyles were examined in the qualitative arm of the London (UK) DiEt and Active Living (DEAL) study.

**METHODS:**

Children aged 8-13 years and their parents, from diverse ethnic groups, were recruited through schools and through places of worship. Thirteen focus group sessions were held with 70 children (n = 39 girls) and eight focus groups and five interviews with 43 parents (n = 34 mothers).

**RESULTS:**

Across ethnic groups, dislike of school meals, lack of knowledge of physical activity guidelines for children and negativity towards physical education at school among girls, potentially hindered healthy living. Issues relating to families' wider neighbourhoods (e.g. fast food outlets; lack of safety) illustrated child and parental concerns that environments could thwart intentions for healthy eating and activity. By contrast, there was general awareness of key dietary messages and an emphasis on dietary variety and balance. For ethnic minorities, places of worship were key focal points for social support. Discourse around the retention of traditional practices, family roles and responsibilities, and religion highlighted both potential facilitators (e.g. the importance of family meals) and barriers (reliance on convenience stores for traditional foods). Socio-economic circumstances intersected with key themes, within and between ethnic groups.

**CONCLUSIONS:**

Several barriers to (and facilitators of) healthy lifestyles were common across ethnic groups. Diversity of cultural frameworks not only were more nuanced, but also shaped lifestyles for minority children.

**394: Hardy LL, Reinten-Reynolds T, Espinel P, Zask A, Okely AD. Prevalence and correlates of low fundamental movement skill competency in children. *Pediatrics*. 2012 Aug;130(2):e390-8. doi: 10.1542/peds.2012-0345. Epub 2012 Jul 23. PubMed PMID: 22826575.**

Abstract

OBJECTIVE:

To describe the demographic and health-related characteristics of school-aged children with low competency in fundamental movement skills (FMS).

METHODS:

Cross-sectional representative school-based survey of Australian elementary and high school students (n = 6917) conducted in 2010. Trained field staff measured students' height, weight, and assessed FMS and cardiorespiratory endurance (fitness). Information on students' demographics and physical activity was collected by questionnaire.

RESULTS:

Overall, the prevalence of students with low motor skill competency was high. Girls with low socioeconomic status (SES) were twice as likely to be less competent in locomotor skills compared with high SES peers. Among boys, there was a strong association between low competency in FMS and the likelihood of being from non-English-speaking cultural backgrounds. There was a clear and consistent association between low competency in FMS and inadequate cardiorespiratory fitness. For boys, there was a clear association between low competency in object-control skills and not meeting physical activity recommendations. Conversely, the odds of being inactive were double among girls who had low competency in locomotor skills.

CONCLUSIONS:

Low competency in FMS is strongly associated with lower cardiorespiratory fitness and physical activity levels in children and adolescents. The characteristics of students with competency in FMS differ by gender and skills types and show that interventions need to target girls from low SES backgrounds and boys from non-English-speaking cultural backgrounds. The high prevalence of low competency in FMS among Grade 4 students indicates that FMS interventions need to start during the preschool and early school years.

**395: Ellaway A, Macdonald L, Lamb K, Thornton L, Day P, Pearce J. Do obesity-promoting food environments cluster around socially disadvantaged schools in Glasgow, Scotland? *Health Place*. 2012 Nov;18(6):1335-40. doi: 10.1016/j.healthplace.2012.06.001. Epub 2012 Jun 16. PubMed PMID: 22819370; PubMed Central PMCID: PMC3512056.**

Abstract

Increase in the consumption of food and drinks outside the home by adolescents and young people and associations with rising levels of obesity is a significant concern worldwide and it has been suggested that the food environment around schools may be a contributory factor. As few studies have explored this issue in a UK setting, we examined whether different types of food outlets are clustered around public secondary schools in Glasgow, and whether this pattern differed by social disadvantage. We found evidence of clustering of food outlets around schools but a more complex picture in relation to deprivation was observed. Across all schools there were numerous



opportunities for pupils to purchase energy dense foods locally and the implications for policy are discussed.

**396: Yu S, Liu R, Yang X, Zhao G, Qiao X, Feng J, Fang Y, Cao X, He M, Steiner TJ. Body mass index and migraine: a survey of the Chinese adult population. J Headache Pain. 2012 Oct;13(7):531-6. doi: 10.1007/s10194-012-0470-5. Epub 2012 Jul 19. PubMed PMID: 22806540; PubMed Central PMCID: PMC3444544.**

Abstract

The objective of this study is to evaluate the association between body mass index (BMI) and migraine in general population Chinese cohort. This was a cross-sectional secondary analysis from a general population Chinese cohort of men and women of reproductive and post-reproductive age ranging between 18 and 65 years. Migraine was defined utilizing ICHD criteria. Body mass indices were calculated using measured height and weight and categorized based on the World Health Organizations criteria. The 1-year period prevalence of migraine was 9.3 %. No association was identified between migraine and those with a BMI < 30.0. Compared to those with normal BMI (18.5-23.0), those with BMI ≥ 30 (morbid obesity) had a greater prevalence of migraine (8.6 vs. 13.8 %, p = 0.000). Multivariate-adjusted odds ratio demonstrated that those with morbid obesity had a greater than twofold increased odds of migraine [OR 2.10 (1.39-3.12)] as compared to those with a BMI between 18.5 and 23.0. No association was found between obesity and migraine severity, frequency, or disability. Morbid obesity was associated with twofold increased odds of migraine in this Chinese men and women cohort of predominantly reproductive age.

**397: Drake KM, Beach ML, Longacre MR, Mackenzie T, Titus LJ, Rundle AG, Dalton MA. Influence of sports, physical education, and active commuting to school on adolescent weight status. Pediatrics. 2012 Aug;130(2):e296-304. doi: 10.1542/peds.2011-2898. Epub 2012 Jul 16. PubMed PMID: 22802608; PubMed Central PMCID: PMC3408684.**

Abstract

OBJECTIVE:

To compare the associations between weight status and different forms of physical activity among adolescents.

METHODS:

We conducted telephone surveys with 1718 New Hampshire and Vermont high school students and their parents as part of a longitudinal study of adolescent health. We surveyed adolescents about their team sports participation, other extracurricular physical activity, active commuting, physical education, recreational activity for fun, screen time, diet quality, and demographics.

Overweight/obesity (BMI for age ≥ 85th percentile) and obesity (BMI for age ≥ 95 percentile) were based on self-reported height and weight.

RESULTS:

Overall, 29.0% (n = 498) of the sample was overweight/obese and 13.0% (n = 223) were obese. After adjustments, sports team participation was inversely related to overweight/obesity (relative risk [RR] = 0.73 [95% confidence interval (CI): 0.61, 0.87] for >2 sports teams versus 0) and obesity (RR = 0.61 [95% CI: 0.45, 0.81] for >2 sports teams versus 0). Additionally, active commuting to school was inversely related to obesity (RR = 0.67 [95% CI: 0.45, 0.99] for >3.5 days per week versus 0).

Attributable risk estimates suggest obesity prevalence would decrease by 26.1% (95% CI: 9.4%, 42.8%) if all adolescents played on 2 sports teams per year and by 22.1% (95% CI: 0.1%, 43.3%) if all adolescents walked/biked to school at least 4 days per week.

**CONCLUSIONS:**

Team sport participation had the strongest and most consistent inverse association with weight status. Active commuting to school may reduce the risk of obesity, but not necessarily overweight, and should be studied further. Obesity prevention programs should consider strategies to increase team sport participation among all students.

**398: Field AE, Sonneville KR, Micali N, Crosby RD, Swanson SA, Laird NM, Treasure J, Solmi F, Horton NJ. Prospective association of common eating disorders and adverse outcomes. *Pediatrics*. 2012 Aug;130(2):e289-95. doi: 10.1542/peds.2011-3663. Epub 2012 Jul 16. PubMed PMID: 22802602; PubMed Central PMCID: PMC3408691.**

**Abstract**

**OBJECTIVE:**

Anorexia nervosa and bulimia nervosa (BN) are rare, but eating disorders not otherwise specified (EDNOS) are relatively common among female participants. Our objective was to evaluate whether BN and subtypes of EDNOS are predictive of developing adverse outcomes.

**METHODS:**

This study comprised a prospective analysis of 8594 female participants from the ongoing Growing Up Today Study. Questionnaires were sent annually from 1996 through 2001, then biennially through 2007 and 2008. Participants who were 9 to 15 years of age in 1996 and completed at least 2 consecutive questionnaires between 1996 and 2008 were included in the analyses. Participants were classified as having BN ( $\geq$  weekly binge eating and purging), binge eating disorder (BED;  $\geq$  weekly binge eating, infrequent purging), purging disorder (PD;  $\geq$  weekly purging, infrequent binge eating), other EDNOS (binge eating and/or purging monthly), or nondisordered.

**RESULTS:**

BN affected  $\sim$ 1% of adolescent girls; 2% to 3% had PD and another 2% to 3% had BED. Girls with BED were almost twice as likely as their nondisordered peers to become overweight or obese (odds ratio [OR]: 1.9 [95% confidence interval: 1.0-3.5]) or develop high depressive symptoms (OR: 2.3 [95% confidence interval: 1.0-5.0]). Female participants with PD had a significantly increased risk of starting to use drugs (OR: 1.7) and starting to binge drink frequently (OR: 1.8).

**CONCLUSIONS:**

PD and BED are common and predict a range of adverse outcomes. Primary care clinicians should be made aware of these disorders, which may be underrepresented in eating disorder clinic samples. Efforts to prevent eating disorders should focus on cases of subthreshold severity.

**399: Peña MM, Dixon B, Taveras EM. Are you talking to ME? The importance of ethnicity and culture in childhood obesity prevention and management. *Child Obes.* 2012 Feb;8(1):23-7. doi: 10.1089/chi.2011.0109. PubMed PMID: 22799474; PubMed Central PMCID: PMC3647541.**

Abstract

Childhood obesity is prevalent, is of consequence, and disproportionately affects racial/ethnic minority populations. By the preschool years, racial/ethnic disparities in obesity prevalence and substantial differences in many risk factors for obesity are already present, suggesting that disparities in obesity prevalence have their origins in the earliest stages of life. The reasons for racial/ethnic variation in obesity are complex and may include differences in cultural beliefs and practices, level of acculturation, ethnicity-based differences in body image, and perceptions of media, sleep, and physical activity. In addition, racial/ethnic differences in obesity may evolve as a consequence of the socio- and environmental context in which families live. The primary care setting offers unique opportunities to intervene and alter the subsequent course of health and disease for children at risk for obesity. Regular visits during childhood allow both detection of elevated weight status and offer opportunities for prevention and treatment. Greater awareness of the behavioral, social-cultural, and environmental determinants of obesity among ethnic minority populations could assist clinicians in the treatment of obesity among diverse pediatric populations. Specific strategies include beginning prevention efforts early in life before obesity is present and recognizing and querying about ethnic- and culturally specific beliefs and practices, the role of the extended family in the household, and parents' beliefs of the causative factors related to their child's obesity. Efforts to provide culturally and linguistically appropriate care, family-based treatment programs, and support services that aim to uncouple socioeconomic factors from adverse health outcomes could improve obesity care for racial/ethnic minority children.

**400: Reilly JJ. Evidence-based obesity prevention in childhood and adolescence: critique of recent etiological studies, preventive interventions, and policies. *Adv Nutr.* 2012 Jul 1;3(4):636S-641S. doi: 10.3945/an.112.002014. Review. PubMed PMID: 22798005; PubMed Central PMCID: PMC3649738.**

Abstract

Prevention of obesity in childhood and adolescence remains a worthwhile and realistic goal, but preventive efforts have been beset by a number of problems, which are the subject of this review. The review draws on recent systematic reviews and evidence appraisals and has a United Kingdom (UK) perspective because there is a rich evidence base in the United Kingdom that may be helpful to obesity prevention researchers elsewhere. Recent evidence of a leveling off in child and adolescent obesity prevalence in some Western nations should not encourage the belief that the obesity prevention problem has been solved, although a better understanding of recent secular trends might be helpful for prevention strategy in future. An adequate body of evidence provides behavioral targets of preventive interventions, and there are frameworks for prioritizing these targets logically and models for translating them into generalizable interventions with a wide reach (e.g., school-based prevention interventions such as Planet Health). An improved understanding of the "energy gap" that children and adolescents experience would be helpful to the design of preventive interventions and to their tailoring to particular groups. In the United Kingdom, some recent etiological evidence has been taken as indicative of the need for paradigm shifts in obesity

prevention, but this evidence from single studies has not been replicated, and paradigm shifts probably occur only rarely. Ensuring that the evidence base on etiology and prevention influences policy effectively remains one of the greatest challenges for childhood obesity researchers.

**401: Cherian AT, Cherian SS, Subbiah S. Prevalence of obesity and overweight in urban school children in Kerala, India. Indian Pediatr. 2012 Jun;49(6):475-7. PubMed PMID: 22796686.**

Abstract

The objective of this study was to examine the prevalence of obesity and overweight in urban school children in Kochi, Kerala, South India. Three schools from the city were selected representing upper, middle and lower socioeconomic groups and the children aged 6-15 years of age were interviewed. The prevalence of obesity was 3.0% for boys and 5.3% for girls. The prevalence of obesity (7.5%) and overweight (21.9%) were highest among high income group and lowest (1.5% and 2.5%) among low income group. Prevalence of obesity and overweight was found to be higher in the high income group and among girls.

**402: Krishnan S, Fields DA, Copeland KC, Blackett PR, Anderson MP, Gardner AW. Sex differences in cardiovascular disease risk in adolescents with type 1 diabetes. Gend Med. 2012 Aug;9(4):251-8. doi: 10.1016/j.genm.2012.05.003. Epub 2012 Jul 13. PubMed PMID: 22795492; PubMed Central PMCID: PMC3481996.**

Abstract

BACKGROUND:

Cardiovascular disease is seen at a younger age and at a higher prevalence in patients with type 1 diabetes than in the general population. It is well described that women with type 1 diabetes have a higher relative risk of cardiovascular disease than men with type 1 diabetes, unlike that seen in the general population. The pathophysiology behind this is unknown.

OBJECTIVE:

We performed a cross-sectional study to examine sex differences in cardiovascular disease risk factors in adolescents with type 1 diabetes between ages 13 and 20 years, compared with children of a similar age without type 1 diabetes.

METHODS:

All patients underwent a dual energy x-ray absorptiometry scan to measure body composition and a pulse wave test measure of arterial elasticity. Fasting serum lipid levels, apolipoprotein B, and apolipoprotein C-III levels were measured in each patient. Twenty-nine children with type 1 diabetes (10 girls, 19 boys) and 37 healthy children (18 girls, 19 boys) participated.

RESULTS:

Although no sex differences for body mass index ( $P = 0.91$ ) and glycosylated hemoglobin ( $P = 0.69$ ) were seen, girls with type 1 diabetes had a significantly higher percent trunk fat compared with boys ( $P = 0.004$ ). No sex differences were found ( $P > 0.05$ ) for percent trunk fat in adolescents without diabetes. There was no sex difference among any other cardiovascular risk factors in either children with or without diabetes.

CONCLUSIONS:

Female adolescents with type 1 diabetes have more centrally distributed fat, which may contribute to their relatively higher cardiovascular disease risk. Attenuation of the central distribution of fat

through exercise and dietary modifications may help ameliorate their subsequent cardiovascular disease burden.

**403: Adams AL, Kessler JI, Deramerian K, Smith N, Black MH, Porter AH, Jacobsen SJ, Koebnick C. Associations between childhood obesity and upper and lower extremity injuries. *Inj Prev.* 2013 Jun;19(3):191-7. doi: 10.1136/injuryprev-2012-040341. Epub 2012 Jul 11. PubMed PMID: 22789612; PubMed Central PMCID: PMC3747966.**

Abstract

OBJECTIVES:

To estimate the overall and age-specific associations between obesity and extremity musculoskeletal injuries and pain in children.

METHODS:

This cross-sectional study used information from electronic medical records of 913178 patients aged 2-19 years enrolled in an integrated health plan in the period 2007-2009. Children were classified as underweight, normal weight, overweight, or moderately/extremely obese and, using multivariable logistic regression methods, the associations between weight class and diagnosis of upper or lower extremity fractures, sprains, dislocations and pain were calculated.

RESULTS:

Overweight (OR 1.18, 95% CI 1.15 to 1.20), moderately obese (OR 1.24, 95% CI 1.20 to 1.27) and extremely obese (OR 1.34, 95% CI 1.30 to 1.39) children had statistically significantly higher odds of lower extremity injuries/pain compared to normal weight, adjusted for sex, age, race/ethnicity and insurance status. Age-stratified analyses yielded similar results. No consistent association was observed between body mass index and injuries/pain of the upper extremities.

CONCLUSIONS:

Greater body mass index is associated with increased odds of lower extremity injuries and pain issues. Because the benefits of physical activity may still outweigh the risk of injury, attention should be paid to injury prevention strategies for these children at greater risk for lower extremity injuries.

KEYWORDS:

Obesity; adolescent; body mass; body weight; child; childhood; fractures; injuries; outcome of injury; pain; populations/contexts; risk/determinants; youth.

**404: Borysewicz-Sańczyk H, Porowski T, Hryniewicz A, Baran M, Zasim A, Bossowski A. [Urolithiasis risk factors in obese and overweight children]. *Pediatr Endocrinol Diabetes Metab.* 2012;18(2):53-7. Polish. PubMed PMID: 22781881.**

Abstract

INTRODUCTION:

Childhood obesity is becoming a worldwide epidemic and its metabolic and cardiovascular complications may already be evident at a young age. Several epidemiologic studies in adults have clearly demonstrated that obesity and overweight increase the risk of kidney disease and urolithiasis.

AIM OF THE STUDY:

The purpose of this study was to evaluate the relationship between overweight and obesity and urolithiasis risk factors in children.

MATERIALS AND METHODS:

The main kidney stones risk factors in urine such as calcium concentration, oxalate concentration, citrate concentration, pH of urine as well as BRI (Bonn Risk Index) were analyzed in 249 overweight and obese children (study group) and in 281 children with normal weight (control) at the age of 3 to 18 years old.

**RESULTS:**

In the study group the mean oxalate concentration was significantly higher than in the control ( $0.52 \pm 0.48$  vs.  $0.26 \pm 0.12$ ;  $p < 0.05$ ). The mean calcium concentration of overweight/obese patients was higher than that of normal body weight and the difference was close to statistically significant ( $3.23 \pm 2.55$  vs.  $2.58 \pm 1.59$ ;  $p = 0.0537$ ). The mean urine pH in the study group was  $6.28 \pm 0.46$  and was significantly lower ( $p < 0.05$ ) than the mean urine pH in the control, which was  $6.40 \pm 0.47$ . The mean citrate concentration among overweight/obese patients was significantly lower than in control ( $431,2 \pm 309,5$  vs.  $637,2 \pm 310,7$ ;  $p < 0.05$ ).

**CONCLUSIONS:**

Our results suggest that obesity or overweight at a young age are associated with an increased risk of kidney stones. Weight loss might be explored as a potential treatment to prevent kidney stone formation.

**405: Jerant A, Franks P. Body mass index, diabetes, hypertension, and short-term mortality: a population-based observational study, 2000-2006. J Am Board Fam Med. 2012 Jul-Aug;25(4):422-31. doi: 10.3122/jabfm.2012.04.110289. PubMed PMID: 22773710.**

**Abstract**

**BACKGROUND:**

Published studies about the association of obesity with mortality have used body mass index (BMI) data collected more than 10 years ago, potentially limiting their current applicability, particularly given evidence of a secular decline in obesity-related mortality. The objective of this study was to examine the association between BMI and mortality in a representative, contemporary United States sample.

**METHODS:**

This was a population-based observational study of data from 50,994 adults aged 18 to 90 years who responded to the 2000 to 2005 Medical Expenditures Panel Surveys. Cox regression analyses were employed to model survival during up to 6 years of follow-up (ascertained via National Death Index linkage) by self-reported BMI category (underweight,  $< 20$  kg/m<sup>2</sup>); normal weight, 20- $< 25$  [reference]; overweight, 25- $< 30$ ; obese, 30- $< 35$ ; severely obese,  $\geq 35$ ), without and with adjustment for diabetes and hypertension. Survival by BMI category also was modeled for diabetic and hypertensive individuals. All models were adjusted for sociodemographics, smoking, and Medical Expenditures Panel Surveys response year.

**RESULTS:**

In analyses not adjusted for diabetes or hypertension, only severe obesity was associated with mortality (adjusted hazard ratio, 1.26; 95% confidence interval, 1.00-1.59). After adjusting for diabetes and hypertension, severe obesity was no longer associated with mortality, and milder obesity (BMI 30- $< 35$ ) was associated with decreased mortality (adjusted hazard ratio, 0.81; 95% confidence interval, 0.68-0.97). There was a significant interaction between diabetes (but not hypertension) and BMI ( $F [4, 235] = 2.71$ ;  $P = .03$ ), such that the mortality risk of diabetes was lower among mildly and severely obese persons than among those in lower BMI categories.

#### CONCLUSIONS:

Obesity-associated mortality risk was lower than estimated in studies employing older BMI data. Only severe obesity (but not milder obesity or overweight) was associated with increased mortality, an association accounted for by coexisting diabetes and hypertension. Mortality in diabetes was lower among obese versus normal weight individuals.

**406: Lim SS, Davies MJ, Norman RJ, Moran LJ. Overweight, obesity and central obesity in women with polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod Update. 2012 Nov-Dec;18(6):618-37. doi: 10.1093/humupd/dms030. Epub 2012 Jul 4. Review. PubMed PMID: 22767467.**

#### Abstract

**BACKGROUND** Polycystic ovary syndrome (PCOS) is closely associated with obesity but the prevalence of obesity varies between published studies. The objective of this research was to describe the prevalence of overweight, obesity and central obesity in women with and without PCOS and to assess the confounding effect of ethnicity, geographic regions and the diagnostic criteria of PCOS on the prevalence. **METHODS** MEDLINE, EMBASE, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL) and PSYCINFO were searched for studies reporting the prevalence of overweight, obesity or central obesity in women with and without PCOS. Data were presented as prevalence (%) and risk ratio (RR) [95% confidence interval (CI)]. Random-effect models were used to calculate pooled RR. **RESULTS** This systematic review included 106 studies while the meta-analysis included 35 studies (15129 women). Women with PCOS had increased prevalence of overweight [RR (95% CI): 1.95 (1.52, 2.50)], obesity [2.77 (1.88, 4.10)] and central obesity [1.73 (1.31, 2.30)] compared with women without PCOS. The Caucasian women with PCOS had a greater increase in obesity prevalence than the Asian women with PCOS compared with women without PCOS [10.79 (5.36, 21.70) versus 2.31 (1.33, 4.00),  $P < 0.001$  between subgroups]. **CONCLUSIONS** Women with PCOS had a greater risk of overweight, obesity and central obesity. Although our findings support a positive association between obesity and PCOS, our conclusions are limited by the significant heterogeneity between studies and further studies are now required to determine the source of this heterogeneity. Clinical management of PCOS should include the prevention and management of overweight and obesity.

**407: Galloway T, Blackett H, Chatwood S, Jeppesen C, Kandola K, Linton J, Bjerregaard P. Obesity studies in the circumpolar Inuit: a scoping review. Int J Circumpolar Health. 2012 Jul 4;71:18698. doi: 10.3402/ijch.v71i0.18698. Review. PubMed PMID: 22765938.**

#### Abstract

##### BACKGROUND:

Among circumpolar populations, recent research has documented a significant increase in risk factors which are commonly associated with chronic disease, notably obesity.

##### OBJECTIVE:

The present study undertakes a scoping review of research on obesity in the circumpolar Inuit to determine the extent obesity research has been undertaken, how well all subpopulations and geographic areas are represented, the methodologies used and whether they are sufficient in describing risk factors, and the prevalence and health outcomes associated with obesity.

##### DESIGN:

Online databases were used to identify papers published 1992-2011, from which we selected 38 publications from Canada, the United States, and Greenland that used obesity as a primary or secondary outcome variable in 30 or more non-pregnant Inuit ("Eskimo") participants aged 2 years or older.

**RESULTS:**

The majority of publications (92%) reported cross-sectional studies while 8% examined retrospective cohorts. All but one of the studies collected measured data. Overall 84% of the publications examined obesity in adults. Those examining obesity in children focused on early childhood or adolescence. While most (66%) reported 1 or more anthropometric indices, none incorporated direct measures of adiposity. Evaluated using a customized quality assessment instrument, 26% of studies achieved an "A" quality ranking, while 18 and 39% achieved quality rankings of "B" and "C", respectively.

**CONCLUSIONS:**

While the quality of studies is generally high, research on obesity among Inuit would benefit from careful selection of methods and reference standards, direct measures of adiposity in adults and children, studies of preadolescent children, and prospective cohort studies linking early childhood exposures with obesity outcomes throughout childhood and adolescence.

**408: Coogan PE, Wise LA, Cozier YC, Palmer JR, Rosenberg L. Lifecourse educational status in relation to weight gain in African American women. Ethn Dis. 2012 Spring;22(2):198-206. PubMed PMID: 22764643; PubMed Central PMCID: PMC3848417.**

**Abstract**

**OBJECTIVES:**

Childhood disadvantage has been associated with increased risk of obesity from childhood through adulthood and those who are disadvantaged across the lifecourse are at highest risk. The effect of lifecourse socioeconomic status (SES) is particularly important for Black women due to the higher prevalence of low SES and obesity in Black compared to White women. We assessed associations of lifecourse SES, as indicated by educational status, with adult weight in African American women.

**DESIGN:**

We assessed the associations of parental education, current education (education of participant or her spouse), and a combination of parental and current education (lifecourse education) with weight gain among 21,457 women aged < 55 years in the longitudinal Black Women's Health Study, which began in 1995.

**MAIN OUTCOME MEASURES:**

We estimated the mean difference in weight gain between age 18 and age in 2009, and risk ratios for obesity in 2009, in each level of education compared to the highest level (college graduate).

**RESULTS:**

The age- and height-adjusted differences in mean weight gain for the lowest levels of parental and current education compared to the highest levels were 3.29 and 4.49 kg, respectively. The age-adjusted risk ratios for obesity for the lowest level of parental and current education were 1.44 (95% CI 1.32-1.57) and 1.75 (95% CI 1.57-1.95), respectively. Risk of obesity was lowest among those with current education of college graduate, regardless of parental education.

**CONCLUSIONS:**

Educational level of college graduate may overcome the adverse effects of low parental education on weight gain and obesity risk.



**409: Boynton-Jarrett R, Rosenberg L, Palmer JR, Boggs DA, Wise LA. Child and adolescent abuse in relation to obesity in adulthood: the Black Women's Health Study. *Pediatrics*. 2012 Aug;130(2):245-53. doi: 10.1542/peds.2011-1554. Epub 2012 Jul 2. PubMed PMID: 22753562; PubMed Central PMCID: PMC3408680.**

Abstract

OBJECTIVE:

To investigate the association of physical and sexual abuse in childhood and adolescence with risk of adult obesity among black women in the United States.

METHODS:

Participants were women enrolled in the Black Women's Health Study, an ongoing prospective cohort study begun in 1995. In 2005, 33298 participants completed a self-administered questionnaire on early life experiences of abuse. Log-binomial regression models were used to derive risk ratios (RRs) and 95% confidence intervals (CIs) for the relation of child/teenager abuse with obesity (BMI  $\geq$  30) and central adiposity (waist circumference  $>$ 35 inches) reported in 2005.

RESULTS:

The RR for BMI  $\geq$  30, a measure of overall obesity, was 1.29 (95% CI 1.20-1.38) for the highest severity of exposure to child/teenager physical and sexual abuse relative to no abuse. After controlling for postulated intermediates, including reproductive history, diet, physical activity, depressive symptoms, and socioeconomic status, the RR was 1.14 (95% CI 1.08-1.21). The RR for waist circumference  $>$ 35 inches, which measures central obesity, for severe physical and sexual abuse relative to no abuse was 1.29 (95% CI 1.19-1.38) before adjustment for intermediates and 1.18 (95% CI 1.10-1.27) after adjustment.

CONCLUSIONS:

Early life sexual and physical abuse was associated with an increased risk of overall and central obesity in adulthood. Although the association between abuse and obesity was explained to some extent by health behaviors, reproductive history, and mental health, these factors did not fully account for the associations. Our data suggest that early life adversity is related to adult body size and weight distribution.

**410: Hotchkiss JW, Davies CA, Leyland AH. Adiposity has differing associations with incident coronary heart disease and mortality in the Scottish population: cross-sectional surveys with follow-up. *Int J Obes (Lond)*. 2013 May;37(5):732-9. doi: 10.1038/ijo.2012.102. Epub 2012 Jul 3. PubMed PMID: 22751254; PubMed Central PMCID: PMC3647234.**

Abstract

OBJECTIVE:

Investigation of the association of excess adiposity with three different outcomes: all-cause mortality, coronary heart disease (CHD) mortality and incident CHD.

DESIGN:

Cross-sectional surveys linked to hospital admissions and death records.

SUBJECTS:

19 329 adults (aged 18-86 years) from a representative sample of the Scottish population.

MEASUREMENTS:

Gender-stratified Cox proportional hazards models were used to estimate hazard ratios (HRs) for all-cause mortality, CHD mortality and incident CHD. Separate models incorporating the anthropometric measurements body mass index (BMI), waist circumference (WC) or waist-hip ratio (WHR) were created adjusted for age, year of survey, smoking status and alcohol consumption.

**RESULTS:**

For both genders, BMI-defined obesity ( $\geq 30 \text{ kg m}^{-2}$ ) was not associated with either an increased risk of all-cause mortality or CHD mortality. However, there was an increased risk of incident CHD among the obese men (hazard ratio (HR)=1.78; 95% confidence interval=1.37-2.31) and obese women (HR=1.93; 95% confidence interval=1.44-2.59). There was a similar pattern for WC with regard to the three outcomes; for incident CHD, the HR=1.70 (1.35-2.14) for men and 1.71 (1.28-2.29) for women in the highest WC category (men  $\geq 102 \text{ cm}$ , women  $\geq 88 \text{ cm}$ ), synonymous with abdominal obesity. For men, the highest category of WHR ( $\geq 1.0$ ) was associated with an increased risk of all-cause mortality (1.29; 1.04-1.60) and incident CHD (1.55; 1.19-2.01). Among women with a high WHR ( $\geq 0.85$ ) there was an increased risk of all outcomes: all-cause mortality (1.56; 1.26-1.94), CHD mortality (2.49; 1.36-4.56) and incident CHD (1.76; 1.31-2.38).

**CONCLUSIONS:**

In this study excess adiposity was associated with an increased risk of incident CHD but not necessarily death. One possibility is that modern medical intervention has contributed to improved survival of first CHD events. The future health burden of increased obesity levels may manifest as an increase in the prevalence of individuals living with CHD and its consequences.

**411: Sundaram SS, Alonso EM, Zeitler P, Yin W, Anand R; SPLIT Research Group.**

**Obesity after pediatric liver transplantation: prevalence and risk factors. J**

**Pediatr Gastroenterol Nutr. 2012 Dec;55(6):657-62. doi:**

**10.1097/MPG.0b013e318266243c. PubMed PMID: 22744193; PubMed Central PMCID: PMC3646643.**

**Abstract**

**OBJECTIVES:**

Pediatric obesity has become a significant public health concern. The historical focus in pediatric liver transplant (LT) has been undernutrition, with limited knowledge regarding obesity. Therefore, we sought to determine the prevalence of obesity in pediatric LT, compare it to National Health and Nutrition Examination Surveys (NHANES) data, and identify risk factors for obesity in pediatric LT.

**METHODS:**

SPLIT, which collects pediatric LT data at 39 centers, was queried for subjects ages 2 to 18 years at follow-up, LT between 1995 and 2007, and with at least 1 body mass index measured 1 to 5 years after LT.

**RESULTS:**

Of 1706 individuals included, 44% had biliary atresia (47% boys, 58% white, mean age at LT 4.6 years). Of these individuals, 19% were obese at 1 year and 18% at 3 years, higher than in the general pediatric population reported by 2003-2004 NHANES, whereas 11% obesity at 5 years after LT was similar to NHANES data. Using logistic regression, Hispanic ethnicity (odds ratio [OR] 1.8, 95% confidence interval [CI] 1.19-2.23), steroid use at follow-up (OR 1.48, 95% CI 1.23-1.77), overweight (OR 4.34, 95% CI 2.91-6.68), and obesity (OR 10.62, 95% CI 5.9-19.65) at LT independently predicted post-LT obesity.

**CONCLUSIONS:**

These findings suggest a need to broaden standard care to include obesity assessment and intervention in routine pre- and posttransplant care.

**412: Kapka-Skrzypczak L, Bergier B, Diatczyk J, Niedźwiecka J, Biliński P, Wojtyła A. Dietary habits and body image perception among Polish adolescents and young adults - a population based study. *Ann Agric Environ Med.* 2012;19(2):299-308. PubMed PMID: 22742806.**

Abstract

Patterns of nutritional behaviours shaped in childhood and during the period of adolescents are mostly continued in adult life, and on these patterns, to a great degree, depends the risk of development of many chronic diseases. The aim of this study was to assess the relationship between dietary habits and body image perception among Polish adolescents and young adults. The study group covered 14,511 adolescents/young adults: 10,081 children attending high schools and secondary schools, and 4,428 university students. More than 87% of schoolchildren and students admitted that they snacked between meals everyday, and 1/3 of them mentioned that they consumed meals at night. As many as 41.40% of schoolchildren, and 46.70% of students experienced the feeling of overeating at least several times a week. Analysis of the respondents BMI showed that in the group of students there were considerably more respondents obese or overweight, compared to the group of schoolchildren. Fear of gaining weight was mentioned by 9.90% of respondents, including 6.90% of those with normal body structure, 1.40% with underweight or overweight, and 0.40% of those obese. As many as 54.60% of the total number of respondents described their body structure as remaining within the normal, 23.7% - as slim, 13.9% reported that they were overweight, 6% - thin, while 1.7% considered themselves as obese. A comprehensive analysis of the data available, including attempts at dieting or gaining weight, indicated that approximately ¼ of obese respondents had undertaken attempts in the past to reduce their body weight. The importance of physical activity and healthy eating habits should be given due attention not only to prevent obesity but also other eating disorder.

**413: Yan S, Li J, Li S, Zhang B, Du S, Gordon-Larsen P, Adair L, Popkin B. The expanding burden of cardiometabolic risk in China: the China Health and Nutrition Survey. *Obes Rev.* 2012 Sep;13(9):810-21. doi: 10.1111/j.1467-789X.2012.01016.x. Epub 2012 Jun 28. PubMed PMID: 22738663; PubMed Central PMCID: PMC3429648.**

Abstract

China faces a major increase in cardiovascular disease, yet there is limited population-based data on risk factors, particularly in children. Fasting blood samples, anthropometry and blood pressure were collected on 9,244 children and adults aged  $\geq 7$  years in late 2009 as part of the national China Health and Nutrition Survey. Prevalent overweight, elevated blood pressure, and cardiometabolic risk factors: glucose, HbA1c, triglycerides (TG), total cholesterol (TC), high- and low-density lipoprotein cholesterol (HDL-C and LDL-C), and C-reactive protein (CRP) are presented. We found that 11% of Chinese children and 30% of Chinese adults are overweight. Rates of diabetes, dyslipidaemia, hypertension and inflammation are high and increased with age and were associated with urbanization. Approximately 42% of children have at least one of the following: pre-diabetes or diabetes, hypertension, high TC, LDL-C, TG, and CRP and low HDL-C, as do 70% men and 60% women aged 18-40 years and >90% of men and women  $\geq 60$  years. In sum, the HbA1c findings suggest that as

many as 27.7 million Chinese children and 334 million Chinese adults may be pre-diabetic or diabetic. The high prevalence in less urban areas and across all income levels suggests that cardiometabolic risk is pervasive across rural and urban China.

**414: Poterico JA, Bernabé-Ortiz A, Loret de Mola C, Miranda JJ. [Association between television viewing and obesity in Peruvian women]. Rev Saude Publica. 2012 Aug;46(4):610-6. Epub 2012 Jun 26. Spanish. PubMed PMID: 22735272.**

Abstract

OBJECTIVE:

To assess the association between frequency of television viewing, overweight and obesity in a nationally representative sample of Peruvian women.

METHODS:

Secondary analysis of the Demographic and Health Survey 2008 including women aged from 15 to 49 years old. The outcome variables were obesity (body mass index  $>30$  kg/m<sup>2</sup>) and overweight (body mass index  $>25$  but  $<30$  kg/m<sup>2</sup>) whereas the exposure variable was frequency of television viewing (never, occasionally, almost every day). Logistic regression taking into account the multistage study design and adjusting for potential confounders was used. Results were presented as adjusted odds ratios (aOR) with 95% confidence intervals (95%CI).

RESULTS:

A total of 21,712 women were included in the analysis. The prevalence of overweight was 34.7% (95%CI 33.8%;35.7%), and obesity prevalence was 14.3% (95%CI 13.6%;15.1%). Compared to women who never watched television, those who reported watching television occasionally and almost daily were more likely to be obese: aOR 1.7 (95%CI 1.3;-2.3) and aOR 2.6 (95%CI 2.0;3.5), respectively. The magnitude of this association was lower for overweight: aOR 1.2 (95CI 1.3;2.3) and aOR 1.6 (95%CI 1.1;1.4), respectively. The strength of the association was greater in urban areas.

CONCLUSIONS:

Frequency of television viewing was associated with overweight and obesity in Peruvian women and the strength of this association varied by area of residence. These findings can provide input to strategies for obesity prevention in the Peruvian context.

**416: Sikorski C, Lupp M, Schomerus G, Werner P, König HH, Riedel-Heller SG. Public attitudes towards prevention of obesity. PLoS One. 2012;7(6):e39325. doi: 10.1371/journal.pone.0039325. Epub 2012 Jun 19. PubMed PMID: 22723996; PubMed Central PMCID: PMC3378564.**

Abstract

OBJECTIVE:

To investigate obesity prevention support in the German general public and to assess determinants of general prevention support as well as support of specific prevention measures.

METHODS:

This study was a cross-sectional analysis of a telephone based representative German study (3,003 subjects (52.8% women, mean age 51.9, s.d. = 18.0, range 18-97 years). Likert scale-based questions on general prevention support and support of specific measures were used. Furthermore willingness to take part in preventive programs and willingness to pay were assessed. Stigmatizing attitudes were

assessed with the Fat Phobia Scale (FPS). Causation of obesity was differentiated in three dimensions (internal, e.g. lack of exercise; external, e.g. social surroundings; and genetic factors).

**RESULTS:**

Obesity prevention was perceived as possible (98.2%), however, almost exclusively lifestyle changes were named. Participants with higher stigmatizing attitudes were less likely to believe obesity prevention is possible. The majority of participants would take part in preventive programs (59.6%) and pay at least partially themselves (86.9%). Factor analysis revealed three dimensions of preventive measures: promoting healthy eating, restrictive and financial, governmental prevention efforts. In regard to these, promoting healthy eating was the most supported measure. Higher age, female gender and external causation were associated with higher support for all three dimensions of preventive measures. Only for governmental regulation, higher age was associated with lower support.

**CONCLUSION:**

Obesity prevention support in Germany is high. Structural prevention efforts are supported by the majority of the general public in Germany. The vast majority proclaims willingness to pay themselves for programs of weight gain prevention. This could be an indication of higher perceived self-responsibility in the German system but also for risen "fear of fat" in the population due to media coverage. For Germany, the government and communities ought to be encouraged by these results to start the implementation of structural obesity prevention.

**417: Liang YJ, Xi B, Song AQ, Liu JX, Mi J. Trends in general and abdominal obesity among Chinese children and adolescents 1993-2009. *Pediatr Obes.* 2012 Oct;7(5):355-64. doi: 10.1111/j.2047-6310.2012.00066.x. Epub 2012 Jun 20. PubMed PMID: 22718681; PubMed Central PMCID: PMC3440532.**

**Abstract**

**OBJECTIVE:**

This study aimed to examine the secular trends in body mass index (BMI) and waist circumference (WC), and the prevalence of general and abdominal obesity among Chinese children and adolescents from 1993 to 2009.

**METHODS:**

Data were obtained from the China health and nutrition survey conducted from 1993 to 2009. 9693 children and adolescents aged 6-17 years were included in this study, with their height, weight and WC measured. General obesity was defined using the BMI cut-offs for overweight recommended by the International Obesity Task Force, and abdominal obesity was assessed when a WC is above the 90th percentile for gender and age.

**RESULTS:**

Among the total participants, mean BMI and WC increased significantly over the period 1993-2009: BMI increased from 17.6 to 17.8 kg m<sup>-2</sup>, and WC increased from 61.4 to 63.1 cm (both increases P < 0.001). The prevalence of general obesity and abdominal obesity increased significantly over the period: general obesity (including overweight) rose from 6.1% to 13.1% and abdominal obesity from 4.9% to 11.7% (both increases P < 0.001). WC and abdominal obesity increased at a relatively higher rate than BMI and general obesity. Upward trends in the prevalence of general and abdominal obesity were observed in all subgroups of gender, age and region (all increases P < 0.05), except for abdominal obesity in girls aged 13-17 years (P = 0.102).

**CONCLUSION:**

General and abdominal obesity increased significantly over the past 17 years in Chinese children.

**418: Friend S, Bauer KW, Madden TC, Neumark-Sztainer D. Self-weighing among adolescents: associations with body mass index, body satisfaction, weight control behaviors, and binge eating. J Acad Nutr Diet. 2012 Jan;112(1):99-103. doi: 10.1016/j.jada.2011.08.036. Epub 2011 Nov 4. PubMed PMID: 22717180; PubMed Central PMCID: PMC3381286.**

Abstract

Among adolescent girls, the health effects of frequent self-weighing are unclear. This study examines cross-sectional and longitudinal associations between frequency of self-weighing and body mass index (BMI), body satisfaction, weight control behaviors, and binge eating among a diverse population of adolescent girls. The study was conducted in the Minneapolis/St Paul, MN, metropolitan area between 2007 and 2009. The study population included 356 adolescent girls (mean age 15.7 years); 46.2% of the girls were overweight or obese and >75% were from a racial/ethnic minority group. Anthropometric and survey data were collected at baseline and at follow-up 9 months later. Hierarchical linear regression models were developed to test associations. Cross-sectionally, frequent self-weighing was associated with lower body satisfaction ( $P=0.034$ ) and higher rates of healthy ( $P=0.002$ ), unhealthy ( $P=0.016$ ), and extreme ( $P=0.038$ ) weight control behaviors. A quadratic association was found between frequency of self-weighing and binge eating, with girls who weighed themselves least and most frequently reporting the highest prevalences of binge eating ( $P=0.014$ ). No association was observed between frequency of self-weighing and girls' BMI ( $P=0.111$ ). Short-term longitudinal associations between baseline frequency of self-weighing and changes in body satisfaction, weight control behaviors, binge eating, or BMI were not observed. Findings suggest that among adolescent girls, frequent self-weighing is cross-sectionally associated with both healthy and potentially harmful unhealthy weight control behaviors, and does not contribute to weight loss over time. Adolescents should not be encouraged to engage in frequent self-weighing.

**419: Martins DL, Branco AI, Fernandes JL, Chaves M. [Study EXPO 2010: Overweight and Obesity in Childhood]. Acta Med Port. 2011 Nov-Dec;24(6):871-6. Epub 2012 Feb 20. Portuguese. PubMed PMID: 22713179.**

Abstract

INTRODUCTION:

During the last decades, overweight and obesity in childhood have been suffering a significant rise. National data point towards a total prevalence up to 30% between 7 and 9 years of age. The tendency is worsening, especially in the lower socioeconomic status. The mentioned weight changes expose children to a higher risk of severe co-morbidities, justifying this way the need for early detection and orientation of the problem, particularly in the ages focused in Global Health Exams.

OBJECTIVES:

Ensure technical and scientific quality of the following records: overweight and obesity records in problems list, minimum diagnosis tests request and therapeutic counseling.

METHODOLOGY:

Dimension: technical and scientific quality of the records. Unit of study: children watched in health unit of authors, born from 01/01 to 31/12 2002 (inc) and 01/01 to 31/12 1995 (inc), with at least one

medical surveillance carried out, respectively, to 5 or 6 years and at 11, 12 or 13 years, with BMI = 85th percentile; Evaluated Professionals: all family doctors; Time period evaluated: 2006-2009, inc. Data Type: clinical data.

DATA SOURCES:

SINUS<sup>®</sup> and SAM<sup>®</sup> version 9.2.

EVALUATION:

internal. Criteria for groups with overweight and Obesity, respectively: I and II) Registration in problems list, III and IV) Registration of minimum diagnosis tests request, V and VI) Registration of therapeutic counseling.

DATA COLLECTION:

May 2010.

EVALUATION:

Retrospective.

SAMPLE:

institutional basis, not random. Type of Intervention: Educational and structural.

RESULTS:

There were included 118 children with weight changes (prevalence of 15.2% for overweight and 10,1% for obesity). In 5-6 years-old children, all the criteria were "Unsatisfactory" (the best result was the record of therapeutic plan on overweight but still only 26,2%). Regarding to teenagers, the results were "Good" for Criterion III, "Satisfactory" for the IV and VI and "Unsatisfactory" for all the others.

DISCUSSION:

Devaluation of overweight and obesity as a health risk to child, diagnostic errors, Child and Youth Health Program limitations, lack of national clinical guidelines, eviction of traumatic procedures, registration failure and follow-up in Pediatrician or Nutritionist are factors that may justify the results. The re-evaluation will be realized after the application of the planned corrective measures.

**420: Walpole SC, Prieto-Merino D, Edwards P, Cleland J, Stevens G, Roberts I. The weight of nations: an estimation of adult human biomass. BMC Public Health. 2012 Jun 18;12:439. doi: 10.1186/1471-2458-12-439. PubMed PMID: 22709383; PubMed Central PMCID: PMC3408371.**

Abstract

BACKGROUND:

The energy requirement of species at each trophic level in an ecological pyramid is a function of the number of organisms and their average mass. Regarding human populations, although considerable attention is given to estimating the number of people, much less is given to estimating average mass, despite evidence that average body mass is increasing. We estimate global human biomass, its distribution by region and the proportion of biomass due to overweight and obesity.

METHODS:

For each country we used data on body mass index (BMI) and height distribution to estimate average adult body mass. We calculated total biomass as the product of population size and average body mass. We estimated the percentage of the population that is overweight (BMI > 25) and obese (BMI > 30) and the biomass due to overweight and obesity.

RESULTS:

In 2005, global adult human biomass was approximately 287 million tonnes, of which 15 million tonnes were due to overweight (BMI > 25), a mass equivalent to that of 242 million people of average

body mass (5% of global human biomass). Biomass due to obesity was 3.5 million tonnes, the mass equivalent of 56 million people of average body mass (1.2% of human biomass). North America has 6% of the world population but 34% of biomass due to obesity. Asia has 61% of the world population but 13% of biomass due to obesity. One tonne of human biomass corresponds to approximately 12 adults in North America and 17 adults in Asia. If all countries had the BMI distribution of the USA, the increase in human biomass of 58 million tonnes would be equivalent in mass to an extra 935 million people of average body mass, and have energy requirements equivalent to that of 473 million adults.

**CONCLUSIONS:**

Increasing population fatness could have the same implications for world food energy demands as an extra half a billion people living on the earth.

**421: Jia M, Wang C, Zhang Y, Zheng Y, Zhang L, Huang Y, Wang P. Sugary beverage intakes and obesity prevalence among junior high school students in Beijing - a cross-sectional research on SSBs intake. Asia Pac J Clin Nutr. 2012;21(3):425-30. PubMed PMID: 22705434.**

**Abstract**

**BACKGROUND:**

Excessive consumption of sugar-sweetened beverages (SSBs) may increase the risk of obesity. Data in regards to the consumption of SSBs is insufficient in the Chinese population, especially in middle school students experiencing rapid nutritional transition. We aimed to describe the consumption of SSBs among junior high school students and explore the relationship between SSB intake and adolescents' overweight/obesity in Beijing.

**METHODS:**

This was a cross-sectional study under which 322 (46%) male and 380 (54%) female (age 11-15 y, median 13 y) were recruited from two middle schools of Xicheng District in Beijing. All subjects completed a questionnaire and 24-hour dietary recall for 3 consecutive days.

**RESULTS:**

Prevalence of overweight was 21.1% in males and 11.6% in females. Prevalence of obesity was 22.7% in males and 10.3% in females. Of the students, 7.7% consumed SSBs at least once per day. Students whose storage of SSBs at home is more than 1 type are more likely to consume higher quantities of SSBs everyday ( $p < 0.001$ ). After adjusting for confounding factors, OR of high SSBs intake group versus low SSBs intake group was 2.6. Students whose parents had a higher BMI had a higher risk of overweight/obesity (OR=1.13,  $p = 0.007$ ).

**CONCLUSIONS:**

Among middle school students in Beijing, prevalence of obesity is more severe than that of overweight. Sugar-sweetened beverages have been the most popular drinks, and consumption of SSBs has a positive association with levels of overweight/obesity among male students.



**422: Maligie M, Crume T, Scherzinger A, Stamm E, Dabelea D. Adiposity, fat patterning, and the metabolic syndrome among diverse youth: the EPOCH study. J Pediatr. 2012 Nov;161(5):875-80. doi: 10.1016/j.jpeds.2012.05.003. Epub 2012 Jun 14. PubMed PMID: 22703953; PubMed Central PMCID: PMC3449014.**

Abstract

OBJECTIVES:

To assess fat distribution, prevalence of obesity, and the metabolic syndrome among diverse 6-13-year-old Colorado youth to better understand racial/ethnic influences on adiposity and metabolic syndrome.

STUDY DESIGN:

We measured body mass index, subscapular-to-triceps skinfold ratio, waist circumference, dietary fat, and physical activity in 422 youth (47% non-Hispanic White, 44% Hispanic, and 9% African-American). Visceral adipose tissue, subcutaneous adipose tissue, and intramyocellular lipid were measured with magnetic resonance techniques. Multiple-linear regression was used to assess associations between race/ethnicity and adiposity patterns.

RESULTS:

Hispanic and African-American youth had a higher prevalence of obesity and metabolic syndrome compared with non-Hispanic White youth. Both groups displayed a more centralized fat distribution and larger volumes of subcutaneous tissue, compared with non-Hispanic White youth. After controlling for body mass index, these differences were attenuated, and for a given body size, African-American youth showed significantly lower visceral adipose tissue than non-Hispanic White youth. However, both Hispanic and African-American youth showed higher intermyocellular lipid in skeletal muscle compared with non-Hispanic Whites, independent of body size.

CONCLUSIONS:

Racial/ethnic minorities experience higher overall adiposity, and may also have an increased risk for early development of metabolic syndrome relative to non-Hispanic White youth, beyond their increased obesity risk.

**423: Tabaei BP, Chamany S, Driver CR, Kerker B, Silver L. Incidence of self-reported diabetes in New York City, 2002, 2004, and 2008. Prev Chronic Dis. 2012;9:E114. Epub 2012 Jun 14. PubMed PMID: 22698175; PubMed Central PMCID: PMC3457762.**

Abstract

INTRODUCTION:

Prevalence and incidence of diabetes among adults are increasing in the United States. The purpose of this study was to estimate the incidence of self-reported diabetes in New York City, examine factors associated with diabetes incidence, and estimate changes in the incidence over time.

METHODS:

We used data from the New York City Community Health Survey in 2002, 2004, and 2008 to estimate the age-adjusted incidence of self-reported diabetes among 24,384 adults aged 18 years or older. Multiple logistic regression analysis was performed to examine factors associated with incident diabetes.

RESULTS:

Survey results indicated that the age-adjusted incidence of diabetes per 1,000 population was 9.4 in 2002, 11.9 in 2004, and 8.6 in 2008. In multivariable-adjusted analysis, diabetes incidence was significantly associated with being aged 45 or older, being black or Hispanic, being overweight or obese, and having less than a high school diploma.

**CONCLUSION:**

Our results suggest that the incidence of diabetes in New York City may be stabilizing. Age, black race, Hispanic ethnicity, elevated body mass index, and low educational attainment are risk factors for diabetes. Large-scale implementation of prevention efforts addressing obesity and sedentary lifestyle and targeting racial/ethnic minority groups and those with low educational attainment are essential to control diabetes in New York City.

**424: Danyliw AD, Vatanparast H, Nikpartow N, Whiting SJ. Beverage patterns among Canadian children and relationship to overweight and obesity. *Appl Physiol Nutr Metab.* 2012 Oct;**37**(5):900-6. doi: 10.1139/h2012-074. Epub 2012 Jun 14. PubMed PMID: 22694268.**

**Abstract**

Sweetened beverage intake has risen in past decades, along with a rise in prevalence of overweight and obesity among children. Our objective was to examine the relationship between beverage intake patterns and overweight and obesity among Canadian children. Beverage intake patterns were identified by cluster analysis of data from the cross-sectional Canadian Community Health Survey 2.2. Intake data were obtained from a single 24-hour recall, height and weight were measured, and sociodemographic data were obtained via interview. Data on children and adolescents aged 2-18 years who met inclusion criteria (n = 10 038) were grouped into the following categories: 2-5 years (male and female), 6-11 years (female), 6-11 years (male), 12-18 years (female), and 12-18 years (male).  $\chi^2$  test was used to compare rates of overweight and obesity across clusters. Logistic regression was used to determine the association between overweight and obesity and beverage intake patterns, adjusting for potential confounders. Clustering resulted in distinct groups of who drank mostly fruit drinks, soft drinks, 100% juice, milk, high-fat milk, or low-volume and varied beverages (termed "moderate"). Boys aged 6-11 years whose beverage pattern was characterized by soft drink intake ( $553 \pm 29$  g) had increased odds of overweight-obesity (odds ratio 2.3, 95% confidence interval 1.2-4.1) compared with a "moderate" beverage pattern ( $23 \pm 4$  g soft drink). No significant relationship emerged between beverage pattern and overweight and obesity among other age-sex groups. Using national cross-sectional dietary intake data, Canadian children do not show a beverage-weight association except among young boys who drink mostly soft drinks, and thus may be at increased risk for overweight or obesity.

**425: Bhatt SP, Misra A, Sharma M, Luthra K, Guleria R, Pandey RM, Vikram NK. Ala/Ala genotype of Pro12Ala polymorphism in the peroxisome proliferator-activated receptor- $\gamma$ 2 gene is associated with obesity and insulin resistance in Asian Indians. Diabetes Technol Ther. 2012 Sep;14(9):828-34. doi: 10.1089/dia.2011.0277. Epub 2012 Jun 13. PubMed PMID: 22694222; PubMed Central PMCID: PMC3429329.**

Abstract

AIM:

We determined the association of the Pro12Ala polymorphism of the peroxisome proliferator activated receptor (PPAR)- $\gamma$ 2 gene with obesity, insulin resistance (IR), and lipids in Asian Indians without diabetes in north India.

SUBJECTS AND METHODS:

In this cross-sectional study (n = 495; 279 males and 216 females, 18-60 years of age), anthropometric (body mass index, waist and hip circumferences, and skinfold thickness) and biochemical (fasting glucose, lipid profile, fasting insulin, leptin, and adiponectin) parameters were assessed. Polymerase chain reaction-restriction fragment length polymorphism analysis was used for identification of individual genotypes.

RESULTS:

Frequencies of the Pro and Ala alleles were 0.89 and 0.11, respectively. The genotype frequencies (%) of Pro/Pro, Pro/Ala, and Ala/Ala were 82.6, 14.7, and 2.7, respectively, without any gender differences. The frequency of the Ala/Ala genotype was higher in obese than in nonobese subjects (4.9% vs. 1.5%, P = 0.06). The Ala/Ala genotype was associated with higher values of hip circumference, subscapular skinfold thickness, and sum of four skinfold thickness than the Pro/Pro and Pro/Ala genotypes (P<0.05). Using a multivariate logistic regression model after adjusting for age, sex, and insulin, subjects with the Ala/Ala genotype showed a high risk of obesity (odds ratio [OR], 3.2, 95% confidence interval [CI] 1.2-12.9) and IR (OR, 3.6, 95% CI: 1.04-12.4).

CONCLUSION:

The Ala/Ala genotype of the PPAR- $\gamma$ 2 gene is associated with obesity and IR in Asian Indians without diabetes living in north India.

**426: Chen TJ, Ji CY. [Relationship between waist circumference and body mass index and metabolic syndrome related traits among middle school students in Beijing]. Beijing Da Xue Xue Bao. 2012 Jun 18;44(3):355-8. Chinese. PubMed PMID: 22692302.**

Abstract

OBJECTIVE:

To analyze the relationship between waist circumference (WC) and metabolic syndrome (MS) related traits among middle school students in Beijing and to provide the proof for making WC cut-offs among Chinese children and adolescents.

METHODS:

In the study, 1 427 students aged 13-18 years were investigated. The indexes included height, weight, WC, blood pressure, total cholesterol, triglycerides, HDL-cholesterol, LDL-cholesterol and fasting blood glucose. The subjects were divided into three WC groups by using P(75) and P(90) of WC reference norms for Chinese children and adolescents. Obesity and MS components were assessed

with the criteria of Working Group on Obesity in China and International Diabetes Federation, respectively.

**RESULTS:**

HDL-cholesterol in high WC group was lower than that in low WC group, and other MS related traits showed the opposite direction. Excepting fasting glucose, female total cholesterol and triglycerides, MS related traits were different significantly within the WC groups. Excepting raised fasting blood glucose and female raised triglycerides, the prevalence of MS components increased and aggregated in high WC group significantly. The distribution of different WC groups was correlated with that of obesity groups based on body mass index criterion.

**CONCLUSION:**

The P(75) and P(90) of WC reference norms could well indicate the increase of the prevalence of MS components, suggesting the increased risk for cardiovascular disease.

**427: Al-Nakeeb Y, Lyons M, Collins P, Al-Nuaim A, Al-Hazzaa H, Duncan MJ, Nevill A. Obesity, physical activity and sedentary behavior amongst British and Saudi youth: a cross-cultural study. Int J Environ Res Public Health. 2012 Apr;9(4):1490-506. doi: 10.3390/ijerph9041490. Epub 2012 Apr 16. PubMed PMID: 22690207; PubMed Central PMCID: PMC3366625.**

**Abstract**

This study explores differences in weight status, obesity and patterns of physical activity (PA) in relation to gender and age of youth from two culturally, environmentally and geographically diverse countries, the United Kingdom (UK) and Saudi Arabia (SA). A total of 2,290 males and females (15-17 years) volunteered to participate in this study. Participants completed a validated self-report questionnaire that contained 47 items relating to patterns of PA, sedentary activity and eating habits. The questionnaire allows the calculation of total energy expenditure in metabolic equivalent (MET-min) values per week. Significant differences in percentage of overweight/obese and levels of PA were evident between the youth from the two countries, with males being generally more physically active than females. Additionally, there were significant associations between Body Mass Index (BMI), PA and sedentary behaviors; the youth with higher BMI reported lower levels of PA and higher amounts of sedentary time. These findings highlight the diverse nature of lifestyle of youth living in different geographical areas of the world and the need for further research to explore the socio-cultural factors that impact on the prevalence of obesity and patterns of PA of youth in different populations.

**428: Shafiu M, Johnson RJ, Turner ST, Langaee T, Gong Y, Chapman AB, Gums JG, Johnson JA. Urate transporter gene SLC22A12 polymorphisms associated with obesity and metabolic syndrome in Caucasians with hypertension. Kidney Blood Press Res. 2012;35(6):477-82. doi: 10.1159/000337370. Epub 2012 Jun 8. PubMed PMID: 22688828; PubMed Central PMCID: PMC3480975.**

**Abstract**

**BACKGROUND/AIMS:**

Hyperuricemia is associated with obesity and the metabolic syndrome. URAT1 is a urate transporter, and we tested the association of URAT1 transporter gene (SLC22A12) polymorphisms with obesity and the metabolic syndrome in hypertensive subjects.

**METHODS:**

Patients with essential hypertension (n = 414) from a randomized controlled study were genotyped for SLC22A12 SNPs rs11602903, rs505802 and rs11231825.

**RESULTS:**

In Caucasians, SLC22A12 SNPs were associated with the body mass index (BMI). rs11602903 was associated with BMI ( $p < 0.0001$ ), waist circumference ( $p = 0.003$ ), HDL cholesterol ( $p = 0.018$ ) and the metabolic syndrome ( $p = 0.033$ ), and accounted for 7% of the variation of BMI in Caucasians. In African Americans, SLC22A12 SNP rs11602903 was not associated with BMI, waist circumference, HDL cholesterol or triglycerides.

**CONCLUSION:**

The URAT1 gene SLC22A12 polymorphism may play a role in obesity and the metabolic syndrome in Caucasian hypertensive subjects.

**429: Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J, Harris WA, Lowry R, McManus T, Chyen D, Whittle L, Lim C, Wechsler H; Centers for Disease Control and Prevention (CDC). Youth risk behavior surveillance - United States, 2011. MMWR Surveill Summ. 2012 Jun 8;61(4):1-162. PubMed PMID: 22673000.**

**Abstract**

**PROBLEM:**

Priority health-risk behaviors, which are behaviors that contribute to the leading causes of morbidity and mortality among youth and adults, often are established during childhood and adolescence, extend into adulthood, and are interrelated and preventable.

**REPORTING PERIOD COVERED:**

September 2010-December 2011.

**DESCRIPTION OF THE SYSTEM:**

The Youth Risk Behavior Surveillance System (YRBSS) monitors six categories of priority health-risk behaviors among youth and young adults: 1) behaviors that contribute to unintentional injuries and violence; 2) tobacco use; 3) alcohol and other drug use; 4) sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection; 5) unhealthy dietary behaviors; and 6) physical inactivity. In addition, YRBSS monitors the prevalence of obesity and asthma. YRBSS includes a national school-based Youth Risk Behavior Survey (YRBS) conducted by CDC and state and large urban school district school-based YRBSSs conducted by state and local education and health agencies. This report summarizes results from the 2011 national survey, 43 state surveys, and 21 large urban school district surveys conducted among students in grades 9-12.

**RESULTS:**

Results from the 2011 national YRBS indicated that many high school students are engaged in priority health-risk behaviors associated with the leading causes of death among persons aged 10-24 years in the United States. During the 30 days before the survey, 32.8% of high school students nationwide had texted or e-mailed while driving, 38.7% had drunk alcohol, and 23.1% had used marijuana. During the 12 months before the survey, 32.8% of students had been in a physical fight, 20.1% had ever been bullied on school property, and 7.8% had attempted suicide. Many high school students nationwide are engaged in sexual risk behaviors associated with unintended pregnancies and STDs, including HIV infection. Nearly half (47.4%) of students had ever had sexual intercourse, 33.7% had had sexual intercourse during the 3 months before the survey (i.e., currently sexually active), and

15.3% had had sexual intercourse with four or more people during their life. Among currently sexually active students, 60.2% had used a condom during their last sexual intercourse. Results from the 2011 national YRBS also indicate many high school students are engaged in behaviors associated with the leading causes of death among adults aged  $\geq 25$  years in the United States. During the 30 days before the survey, 18.1% of high school students had smoked cigarettes and 7.7% had used smokeless tobacco. During the 7 days before the survey, 4.8% of high school students had not eaten fruit or drunk 100% fruit juices and 5.7% had not eaten vegetables. Nearly one-third (31.1%) had played video or computer games for 3 or more hours on an average school day.

**INTERPRETATION:**

Since 1991, the prevalence of many priority health-risk behaviors among high school students nationwide has decreased. However, many high school students continue to engage in behaviors that place them at risk for the leading causes of morbidity and mortality. Variations were observed in many health-risk behaviors by sex, race/ethnicity, and grade. The prevalence of some health-risk behaviors varied substantially among states and large urban school districts.

**PUBLIC HEALTH ACTION:**

YRBS data are used to measure progress toward achieving 20 national health objectives for Healthy People 2020 and one of the 26 leading health indicators; to assess trends in priority health-risk behaviors among high school students; and to evaluate the impact of broad school and community interventions at the national, state, and local levels. More effective school health programs and other policy and programmatic interventions are needed to reduce risk and improve health outcomes among youth.

**430: Leal VS, Lira PI, Oliveira JS, Menezes RC, Sequeira LA, Arruda Neto MA, Andrade SL, Batista Filho M. [Overweight in children and adolescents in Pernambuco State, Brazil: prevalence and determinants]. *Cad Saude Publica*. 2012 Jun;28(6):1175-82. Portuguese. PubMed PMID: 22666821.**

**Abstract**

This study aimed to determine the prevalence of overweight and associated risk factors in children and adolescents in Pernambuco State, Brazil, in 2006. The cross-sectional, population-based study included 1,435 individuals from 5 to 19 years of age. Poisson regression was used to evaluate the association between selected variables and overweight. Prevalence was 13.3% for overweight (95%CI: 11.6-15.1) and 3.8% for obesity. Adjusted prevalence ratios showed that higher family income, maternal schooling, possession of household consumer goods, living in urban areas, and maternal overweight were associated with overweight in children and adolescents. The high prevalence of overweight in Pernambuco emphasizes the need for public health measures targeting all families regardless of socioeconomic status.

**431: Castilho SD, Pinheiro CD, Bento CA, Barros-Filho Ade A, Cocetti M. [Secular trends in age at menarche in relation to body mass index]. *Arq Bras Endocrinol Metabol*. 2012 Apr;56(3):195-200. Portuguese. PubMed PMID: 22666736.**

**Abstract**

**OBJECTIVE:**

To evaluate the secular trend of menarche according to body mass index (BMI).

**SUBJECTS AND METHODS:**

Six hundred and eighty five girls (7-18 years) assessed in 2001 were compared with 750 evaluated in 2010. They were grouped by BMI Z-score: (thin + normal) and (overweight + obese). Menarche was reported by status quo and age at menarche estimated by a logit model. We used the Chi-square test, Mann-Whitney test, and Logistic Regression, at a 5% significance level.

**RESULTS:**

Menarche advanced 3.24 months. There was an increase in obesity, and a decrease of the prevalence of normal girls. Menarche was anticipated by 1.44 month in the thin + normal group and by 5.76 months in the overweight + obese group. There was no interaction between the effects determined by the evaluated period and nutritional diagnosis.

**CONCLUSIONS:**

Although both the period and BMI influence the menarche, one cannot attribute this advance only to changes in the nutritional profile of the sample. Other factors that were not tested may also contribute to this finding.

**432: Freedman DS, Goodman A, Contreras OA, DasMahapatra P, Srinivasan SR, Berenson GS. Secular trends in BMI and blood pressure among children and adolescents: the Bogalusa Heart Study. Pediatrics. 2012 Jul;130(1):e159-66. doi: 10.1542/peds.2011-3302. Epub 2012 Jun 4. PubMed PMID: 22665416; PubMed Central PMCID: PMC3382918.**

**Abstract**

**OBJECTIVE:**

The prevalence of obesity among children and adolescents increased by almost threefold from the 1970s to 2000. We examined whether these secular changes in BMI were accompanied by increases in blood pressure levels.

**METHODS:**

A total of 24,092 examinations were conducted among 11,478 children and adolescents (aged 5-17 years) from 1974 to 1993 in the Bogalusa Heart Study (Louisiana).

**RESULTS:**

The prevalence of obesity increased from 6% to 17% during this period. In contrast, only small changes were observed in levels of systolic blood pressure (SBP) and diastolic blood pressure (DBP), and neither mean nor high (based on the 90th percentile from the Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents) levels increased over the 20-year period. Within each race-gender group, mean levels of SBP did not change, whereas mean levels of DBP decreased by 2 mm Hg ( $P < .001$  for trend). Levels of BMI were positively associated with levels of SBP and DBP within each of the 7 examinations, and controlling for BMI (along with other covariates) indicated that only ~60% as many children as expected had high levels of blood pressure in 1993.

**CONCLUSIONS:**

Our finding that levels of DBP and SBP among children in this large sample did not increase despite the increases that were seen in obesity indicates that changes in blood pressure levels in a population do not necessarily parallel changes in obesity. Additional study of the potential characteristics that have ameliorated the expected increase in high blood pressure could lead to further reductions in risk.

**433: Pearson V, Ruzas C, Krebs NF, Goldenberg NA, Manco-Johnson MJ, Bernard TJ. Overweight and obesity are increased in childhood-onset cerebrovascular disease. J Child Neurol. 2013 Apr;28(4):517-9. doi: 10.1177/0883073812446160. Epub 2012 May 30. PubMed PMID: 22647484; PubMed Central PMCID: PMC3697108.**

Abstract

The objective of this work was to determine whether overweight/obesity is a risk factor for cerebrovascular disease in children. The study included 53 children with non-neonatal-onset cerebral sinovenous thrombosis or arterial ischemic stroke. The prevalence of overweight/obesity was compared between this cohort and healthy children from the National Health and Nutrition Examination Survey. In addition, cerebral sinovenous thrombosis patients were compared to a group of matched hospitalized controls. The prevalence of overweight/obesity was significantly higher in the cerebral sinovenous thrombosis cohort (55%), but not the arterial ischemic stroke cohort (36%), relative to national controls (32%;  $P = .04$  and  $P = .81$ , respectively). Similarly, the prevalence of overweight/obesity was significantly higher in the cerebral sinovenous thrombosis cohort than in Colorado controls (25%;  $P = .02$ ). In conclusion, the prevalence of overweight/obese was significantly increased in cerebral sinovenous thrombosis patients as compared to both national and local controls. Results should be evaluated in a larger multi-institutional cohort.

**434: Rauch R, Veilleux LN, Rauch F, Bock D, Welisch E, Filler G, Robinson T, Burrill E, Norozi K. Muscle force and power in obese and overweight children. J Musculoskelet Neuronal Interact. 2012 Jun;12(2):80-3. PubMed PMID: 22647281.**

Abstract

The study investigated differences in skeletal muscle function between obese and non-obese children using a force platform. Forty obese children and adolescents (age range 8 to 18 years; 21 girls) and 40 age- and sex-matched controls performed two tests: (1) single two-legged jump, a countermovement jump for maximal height; (2) multiple one-legged hopping on the forefoot, a test of maximal force. In the single two-legged jump, obese subjects had higher absolute peak force (1.62 kN vs 1.09 kN) and peak power (2.46 kW vs 2.06 kW), but lower body weight-related peak force (2.10 vs 2.33) and lower peak power per body mass (30.9 W/kg vs 41.6 W/kg). Jump height (29.3 cm vs 37.5 cm) and maximal vertical velocity (1.92 ms<sup>-1</sup> vs 2.31 ms<sup>-1</sup>) were reduced in obese children. In multiple one-legged hopping, obese subjects had 72% and 84% higher absolute peak force on the left and right foot, respectively. However, forces relative to body weight were 24% and 23% lower in the obese group than in the control group. In conclusion, obese children and adolescents have increased muscle force and power. This partly compensates for the effect of high body weight on muscle performance.

**435: Watson K, Roberts B, Chow C, Goryakin Y, Rotman D, Gasparishvili A, Haerper C, McKee M. Micro- and meso-level influences on obesity in the former Soviet Union: a multi-level analysis. Eur J Public Health. 2013 Apr;23(2):291-8. doi: 10.1093/eurpub/cks054. Epub 2012 May 29. PubMed PMID: 22645239.**

Abstract

BACKGROUND:

Limited evidence exists on obesity in the former Soviet Union (fSU), particularly its micro- and meso-level determinants. The objectives of this study were to determine age- and gender-adjusted



prevalence of self-reported overweight and obesity in nine fSU countries; explore the relationship between individual and household (micro-level) factors and obesity; and explore the relationship between features of nutritional and physical environments (meso-level) and obesity.

**METHODS:**

Data were collected from 18,000 adults using household surveys and from 333 communities using community profiles in Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine in 2010. Individual- and community-level determinants of self-reported obesity (body mass index  $\geq 30$  kg/m<sup>2</sup>) were analysed using multi-level random intercept logistic regression models.

**RESULTS:**

A total of 13% of the males and 18% of the females were categorized as obese. Factors associated with obesity in males were older age, increasing educational achievement, declining self-reported health, alcohol consumption and automobile ownership. Males who were current smokers, not married and perceived physical activity to be important were less likely to be obese. For females, obesity was associated with older age, completion of secondary-level education, declining self-reported health and average household financial situation. Unmarried women were less likely to be obese. Multi-level analysis indicated that individuals living in communities with higher presence of garbage were more likely to be obese.

**CONCLUSIONS:**

This is the first study to examine both micro- and meso-level influences on obesity in fSU using multi-level analysis. Findings indicate a similar obesity risk profile to countries in Western Europe and North America.

**436: Awa WL, Fach E, Krakow D, Welp R, Kunder J, Voll A, Zeyfang A, Wagner C, Schütt M, Boehm B, de Souza M, Holl RW; DPV Initiative; German BMBF Competence Networks Diabetes mellitus and Obesity. Type 2 diabetes from pediatric to geriatric age: analysis of gender and obesity among 120,183 patients from the German/Austrian DPV database. Eur J Endocrinol. 2012 Aug;167(2):245-54. Epub 2012 May 29. PubMed PMID: 22645200.**

**Abstract**

**AIM:**

To characterize the clinical phenotype of type 2 diabetes mellitus (T2DM) with respect to age, gender, and BMI.

**METHOD:**

Anonymized data of 120,183 people with T2DM from the German/Austrian multicenter Diabetes Patienten Verlaufsdokumentation database were analyzed based on chronological age or age at diagnosis (0-19, 20-39, 40-59, 60-79, and  $\geq 80$  years). Age, gender, and BMI comparisons with clinical phenotype were made using  $\chi^2$  and Kruskal-Wallis tests (SAS V9.2).

**RESULTS:**

Of all the patients, 51.3% were male, average age was 67.112.7 years, and average disease duration was 9.99.1 years. More girls than boys were diagnosed during adolescence and more men than women during adulthood (2060 years). No gender differences existed when age at diagnosis was 60 years. Patients were obese on average (BMI: 30.5 $\pm$ 6.1 kg/m<sup>2</sup>) and had significantly higher BMI values than German population peers. The BMI gap was widest in the younger age categories and closed with increasing age. Adult women were significantly more obese than men. Obese patients

more often had elevated HbA1c ( $\geq 7.5\%$ ), hypertension or dyslipidemia (irrespective of age), microalbuminuria (adults), or retinopathy (elderly) than nonobese patients. More men than women (20-60 years) had hypertension, dyslipidemia, or microalbuminuria while more women than men ( $\geq 60$  years) had hypertension or dyslipidemia.

**CONCLUSION:**

During puberty, more girls than boys were diagnosed with T2DM while during adulthood males predominated. T2DM manifested at comparatively lower BMI in males, and younger patients were more obese at diagnosis. Age, gender, and BMI were also associated with poor metabolic control and cardiovascular disease comorbidities/complications.

**437: Broström A, Sunnergren O, Årestedt K, Johansson P, Ulander M, Riegel B, Svanborg E. Factors associated with undiagnosed obstructive sleep apnoea in hypertensive primary care patients. Scand J Prim Health Care. 2012 Jun;30(2):107-13. doi: 10.3109/02813432.2012.675563. PubMed PMID: 22643156; PubMed Central PMCID: PMC3378000.**

**Abstract**

**OBJECTIVE:**

In hypertensive primary care patients below 65 years of age, (i) to describe the occurrence of undiagnosed obstructive sleep apnoea (OSA), and (ii) to identify the determinants of moderate/severe OSA.

**DESIGN:**

Cross-sectional.

**SETTING:**

Four primary care health centres in Sweden.

**PATIENTS:**

411 consecutive patients (52% women), mean age 57.9 years (SD 5.9 years), with diagnosed and treated hypertension (BP  $>140/90$ ).

**MAIN OUTCOME MEASURES:**

Occurrence of OSA as measured by the apnoea hypopnoea index (AHI).

**RESULTS:**

Mild (AHI 5-14.9/h) and moderate/severe (AHI  $> 15$ /h) OSA were seen among 29% and 30% of the patients, respectively. Comparing those without OSA with those with mild or moderate/severe OSA, no differences were found in blood pressure, pharmacological treatment (anti-hypertensive, anti-depressive, and hypnotics), sleep, insomnia symptoms, daytime sleepiness, or depressive symptoms. Obesity (BMI  $> 30$  kg/m<sup>2</sup>) was seen in 30% and 68% of the patients with mild and moderate/severe OSA, respectively. Male gender, BMI  $> 30$  kg/m<sup>2</sup>, snoring, witnessed apnoeas, and sleep duration  $>8$  hours were determinants of obstructive sleep apnoea.

**CONCLUSION:**

Previously undiagnosed OSA is common among patients with hypertension in primary care. Obesity, snoring, witnessed apnoeas, long sleep duration, and male gender were the best predictors of OSA, even in the absence of daytime sleepiness and depressive symptoms.

**438: Rothbaum Perito E, Lau A, Rhee S, Roberts JP, Rosenthal P. Posttransplant metabolic syndrome in children and adolescents after liver transplantation: a systematic review. Liver Transpl. 2012 Sep;18(9):1009-28. doi: 10.1002/lt.23478. Review. PubMed PMID: 22641460; PubMed Central PMCID: PMC3429630.**

Abstract

During long-term follow-up, 18% to 67% of pediatric liver transplant recipients are overweight or obese, with rates varying by age and pretransplant weight status. A similar prevalence of posttransplant obesity has been seen in adults. Adults also develop posttransplant metabolic syndrome and, consequently, cardiovascular disease at rates that exceed the rates in age- and sex-matched populations. Posttransplant metabolic syndrome has never been studied in pediatric liver transplant recipients, and this population is growing as transplant outcomes continue to improve. Here we systematically review the literature for each component of metabolic syndrome-obesity, hypertension, dyslipidemia, and glucose intolerance-in pediatric liver transplant recipients. Their rates of obesity are similar to the rates in children in the general U.S. population. However, hypertension, dyslipidemia, and diabetes are more common than would be expected in transplant recipients according to age, sex, and obesity severity. Immunosuppressive medications are major contributors. The limitations of previous studies, including heterogeneous methods of diagnosis, follow-up times, and immunosuppressive regimens, hinder the analysis of risk factors. Importantly, no studies have reported graft or patient outcomes associated with components of metabolic syndrome after pediatric liver transplantation. However, if the trends in children are similar to the trends seen in adults, these conditions may lead to significant long-term morbidity. Further research on the prevalence, causes, and consequences of posttransplant metabolic syndrome in pediatric liver transplant recipients is needed and will ultimately help to improve long-term outcomes.

**439: Brara SM, Koebnick C, Porter AH, Langer-Gould A. Pediatric idiopathic intracranial hypertension and extreme childhood obesity. J Pediatr. 2012 Oct;161(4):602-7. doi: 10.1016/j.jpeds.2012.03.047. Epub 2012 May 26. PubMed PMID: 22633290; PubMed Central PMCID: PMC3572898.**

Abstract

OBJECTIVE:

To estimate the magnitude of the association between overweight, moderate, and extreme childhood obesity and the risk of idiopathic intracranial hypertension (IIH).

STUDY DESIGN:

Risk estimates were obtained from the Kaiser Permanente Southern California Children's Health Study (n = 913 178). Weight classes were assigned by body mass index specific for age and sex. A combination of electronic database searches followed by complete medical records review was used to identify all children diagnosed with IIH between 2006 and 2009.

RESULTS:

We identified 78 children with IIH, the majority of whom were girls (n = 66, 84.5%), age 11-19 (n = 66, 84.5%), non-Hispanic Whites (n = 37, 47.4%), and overweight or obese (n = 57, 73.1%). The adjusted ORs and 95% CIs of IIH with increasing weight class were 1.00, 3.56 (1.72-7.39), 6.45 (3.10-13.44), and 16.14 (8.18-31.85) for underweight/normal weight (reference category), overweight, moderately obese and extremely obese 11-19 year olds, respectively (P for trend < .001). Other independent IIH risk factors included White non-Hispanic race/ethnicity for all age groups and female sex, but only in

older children. Overweight/obese children also had more IIH symptoms at onset than normal weight children.

**CONCLUSIONS:**

We found that childhood obesity is strongly associated with an increased risk of pediatric IIH in adolescents. Our findings suggest that the childhood obesity epidemic is likely to lead to increased morbidity from IIH particularly among extremely obese, White non-Hispanic teenage girls. Our findings also suggest careful screening of these at risk individuals may lead to earlier detection and opportunity for treatment of IIH.

**440: DuBose KD, Cummings DM, Imai S, Lazorick S, Collier DN. Development and validation of a tool for assessing glucose impairment in adolescents. *Prev Chronic Dis.* 2012;9:E104. Epub 2012 May 24. PubMed PMID: 22632741; PubMed Central PMCID: PMC3457764.**

**Abstract**

**INTRODUCTION:**

Childhood obesity is associated with an increased risk for type 2 diabetes. Early identification of adolescents at risk for impaired fasting glucose may lead to earlier and more comprehensive evaluation and intervention. Because widespread glucose testing of adolescents is not recommended, community-based tools are needed to identify those who could benefit from further testing. One such tool, developed for adults, was the Tool for Assessing Glucose Impairment (TAG-IT). Our objective was to validate whether a similar tool could be useful for community-based screening of glucose impairment risk among adolescents.

**METHODS:**

Our study sample consisted of 3,050 adolescents aged 12 to 18 years who had participated in the 1999-2008 National Health and Nutrition Examination Survey (NHANES). Half of participants were female and 40% were nonwhite. NHANES measured fasting glucose and height, weight, and resting heart rate. We used Pearson correlations and regression analysis to determine key variables for predicting glucose impairment. From these measurements, we created a composite TAG-IT score for adolescents called TAG-IT-A. We then applied the TAG-IT-A model to 1988-1994 NHANES data, using linear regression analysis and receiver operating characteristic analysis to determine how well the TAG-IT-A score predicted a fasting glucose at or above 100 mg/dL.

**RESULTS:**

We determined that age, sex, body mass index, and resting heart rate were important predictors of impaired fasting glucose and that TAG-IT-A was a better predictor of impaired fasting glucose than body mass index alone (area under the curve, 0.61,  $P < .001$  vs 0.55,  $P = .10$ , respectively). A TAG-IT-A score of 3 or higher correctly identified 50% of adolescents with impaired fasting glucose, while a score of 5 or higher correctly identified 76%.

**CONCLUSION:**

The TAG-IT-A score is a simple screening tool that clinicians and public health professionals could use to easily identify adolescents who may have impaired fasting glucose and need a more comprehensive evaluation.

**441: Daigre JL, Atallah A, Boissin JL, Jean-Baptiste G, Kangambega P, Chevalier H, Balkau B, Smadja D, Inamo J. The prevalence of overweight and obesity, and distribution of waist circumference, in adults and children in the French Overseas Territories: the PODIUM survey. *Diabetes Metab.* 2012 Nov;**38(5):404-11**. doi: 10.1016/j.diabet.2012.03.008. Epub 2012 May 22. Review. PubMed PMID: 22626474.**

Abstract

AIM:

This study aimed to describe the prevalence of overweight (excluding obesity) and obesity, and distribution of waist circumference, in children and adults in four French Overseas Territories (Guadeloupe, Martinique, French Guiana in the Caribbean and French Polynesia in the Pacific Ocean).

METHODS:

The survey was designed to provide a sample representative of the population in each of the four territories. The protocol aimed to evaluate 600 adults (aged  $\geq 15$  years) and 300 children (aged: 5-14 years) in each territory.

RESULTS:

In children, the differences were small among the territories in the prevalence of overweight (excluding obesity), as defined by the International Obesity Task Force (IOTF): Guadeloupe, 15.4%; Martinique, 17.0%; French Guiana, 13.2%; and French Polynesia, 17.2% ( $P = 0.49$ ). Larger, significant, differences were observed for obesity, with prevalences of 7.2%, 7.7%, 5.4% and 15.9%, respectively ( $P < 0.002$ ). In adults, the prevalence of obesity also differed significantly among the territories: 22.9%, 22.0%, 17.9% and 33.1% in Guadeloupe, Martinique, French Guiana and French Polynesia, respectively ( $P < 0.001$ , adjusted for age and gender). However, overweight (excluding obesity) was again more homogeneously distributed, with prevalences of 31.7%, 33.6%, 30.3% and 34.4%, respectively ( $P = 0.43$ , adjusted for age and gender). Waist circumference was larger in French Polynesia than in the other territories in both genders, and in both children and adults.

CONCLUSION:

While the distribution of overweight was relatively homogeneous, the prevalence of obesity differed considerably across the four territories. It was especially high in French Polynesia, and in children and women. Appropriate programmes are urgently needed in these populations, especially in children, to avoid the morbidity associated with obesity.

**442: Ferrari TK, Ferrari GL, Silva Júnior JP, Silva LJ, Oliveira LC, Matsudo VK. Modifications of adiposity in school-age children according to nutritional status: a 20-year analysis. *J Pediatr (Rio J)*. 2012 May;**88(3):239-45**. doi: 10.2223/JPED.2191. Epub 2012 May 23. PubMed PMID: 22622801.**

Abstract

OBJECTIVE:

To analyze adiposity changes in school-age children over a 20 year-period, according to nutritional status.

METHODS:

The study is part of the Ilhabela Longitudinal Mixed Project on Growth, Development and Physical Fitness. A sample of 1,095 school students of both sexes, from 7 to 10 years, met the following inclusion criteria: (a) at least one complete assessment in one of the analyzed periods; (b) to be in

prepubertal stage of sexual maturation; (c) to be apparently healthy. The periods analyzed were 1990/1991 (initial), 2000/2001 (10 years) and 2010/2011 (20 years). The variables analyzed were: body weight, height and adiposity through individual analysis of each skinfold. Children were classified as eutrophic, overweight and obese, according to the curves of body mass index for age and sex proposed by the World Health Organization. The statistical analysis used was one-way ANOVA, followed by Scheffé's post-hoc test, with  $p < 0.01$ .

**RESULTS:**

In boys, the largest increase occurred in the overweight group, followed by the obese and eutrophic groups. In girls, the largest increases occurred in the groups with overweight and eutrophic children, followed by the obese group.

**CONCLUSION:**

During the 20-year period analyzed, there were changes in adiposity, even when the nutritional status was controlled, showing that individuals who have similar body mass indexes may vary in proportion and distribution of subcutaneous adipose tissue. In both sexes, the increase was higher in the overweight group, and mainly in central skinfolds.

**443: Costa RF, Santos NS, Goldraich NP, Barski TF, Andrade KS, Kruel LF. Metabolic syndrome in obese adolescents: a comparison of three different diagnostic criteria. J Pediatr (Rio J). 2012 Jul;88(4):303-9. doi: doi:10.2223/JPED.2200. Epub 2012 May 23. PubMed PMID: 22622762.**

**Abstract**

**OBJECTIVE:**

To investigate the difference in the proportion of adolescents with metabolic syndrome diagnosed based on three different criteria, as well as the use of insulin resistance instead of fasting glucose.

**METHODS:**

Cross-sectional study with 121 obese adolescents, between 10 and 14 years old, from public schools of the city of Porto Alegre, Brazil, in 2011. Anthropometric, blood pressure, and biochemical variables were assessed. Metabolic syndrome was defined using three different diagnostic criteria: the International Diabetes Federation (IDF), Cook and de Ferranti. All of them include five components: waist circumference, blood pressure, high-density lipoprotein (HDL) cholesterol, triglycerides and fasting glucose, and there should be at least three abnormal results for the diagnosis of the syndrome. The Homeostasis Model Assessment - Insuline Resistance (HOMA-IR) was used for the characterization of insulin resistance. The analysis of agreement among the criteria was performed using Kappa statistics.

**RESULTS:**

Metabolic syndrome was diagnosed in 39.7, 51.2, and 74.4% of adolescents, according to the IDF, Cook and de Ferranti criteria, respectively. There was agreement for the three diagnostic criteria in 60.3% of the sample. Waist circumference was the most prevalent component (81.0, 81.0, and 96.7%), whereas high fasting glucose was the least prevalent (7.4, 1.7, and 1.7%). The use of HOMA-IR significantly increased the proportion of positive diagnoses for the syndrome.

**CONCLUSION:**

The results showed significant differences between the three diagnostic criteria. While there is no consensus on the diagnostic criteria for metabolic syndrome, differences in the prevalence of the disease in pediatric population will be frequent.

**444: May AL, Kuklina EV, Yoon PW. Prevalence of cardiovascular disease risk factors among US adolescents, 1999-2008. *Pediatrics*. 2012 Jun;129(6):1035-41. doi: 10.1542/peds.2011-1082. Epub 2012 May 21. PubMed PMID: 22614778.**

Abstract

OBJECTIVE:

Overweight and obesity during adolescence are associated with an increased risk for cardiovascular disease (CVD) risk factors. The objective of this study was to examine the recent trends in the prevalence of selected biological CVD risk factors and the prevalence of these risk factors by overweight/obesity status among US adolescents.

METHODS:

The NHANES is a cross-sectional, stratified, multistage probability sample survey of the US civilian, noninstitutionalized population. The study sample included 3383 participants aged 12 to 19 years from the 1999 through 2008 NHANES.

RESULTS:

Among the US adolescents aged 12 to 19 years, the overall prevalence was 14% for prehypertension/hypertension, 22% for borderline-high/high low-density lipoprotein cholesterol, 6% for low high-density lipoprotein cholesterol (<35 mg/dL), and 15% for prediabetes/diabetes during the survey period from 1999 to 2008. No significant change in the prevalence of prehypertension/hypertension (17% and 13%) and borderline-high/high low-density lipoprotein cholesterol (23% and 19%) was observed from 1999-2000 to 2007-2008, but the prevalence of prediabetes/diabetes increased from 9% to 23%. A consistent dose-response increase in the prevalence of each of these CVD risk factors was observed by weight categories: the estimated 37%, 49%, and 61% of the overweight, obese, and normal-weight adolescents, respectively, had at least 1 of these CVD risk factors during the 1999 through 2008 study period.

CONCLUSIONS:

The results of this national study indicate that US adolescents carry a substantial burden of CVD risk factors, especially those youth who are overweight or obese.

**445: Wang N, Xu F, Zheng LQ, Zhang XG, Li Y, Sun GZ, Guo XF, Yu SS, Sun YX. Effects of television viewing on body fatness among Chinese children and adolescents. *Chin Med J (Engl)*. 2012 Apr;125(8):1500-3. PubMed PMID: 22613659.**

Abstract

BACKGROUND:

Numerous studies have shown that time spent on television (TV) viewing is positively associated with obesity. The aim of this study was to examine the potential association between excessive TV viewing and obesity, especially abdominal obesity, among children and adolescents in mainland of China.

METHODS:

A total of 4708 children and adolescents aged 6 to 16 years were recruited for the study. Anthropometric measures were conducted by trained personnels. A self-report questionnaire was designed to gather information on TV time, physical activity, diet habits, maternal body mass index (BMI), birth weight, and on general demographics, including age and gender, and socio-economic status.

RESULTS:

The prevalence of obesity in this group was 6.5%. Linear regression analysis indicated that high TV viewing time ( $\geq 1.5$  h/d) was significantly associated with higher BMI, waist circumference (WC), and waist-to-height ratio (WHtR). In addition, the high TV time group had 1.3 times the odds of obesity as compared to the low TV time group. Likewise, high TV viewing time increased the OR value 1.32 and 1.21 times higher in WC- and WHtR-defined obesity. Within the non-obesity group, high TV viewing time was also positively associated with higher WC and WHtR. All these correlations remained significant after adjustment for the confounding variables.

#### CONCLUSIONS:

Excessive TV viewing might increase the risk of obesity among Chinese youth. Reducing TV viewing time may be beneficial to improve health outcomes, both in the short- and long term. This finding should be taken into account in future designs of intervention policies to prevent childhood and adolescent obesity in China.

**446: Makey KL, Patterson SG, Robinson J, Loftin M, Waddell DE, Miele L, Chinchar E, Huang M, Smith AD, Weber M, Gu JW. Increased plasma levels of soluble vascular endothelial growth factor receptor 1 (sFlt-1) in women by moderate exercise and increased plasma levels of vascular endothelial growth factor in overweight/obese women. Eur J Cancer Prev. 2013 Jan;22(1):83-9. doi: 10.1097/CEJ.0b013e328353ed81. PubMed PMID: 22609636; PubMed Central PMCID: PMC3449013.**

#### Abstract

The incidence of breast cancer is increasing worldwide, and this seems to be related to an increase in lifestyle risk factors, including physical inactivity and overweight/obesity. We have reported previously that exercise induced a circulating angiostatic phenotype characterized by increased soluble fms-like tyrosine kinase-1 (sFlt-1) and endostatin and decreased unbound vascular endothelial growth factor (VEGF) in men. However, there are no data on women. The present study determines the following: (a) whether moderate exercise increased sFlt-1 and endostatin and decreased unbound VEGF in the circulation of adult female volunteers and (b) whether overweight/obese women have a higher plasma level of unbound VEGF than lean women. A total of 72 African American and White adult women volunteers ranging in age from 18 to 44 years were enrolled in the exercise study. All the participants walked on a treadmill for 30 min at a moderate intensity (55-59% heart rate reserve), and oxygen consumption ( $VO_2$ ) was quantified utilizing a metabolic cart. We obtained blood samples before and immediately after exercise from 63 participants. ELISA assays showed that the plasma levels of sFlt-1 were  $67.8 \pm 3.7$  pg/ml immediately after exercise (30 min), significantly higher than the basal levels,  $54.5 \pm 3.3$  pg/ml, before exercise ( $P < 0.01$ ;  $n = 63$ ). There was no significant difference in the % increase in the sFlt-1 levels after exercise between African American and White ( $P = 0.533$ ) women or between lean and overweight/obese women ( $P = 0.892$ ). There was no significant difference in the plasma levels of unbound VEGF ( $35.28 \pm 5.47$  vs.  $35.23 \pm 4.96$  pg/ml;  $P = 0.99$ ) or endostatin ( $111.12 \pm 5.48$  vs.  $115.45 \pm 7.15$  ng/ml;  $P = 0.63$ ) before and after exercise. The basal plasma levels of unbound VEGF in overweight/obese women were  $52.26 \pm 9.6$  pg/ml, significantly higher than the basal levels of unbound VEGF in lean women,  $27.34 \pm 4.99$  pg/ml ( $P < 0.05$ ). The results support our hypothesis that exercise-induced plasma levels of sFlt-1 could be an important clinical biomarker to explore the mechanisms of exercise training in reducing the progression of breast cancer and that VEGF is an important biomarker in obesity and obesity-related cancer progression.



**447: Fokeena WB, Jeewon R. Is there an association between socioeconomic status and body mass index among adolescents in Mauritius? ScientificWorldJournal. 2012;2012:750659. doi: 10.1100/2012/750659. Epub 2012 Apr 19. PubMed PMID: 22606060; PubMed Central PMCID: PMC3349152.**

Abstract

There are no documented studies on socioeconomic status (SES) and body mass index (BMI) among Mauritian adolescents. This study aimed to determine the relationships between SES and BMI among adolescents with focus on diet quality and physical activity (PA) as mediating factors. Mauritian school adolescents (n = 200; 96 males, 104 females) were recruited using multistage sampling. Participants completed a self-reported questionnaire. Height and weight were measured and used to calculate BMI (categorised into underweight, healthy-weight, overweight, obese). Chi-square test, Pearson correlation, and Independent samples t-test were used for statistical analysis. A negative association was found between SES and BMI ( $\chi^2 = 8.15\%$ ,  $P < 0.05$ ). Diet quality, time spent in PA at school ( $P = 0.000$ ), but not total PA ( $P = 0.562$ ), were significantly associated with high SES. Poor diet quality and less time spent in PA at school could explain BMI discrepancies between SES groups.

448: Rask-Andersen M, Jacobsson JA, Moschonis G, Ek AE, Chrousos GP, Marcus C, Manios Y, Fredriksson R, Schiöth HB. The MAP2K5-linked SNP rs2241423 is associated with BMI and obesity in two cohorts of Swedish and Greek children. *BMC Med Genet.* 2012 May 17;13:36. PubMed PMID: 22594783; PubMed Central PMCID: PMC3459804.

Abstract

BACKGROUND:

Recent genome-wide association studies have identified a single nucleotide polymorphism within the last intron of MAP2K5 associated with a higher body mass index (BMI) in adults. MAP2K5 is a component of the MAPK-family intracellular signaling pathways, responding to extracellular growth factors such as brain derived neurotrophic factor (BDNF) and nerve growth factor (NGF). In this study, we examined the association of this variant in two cohorts of children from Sweden and Greece.

METHODS:

We examine the association of rs2241423 to BMI in a cohort of 474 Swedish children admitted for treatment of childhood obesity and 519 children matched for gender, ethnicity and socioeconomic background from the Stockholm area, as well as a cross-sectional cohort of 2308 Greek school children (Healthy Growth Study). Children were genotyped using a predesigned TaqMan polymorphism assay. Logistic regression was used to test for an association of rs2241423 to obesity in the cohort of Swedish children. Linear regression was used to test for an association of rs2241423 to BMI z-score and phenotypic measurements of body adiposity in the cohort of Greek children. Models were adjusted for age and gender. In the cohort of Greek children the model was also adjusted for stage of pubertal development.

RESULTS:

The minor allele of rs2241423, allele A, was associated with a protective effect against obesity in the cohort of Swedish children ( $p = 0.029$ , OR = 0.79 (95% CI: 0.64-0.98)), and with a lower BMI z-score in the cohort of Greek children ( $p = 0.028$ ,  $\beta = -0.092$ ). No association to phenotypic measurements of body fat distribution could be observed in our study.

CONCLUSIONS:

rs2241423 was associated with BMI and obesity in two independent European cohorts suggesting a role for MAP2K5 in early weight regulation.

**449: Rehm CD, Moudon AV, Hurvitz PM, Drewnowski A. Residential property values are associated with obesity among women in King County, WA, USA. Soc Sci Med. 2012 Aug;75(3):491-5. doi: 10.1016/j.socscimed.2012.03.041. Epub 2012 Apr 26. PubMed PMID: 22591823; PubMed Central PMCID: PMC3889661.**

Abstract

Studies of social determinants of weight and health in the US have typically relied on self-reported education and incomes as the two primary measures of socioeconomic status (SES). The assessed value of one's home, an important component of wealth, may be a better measure of the underlying SES construct and a better predictor of obesity. The Seattle Obesity Study (SOS), conducted in 2008-9, was a cross-sectional random digit dial telephone survey of 2001 adults in King County, Washington State, US. Participants' addresses were geocoded and residential property values for each tax parcel were obtained from the county tax assessor's database. Prevalence ratios of obesity by property values, education, and household income were estimated separately for women and men, after adjusting for age, race/ethnicity, household size, employment status and home ownership. Among women, the inverse association between property values and obesity was very strong and independent of other SES factors. Women in the bottom quartile of property values were 3.4 times more likely to be obese than women in the top quartile. No association between property values and obesity was observed for men. The present data strengthen the evidence for a social gradient in obesity among women. Property values may represent a novel and objective measure of SES at the individual level in the US. Measures based on tax assessment data will provide a valuable resource for future health studies.

**450: Shashaty MG, Meyer NJ, Localio AR, Gallop R, Bellamy SL, Holena DN, Lanken PN, Kaplan S, Yarar D, Kawut SM, Feldman HI, Christie JD. African American race, obesity, and blood product transfusion are risk factors for acute kidney injury in critically ill trauma patients. J Crit Care. 2012 Oct;27(5):496-504. doi: 10.1016/j.jcrc.2012.02.002. Epub 2012 May 15. PubMed PMID: 22591570; PubMed Central PMCID: PMC3472045.**

Abstract

PURPOSE:

Acute kidney injury (AKI) is a common source of morbidity after trauma. We sought to determine novel risk factors for AKI, by Acute Kidney Injury Network (AKIN) criteria, in critically ill trauma patients.

MATERIALS AND METHODS:

A prospective cohort of 400 patients admitted to the intensive care unit of a level 1 trauma center was followed for the development of AKI over 5 days.

RESULTS:

Acute kidney injury developed in 147 (36.8%) of 400 patients. In multivariable regression analysis, independent risk factors for AKI included African American race (odds ratio [OR], 1.86; 95% confidence interval [CI], 1.08-3.18; P = .024), body mass index of 30 kg/m<sup>2</sup> or greater (OR, 4.72 versus normal body mass index; 95% CI, 2.59-8.61; P < .001), diabetes mellitus (OR, 3.26; 95% CI,

1.30-8.20;  $P = .012$ ), abdominal Abbreviated Injury Scale score of 4 or more (OR, 3.78; 95% CI, 1.79-7.96;  $P < .001$ ), and unmatched packed red blood cells administered during resuscitation (OR, 1.13 per unit; 95% CI, 1.04-1.23;  $P = .004$ ). Acute Kidney Injury Network stages 1, 2, and 3 were associated with hospital mortality rates of 9.8%, 13.7%, and 30.4%, respectively, compared with 3.8% for those without AKI ( $P < .001$ ).

#### CONCLUSIONS:

Acute kidney injury in critically ill trauma patients is associated with substantial mortality. The findings of African American race, obesity, and blood product administration as independent risk factors for AKI deserve further study to elucidate underlying mechanisms.

**451: Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO.**

**Lifestyle factors associated with overweight and obesity among Saudi adolescents.**

**BMC Public Health. 2012 May 16;12:354. doi: 10.1186/1471-2458-12-354. PubMed**

**PMID: 22591544; PubMed Central PMCID: PMC3433359.**

#### Abstract

##### BACKGROUND:

A better understanding of the relationships between obesity and lifestyle factors is necessary for effective prevention and management of obesity in youth. Therefore, the objective of this study was to evaluate the associations between obesity measures and several lifestyle factors, including physical activity, sedentary behaviors and dietary habits among Saudi adolescents aged 14-19 years.

##### METHODS:

This was a school-based cross-sectional study that was conducted in three cities in Saudi Arabia (Al-Khobar, Jeddah and Riyadh). The participants were 2906 secondary school males (1400) and females (1506) aged 14-19 years, who were randomly selected using a multistage stratified cluster sampling technique. Measurements included weight, height, body mass index (BMI), waist circumference, waist/height ratio (WHtR), screen time (television viewing, video games and computer use), physical activity (determined using a validated questionnaire), and dietary habits (intake frequency per week). Logistic regression was used to examine the associations between obesity and lifestyle factors.

##### RESULTS:

Compared with non-obese, obese males and females were significantly less active, especially in terms of vigorous activity, had less favorable dietary habits (e.g., lower intake of breakfast, fruits and milk), but had lower intake of sugar-sweetened drinks and sweets/chocolates. Logistic regression analysis showed that overweight/obesity (based on BMI categories) or abdominal obesity (based on WHtR categories) were significantly and inversely associated with vigorous physical activity levels (aOR for high level = 0.69, 95% CI 0.41-0.92 for BMI and 0.63, 95% CI 0.45-0.89 for WHtR) and frequency of breakfast (aOR for < 3 days/week = 1.44; 95% CI 1.20-1.71 for BMI and 1.47; 95% CI 1.22-1.76 for WHtR) and vegetable (aOR for < 3 days/week = 1.29; 95% CI 1.03-1.59 for WHtR) intakes, and consumption of sugar-sweetened beverages (aOR for < 3 days/week = 1.32; 95% CI 1.08-1.62 for BMI and 1.42; 95% CI 1.16-1.75 for WHtR).

##### CONCLUSIONS:

The present study identified several lifestyle factors associated with obesity that may represent valid targets for the prevention and management of obesity among Saudi adolescents. Primary prevention of obesity by promoting active lifestyles and healthy diets should be a national public health priority.

**452: Shaibi GQ, Konopken Y, Hoppin E, Keller CS, Ortega R, Castro FG. Effects of a culturally grounded community-based diabetes prevention program for obese Latino adolescents. Diabetes Educ. 2012 Jul-Aug;38(4):504-12. doi: 10.1177/0145721712446635. Epub 2012 May 14. PubMed PMID: 22585870; PubMed Central PMCID: PMC3840126.**

Abstract

PURPOSE:

The purpose of this study was to test the feasibility and preliminary effects of a culturally grounded, community-based diabetes prevention program among obese Latino adolescents.

METHODS:

Fifteen obese Latino adolescents (body mass index [BMI] percentile =  $96.3 \pm 1.1$ , age =  $15.0 \pm 0.9$  years) completed a 12-week intervention that included weekly lifestyle education classes delivered by bilingual/bicultural promotoras and three, 60-minute physical activity sessions per week.

Participants were assessed for anthropometrics (height, weight, BMI, and waist circumference), cardiorespiratory fitness, physical activity/inactivity, nutrition behaviors, and insulin sensitivity and glucose tolerance by a 2-hour oral glucose tolerance test.

RESULTS:

The intervention resulted in significant decreases in BMI z score, BMI percentile, and waist circumference; increases in cardiorespiratory fitness; and decreases in physical inactivity and dietary fat consumption. In addition to these changes, the intervention led to significant improvements in insulin sensitivity and reductions in 2-hour glucose levels.

CONCLUSIONS:

These results support the feasibility and efficacy of a community-based diabetes prevention program for high-risk Latino youth. Translational approaches that are both culturally grounded and biologically meaningful represent a novel and innovative strategy for closing the obesity-related health disparities gap.

**453: Stabelini Neto A, Bozza R, Ulbrich A, Mascarenhas LP, Boguszewski MC, Campos Wd. [Metabolic syndrome in adolescents of different nutritional status]. Arq Bras Endocrinol Metabol. 2012 Mar;56(2):104-9. Portuguese. PubMed PMID: 22584563.**

Abstract

OBJECTIVE:

To investigate the prevalence of metabolic syndrome (MetS) in adolescents of different nutritional status.

SUBJECTS AND METHODS:

The sample consisted of 582 adolescents aged 12 to 18 years. Body mass index (BMI) classification of nutritional status was performed using the NCHS growth charts. MetS diagnosis was determined by the presence of three or more risk factors.

RESULTS:

Overall MetS prevalence was 6.7% (CI: 4.9%-9%); in boys, prevalence was 9.4%; and in girls, 4.1%. MetS prevalence was 17.2% (CI: 10%-28.2%) and 37.1% (CI: 23.2%-53.7%) in overweight and obese adolescents, respectively. All obese adolescents had at least one risk factor present, and demonstrated high MetS prevalence ratio compared with adolescents of normal weight (PR: 11.1; CI: 5.75-21.47).

CONCLUSION:

High prevalence of MetS was observed in obese adolescents. Prevention strategies should focus on body weight control since the beginning of adolescence.

**454: Zienczuk N, Egeland GM. Association between socioeconomic status and overweight and obesity among Inuit adults: International Polar Year Inuit Health Survey, 2007-2008. Int J Circumpolar Health. 2012 May 4;71(0):1-7. doi: 10.3402/ijch.v71i0.18419. PubMed PMID: 22584513; PubMed Central PMCID: PMC3417717.**

Abstract

OBJECTIVES:

To evaluate the socio-economic correlates of overweight and obesity among Inuit undergoing rapid cultural changes.

STUDY DESIGN:

A cross-sectional health survey of 2,592 Inuit adults from 36 communities in the Canadian Arctic.

METHODS:

Main outcome measures were overweight and obesity (BMI>25 kg/m<sup>2</sup> and >30 kg/m<sup>2</sup>, respectively) and as characteristics were similar, groups were combined into an at-risk BMI category (BMI>25 kg/m<sup>2</sup>). Logistic regression was used to determine the association between various sociodemographic characteristics and physical activity with overweight and obesity.

RESULTS:

The prevalence of overweight and obesity was 28 and 36%, respectively, with a total prevalence of overweight and obesity of 64%. In analyses of sociodemographic variables adjusted for age, gender and region, higher education, any employment, personal income, and private housing were all significantly positively correlated with an at-risk BMI (p≤0.001). Smoking, Inuit language as primary language spoken at home, and walking were inversely associated with overweight and obesity.

CONCLUSIONS:

The current findings highlight the social disparities in overweight and obesity prevalence in an ethnically distinct population undergoing rapid cultural changes.

**455: Zandian M, Ioakimidis I, Bergström J, Brodin U, Bergh C, Leon M, Shield J, Södersten P. Children eat their school lunch too quickly: an exploratory study of the effect on food intake. BMC Public Health. 2012 May 14;12:351. doi: 10.1186/1471-2458-12-351. PubMed PMID: 22583917; PubMed Central PMCID: PMC3490778.**

Abstract

BACKGROUND:

Speed of eating, an important aspect of eating behaviour, has recently been related to loss of control of food intake and obesity. Very little time is allocated for lunch at school and thus children may consume food more quickly and food intake may therefore be affected. Study 1 measured the time spent eating lunch in a large group of students eating together for school meals. Study 2 measured the speed of eating and the amount of food eaten in individual school children during normal school lunches and then examined the effect of experimentally increasing or decreasing the speed of eating on total food intake.

#### METHODS:

The time spent eating lunch was measured with a stop watch in 100 children in secondary school. A more detailed study of eating behaviour was then undertaken in 30 secondary school children (18 girls). The amount of food eaten at lunch was recorded by a hidden scale when the children ate amongst their peers and by a scale connected to a computer when they ate individually. When eating individually, feedback on how quickly to eat was visible on the computer screen. The speed of eating could therefore be increased or decreased experimentally using this visual feedback and the total amount of food eaten measured.

#### RESULTS:

In general, the children spent very little time eating their lunch. The 100 children in Study 1 spent on average (SD) just 7 (0.8) minutes eating lunch. The girls in Study 2 consumed their lunch in 5.6 (1.2) minutes and the boys ate theirs in only 6.8 (1.3) minutes. Eating with peers markedly distorted the amount of food eaten for lunch; only two girls and one boy maintained their food intake at the level observed when the children ate individually without external influences (258 (38) g in girls and 289 (73) g in boys). Nine girls ate on average 33% less food and seven girls ate 23% more food whilst the remaining boys ate 26% more food. The average speed of eating during school lunches amongst groups increased to 183 (53)% in the girls and to 166 (47)% in the boys compared to the speed of eating in the unrestricted condition. These apparent changes in food intake during school lunches could be replicated by experimentally increasing the speed of eating when the children were eating individually.

#### CONCLUSIONS:

If insufficient time is allocated for consuming school lunches, compensatory increased speed of eating puts children at risk of losing control over food intake and in many cases over-eating. Public health initiatives to increase the time available for school meals might prove a relatively easy way to reduce excess food intake at school and enable children to eat more healthily.

**456: Foreyt J, Kleinman R, Brown RJ, Lindstrom R. The use of low-calorie sweeteners by children: implications for weight management. J Nutr. 2012 Jun;142(6):1155S-62S. doi: 10.3945/jn.111.149609. Epub 2012 May 9. PubMed PMID: 22573780; PubMed Central PMCID: PMC3738224.**

#### Abstract

The rise in pediatric obesity since the 1970s has been well established in the United States and is becoming a major concern worldwide. As a potential means to help slow the obesity epidemic, low-calorie sweeteners (LCS) have gained attention as dietary tools to assist in adherence to weight loss plans or prevention of excess weight gain. Observational studies tend to show positive correlations between LCS consumption and weight gain in children and adolescents. Although the data are intriguing, these epidemiologic studies do not establish that LCS cause weight gain, because there are likely many lifestyle and genetic differences between children and families who choose to consume LCS and those who do not. Short-term randomized controlled trials have shown LCS use to be BMI neutral or to have modest weight-reducing effects in overweight and obese adolescents. The long-term effects of LCS in children and adolescents are unknown. Some compelling research is currently underway and may provide needed insight into the potential role of LCS in weight management. The paucity of data regarding the effects of LCS use in children and adolescents creates challenges in decision-making for health care providers and parents.

**457: Schneiderman JU, Mennen FE, Negriff S, Trickett PK. Overweight and obesity among maltreated young adolescents. Child Abuse Negl. 2012 Apr;36(4):370-8. doi: 10.1016/j.chiabu.2012.03.001. Epub 2012 May 8. PubMed PMID: 22571911; PubMed Central PMCID: PMC3359392.**

Abstract

PURPOSE:

(1) To identify and compare rates of body mass index (BMI)  $\geq$  85% (overweight/obesity) and BMI  $\geq$  95% (obesity) in maltreated versus comparison young adolescents; (2) to determine whether demographic/psychological characteristics are related to high BMI; (3) to determine whether type of maltreatment is related to high BMI in maltreated young adolescents.

METHODS:

We compared a sample of maltreated young adolescents to a comparison sample of adolescents from the same neighborhood. The maltreated sample (n=303) of young adolescents (ages 9-12) came from referrals from the county child welfare department in Los Angeles, CA from new cases of maltreatment opened in specified zip codes. A comparison sample (n=151) was recruited from the same zip codes. The total sample (both maltreated and comparison) was 77% Black or Hispanic and 23% White or biracial with 53% males and 47% females. A stepwise logistic regression was used to examine predictors of high BMI with demographic/psychological covariates and maltreatment group. The maltreated young adolescents were selected and the logistic model included all covariates as well as an interaction between gender and each maltreatment type (neglect, sexual, and physical abuse).

RESULTS:

Maltreated young adolescents were similar to comparison adolescents in obesity prevalence (27.1% and 34.4%, respectively), although comparison young adolescents were 1.7 times more likely to have overweight/obesity than the maltreated young adolescents (95% CI=1.13-2.76). No demographic variables predicted high BMI. For the comparison young adolescents, depression slightly increased the odds of overweight/obesity (OR=1.08, 95% CI=1.01-1.15). Being neglected reduced the odds of being in the overweight/obesity and obesity group when combining genders. For females, but not males, sexual and physical abuse slightly reduced the odds of obesity.

CONCLUSIONS:

Both the maltreated and comparison young adolescents had a high prevalence of overweight and obesity, which puts them at risk for health problems. Maltreatment reduced the odds of having a high BMI for adolescents in this study, which is opposite to research in adults. Further exploration of the mechanism of how maltreatment is related to weight as adolescents age, with specific emphasis on differences between genders, is needed.

**458: Xu Q, Tao LY, Wu Q, Gao F, Zhang FL, Yuan L, He XD. Prevalences of and risk factors for biliary stones and gallbladder polyps in a large Chinese population. HPB (Oxford). 2012 Jun;14(6):373-81. doi: 10.1111/j.1477-2574.2012.00457.x. Epub 2012 Mar 28. PubMed PMID: 22568413; PubMed Central PMCID: PMC3384861.**

Abstract

OBJECTIVES:

This study aimed to identify the prevalences of and risk factors associated with the development of gallbladder stones and polyps in a large Chinese population.



#### METHODS:

Prevalences of and risk factors for biliary stones and gallbladder polyps were retrospectively investigated among subjects who underwent a general check-up at the Health Screening Centres of Peking Union Medical College Hospital and Beijing Charity Hospital between January 2007 and June 2010.

#### RESULTS:

A total of 60,064 people were enrolled in the study. Overall prevalences of biliary stones and gallbladder polyps were 4.2% (n= 2527) and 6.9% (n= 4119), respectively. Risk factors associated with increased odds ratios (ORs) for the development of biliary stones were female gender (OR = 1.51), age  $\geq$  50 years (OR = 2.09), history of hypertension (OR = 1.37), thickened gallbladder wall (cholecystitis) (OR = 1.98), fasting blood glucose  $\geq$  6.10 mmol/l (OR = 1.27), body mass index  $\geq$  25 kg/m<sup>2</sup> (OR = 1.25), systolic blood pressure  $\geq$  140 mmHg (OR = 1.31) and diastolic blood pressure  $\geq$  90 mmHg (OR = 1.44). Factors associated with gallbladder polyps were female gender (OR = 0.66), thickened gallbladder wall (OR = 2.09), negativity for hepatitis B surface antigen (HBsAg) and positivity for hepatitis B core antibody (anti-HBc) (OR = 2.61), and positivity for both HBsAg and anti-HBc (OR = 3.21).

#### CONCLUSIONS:

Prevalences of biliary stones and gallbladder polyps among Chinese people are similar to those reported for other populations. Biliary stones appear to be associated with female gender, age, obesity, blood glucose, blood pressure and cholecystitis. Male gender, hepatitis B virus infection and cholecystitis were strong risk factors for the formation of gallbladder polyps.

**459: Durá Travé T; Grupo Colaborador de Navarra. [Are they valid Spanish growth reference charts?]. *Nutr Hosp.* 2012 Jan-Feb;27(1):244-51. doi: 10.1590/S0212-16112012000100031. Spanish. PubMed PMID: 22566328.**

#### Abstract

##### OBJECTIVE:

To modify the results of the longitudinal study on growth in Navarra (NA 09) by censoring the obesity cases from the population sample as well as to perform a comparative analysis with the most qualified Spanish and international growth curves.

##### MATERIALS AND METHODS:

all the cases with obesity according to Cole et al. standards have been censored out of the 930 participants in NA-09, the final sample being 782 participants (371 males and 411 females). The results obtained were compared with the Spanish studies by Serra-Majem et al. (enKid study), Carrascosa et al. (ESP 08), and NA 09, which do not censor the obesity cases, and with the Centers for Disease Control and Prevention (CDC, 2000) table, and the WHO tables (WHO, 2007) that apply depuration criteria of the poorly healthy anthropometric data (obesity and malnutrition).

##### RESULTS:

We present the mean values adjusted by height, weight, and BMI with their percentile distribution for both genders. When comparing with the Spanish studies, we observe that the evolutionary values of the 3d and 50th percentiles for height, weight, and BMI are virtually the same; however, the evolutionary values for the 97th percentile for weight and BMI tend to differ more and more. When comparing them to the international standards, the evolutionary values for the 3d, 50th, and 97th percentiles for BMI lay between both references.

##### CONCLUSIONS:



for the growth curves and tables to be useful as reference patterns, all obese people should be excluded from their elaboration; otherwise, they should be considered as only descriptive studies of a population with a recognized tendency to excessive body weight and thus their clinical applicability would be put in question.

**460: Aguilar Cordero MJ, González Jiménez E, García García CJ, García López P, Álvarez Ferre J, Padilla López CA, Mur Villar N. [Comparative study of the effectiveness of body mass index and the body-fat percentage as methods for the diagnosis of overweight and obesity in children]. Nutr Hosp. 2012 Jan-Feb;27(1):185-91. doi: 10.1590/S0212-16112012000100022. Spanish. PubMed PMID: 22566319.**

Abstract

The World Health Organization (WHO) regards obesity as one of the most serious public health problems in the world that can affect young children and adolescents. Accordingly, a major priority is to find ways to more effectively study and analyze the various methods used to diagnose and evaluate the nutritional state of the pediatric and adolescent population. The nutritional indicators currently employed for this purpose are the body mass index and body-fat percentage. However, there is a certain controversy related to the body-fat percentage since it tends to overestimate overweight and obesity. The main objectives of this study were the following: (i) to determine the prevalence of overweight and obesity in a population of primary and secondary school children between 9-17 years of age at 13 educational centers in the city and province of Granada; (ii) to verify possible differences regarding the accuracy of the body mass index and the body-fat percentage in the diagnosis of overweight and obesity.

**461: González Jiménez E, Aguilar Cordero MJ, García García CJ, García López P, Álvarez Ferre J, Padilla López CA, Ocete Hita E. [Influence of family environment of the development of obesity and overweight in a population of school children in Granada (Spain)]. Nutr Hosp. 2012 Jan-Feb;27(1):177-84. doi: 10.1590/S0212-16112012000100021. Spanish. PubMed PMID: 22566318.**

Abstract

According to recent research, eating behaviour should be understood as a cyclical and interactive process in which parental eating habits cause children to develop specific eating strategies as well as their own eating habits. Needless to say, this interactive process is reflected and has a direct impact on the nutritional indicators of the children in a family. The objectives of this study were the following: (i) to verify the existence of a significant association between the educational level of parents and the nutritional state of children in the same family; (ii) to discover if there is a direct relation between the nutritional state of children and the person that decides the menu and/or prepares family meals; (iii) to determine if there is a link between the nutritional state of children and the time that they spend on sedentary leisure activities. The sample population was composed of 718 school children and adolescents, 9-17 years of age, who a descriptive, transversal, and multicentric study was performed that evaluated the nutritional state of the entire sample by using anthropometric techniques to assess weight, height, and body mass index.

**462: Valdés Pizarro J, Royo-Bordonada MA. Prevalence of childhood obesity in Spain: National Health Survey 2006-2007. Nutr Hosp. 2012 Jan-Feb;27(1):154-60. doi: 10.1590/S0212-16112012000100018. PubMed PMID: 22566315.**

Abstract

INTRODUCTION:

Childhood Obesity has become a Public Health priority due to its high prevalence and consequences in health status.

OBJECTIVE:

To estimate prevalence of obesity in the children included in the National Health Survey of 2006-2007 and to determine its association with socioeconomic position and other socio-demographic variables.

METHODS:

Cross-sectional study using data available from 6,139 Spanish children between 2-15 years old, included in the National Health Survey. Parents or guardians reported weight and height to estimate obesity prevalence according to the International Obesity Task Force cut-offs for body mass index.

RESULTS:

Obesity prevalence was 10,3% and overweight prevalence was 18,8%. Obesity was more prevalent in children from 4-5 years age (18,3%) and overweight in the 8-9 years stratus (25,5%). Overweight was more frequent in boys than girls (19,8% versus 17,8%;  $p = 0,04$ ). Canary Islands, Ceuta and Melilla, Valencia and Andalusia were the Autonomous Communities with higher obesity prevalence in contrast with the Basque Country, Galicia and Madrid which showed the lowest prevalence. This distribution generates a north to south gradient in obesity prevalence. Both, obesity and overweight showed an inverse association with socioeconomic position ( $p < 0,05$ ).

CONCLUSION:

Childhood obesity rates in Spain accounts from ones of the highest in Europe, with a strong geographic and socioeconomic gradient. Priority should be given to effective interventions that can reach the most vulnerable groups as identified in this study, like restrictions on TV food advertising and tax reliefs to promote healthy eating.

**463: Atalah Samur E, Loaiza S, Taibo M. [Nutritional status in Chilean school children according to NCHS and WHO 2007 reference]. Nutr Hosp. 2012 Jan-Feb;27(1):1-6. doi: 10.1590/S0212-16112012000100001. Spanish. PubMed PMID: 22566298.**

Abstract

BACKGROUND:

In 2007, WHO published a new reference for assessing the nutritional status of children and adolescents aged 5 to 19 years, including body mass index (BMI) by sex and age.

OBJECTIVE:

To compare the nutritional assessment by BMI in schoolchildren and adolescents using the actual Chilean Ministry of Health norm (NCHS) and the new WHO reference 2007.

MATERIAL AND METHODS:

Retrospective cohort study of 117,745 newborns, with nutritional assessment on first year of basic education (1997) and later in high education (2005). We analyzed the nutritional status according to BMI for age in relation to the NCHS references and WHO 2007, in standard deviations (SD) and percentiles. We analyzed the agreement between the different references with the Kappa index.

#### RESULTS:

There were small differences in the nutritional classification in first grade ( $6,4 \pm 0,3$  years) between the three references. Underweight prevalence was slightly higher with both WHO references, overweight with WHO in standard deviation and obesity with WHO percentiles, at first grade of high school ( $14,4 \pm 0,3$  years). The main difference was in relation to classification of obesity ( $\geq$  percentile 95), where 43,9% of obese by WHO percentiles were considered overweight with NCHS (87,3% concordance Kappa 0,75).

#### CONCLUSIONS:

The diagnostic concordance between the three criteria was the order of 90%. There are some differences between NCHS and WHO, and between both WHO reference, depending on the cutoff point used. The adoption of one or other reference should depend on the biological hazards associated with it.

**464: Yoon JY, Park HA, Kang JH, Kim KW, Hur YI, Park JJ, Lee R, Lee HH.**

**Prevalence of dietary supplement use in Korean children and adolescents: insights from Korea National Health and Nutrition Examination Survey 2007-2009. J Korean Med Sci. 2012 May;27(5):512-7. doi: 10.3346/jkms.2012.27.5.512. Epub 2012 Apr 25. PubMed PMID: 22563216; PubMed Central PMCID: PMC3342542.**

#### Abstract

The purpose of this study was to estimate the prevalence of dietary supplement (DS) use in Korean children and adolescents and to examine the related factors associated with DS use from the 4th Korea National Health and Nutrition Examination Survey. Total 6,131 participants aged between 2 and 18 yr were included in the analysis. We estimated the prevalence of DS use mainly from the DS questionnaire data of the Nutrition Survey. Reported supplements were classified according to the Health Functional Food Code. We also assessed the relationship between DS use and anthropometry, socioeconomic factors, health behaviors, and chronic diseases. Approximately 34% of Korean children and adolescent was taking DS. Younger age ( $P = 0.003$ ), higher household income ( $P < 0.001$ ), presence of chronic diseases ( $P = 0.05$ ), regular meal consumption ( $P = 0.002$ ), frequent snack consumption ( $P = 0.001$ ), and normal body mass index rather than overweight ( $P = 0.10$ ) or obesity ( $P = 0.03$ ) were associated with the DS use after adjustment for related factors. Vitamin/mineral supplements (343.5/10(3) persons) were the most commonly taken DS in Korean children and adolescents, followed by Omega-3 (28.8), ginseng (18.3), colostrums (14.1) and chlorella/spirulina (10.0). In conclusion, DS use is common as much as in 34% of Korean children and adolescents and is associated with age, household income level, chronic diseases, meal regularity, and obesity status.

**465: Bukabau JB, Makulo JR, Pakasa NM, Cohen EP, Lepira FB, Kayembe PK, Nseka NM, Sumaili EK. Chronic kidney disease among high school students of Kinshasa. BMC Nephrol. 2012 May 4;13:24. doi: 10.1186/1471-2369-13-24. PubMed PMID: 22559052; PubMed Central PMCID: PMC3464656.**

#### Abstract

##### BACKGROUND:

Chronic kidney disease (CKD) is a major worldwide health problem. However, its burden among adolescents and young adults is unknown, especially in sub-Saharan Africa. The aim of this study was

to investigate its prevalence in the school environment. The concordance of usual formulas used to estimate renal function was also assessed.

**METHODS:**

In an epidemiological cross sectional study, a random sample of 524 pupils (263 boys, mean age of  $18.7 \pm 1.4$  years) from school environment of Kinshasa were studied. Recorded parameters of interest were anthropometric, proteinuria, serum creatinine and estimated glomerular filtration rate (eGFR) according to the Schwartz formula using uncalibrated creatinine levels from one random measurement. CKD was defined as the presence of kidney damage (daily proteinuria  $\geq 300$  mg) and/or reduced kidney function (eGFR  $< 60$  ml/min/1.73 m<sup>2</sup>). Concordances between eGFR according to Schwartz, Cockcroft-Gault (C-G) indexed for BSA and modification of diet in renal disease (MDRD) study equations were computed using the kappa coefficient.

**RESULTS:**

The prevalence of CKD by the Schwartz formula was 1.5%. By stage, 0.8% had CKD stage 1 (proteinuria with normal eGFR) and 0.8% had CKD stage 3 (eGFR, 30 to 59 ml/min/1.73 m<sup>2</sup>). The prevalence of proteinuria  $\geq 300$  mg/day was 1% (one case had 2.7g/day). Agreement between eGFR according to Schwartz formula and the MDRD formula was excellent (kappa: 88.8%). Although correlations between all formulas were excellent (0.99; 0.87, and 0.89), agreement was poor between eGFR according to Schwartz and C-G indexed BSA equation (kappa: 52.7%) and, poorer with C-G unadjusted for BSA (kappa: 26.9%).

**CONCLUSION:**

In the large African city of Kinshasa, 2% of high school students have CKD. This high prevalence rate emphasizes the need for appropriate detection and prevention measures in this vulnerable young age population group.

**466: Flank P, Wahman K, Levi R, Fahlström M. Prevalence of risk factors for cardiovascular disease stratified by body mass index categories in patients with wheelchair-dependent paraplegia after spinal cord injury. J Rehabil Med. 2012 May;44(5):440-3. doi: 10.2340/16501977-0964. Erratum in: J Rehabil Med. 2012 Jul;44(8):708. PubMed PMID: 22549653.**

**Abstract**

**OBJECTIVE:**

To assess risk factors for cardiovascular disease at different body mass index values in persons with wheelchair-dependent paraplegia after spinal cord injuries.

**DESIGN:**

Cross-sectional study.

**SUBJECTS:**

A total of 135 individuals, age range 18-79 years, with chronic ( $\geq 1$  year) post-traumatic paraplegia.

**METHODS:**

Body mass index was stratified into 6 categorical groups. Cardiovascular disease risk factors for hypertension, diabetes mellitus and a serum lipid profile were analysed and reported by body mass index category.

**RESULTS:**

More than 80% of the examined participants had at least one cardiovascular disease risk factor irrespective of body mass index level. Hypertension was highly prevalent, especially in men. Dyslipidaemia was common at all body mass index categories in both men and women.

**CONCLUSION:**

Higher body mass index values tended to associate with more hypertension and diabetes mellitus, whereas dyslipidaemia was prevalent across all body mass index categories. Studies that intervene to reduce weight and or percentage body fat should be performed to determine the effect on reducing modifiable cardiovascular disease risk factors.

**467: Dündar C, Öz H. Obesity-related factors in Turkish school children.**

**ScientificWorldJournal. 2012;2012:353485. doi: 10.1100/2012/353485. Epub 2012 Apr**

**1. PubMed PMID: 22547980; PubMed Central PMCID: PMC3322393.**

**Abstract**

**OBJECTIVE:**

To determine the prevalence of obesity and its risk factors in Turkish children.

**METHOD:**

This cross-sectional survey was conducted on students including 1271 boys and 1206 girls selected from 20 secondary schools in Samsun, Turkey. A predesigned questionnaire was used to elicit the information on individual characteristics. The height and weight of students were measured in their classroom. Obesity was defined as body mass index at or above the 95th percentile for age of the sex-specific CDC growth charts.

**RESULT:**

The mean age was  $12.8 \pm 0.9$  years, and the prevalence of obesity was found at 10.3%. There were higher numbers of obese students in boys than in girls ( $X(2) = 53.4$ ;  $P < 0.001$ ). The prevalence of obesity was 10.0% and 16.8% in public and private school students, respectively. The percentage of obese children in students who skipped breakfast was found to be higher than that in the group that consumed 3 meals a day regularly. There was no difference at time spent in sedentary behavior except watching TV, and prevalence of obesity in the group of students watching television over 3 hours per day was higher than that in their counterparts ( $X(2) = 13.6$ ;  $P < 0.01$ ). The time of engagement in sports was lower in obese group statistically ( $F = 8.9$ ;  $P < 0.001$ ).

**CONCLUSION:**

In order to prevent childhood obesity, monitoring children's lifestyle by parents is necessary.

**469: Robinson WR, Keyes KM, Utz RL, Martin CL, Yang Y. Birth cohort effects among**

**US-born adults born in the 1980s: foreshadowing future trends in US obesity**

**prevalence. Int J Obes (Lond). 2013 Mar;37(3):448-54. doi: 10.1038/ijo.2012.66.**

**Epub 2012 May 1. PubMed PMID: 22546778; PubMed Central PMCID: PMC3448850.**

**Abstract**

**BACKGROUND:**

Obesity prevalence stabilized in the US in the first decade of the 2000s. However, obesity prevalence may resume increasing if younger generations are more sensitive to the obesogenic environment than older generations.

**METHODS:**

We estimated cohort effects for obesity prevalence among young adults born in the 1980s. Using data collected from the National Health and Nutrition Examination Survey between 1971 and 2008, we calculated obesity for respondents aged between 2 and 74 years. We used the median polish

approach to estimate smoothed age and period trends; residual non-linear deviations from age and period trends were regressed on cohort indicator variables to estimate birth cohort effects.

**RESULTS:**

After taking into account age effects and ubiquitous secular changes, cohorts born in the 1980s had increased propensity to obesity versus those born in the late 1960s. The cohort effects were 1.18 (95% CI: 1.01, 1.07) and 1.21 (95% CI: 1.02, 1.09) for the 1979-1983 and 1984-1988 birth cohorts, respectively. The effects were especially pronounced in Black males and females but appeared absent in White males.

**CONCLUSIONS:**

Our results indicate a generational divergence of obesity prevalence. Even if age-specific obesity prevalence stabilizes in those born before the 1980s, age-specific prevalence may continue to rise in the 1980s cohorts, culminating in record-high obesity prevalence as this generation enters its ages of peak obesity prevalence.

**470: Fuemmeler BF, Yang C, Costanzo P, Hoyle RH, Siegler IC, Williams RB, Ostbye T. Parenting styles and body mass index trajectories from adolescence to adulthood. Health Psychol. 2012 Jul;31(4):441-9. doi: 10.1037/a0027927. Epub 2012 Apr 30. PubMed PMID: 22545979; PubMed Central PMCID: PMC3616616.**

**Abstract**

**OBJECTIVE:**

Parenting styles such as authoritarian, disengaged, or permissive are thought to be associated with greater adolescent obesity risk than an authoritative style. This study assessed the relationship between parenting styles and changes in body mass index (BMI) from adolescence to young adulthood.

**METHOD:**

The study included self-reported data from adolescents in the National Longitudinal Study of Adolescent Health. Factor mixture modeling, a data-driven approach, was used to classify participants into parenting style groups based on measures of acceptance and control. Latent growth modeling (LGM) identified patterns of developmental changes in BMI. After a number of potential confounders were controlled for, parenting style variables were entered as predictors of BMI trajectories. Analyses were also conducted for male and female individuals of 3 racial-ethnic groups (Hispanic, black, white) to assess whether parenting styles were differentially associated with BMI trajectories in these 6 groups.

**RESULTS:**

Parenting styles were classified into 4 groups: authoritarian, disengaged, permissive, and balanced. Compared with the balanced parenting style, authoritarian and disengaged parenting styles were associated with a less steep average BMI increase (linear slope) over time, but also less leveling off (quadratic) of BMI over time. Differences in BMI trajectories were observed for various genders and races, but the differences did not reach statistical significance.

**CONCLUSION:**

Adolescents who reported having parents with authoritarian or disengaged parenting styles had greater increases in BMI as they transitioned to young adulthood despite having a lower BMI trajectory through adolescence.

**471: Mejía D, Berchtold A, Bélanger RE, Kuntsche EN, Michaud PA, Surís JC. Frequency and effects of meeting health behaviour guidelines among adolescents. Eur J Public Health. 2013 Feb;23(1):8-13. doi: 10.1093/eurpub/cks050. Epub 2012 Apr 27. PubMed PMID: 22544912.**

Abstract

BACKGROUND:

To assess the relationship between overweight status and the concomitant adherence to physical activity, daily screen time and nutritional guidelines.

METHODS:

Data were derived from the Swiss Health Behaviour in School-aged Children Survey 2006. Participants (n = 8130, 48.7% girls) were divided into two groups: normal weight (n = 7215, 44.8% girls) and overweight (n = 915, 34.8% girls), using self-reported height and weight. Groups were compared on adherence to physical activity, screen time and nutritional guidelines. Bivariate analyses were carried out followed by multivariate analyses using normal-weight individuals as the reference category.

RESULTS:

Regardless of gender, overweight individuals reported more screen time, less physical activity and less concomitant adherence to guidelines. For boys, the multivariate analysis showed that any amount exceeding screen time recommendations was associated with increased odds of being overweight [ $>2$ -4 h: adjusted odds ratio (AOR) = 1.40;  $>4$ -6 h: AOR = 1.48;  $>6$  h: AOR = 1.83]. A similar relation was found for any amount below physical activity recommendations (4-6 times a week: AOR = 1.67; 2-3 times a week: AOR = 1.87; once a week or less: AOR = 2.1). For girls, not meeting nutritional guidelines was less likely among overweight individuals (0-2 recommendations: AOR = 0.54). Regardless of weight status, more than half of the adolescents did not comply with any guideline and  $<2\%$  met all three at the same time.

CONCLUSIONS:

Meeting current nutritional, physical activity and screen time guidelines should be encouraged with respect to overweight. However, as extremely low rates of concomitant adherence were found regardless of weight status, their achievability is questionable (especially for nutrition), which warrants further research to better adapt them to adolescents.

**473: Skelton JA, Buehler C, Irby MB, Grzywacz JG. Where are family theories in family-based obesity treatment?: conceptualizing the study of families in pediatric weight management. Int J Obes (Lond). 2012 Jul;36(7):891-900. doi: 10.1038/ijo.2012.56. Epub 2012 Apr 24. Review. PubMed PMID: 22531090; PubMed Central PMCID: PMC3977510.**

Abstract

Family-based approaches to pediatric obesity treatment are considered the 'gold-standard,' and are recommended for facilitating behavior change to improve child weight status and health. If family-based approaches are to be truly rooted in the family, clinicians and researchers must consider family process and function in designing effective interventions. To bring a better understanding of family complexities to family-based treatment, two relevant reviews were conducted and are presented: (1) a review of prominent and established theories of the family that may provide a more comprehensive and in-depth approach for addressing pediatric obesity; and (2) a systematic review of the literature to identify the use of prominent family theories in pediatric obesity research, which found little use of

theories in intervention studies. Overlapping concepts across theories include: families are a system, with interdependence of units; the idea that families are goal-directed and seek balance; and the physical and social environment imposes demands on families. Family-focused theories provide valuable insight into the complexities of families. Increased use of these theories in both research and practice may identify key leverage points in family process and function to prevent the development of or more effectively treat obesity. The field of family studies provides an innovative approach to the difficult problem of pediatric obesity, building on the long-established approach of family-based treatment.

**474: Sällman Almén M, Rask-Andersen M, Jacobsson JA, Ameer A, Kalnina I, Moschonis G, Juhlin S, Bringeland N, Hedberg LA, Ignatovica V, Chrousos GP, Manios Y, Klovins J, Marcus C, Gyllensten U, Fredriksson R, Schiöth HB. Determination of the obesity-associated gene variants within the entire FTO gene by ultra-deep targeted sequencing in obese and lean children. *Int J Obes (Lond)*. 2013 Mar;37(3):424-31. doi: 10.1038/ijo.2012.57. Epub 2012 Apr 24. PubMed PMID: 22531089; PubMed Central PMCID: PMC3595467.**

Abstract

BACKGROUND:

The Fat mass and obesity-associated gene (FTO) was the first gene reliably associated with body mass index in genome-wide association studies on a population level. At present, the genetic variations within the FTO gene are still the common variants that have the largest influence on body mass index.

METHODS:

In the current study, we amplified the entire FTO gene, in total 412 Kbp, in over 200 long-range PCR fragments from each individual, from 524 severely obese and 527 lean Swedish children, and sequenced the products as two DNA pools using massive parallel sequencing (SOLiD).

RESULTS:

The sequencing achieved very high coverage (median 18 000 reads) and we detected and estimated allele frequencies for 705 single nucleotide polymorphisms (SNPs) (19 novel) and 40 indels (24 novel) using a sophisticated statistical approach to remove false-positive SNPs. We identified 19 obesity-associated SNPs within intron one of the FTO gene, and validated our findings with genotyping. Ten of the validated obesity-associated SNPs have a stronger obesity association ( $P < 0.007$ ) than the commonly studied rs9939609 SNP ( $P < 0.012$ ).

CONCLUSIONS:

This study provides a comprehensive obesity-associated variation map of FTO, identifies novel lead SNPs and evaluates putative causative variants. We conclude that intron one is the only region within the FTO gene associated with obesity, and finally, we establish next generation sequencing of pooled DNA as a powerful method to investigate genetic association with complex diseases and traits.



**475: Bermúdez V, Pacheco M, Rojas J, Córdova E, Velázquez R, Carrillo D, Parra MG, Toledo A, Añez R, Fonseca E, Marcano RP, Cano C, Miranda JL. Epidemiologic behavior of obesity in the Maracaibo City metabolic syndrome prevalence study. PLoS One. 2012;7(4):e35392. doi: 10.1371/journal.pone.0035392. Epub 2012 Apr 18. PubMed PMID: 22530014; PubMed Central PMCID: PMC3329432.**

Abstract

INTRODUCTION:

Obesity is a worldwide public health issue. Since the epidemiological behaviour of this disease is not well established in our country, the purpose of this study was to determinate its prevalence in the Maracaibo City, Zulia State- Venezuela.

MATERIALS AND METHODS:

A cross-sectional study was undertaken using the data set from the Maracaibo City Metabolic Syndrome Prevalence Study. The sample consists of 2108 individuals from both genders and randomly selected: 1119 (53.09%) women and 989 (46.91%) men. The participants were interrogated for a complete clinical history and anthropometric measurements. To classify obesity, the WHO criteria for Body Mass Index (BMI), and Waist Circumference (WC) from the IDF/NHLBI/AHA/WHF/IAS/IASO-2009 (IDF-2009) and ATPIII statements were applied.

RESULTS:

For BMI, obesity had an overall prevalence of 33.3% (n = 701), and according to gender women had 32.4% (n = 363) and men had 34.2% (n = 338). Overweight had a prevalence of 34.8% (n = 733), Normal weight had 29.8% (n = 629), and Underweight had 2.1% (n = 45). Adding Obesity and Overweight results, the prevalence of elevated BMI (>25 Kg/m<sup>2</sup>) was 68.1%. Using the IDF-2009 WC's cut-off, Obesity had 74.2% prevalence, compared to 51.7% using the ATPIII parameters.

CONCLUSIONS:

These results show a high prevalence of abdominal obesity in our locality defined by the WHO, IDF-2009 and ATPIII criteria, which were not designed for Latin-American populations. We suggest further investigation to estimate the proper values according to ethnicity, genetic background and sociocultural aspects.

**476: Tercjak-Rećko M, Luczyński W, Bernatowicz P, Zalewski G, Rembińska M, Lachowska U, Rećko P, Suchoń P, Czaban M, Sokal J, Kopalińska A, Pajer Z, Bogdanowicz K, Nikliński J, Bossowski A. [Polymorphism rs9939609 of FTO gene is related to the body mass index in children from Podlaskie voievodship]. Med Wieku Rozwoj. 2012 Jan-Mar;16(1):53-60. Polish. PubMed PMID: 22516774.**

Abstract

INTRODUCTION:

The presence of obesity and the features of metabolic syndrome plays a predictive role in cardiovascular diseases (CVD) in adults. It seems reasonable to seek new risk factors in the development of CVD. Defining the genetic background of obesity could help to select patients from a high risk group and help to introduce prevention and treatment, which, in consequence, lead to the lowering of morbidity and mortality. One of the genes probably related to the body weight is the Fat Mass and Obesity Associated Gene (FTO).

THE AIM:

of the study was an attempt to assess the relationship between the FTO polymorphism rs9939609 and body mass index in children from Podlaskie voievodship.

**MATERIAL AND METHODS:**

405 children aged 4-18 were selected for the study. The examination included body mass index, waist circumference, blood pressure and lipid profile analysis. FTO rs9939609 polymorphism was assessed using a discrimination allele method with the application of ABI 7900HT Fast Real-Time PCR System.

**RESULTS:**

FTO rs9939609 polymorphism was related to the standardized body mass index and the AA genotype carriers had a higher risk of obesity. This polymorphism was also associated with waist circumference, systolic blood pressure and triglycerides concentration. It was not correlated with diastolic blood pressure and total HDL- and LDL-cholesterol concentrations.

**CONCLUSIONS:**

Our results demonstrate that rs9939609 FTO gene polymorphism is related to the body mass index in children. Our results should be confirmed in studies on a large cohort of healthy Polish children.

**477: Wall MM, Larson NI, Forsyth A, Van Riper DC, Graham DJ, Story MT, Neumark-Sztainer D. Patterns of obesogenic neighborhood features and adolescent weight: a comparison of statistical approaches. Am J Prev Med. 2012 May;42(5):e65-75. doi: 10.1016/j.amepre.2012.02.009. PubMed PMID: 22516505; PubMed Central PMCID: PMC3380614.**

**Abstract**

**BACKGROUND:**

Few studies have addressed the potential influence of neighborhood characteristics on adolescent obesity risk, and findings have been inconsistent.

**PURPOSE:**

Identify patterns among neighborhood food, physical activity, street/transportation, and socioeconomic characteristics and examine their associations with adolescent weight status using three statistical approaches.

**METHODS:**

Anthropometric measures were taken on 2682 adolescents (53% female, mean age=14.5 years) from 20 Minneapolis/St. Paul MN schools in 2009-2010. Neighborhood environmental variables were measured using GIS data and by survey. Gender-stratified regressions related to BMI z-scores and obesity to (1) separate neighborhood variables; (2) composites formed using factor analysis; and (3) clusters identified using spatial latent class analysis in 2012.

**RESULTS:**

Regressions on separate neighborhood variables found a low percentage of parks/recreation, and low perceived safety were associated with higher BMI z-scores in boys and girls. Factor analysis found five factors: away-from-home food and recreation accessibility, community disadvantage, green space, retail/transit density, and supermarket accessibility. The first two factors were associated with BMI z-score in girls but not in boys. Spatial latent class analysis identified six clusters with complex combinations of both positive and negative environmental influences. In boys, the cluster with highest obesity (29.8%) included low SES, parks/recreation, and safety; high restaurant and convenience store density; and nearby access to gyms, supermarkets, and many transit stops.

**CONCLUSIONS:**

The mix of neighborhood-level barriers and facilitators of weight-related health behaviors leads to difficulties disentangling their associations with adolescent obesity; however, statistical approaches including factor and latent class analysis may provide useful means for addressing this complexity.

**478: Boone-Heinonen J, Gordon-Larsen P. Obesogenic environments in youth: concepts and methods from a longitudinal national sample. Am J Prev Med. 2012 May;42(5):e37-46. doi: 10.1016/j.amepre.2012.02.005. PubMed PMID: 22516502; PubMed Central PMCID: PMC3382037.**

Abstract

To effectively prevent and reduce childhood obesity through healthy community design, it is essential to understand which neighborhood environment features influence weight gain in various age groups. However, most neighborhood environment research is cross-sectional, focuses on adults, and is often carried out in small, nongeneralizable geographic areas. Thus, there is a great need for longitudinal neighborhood environment research in diverse populations across the life cycle. This paper describes (1) insights and challenges of longitudinal neighborhood environment research and (2) advancements and remaining gaps in measurement and study design that examine individuals and neighborhoods within the context of the broader community. Literature-based research and findings from the Obesity and Neighborhood Environment Database (ONEdata), a unique longitudinal GIS that is spatially and temporally linked to data in the National Longitudinal Study of Adolescent Health (N=20,745), provide examples of current limitations in this area of research. Findings suggest a need for longitudinal methodologic advancements to better control for dynamic sources of bias, investigate and capture appropriate temporal frameworks, and address complex residential location processes within families. Development of improved neighborhood environment measures that capture relevant geographic areas within complex communities and investigation of differences across urbanicity and sociodemographic composition are needed. Further longitudinal research is needed to identify, refine, and evaluate national and local policies to most effectively reduce childhood obesity.

**479: Hamaguchi M, Takeda N, Kojima T, Ohbora A, Kato T, Sarui H, Fukui M, Nagata C, Takeda J. Identification of individuals with non-alcoholic fatty liver disease by the diagnostic criteria for the metabolic syndrome. World J Gastroenterol. 2012 Apr 7;18(13):1508-16. doi: 10.3748/wjg.v18.i13.1508. PubMed PMID: 22509083; PubMed Central PMCID: PMC3319947.**

Abstract

AIM:

To clarify the efficiency of the criterion of metabolic syndrome to detecting non-alcoholic fatty liver disease (NAFLD).

METHODS:

Authors performed a cross-sectional study involving participants of a medical health checkup program including abdominal ultrasonography. This study involved 11 714 apparently healthy Japanese men and women, 18 to 83 years of age. NAFLD was defined by abdominal ultrasonography without an alcohol intake of more than 20 g/d, known liver disease, or current use of medication. The revised criteria of the National Cholesterol Education Program Adult Treatment Panel III were used to characterize the metabolic syndrome.

#### RESULTS:

NAFLD was detected in 32.2% (95% CI: 31.0%-33.5%) of men (n = 1874 of 5811) and in 8.7% (95% CI: 8.0%-9.5%) of women (n = 514 of 5903). Among obese people, the prevalence of NAFLD was as high as 67.3% (95% CI: 64.8%-69.7%) in men and 45.8% (95% CI: 41.7%-50.0%) in women. Although NAFLD was thought of as being the liver phenotype of metabolic syndrome, the prevalence of the metabolic syndrome among subjects with NAFLD was low both in men and women. 66.8% of men and 70.4% of women with NAFLD were not diagnosed with the metabolic syndrome. 48.2% of men with NAFLD and 49.8% of women with NAFLD weren't overweight [body mass index (BMI)  $\geq$  25 kg/m<sup>2</sup>]. In the same way, 68.6% of men with NAFLD and 37.9% of women with NAFLD weren't satisfied with abdominal classification ( $\geq$  90 cm for men and  $\geq$  80 cm for women). Next, authors defined it as positive at screening for NAFLD when participants satisfied at least one criterion of metabolic syndrome. The sensitivity of the definition "at least 1 criterion" was as good as 84.8% in men and 86.6% in women. Separating subjects by BMI, the sensitivity was higher in obese men and women than in non-obese men and women (92.3% vs 76.8% in men, 96.1% vs 77.0% in women, respectively).

#### CONCLUSION:

Authors could determine NAFLD effectively in epidemiological study by modifying the usage of the criteria for metabolic syndrome.

#### KEYWORDS:

Metabolic syndrome; Methodology; Nonalcoholic fatty liver; Population based study.

**480: Teevale T, Scragg R, Faeamani G, Utter J. Pacific parents' rationale for purchased school lunches and implications for obesity prevention. *Asia Pac J Clin Nutr.* 2012;21(2):282-90. PubMed PMID: 22507616.**

#### Abstract

Pacific children and adolescents are burdened with higher prevalences of obesity compared to other groups in New Zealand. Previous research shows Pacific young people purchase their lunch food items significantly more than other groups. The aim of this study is to describe school lunch food consumption patterns and the influences on these among low-income Pacific adolescents and their parents. Using mixed-methodology design; a self-completion questionnaire was administered to 4216 students who participated in the New Zealand arm of the Obesity Prevention In Communities (OPIC) project. Thirty Pacific households (33 adolescents and 35 parents) were interviewed in the qualitative phase of the study. Results found a greater proportion of Pacific students purchased school food items compared to other ethnic groups. Purchasing school food was related to having higher amounts of daily food money ( $\geq$  NZD 6-15) and this was associated with increased quantities of soft drink consumption and after-school food purchasing of high-fat, high-sugar snack foods. There were no differences in school food purchasing behaviour by Pacific weight status (n=2485), with both Healthy weight (67.6%) and Obese students (66.9%) sourcing lunch from school canteens or shops outside of school rather than from home. Time-constrained parents confirmed convenience, poverty compensation and valuing students' independence as three reasons for choosing to make money available for students to purchase lunch food items. The social effects of poverty affect the health-promoting behaviours of Pacific communities in New Zealand. Social policies that decrease social inequities should be the intervention priority.

**481: Hwang LC, Bai CH, Sun CA, Chen CJ. Prevalence of metabolically healthy obesity and its impacts on incidences of hypertension, diabetes and the metabolic syndrome in Taiwan. *Asia Pac J Clin Nutr.* 2012;21(2):227-33. PubMed PMID: 22507609.**

Abstract

Obesity is an epidemic health problem related to morbidity and mortality of metabolic and cardiovascular diseases. However, little is known regarding the development of cardiometabolic diseases in an obese subgroup with a healthy metabolic risk profile. This study examined the prevalence of baseline metabolically healthy obese subjects and its impacts on the incidences of cardiometabolic diseases using a nation-wide population cohort. Metabolically healthy obese were prevalent in 8.2% of the baseline population and 28.5% of the obese subjects. Subjects included were 1,547 men and women (age range, 18-59 years), who were free of components of the metabolic syndrome except waist criteria. During an average 5.4-year follow-up, the cumulative incidences of hypertension, type 2 diabetes and the metabolic syndrome were 7.8%, 1.2% and 5.6%, respectively. The hazard ratios (95% CIs) for the metabolic syndrome incidence were significantly higher at BMI levels of  $\geq 23.0$  kg/m<sup>2</sup> [4.68 (2.22-9.86)] for BMI of 23-24.9 kg/m<sup>2</sup>; 8.82 (4.01-19.4) for BMI of 25-26.9 kg/m<sup>2</sup>; and 24.43 (12.33-48.41) for BMI of  $\geq 27$  kg/m<sup>2</sup>). The hazard ratios for diabetes or hypertension incidence were significantly higher at BMI levels of  $\geq 25.0$  kg/m<sup>2</sup>. Each kg/m<sup>2</sup> of BMI gained was associated with an 18% increase in the risk of developing hypertension and a 26% increase in risk for the metabolic syndrome. We conclude that metabolically healthy obese individuals are at higher risk to develop hypertension, type 2 diabetes and the metabolic syndrome than their non-obese counterparts. Our data provide further evidence that opposes the notion of metabolically healthy obese as harmless conditions.

**482: Parrino C, Rossetti P, Baratta R, La Spina N, La Delfa L, Squatrito S, Vigneri R, Frittitta L. Secular trends in the prevalence of overweight and obesity in Sicilian schoolchildren aged 11-13 years during the last decade. *PLoS One.* 2012;7(4):e34551. doi: 10.1371/journal.pone.0034551. Epub 2012 Apr 10. PubMed PMID: 22506027; PubMed Central PMCID: PMC3323536.**

Abstract

The present study evaluates trends in the prevalence of overweight and obesity in relation to gender and area of residence between two cohorts of students aged 11-13 years in Sicily. The analysis was performed on 1,839 schoolchildren, with 924 and 915 children being studied in 1999-2001 and 2009-2010, respectively. The children who were enrolled during 2009-2010 had significantly higher body mass indexes (BMI), BMI z-scores, and waist circumferences than the children who were studied during 1999-2001 ( $p < 0.0001$  for all); these differences were also observed when the cohort was subdivided according to gender or residence area. The prevalence of obesity increased significantly from 7.9% in 1999-2001 to 13.7% in 2009-2010 ( $p < 0.0001$ ), whereas thinness decreased significantly from 10.1% to 2.3% ( $p < 0.0001$ ) in the same periods. The increase of trends in the prevalence of obesity was significantly higher in males (9.7% vs. 17.6%,  $p = 0.0006$ ) than in females (6.3% vs. 9.8%,  $p = 0.04$ ) and was slightly higher in urban areas (8.8% vs. 14.3%,  $p = 0.002$ ) than in rural areas (7.8% vs. 13.0%,  $p = 0.012$ ). The male gender was associated with a higher risk of being overweight or obese (odds ratio: 1.63; 95% confidence intervals: 1.24-2.15;  $p = 0.0005$ ) in 2009-2010 than in 1999-2001, after adjusting for age and the residence area. In conclusion, this study showed an increasing trend in

the prevalence of overweight and obesity in Sicilian schoolchildren during the last decade and that this trend was related to gender, age and the area of residence. More specifically, our data indicated that the prevalence of obesity increased by 5.8%, the prevalence of thinness decreased by 7.8% and the prevalence of normal-weight children did not change over the course of a decade. These results suggest a shift in the body weights of Sicilian children toward the upper percentiles.

**483: Rundle A, Hoepner L, Hassoun A, Oberfield S, Freyer G, Holmes D, Reyes M, Quinn J, Camann D, Perera F, Whyatt R. Association of childhood obesity with maternal exposure to ambient air polycyclic aromatic hydrocarbons during pregnancy. Am J Epidemiol. 2012 Jun 1;175(11):1163-72. doi: 10.1093/aje/kwr455. Epub 2012 Apr 13. PubMed PMID: 22505764; PubMed Central PMCID: PMC3491973.**

#### Abstract

There are concerns that prenatal exposure to endocrine-disrupting chemicals increases children's risk of obesity. African-American and Hispanic children born in the Bronx or Northern Manhattan, New York (1998-2006), whose mothers underwent personal air monitoring for polycyclic aromatic hydrocarbon (PAH) exposure during pregnancy, were followed up to ages 5 (n = 422) and 7 (n = 341) years. At age 5 years, 21% of the children were obese, as were 25% of those followed to age 7 years. After adjustment for child's sex, age at measurement, ethnicity, and birth weight and maternal receipt of public assistance and prepregnancy obesity, higher prenatal PAH exposures were significantly associated with higher childhood body size. In adjusted analyses, compared with children of mothers in the lowest tertile of PAH exposure, children of mothers in the highest exposure tertile had a 0.39-unit higher body mass index z score (95% confidence interval (CI): 0.08, 0.70) and a relative risk of 1.79 (95% CI: 1.09, 2.96) for obesity at age 5 years, and they had a 0.30-unit higher body mass index z score (95% CI: 0.01, 0.59), a 1.93-unit higher percentage of body fat (95% CI: 0.33, 3.54), and a relative risk of 2.26 (95% CI: 1.28, 4.00) for obesity at age 7 years. The data indicate that prenatal exposure to PAHs is associated with obesity in childhood.

**484: Tabassum R, Jaiswal A, Chauhan G, Dwivedi OP, Ghosh S, Marwaha RK, Tandon N, Bharadwaj D. Genetic variant of AMD1 is associated with obesity in urban Indian children. PLoS One. 2012;7(4):e33162. doi: 10.1371/journal.pone.0033162. Epub 2012 Apr 9. PubMed PMID: 22496743; PubMed Central PMCID: PMC3322123.**

#### Abstract

##### BACKGROUND:

Hyperhomocysteinemia is regarded as a risk factor for cardiovascular diseases, diabetes and obesity. Manifestation of these chronic metabolic disorders starts in early life marked by increase in body mass index (BMI). We hypothesized that perturbations in homocysteine metabolism in early life could be a link between childhood obesity and adult metabolic disorders. Thus here we investigated association of common variants from homocysteine metabolism pathway genes with obesity in 3,168 urban Indian children.

##### METHODOLOGY/PRINCIPAL FINDINGS:

We genotyped 90 common variants from 18 genes in 1,325 children comprising of 862 normal-weight (NW) and 463 over-weight/obese (OW/OB) children in stage 1. The top signal obtained was replicated in an independent sample set of 1843 children (1,399 NW and 444 OW/OB) in stage 2. Stage 1 association analysis revealed association between seven variants and childhood obesity at

$P < 0.05$ , but association of only rs2796749 in AMD1 [OR = 1.41,  $P = 1.5 \times 10^{-4}$ ] remained significant after multiple testing correction. Association of rs2796749 with childhood obesity was validated in stage 2 [OR = 1.28,  $P = 4.2 \times 10^{-3}$ ] and meta-analysis [OR = 1.35,  $P = 1.9 \times 10^{-6}$ ]. AMD1 variant rs2796749 was also associated with quantitative measures of adiposity and plasma leptin levels that was also replicated and corroborated in combined analysis.

**CONCLUSIONS/SIGNIFICANCE:**

Our study provides first evidence for the association of AMD1 variant with obesity and plasma leptin levels in children. Further studies to confirm this association, its functional significance and mechanism of action need to be undertaken.

**485: Rhee JJ, Mattei J, Campos H. Association between commercial and traditional sugar-sweetened beverages and measures of adiposity in Costa Rica. Public Health Nutr. 2012 Aug;15(8):1347-54. doi: 10.1017/S1368980012001000. Epub 2012 Apr 12. PubMed PMID: 22494394; PubMed Central PMCID: PMC3656409.**

**Abstract**

**OBJECTIVE:**

Increasing trends in the consumption of commercial sugar-sweetened beverages (SSB) have occurred in parallel with rising levels of obesity in Latin America, but data showing the relationship between these SSB and obesity are limited. The current study examined the association between commercial and traditional SSB and measures of adiposity in Costa Rica.

**DESIGN:**

A cross-sectional analysis was conducted in which the exposure, SSB intake, was defined as frequency of daily servings of 'fresco' (a traditional home-made beverage), fruit drink (commercially available SSB), soda and fruit juice (made from fruits at home). Multivariate linear regression was used to estimate associations between SSB intake and BMI, waist-to-hip ratio and skinfold thickness.

**SETTING:**

Central Valley, Costa Rica.

**SUBJECTS:**

Controls (n 2045) of a case-control study on diet and heart disease in Costa Rica.

**RESULTS:**

Fresco, fruit drink, soda and fruit juice were consumed  $\geq 1$  time/d by 47 %, 14 %, 4 % and 14 % of the population, respectively. One serving/d of soda, fruit drink and fresco was associated with 0.89, 0.49 and 0.21 kg/m<sup>2</sup> higher BMI, respectively (all  $P < 0.05$ ). Fruit drink ( $\geq 1$  serving/d) was associated with higher waist-to-hip ratio ( $P = 0.004$ ), while soda and fresco were associated with higher skinfold thickness ( $P = 0.02$  and  $0.01$ , respectively). Associations with fruit juice intake were modest and not statistically significant. Other factors associated with higher BMI were higher income and less education, smoking and physical inactivity (all  $P < 0.05$ ).

**CONCLUSIONS:**

Increasing intake of commercially available SSB could be in part responsible for the high prevalence of obesity among Hispanic adults.



**486: Freedman DS, Thornton JC, Pi-Sunyer FX, Heymsfield SB, Wang J, Pierson RN Jr, Blanck HM, Gallagher D. The body adiposity index (hip circumference ÷ height(1.5)) is not a more accurate measure of adiposity than is BMI, waist circumference, or hip circumference. Obesity (Silver Spring). 2012 Dec;20(12):2438-44. doi: 10.1038/oby.2012.81. Epub 2012 Apr 9. PubMed PMID: 22484365; PubMed Central PMCID: PMC3477292.**

Abstract

Based on cross-sectional analyses, it was suggested that hip circumference divided by height(1.5) -18 (the body adiposity index (BAI)), could directly estimate percent body fat without the need for further correction for sex or age. We compared the prediction of percent body fat, as assessed by dual-energy X-ray absorptiometry (PBF(DXA)), by BAI, BMI, and circumference (waist and hip) measurements among 1,151 adults who had a total body scan by DXA and circumference measurements from 1993 through 2005. After accounting for sex, we found that PBF(DXA) was related similarly to BAI, BMI, waist circumference, and hip circumference. In general, BAI underestimated PBF(DXA) among men (2.5%) and overestimated PBF(DXA) among women (4%), but the magnitudes of these biases varied with the level of body fatness. The addition of covariates and quadratic terms for the body size measures in regression models substantially improved the prediction of PBF(DXA), but none of the models based on BAI could more accurately predict PBF(DXA) than could those based on BMI or circumferences. We conclude that the use of BAI as an indicator of adiposity is likely to produce biased estimates of percent body fat, with the errors varying by sex and level of body fatness. Although regression models that account for the nonlinear association, as well as the influence of sex, age, and race, can yield more accurate estimates of PBF(DXA), estimates based on BAI are not more accurate than those based on BMI, waist circumference, or hip circumference.

**487: Breslin WL, Johnston CA, Strohacker K, Carpenter KC, Davidson TR, Moreno JP, Foreyt JP, McFarlin BK. Obese Mexican American children have elevated MCP-1, TNF- $\alpha$ , monocyte concentration, and dyslipidemia. Pediatrics. 2012 May;129(5):e1180-6. doi: 10.1542/peds.2011-2477. Epub 2012 Apr 2. PubMed PMID: 22473371.**

Abstract

BACKGROUND AND OBJECTIVE:

Obesity is an independent risk factor for chronic disease. The prevalence of obesity is especially high among Mexican American children. Peripheral blood monocytes are altered with obesity contributing to elevated systemic inflammation and increased risk of chronic disease. In addition, obesity alters the circulating levels of cytokines/chemokines that influence monocyte behavior. The study objective was to investigate alterations in blood monocytes and plasma cytokines/chemokine levels among healthy weight (standardized BMI [zBMI]  $\leq$ 85th percentile; n = 66), overweight (zBMI 85th-95th percentile; n = 23), and obese (zBMI  $\geq$ 95th percentile; n = 39) Mexican American children.

METHODS:

Blood samples were analyzed for total and subset monocyte concentration via flow cytometry. Serum monocyte chemoattractant protein-1 (MCP-1), fractalkine, interleukin-8, and tumor necrosis factor  $\alpha$  (TNF- $\alpha$ ) were measured by using a Milliplex MagPix assay. Serum cholesterol, high-density lipoproteins, triglycerides, and glucose were measured by using an enzymatic assay.



#### RESULTS:

Total monocyte concentration ( $P = .012$ ), classic monocyte concentration ( $P = .045$ ), MCP-1 ( $P = .015$ ), and TNF- $\alpha$  ( $P = .002$ ) were significantly greater in obese children compared with healthy weight children. Also, overweight and obese children had elevated triglycerides ( $P = .001$ ) and reduced high-density lipoproteins ( $P = .033$ ) compared with healthy weight children.

#### CONCLUSIONS:

Childhood obesity alters monocytes and circulating chemokines, putting children at a greater risk of developing obesity-related chronic diseases in adulthood. Further characterization of early immune alterations in childhood obesity may provide additional clinical insight into the assessment of obesity-related disease risk.

**488: Ruano Gil M, Silvestre Teruel V, Aguirregoicoa García E, Criado Gómez L, Duque López Y, García-Blanch G. [Nutrition, metabolic syndrome and morbid obesity]. Nutr Hosp. 2011 Jul-Aug;26(4):759-64. doi: 10.1590/S0212-16112011000400014. Spanish. PubMed PMID: 22470021.**

#### Abstract

##### INTRODUCTION:

Obesity, and specifically morbid obesity (MO), is a chronic disease with serious health consequences related to the associated comorbidities and constitutes a leading risk factor for the metabolic syndrome (MS) and cardiovascular disease (CVD). In the present study we analyze the abnormalities related to MO in the plasmatic levels of nutrients (both macro and micronutrients).

##### METHODS:

We retrospectively evaluated data of 497 patients, 369 women and 128 men diagnosed of MO. The average age of the patients was 40.07 (rank: 16-62). Previous to the study anthropometric measures, blood pressure (BP) and plasma levels of insulin and macronutrients and micronutrients were measured.

##### RESULTS:

The higher body mass index (BMI) in women and the waist circumference (WC) in both sexes demonstrates the existence of visceral obesity. Hypertensive disease (HD) was found in 18.6% of men and 33.5% of women. 55.1% of the men and 42.3% of the women had three or more criteria defining the risk of developing MetS. We found hyperglycemia, insulinemia and dyslipemia. We did not find protein malnutrition, but there were elevated values of reactive C-protein. Biochemical indicators of macro and micronutrients were not altered.

##### DISCUSSION AND CONCLUSIONS:

The high incidence of patients with HD, carriers of three or more criteria that defines the metabolic syndrome (SM), suggests that a very significant part of our patients suffered the metabolic syndrome (MS). The term metabolic syndrome defines the group of factors of metabolic risk of CVD, which is confirmed by the elevated levels of reactive C-protein. We did not find abnormalities in the plasmatic levels of biochemical markers of nutrients.

**489: Rastogi D, Khan UI, Isasi CR, Coupey SM. Associations of obesity and asthma with functional exercise capacity in urban minority adolescents. *Pediatr Pulmonol.* 2012 Nov;47(11):1061-9. doi: 10.1002/ppul.22547. Epub 2012 Mar 29. PubMed PMID: 22467360; PubMed Central PMCID: PMC3389560.**

Abstract

PURPOSE:

To examine the independent association of asthma and obesity and of their co-existence with functional exercise capacity among urban adolescents.

METHODS:

One hundred eighteen Hispanic- and African-American adolescents including 33 obese asthmatics, 18 normal-weight asthmatics, 38 obese non-asthmatics, and 29 normal-weight non-asthmatics underwent anthropometric measures, 6-minute walk test (6MWT) as measure of functional exercise capacity and spirometry as measure of pulmonary function. The 6-minute walk distance (6MWD) was compared between the four study groups. The association of 6MWD with measures of lower airway obstruction, and measures of adiposity was assessed.

RESULTS:

The 6MWD was lower among the obese groups with the least distance covered by the obese asthmatic group ( $P = 0.02$ ). In the obese asthmatic group, there was a negative correlation between 6MWD and body mass index (BMI) ( $r = -0.35$ ,  $P = 0.03$ ), but no association was noted with percent-predicted forced expiratory volume in the 1st second (FEV(1);  $r = 0.07$ ,  $P = 0.70$ ). Conversely, the 6MWD correlated with FEV(1) among normal-weight asthmatics ( $r = 0.45$ ,  $P = 0.04$ ) and normal-weight non-asthmatics ( $r = 0.4$ ,  $P = 0.03$ ), but was not associated with BMI in either of the two groups. After adjusting for age, height, gender, and ethnicity, BMI was noted to be a significant predictor ( $\beta -2.76$ , 95% CI  $-4.77$  to  $-0.76$ ,  $P < 0.01$ ) of the 6MWD among the obese while percent predicted FEV(1) ( $\beta 1.87$ , 95% CI  $0.28$ - $3.45$ ,  $P = 0.02$ ) was a significant predictor among the normal-weight participants.

CONCLUSIONS:

Our findings suggest that among urban minority obese asthmatic adolescents, functional exercise capacity was associated with obesity, rather than pulmonary function.

**490: Leung CW, Williams DR, Villamor E. Very low food security predicts obesity predominantly in California Hispanic men and women. *Public Health Nutr.* 2012 Dec;15(12):2228-36. doi: 10.1017/S1368980012000857. Epub 2012 Apr 2. PubMed PMID: 22463949; PubMed Central PMCID: PMC3502688.**

Abstract

OBJECTIVE:

A high prevalence of food insecurity has persisted in the USA for the past two decades. Previous studies suggest that the association between food insecurity and obesity may vary by gender and race/ethnicity. We examined whether food insecurity was associated with BMI and obesity within gender and racial/ethnic groups in a large, diverse sample of low-income adults.

DESIGN:

A cross-sectional analysis of a large population-based health survey. We compared the distribution of BMI and obesity by food security levels within gender and racial/ethnic categories.

SETTING:

Data were derived from the 2003-2009 waves of the California Health Interview Survey.

**SUBJECTS:**

The study sample included 35 747 non-elderly adults with households  $\leq 200\%$  of the federal poverty level.

**RESULTS:**

Among Hispanic men, very low food security was associated with a 1.0 kg/m<sup>2</sup> higher BMI (95 % CI 0.3, 1.7 kg/m<sup>2</sup>) and a 36 % higher prevalence of obesity (95 % CI 17, 58 %) after multivariate adjustment. Among Hispanic women, very low food security was associated with a 1.1 kg/m<sup>2</sup> higher BMI (95 % CI 0.4, 1.9 kg/m<sup>2</sup>) and a 22 % higher prevalence of obesity (95 % CI 8, 38 %). Positive associations were also observed for Asian women and multi-racial men. No significant associations were observed for non-Hispanic whites, African Americans, Asian men or multi-racial women.

**CONCLUSIONS:**

Our results suggest that the association of food insecurity and obesity is limited to individuals of certain low-income, minority racial/ethnic groups. Whether targeted interventions to address food insecurity in these individuals may also decrease obesity risk deserves further investigation.

**491: Schultz R. Prevalences of overweight and obesity among children in remote Aboriginal communities in central Australia. Rural Remote Health. 2012;12:1872. Epub 2012 Mar 9. PubMed PMID: 22463700.**

**Abstract**

**INTRODUCTION:**

The chronic diseases associated with overweight and obesity are major contributors to the excess disease burden of Aboriginal Australians. Surveillance of overweight and obesity is required to monitor these conditions, and to develop and evaluate interventions to improve health and wellbeing. Remote Aboriginal communities in Australia's Northern Territory (NT) are where approximately two-thirds of the NT Aboriginal people live, a proportion which has been stable over many years. However the remote communities suffer significant socioeconomic disadvantage including limited education and employment opportunities, and poor quality and overcrowded housing. Approximately one-third of Aboriginal people in NT live in central Australia, which consists of the Alice Springs and Barkly districts. The Healthy School-Aged Kids Program includes health promotion and child health screening, and is run in remote Aboriginal communities of NT. This report provides estimates of prevalences of overweight and obesity among children in central Australia who participated in health checks as part of Healthy School-Aged Kids Program in 2010.

**METHODS:**

All children in remote central Australian Aboriginal communities were invited to participate in health checks. Children who attended were weighed and measured. Date of birth, sex, height and weight for each child were used to determine prevalence of overweight ( $\geq +1$  standard deviation [SD] BMI-for-age) and obesity ( $\geq +2$  SD BMI-for-age) according to WHO Growth standards. Differences in proportions of overweight and obesity by age group and sex, and their statistical significance were calculated.

**RESULTS:**

Weight, height, sex and age data were available for 996 children from a population of 1764. It was found that 22.1% of girls and 20.7% of boys were overweight; and 5.1% of girls and 5.8% of boys were obese as defined by BMI-for-age. Prevalence of overweight but not obesity increased with age (for overweight  $z=3.28$ ,  $p=0.0011$ ; for obesity  $z=0.68$ ;  $p=0.50$ ).

#### CONCLUSION:

The prevalences of overweight and obesity as estimated by BMI-for-age among children in remote central Australian Aboriginal communities were compared with those in other Australian surveys. They appear unlikely to reflect future relative risk of the chronic diseases with which overweight and obesity are associated. Routine collection of data on BMI-for-age may not provide adequate estimation of future risk of chronic disease burden attributable to overweight and obesity among these children. Alternative measures for surveillance for overweight such as waist circumference may prove more useful. Appropriate interventions to reduce risk of chronic disease are required, including interventions to reduce prevalences of overweight and obesity.

**492: Berry DC, McMurray R, Schwartz TA, Skelly A, Sanchez M, Neal M, Hall G. Rationale, design, methodology and sample characteristics for the family partners for health study: a cluster randomized controlled study. BMC Public Health. 2012 Mar 30;12:250. doi: 10.1186/1471-2458-12-250. PubMed PMID: 22463125; PubMed Central PMCID: PMC3353192.**

#### Abstract

##### BACKGROUND:

Young children who are overweight are at increased risk of becoming obese and developing type 2 diabetes and cardiovascular disease later in life. Therefore, early intervention is critical. This paper describes the rationale, design, methodology, and sample characteristics of a 5-year cluster randomized controlled trial being conducted in eight elementary schools in rural North Carolina, United States.

##### METHODS/DESIGN:

The first aim of the trial is to examine the effects of a two-phased intervention on weight status, adiposity, nutrition and exercise health behaviors, and self-efficacy in overweight or obese 2nd, 3rd, and 4th grade children and their overweight or obese parents. The primary outcome in children is stabilization of BMI percentile trajectory from baseline to 18 months. The primary outcome in parents is a decrease in BMI from baseline to 18 months. Secondary outcomes for both children and parents include adiposity, nutrition and exercise health behaviors, and self-efficacy from baseline to 18 months. A secondary aim of the trial is to examine in the experimental group, the relationships between parents and children's changes in weight status, adiposity, nutrition and exercise health behaviors, and self-efficacy. An exploratory aim is to determine whether African American, Hispanic, and non-Hispanic white children and parents in the experimental group benefit differently from the intervention in weight status, adiposity, health behaviors, and self-efficacy. A total of 358 African American, non-Hispanic white, and bilingual Hispanic children with a BMI  $\geq$  85th percentile and 358 parents with a BMI  $\geq$  25 kg/m<sup>2</sup> have been inducted over 3 1/2 years and randomized by cohort to either an experimental or a wait-listed control group. The experimental group receives a 12-week intensive intervention of nutrition and exercise education, coping skills training and exercise (Phase I), 9 months of continued monthly contact (Phase II) and then 6 months (follow-up) on their own. Safety endpoints include adverse event reporting. Intention-to-treat analysis will be applied to all data.

##### DISCUSSION:

Findings from this trial may lead to an effective intervention to assist children and parents to work together to improve nutrition and exercise patterns by making small lifestyle pattern changes.

**493: Willi SM, Hirst K, Jago R, Buse J, Kaufman F, El Ghormli L, Bassin S, Elliot D, Hale DE; HEALTHY Study Group. Cardiovascular risk factors in multi-ethnic middle school students: the HEALTHY primary prevention trial. *Pediatr Obes.* 2012 Jun;7(3):230-9. doi: 10.1111/j.2047-6310.2011.00042.x. Epub 2012 Mar 28. PubMed PMID: 22461375; PubMed Central PMCID: PMC3348358.**

Abstract

OBJECTIVE:

The objective of this study was to examine the effects of an integrated, multi-component, school-based intervention programme on cardiovascular disease (CVD) risk factors among a multi-ethnic cohort of middle school students.

METHODS:

HEALTHY was a cluster randomized, controlled, primary prevention trial. Middle school was the unit of randomization and intervention. Half of the schools were assigned to an intervention programme consisting of changes in the total school food environment and physical education classes, enhanced by educational outreach and behaviour change activities and promoted by a social marketing campaign consisting of reinforcing messages and images. Outcome data reported (anthropometrics, blood pressure and fasting lipid levels) were collected on a cohort of students enrolled at the start of 6th grade (~11-12 years old) and followed to end of 8th grade (~13-14 years old).

RESULTS:

Forty-two middle schools were enrolled at seven field centres; 4363 students provided both informed consent and CVD data at baseline and end of study. The sample was 52.7% female, 54.5% Hispanic, 17.6% non-Hispanic Black, 19.4% non-Hispanic White and 8.5% other racial/ethnic combinations, and 49.6% were categorized as overweight or obese (body mass index  $\geq$  85th percentile) at baseline. A significant intervention effect was detected in the prevalence of hypertension in non-Hispanic Black and White males. The intervention produced no significant changes in lipid levels.

CONCLUSIONS:

The prevalence of some CVD risk factors is high in minority middle school youth, particularly males. A multi-component, school-based programme achieved only modest reductions in these risk factors; however, promising findings occurred in non-Hispanic Black and White males with hypertension.

**494: Lindberg NM, Stevens VJ, Vega-López S, Kauffman TL, Calderón MR, Cervantes MA. A weight-loss intervention program designed for Mexican-American women: cultural adaptations and results. *J Immigr Minor Health.* 2012 Dec;14(6):1030-9. doi: 10.1007/s10903-012-9616-4. PubMed PMID: 22460538; PubMed Central PMCID: PMC3711859.**

Abstract

This study assessed the feasibility of a culturally-appropriate weight-loss intervention targeting obese Spanish-speaking Mexican women. This 12-month weight-loss program was based on behavioral interventions previously used successfully with English-speaking participants. Cultural adaptations included: female interventionists, minimal written materials, emphasis on group activities, focus on Mexican traditions and beliefs, and skill-building approach to food measurement. All sessions were conducted in Spanish. The study had few exclusionary criteria, which allowed participation of women with a wide range of literacy levels. Recruitment exceeded expectations, with 47 participants enrolling in the program. Not counting participants who became pregnant during the study,

attendance at 6 and 12 months was 62 and 50 % respectively. Mean weight loss at 6 and 12 months was 5.3 and 7.2 kg, respectively, with a mean reduction in BMI of 4.0 and 5.5 kg/m<sup>2</sup> from baseline to 6 and 12 months, respectively. This pilot study shows that it is feasible to develop and implement culturally-appropriate behavioral lifestyle interventions for obesity treatment in Mexican-American women.

**495: Sandy R, Tchernis R, Wilson J, Liu G, Zhou X. Effects of the built environment on childhood obesity: the case of urban recreational trails and crime. *Econ Hum Biol.* 2013 Jan;**11**(1):18-29. doi: 10.1016/j.ehb.2012.02.005. Epub 2012 Mar 6. PubMed PMID: 22459489; PubMed Central PMCID: PMC3405198.**

Abstract

We study the effects of urban environment on childhood obesity by concentrating on the effects of walking trails and crime close to children's homes on their BMI and obesity status. We use a unique dataset, which combines information on recreational trails in Indianapolis with data on violent crimes and anthropomorphic and diagnostic data from children's clinic visits between 1996 and 2005. We find that having a trail near a home reduces children's weight. However, the effect depends on the amount of nearby violent crimes. Significant reductions occur only in low crime areas and trails could have opposite effects on weight in high crime areas. These effects are primarily among boys, older children, and children who live in higher income neighborhoods. Evaluated at the mean length of trails this effect for older children in no crime areas would be a reduction of 2 lb of the body weight. Falsification tests using planned trails instead of existing trails, show that trails are more likely to be located in areas with heavier children, suggesting that our results on effects of trails represent a lower bound.

**496: Tucker E, Rostami K, Prabhakaran S, Al Dulaimi D. Patients with coeliac disease are increasingly overweight or obese on presentation. *J Gastrointestin Liver Dis.* 2012 Mar;**21**(1):11-5. PubMed PMID: 22457854.**

Abstract

BACKGROUND:

Historically weight loss is a classic symptom of Coeliac Disease (CD). Recent studies suggest CD sufferers are significantly more likely to be obese or underweight at the time of presentation. This study aimed to establish the frequency of obesity in newly diagnosed Coeliac Disease (CD).

METHODS:

Dietetic records of CD patients were reviewed and patient demographics, initial assessment date, and Body Mass Index (BMI) recorded and statistically analysed.

RESULTS:

out of 187 CD patients diagnosed between 1999 and 2009, 127 patients were female (68%) and 60 male (32%) (ratio 2:1). Overall median age was 54 years (range 18 to 87). Median BMI was 23.6, inter-quartile range (IQR) 21.5 - 28.1. Male median BMI was 23.9, IQR 21.8 - 27.3. Female median BMI was 23.2, IQR 21.4 - 28.6. Overall 83 patients (44%) had a BMI of 25 or above. No significant difference was found in the proportion of patients with a BMI of 25 or above when compared according to gender, age or year of referral. Twenty-five patients (13 %) had a BMI of 30 or above. Twenty were female with a median age of 56 years (range 18 - 71). The proportion of females with a BMI of 30 or

more was 11% compared with only 3% males (ratio 5:1). Only 5 patients (3%) had a BMI less than 18.5.

**CONCLUSION:**

A significant proportion of CD patients (close to half of patients) were diagnosed with a BMI of 25 or over. Compared to males, females have a wider range of BMI and more likely to be obese (BMI of 30 or more).

**497: Kramer RF, Coutinho AJ, Vaeth E, Christiansen K, Suratkar S, Gittelsohn J. Healthier home food preparation methods and youth and caregiver psychosocial factors are associated with lower BMI in African American youth. J Nutr. 2012 May;142(5):948-54. doi: 10.3945/jn.111.156380. Epub 2012 Mar 28. PubMed PMID: 22457390.**

**Abstract**

Obesity disproportionately affects African American (AA) children and adolescents and leads to an increased risk of adult chronic diseases. Eating few meals at home has been implicated as a cause of obesity among youth, but to our knowledge, previous studies have not specifically investigated this relationship in AA adolescents or looked at both the healthfulness and frequency of home meals in AA households. The objective of the present study was to investigate the relationship between home food preparation and adolescent BMI in a sample of 240 AA adolescents aged 10-15 y and their caregivers. Multiple linear regressions were used to model psychosocial characteristics, household factors, and adolescent and caregiver food preparation behaviors as predictors of adolescent BMI, and psychosocial and household factors as predictors of food preparation behavior. Adolescents in the sample had a mean BMI-for-age percentile of 70.4, and >90% of the sample families received at least one form of food assistance. Adolescent children of caregivers who used healthier cooking methods were more likely to use healthy cooking methods themselves ( $P = 0.02$ ). Having more meals prepared by a caregiver was predictive of higher BMI-for-age percentile in adolescents ( $P = 0.02$ ), but healthier cooking methods used by the caregiver was associated with reduced risk of adolescent overweight or obesity ( $P < 0.01$ ). Meals prepared at home in AA households do not necessarily promote healthy BMI in youth. Family meals are a promising adolescent obesity prevention strategy, but it is important to target both frequency and healthfulness of meals prepared at home for effective health promotion in AA families.

**498: Tomlin D, Naylor PJ, McKay H, Zorzi A, Mitchell M, Panagiotopoulos C. The impact of Action Schools! BC on the health of Aboriginal children and youth living in rural and remote communities in British Columbia. Int J Circumpolar Health. 2012 Mar 19;71:17999. doi: 10.3402/ijch.v71i0.17999. PubMed PMID: 22456048; PubMed Central PMCID: PMC3417517.**

**Abstract**

**OBJECTIVES:**

The aim of the study was to determine the short-term impact of a 7-month whole-school physical activity and healthy eating intervention (Action Schools! BC) over the 2007-2008 school year for children and youth in 3 remote First Nations villages in northwestern British Columbia.

**STUDY DESIGN:**

A pre-experimental pre/post design was conducted with 148 children and youth (77 males, 71 females; age 12.5±2.2 yrs).

**METHODS:**

We evaluated changes in obesity (body mass index [wt/ht(2)] and waist circumference z-scores: zBMI and zWC), aerobic fitness (20-m shuttle run), physical activity (PA; physical activity questionnaire and accelerometry), healthy eating (dietary recall) and cardiovascular risk (CV risk).

**RESULTS:**

zBMI remained unchanged while zWC increased from 0.46±1.07 to 0.57±1.04 (p<0.05). No change was detected in PA or CV risk but aerobic fitness increased by 22% (25.4±15.8 to 30.9±20.0 laps; p<0.01). There was an increase in the variety of vegetables consumed (1.10±1.18 to 1.45±1.24; p<0.05) but otherwise no dietary changes were detected.

**CONCLUSIONS:**

While no changes were seen in PA or overall CV risk, zWC increased, zBMI remained stable and aerobic fitness improved during a 7-month intervention.

**499: Mellerio H, Alberti C, Druet C, Capelier F, Mercat I, Josserand E, Vol S, Tichet J, Lévy-Marchal C. Novel modeling of reference values of cardiovascular risk factors in children aged 7 to 20 years. *Pediatrics*. 2012 Apr;129(4):e1020-9. doi: 10.1542/peds.2011-0449. Epub 2012 Mar 26. PubMed PMID: 22451707.**

**Abstract**

**BACKGROUND AND OBJECTIVE:**

Most of the cardiovascular risk factors strongly associated with obesity and overweight vary with age and gender. However, few reference values are available for healthy European children. Our objective was to establish pediatric reference ranges for waist circumference, systolic and diastolic blood pressures, fasting lipid levels (total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides), glucose, and insulin.

**METHODS:**

A representative sample of 1976 healthy French individuals (1004 female participants and 972 male participants) aged 7 to 20 years was used to obtain age- and gender-specific normal ranges for each of the above-listed cardiovascular risk factors, based on the Royston and Wright method.

**RESULTS:**

Mean waist circumference increased with age in both genders and was slightly higher in males than in females. Whereas systolic blood pressure increased gradually with age, with the increase being steeper in males than in females, no gender effect was found for diastolic blood pressure, which was therefore modeled after pooling males and females. Total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglyceride values varied little with age and gender. Glucose and insulin levels revealed pubertal peaks, which were sharper in females than in males, reflecting the normal insulin resistance during puberty.

**CONCLUSIONS:**

These ranges can be used as references for European children to monitor cardiovascular risk factors and to plan interventions and education programs.



**500: Smith E, Sweeting H, Wright C. 'Do I care?' Young adults' recalled experiences of early adolescent overweight and obesity: a qualitative study. Int J Obes (Lond). 2013 Feb;37(2):303-8. doi: 10.1038/ijo.2012.40. Epub 2012 Mar 27. PubMed PMID: 22450852; PubMed Central PMCID: PMC3572401.**

Abstract

OBJECTIVE:

Individual behaviour change to reduce obesity requires awareness of, and concern about, weight. This paper therefore describes how young adults, known to have been overweight or obese during early adolescence, recalled early adolescent weight-related awareness and concerns. Associations between recalled concerns and weight-, health- and peer-related survey responses collected during adolescence are also examined.

DESIGN:

Qualitative semi-structured interviews with young adults; data compared with responses to self-report questionnaires obtained in adolescence.

PARTICIPANTS:

A total of 35 participants, purposively sub-sampled at age 24 from a longitudinal study of a school year cohort, previously surveyed at ages 11, 13 and 15. Physical measures during previous surveys allowed identification of participants with a body mass index (BMI) indicative of overweight or obesity (based on British 1990 growth reference) during early adolescence. Overall, 26 had been obese, of whom 11 had BMI  $\geq$  99.6th centile, whereas 9 had been overweight (BMI = 95th-97.9th centile).

MEASURES:

Qualitative interview responses describing teenage life, with prompts for school-, social- and health-related concerns. Early adolescent self-report questionnaire data on weight-worries, self-esteem, friends and victimisation (closed questions).

RESULTS:

Most, but not all recalled having been aware of their overweight. None referred to themselves as having been obese. None recalled weight-related health worries. Recollection of early adolescent obesity varied from major concerns impacting on much of an individual's life to almost no concern, with little relation to actual severity of overweight. Recalled concerns were not clearly patterned by gender, but young adult males recalling concerns had previously reported more worries about weight, lower self-esteem, fewer friends and more victimisation in early adolescence; no such pattern was seen among females.

CONCLUSION:

The popular image of the unhappy overweight teenager was not borne out. Many obese adolescents, although well aware of their overweight recalled neither major dissatisfaction nor concern. Weight-reduction behaviours are unlikely in such circumstances.

**501: Yamaguchi A, Tanaka N, Eguchi Y, Kuno K, Wakikawa N, Sarukura N, Fukinbara M, Yamamoto S. Study on the necessary survey days for energy intake in school children assessed by 7 day survey. J Med Invest. 2012;59(1-2):111-5. PubMed PMID: 22449999.**

**Abstract**

Theoretically, the longer the period of a nutrition survey, the more reliable the results. However, a long survey can impose a burden on subjects and cause the results to become inaccurate. For adults, a 3 non-consecutive day survey is usually recommended; however, for school children, at least in Japan, it has not been determined whether this is necessary. In this study we conducted a survey of 7 days and tried to find the minimum number of days necessary to determine the energy intake. The subjects were about 300 children aged from 6 to 7, 10 to 11 and 13 to 14 years old in a city in the western part of Japan. The weighing method was used for the school lunch and other meals were surveyed by 24-recalling method. For the 6-7 year-old school children, guardians were asked to keep dietary records. The final number of subjects who were able to complete the 7-day survey was 139. Energy intakes for each weekday were not statistically different ( $p>0.05$ ) and those for each weekend did not differ ( $p>0.05$ ). Average energy intakes on weekdays were higher than those on weekend days in 10-11 and 13-14 year-old children. The average intakes of energy in 10-11 and 13-14 year-old children were lower than Japanese estimated energy requirements (EER). However, body weight of more than 90% of subjects was within the normal range. The results suggest that a survey of one weekday is reliable for all weekdays and that of one week-end day is reliable for any weekend day and also indicate the necessity of further studies of EER in rapidly growing children.

**502: Csendes J A, Papapietro V K, Burgos L AM, Lanzarini S E, Canobra L M. [Results of gastric bypass for morbid obesity after a follow up of seven to 10 years]. Rev Med Chil. 2011 Nov;139(11):1414-20. doi: /S0034-98872011001100004. Epub 2012 Feb 8. Spanish. PubMed PMID: 22446645.**

**Abstract**

**BACKGROUND:**

There is a paucity of information about the long term effects of gastric bypass for morbid obesity.

**AIM:**

To study the evolution of weight and complications of obesity, seven to 10 years after gastric bypass surgery.

**MATERIAL AND METHODS:**

One hundred eighteen subjects with morbid obesity, aged 15 to 66 years (103 women), were followed for a mean of 94 months after surgery. Body weight, fasting blood glucose, total cholesterol, triglycerides and hemoglobin were measured before surgery and during follow up.

**RESULTS:**

At 24 months of follow up, all patients lost weight and there was a mild weight increase at 94 months, that paralleled the preoperative body mass index. Diabetes, hypercholesterolemia and hypertriglyceridemia subsided in 95, 87 and 94% of cases, respectively. Twenty percent of patients had mild anemia and 11% moderate or severe anemia. No patient recovered the preoperative weight.

**CONCLUSIONS:**

Weight reducing effects of gastric bypass are maintained after 94 months of follow up with the expected health benefits.

**503: Roettger ME, Boardman JD. Parental incarceration and gender-based risks for increased body mass index: evidence from the National Longitudinal Study of Adolescent Health in the United States. Am J Epidemiol. 2012 Apr 1;175(7):636-44. doi: 10.1093/aje/kwr409. Epub 2012 Mar 21. PubMed PMID: 22437187; PubMed Central PMCID: PMC3324435.**

Abstract

Although recent studies suggest that 13% of young adults, including at least one-fourth of African Americans, experience parental incarceration, little research has examined links between parental incarceration and physical health. Using data from the National Longitudinal Study of Adolescent Health (1994-2008) and gender-based theories of stress, the authors examined whether parental incarceration is associated with increased body mass index among women but not men. Panel analysis spanning adolescence and adulthood, controlling for stressful life events, internalizing behaviors, and a range of individual, familial, and neighborhood characteristics, reveals that body mass index for women who have experienced parental incarceration is 0.49 units ( $P < 0.004$ ) higher than that for women whose parents have never been incarcerated. This association is not evident among men. Similarly, in change score models between waves II and IV, women experiencing parental incarceration have a 0.92-unit increase in body mass index ( $P < 0.026$ ) relative to women who did not have a parent undergo incarceration. In supplemental analysis examining if gender differences in incarceration stress response (externalizing vs. internalizing) explain these findings, the authors found that obesity status moderates the relation between depression and parental incarceration. Results suggest a stress internalization process that, for the first time, links parental incarceration with obesity among women.

**504: Deierlein AL, Siega-Riz AM, Herring AH, Adair LS, Daniels JL. Gestational weight gain and predicted changes in offspring anthropometrics between early infancy and 3 years. Pediatr Obes. 2012 Apr;7(2):134-42. doi: 10.1111/j.2047-6310.2011.00025.x. Epub 2012 Feb 10. PubMed PMID: 22434753; PubMed Central PMCID: PMC3313077.**

Abstract

OBJECTIVE:

To determine how gestational weight gain (GWG), categorized using the 2009 Institute of Medicine recommendations, relates to changes in offspring weight-for-age (WAZ), length-for-age (LAZ) and weight-for-length z-scores (WLZ) between early infancy and 3 years.

METHODS:

Women with singleton infants were recruited from the third cohort of the Pregnancy, Infection, and Nutrition Study (2001-2005). Term infants with at least one weight or length measurement during the study period were included ( $n = 476$ ). Multivariable linear mixed effects regression models estimated longitudinal changes in WAZ, LAZ and WLZ associated with GWG.

RESULTS:

In early infancy, compared with infants of women with adequate weight gain, those of women with excessive weight gains had higher WAZ, LAZ and WLZ. Excessive GWG  $\geq 200\%$  of the recommended

amount was associated with faster rates of change in WAZ and LAZ and noticeably higher predicted mean WAZ and WLZ that persisted across the study period.

**CONCLUSIONS:**

GWG is associated with significant differences in offspring anthropometrics in early infancy that persisted to 3 years of age. More longitudinal studies that utilize maternal and paediatric body composition measures are necessary to understand the nature of this association.

**505: Wang Y, Dinse GE, Rogan WJ. Birth weight, early weight gain and pubertal maturation: a longitudinal study. *Pediatr Obes.* 2012 Apr;7(2):101-9. doi: 10.1111/j.2047-6310.2011.00022.x. Epub 2012 Feb 10. PubMed PMID: 22434749; PubMed Central PMCID: PMC3313082.**

**Abstract**

**OBJECTIVE:**

To investigate the effect of birth weight and early weight gain on the timing of various measures of puberty in both girls and boys.

**METHODS:**

A total of 856 newborns enrolled in the North Carolina Infant Feeding Study were followed to age 5 years, with 600 children followed up at adolescence. Birth weight was obtained from medical records and children were weighed at study visits until age 5 years; gains in standardized weights were calculated over four early age intervals: 0-6 months, 6-12 months, 1-2 years and 2-5 years. Age at menarche in girls and age at advanced Tanner stages in both girls and boys were reported by adolescents and their parents. Survival models were used to analyse the effects of birth weight and early weight gain on these outcomes.

**RESULTS:**

Girls with higher birth weight and greater weight gains during the four early age intervals were younger when they reached menarche and advanced Tanner stages; boys with greater early weight gains also were younger when they reached advanced Tanner stages, but few of these effects were statistically significant.

**CONCLUSIONS:**

Higher birth weights and greater weight gains during infancy and early childhood can lead to earlier sexual maturation in girls.

**506: Hawley NL, Wier LM, Cash HL, Viali S, Tuitele J, McGarvey ST. Modernization and cardiometabolic risk in Samoan adolescents. *Am J Hum Biol.* 2012 Jul-Aug;24(4):551-7. doi: 10.1002/ajhb.22269. Epub 2012 Mar 20. PubMed PMID: 22430949; PubMed Central PMCID: PMC3705767.**

**Abstract**

**OBJECTIVE:**

To describe the prevalence of cardiometabolic risk factor clustering in Samoan adolescents and to relate risk factor clustering to weight status and general modernization.

**METHODS:**

Anthropometric and biochemical data collected from adolescents aged 12-17.9 years who participated in the Samoan Family Study of Overweight and Diabetes were used to describe the prevalence of cardiometabolic risk factors (high waist circumference, high blood pressure, high

triglyceride level, low-high-density lipoprotein cholesterol, and high fasting serum glucose). A total of 436 adolescents were included in this analysis; 237 (54.4%) from American Samoa (n = 123 males) and 199 (45.6%) from Samoa (n = 90 males). Risk factor clustering was indicated by the presence of  $\geq 3$  risk factors.

**RESULTS:**

Cardiometabolic risk factor clustering was greater in American Samoan adolescents (17.9% males, 21.9% females) than Samoan adolescents (1.1% males, 2.8% females). The frequency of risk factor clustering varied according to body mass index status. In males, risk factor clustering was entirely confined to obese adolescents, whereas female adolescents who were overweight or obese were at risk.

**CONCLUSIONS:**

Cardiometabolic risk factor clustering is prevalent in the young American Samoan population and is likely to become more prevalent with increasing modernization in Samoan youth. Screening and intervention should be targeted at this age group to reduce the non-communicable disease burden faced by these populations.

**507: den Hoed M, Luan J, Langenberg C, Cooper C, Sayer AA, Jameson K, Kumari M, Kivimaki M, Hingorani AD, Grøntved A, Khaw KT, Ekelund U, Wareham NJ, Loos RJ. Evaluation of common genetic variants identified by GWAS for early onset and morbid obesity in population-based samples. *Int J Obes (Lond)*. 2013 Feb;37(2):191-6. doi: 10.1038/ijo.2012.34. Epub 2012 Mar 20. PubMed PMID: 22430306; PubMed Central PMCID: PMC3680864.**

**Abstract**

**BACKGROUND:**

Meta-analysis of case-control genome-wide association studies (GWAS) for early onset and morbid obesity identified four variants in/near the PRL, PTER, MAF and NPC1 genes.

**OBJECTIVE:**

We aimed to validate association of these variants with obesity-related traits in population-based samples.

**DESIGN:**

Genotypes and anthropometric traits were available in up to 31 083 adults from the Fenland, EPIC-Norfolk, Whitehall II, Ely and Hertfordshire studies and in 2042 children and adolescents from the European Youth Heart Study. In each study, we tested associations of rs4712652 (near-PRL), rs10508503 (near-PTER), rs1424233 (near-MAF) and rs1805081 (NPC1), or proxy variants ( $r(2) > 0.8$ ), with the odds of being overweight and obese, as well as with body mass index (BMI), percentage body fat (%BF) and waist circumference (WC). Associations were adjusted for sex, age and age<sup>2</sup> in adults and for sex, age, age group, country and maturity in children and adolescents. Summary statistics were combined using fixed effects meta-analysis methods.

**RESULTS:**

We had 80% power to detect odds ratios of 1.046 to 1.092 for overweight and 1.067 to 1.136 for obesity. Variants near PRL, PTER and MAF were not associated with the odds of being overweight or obese, or with BMI, %BF or WC after meta-analysis ( $P > 0.15$ ). The NPC1 variant rs1805081 showed some evidence of association with %BF ( $\beta = 0.013$  s.d./allele,  $P = 0.040$ ), but not with any of the remaining obesity-related traits ( $P > 0.3$ ).

**CONCLUSION:**

Overall, these variants, which were identified in a GWAS for early onset and morbid obesity, do not seem to influence obesity-related traits in the general population.

**508: Rudenga KJ, Sinha R, Small DM. Acute stress potentiates brain response to milkshake as a function of body weight and chronic stress. *Int J Obes (Lond)*. 2013 Feb;37(2):309-16. doi: 10.1038/ijo.2012.39. Epub 2012 Mar 20. PubMed PMID: 22430303; PubMed Central PMCID: PMC3381866.**

Abstract

OBJECTIVE:

Stress is associated with an increased intake of palatable foods and with weight gain, particularly in overweight women. Stress, food and body mass index (BMI) have been separately shown to affect amygdala activity. However, it is not known whether stress influences amygdala responses to palatable foods, and whether this response is associated with chronic stress or BMI.

DESIGN:

A total of 14 overweight and obese women participated in a functional magnetic resonance imaging (fMRI) scan as they consumed a palatable milkshake during script-driven, autobiographical, guided imagery of stressful and neutral-relaxing scenarios.

RESULTS:

We report that a network including insula, somatomotor mouth area, ventral striatum and thalamus responds to milkshake receipt, but none of these areas are affected by stress. In contrast, whereas the left amygdala responds to milkshake irrespective of condition, the right amygdala responds to milkshake only under stressful conditions. Moreover, this right amygdala response is positively associated with basal cortisol levels, an objective measure of chronic stress. We also found a positive relationship between BMI and stress-related increased response to milkshake in the orbitofrontal cortex(OFC).

CONCLUSION:

These results demonstrate that acute stress potentiates response to food in the right amygdala and OFC as a function of chronic stress and body weight, respectively. This suggests that the influence of acute stress in potentiating amygdala and OFC responses to food is dependent upon individual factors like BMI and chronic stress. We conclude that BMI and chronic stress play a significant role in brain response to food and in stress-related eating.

**509: Wise LA, Rothman KJ, Mikkelsen EM, Sørensen HT, Riis AH, Hatch EE. A prospective cohort study of physical activity and time to pregnancy. *Fertil Steril*. 2012 May;97(5):1136-42.e1-4. doi: 10.1016/j.fertnstert.2012.02.025. Epub 2012 Mar 15. PubMed PMID: 22425198; PubMed Central PMCID: PMC3340509.**

Abstract

OBJECTIVE:

To investigate the association between leisure-time physical activity (PA) and fecundability.

DESIGN:

Prospective cohort study.

SETTING:

Internet-based observational study of Danish women who were planning a pregnancy (2007-2009).

PATIENT(S):

A total of 3,628 women aged 18-40 years at baseline.

**INTERVENTION(S):**

None.

**MAIN OUTCOME MEASURE(S):**

Time to pregnancy (TTP). Fecundability ratios (FRs) and 95% confidence intervals (CIs) were derived from discrete-time Cox models, with adjustment for potential confounders, such as body mass index (BMI).

**RESULT(S):**

We observed an inverse monotonic association between vigorous PA and fecundability ( $\geq 5$  h/wk vs. none: FR 0.68, 95% CI 0.54-0.85) and a weak positive association between moderate PA and fecundability ( $\geq 5$  vs.  $<1$  h/wk: FR 1.18, 95% CI 0.98-1.43) after mutual adjustment for both PA types. Inverse associations between high vigorous PA and fecundability were observed within subgroups of age, parity status, and cycle regularity, but not among overweight or obese women (BMI  $\geq 25$  kg/m<sup>2</sup>).

**CONCLUSION(S):**

There was evidence for a dose-response relationship between increasing vigorous PA and delayed TTP in all subgroups of women with the exception of overweight and obese women. Moderate PA was associated with a small increase in fecundability regardless of BMI. These findings indicate that PA of any type might improve fertility among overweight and obese women, a subgroup at higher risk of infertility. Lean women who substitute vigorous PA with moderate PA may also improve their fertility.

**510: Coronado Vázquez V, Odero Sobrado D, Canalejo González D, Cidoncha Pérez J. [Prevalence of overweight and obesity in schoolchildren in rural areas]. Gac Sanit. 2012 Sep-Oct;26(5):460-2. doi: 10.1016/j.gaceta.2011.11.015. Epub 2012 Mar 15. Spanish. PubMed PMID: 22424971.**

**Abstract**

**OBJECTIVES:**

To estimate the prevalence of overweight and obesity in schoolchildren in rural areas.

**METHODS:**

A cross-sectional study was carried out in a sample of 1,513 schoolchildren aged 6, 11 and 14 years. Data were collected on height and weight with digital scales equipped with a measuring rod. We used three criteria to define overweight and obesity: Cole's points, the Centers for Disease Control and Prevention (CDC) criteria and Hernandez's tables.

**RESULTS:**

When Cole's points were used, 24.6% (95%CI: 22.5 - 26.8) were overweight and 11.6% (95%CI: 10-13.3) were obese; these percentages were higher in children aged 11 and 6 years, respectively. According CDC growth charts, 19.8% of children (95%CI: 17.9-21.9) were overweight and 16.5% (95%CI: 14.7-18.4) were obese, corresponding to higher percentages at 14 and 6 years. When Hernandez's tables were used, 11.5% (95%CI: 10-13.2) were overweight and 18.6% (95%CI: 16.7-20.6) were obese, and both disorders were higher in children aged 11 years. The risk of obesity and overweight was higher in small rural areas ( $<5,000$  people), with OR = 1.49 (95%CI: 1.13-1.95) and OR = 1.33 (95%CI: 1.06-1.67), respectively.

**CONCLUSIONS:**

The prevalence of overweight and obesity in schoolchildren in rural areas is very high and is even higher in towns with less than 5,000 inhabitants.

**511: Shan GL, Wei da Y, Wang CX, Zhang JH, Wang B, Ma MJ, Pan L, Yu T, Xue F, Wang P, Wu ZL. Body mass index and hypertension hemodynamic subtypes in Yi farmers and migrants. Biomed Environ Sci. 2012 Feb;25(1):53-60. doi: 10.3967/0895-3988.2012.01.008. PubMed PMID: 22424627.**

Abstract

OBJECTIVE:

To examine the relationship between overweight or obesity and the risk of the various hypertension hemodynamic subtypes in Yi farmers and migrants.

METHODS:

A cross-sectional study of 2 358 Yi farmers and 1 392 Yi migrants was carried out in the Liangshan Yi autonomous prefecture, Sichuan, China in 2007.

RESULTS:

The standardized prevalence of overweight in female Yi farmers (6.22%) was higher than in males (3.15%), whereas in Yi migrants 31.56% of males and 18.78% of females were overweight. The standardized prevalence of obesity was 0 and 0.61% in male and female Yi farmers, compared to 3.91% and 5.57% in male and female Yi migrants, respectively. For both genders the standardized prevalence of ISH, IDH, and SDH was higher in Yi migrants than Yi farmers. Overweight and obese Yi men and women had a higher risk for IDH and SDH ( $P < 0.001$ ) than non-overweight/obese individuals. However, an association of overweight or obesity with ISH was observed only in men.

CONCLUSION:

Yi migrants have substantially higher proportion of overweight and obese individuals, as well as individuals affected by ISH, IDH, and SDH, than do Yi farmers. Overweight and obesity are significant risk factors for the development of hypertension in Yi people.

**512: El Mouzan MI, Al Herbish AS, Al Salloum AA, Al Omar AA, Qurachi MM. Regional variation in prevalence of overweight and obesity in Saudi children and adolescents. Saudi J Gastroenterol. 2012 Mar-Apr;18(2):129-32. doi: 10.4103/1319-3767.93818. PubMed PMID: 22421719; PubMed Central PMCID: PMC3326974.**

Abstract

BACKGROUND/AIMS:

There are limited data on regional variation of overweight and obesity in the Kingdom of Saudi Arabia. Therefore, the aim of this report is to explore the magnitude of these variation in order to focus preventive programs to regional needs.

SETTING AND DESIGN:

Community-based multistage random sample of representative cohort from each region.

PATIENTS AND METHODS:

the study sample was cross-sectional, representative of healthy children and adolescents from 2 to 17 years of age. Body mass index (BMI) was calculated according to the formula ( $\text{weight}/\text{height}^2$ ). The 2000 center for disease control reference was used for the calculation of prevalence of overweight and obesity defined as the proportion of children and adolescents whose BMI for age was above 85<sup>th</sup> and 95<sup>th</sup> percentiles respectively, for Northern, Southwestern and Central regions of the



Kingdom. Chi-square test was used to assess the difference in prevalence between regions and a P value of <0.05 was considered significant.

**RESULTS:**

The sample size was 3525, 3413 and 4174 from 2-17 years of age in the Central, Southwestern and Northern regions respectively. The overall prevalence of overweight was 21%, 13.4% and 20.1%, that of obesity was 9.3%, 6% and 9.1% in the Central, Southwestern and Northern regions respectively indicating a significantly-lower prevalence in the Southwestern compared to other regions (P<0.0001).

**CONCLUSIONS:**

This report revealed significant regional variations important to consider in planning preventive and therapeutic programs tailored to the needs of each region.

**513: Zakeri M, Sedaghat M, Motlagh ME, Tayari Ashtiani R, Ardalan G. BMI correlation with psychiatric problems among 10-18 years Iranian students. Acta Med Iran. 2012;50(3):177-84. PubMed PMID: 22418986.**

**Abstract**

Obesity and its related emotional and physical consequences are a worldwide problem. Obese individuals are usually stigmatized. This study is proposed to assess the correlation between body mass index, gender and age with psychiatric symptoms among Iranian students. A number of 9172 students aged 10-18 years (53.5% girls and 46.5% boys) from all provinces of Iran participated in this study. Data was collected using the global school based health survey questionnaire of the World Health Organization (GSHS-WHO). Overall, prevalence of predictors of having emotional problems, depression and anxiety were 27.8%, 29.7% and 11.5% respectively. Girls had significantly higher prevalence of predictors of psychiatric symptoms. Overall obesity was a protective factor against emotional problems OR (CI95%):0.79(0.65-0.98), but it was attributable to obese boys OR (CI95%):0.72(0.55-0.95). Depression and anxiety symptoms were higher in intermediate school girls and high school girls and boys. More attention should be paid to girls' psychological problems. Besides, obesity had an indirect relation with predictors of having psychiatric problems in Iranian boys and it might be due to: (1) parents' beliefs about heaviness as a predictor of healthiness, (2) boys' lower vulnerability to psychological consequences of obesity and (3) lower pressure from parents on their obese sons to lose weight.

**514: Johnson W, Soloway LE, Erickson D, Choh AC, Lee M, Chumlea WC, Siervogel RM, Czerwinski SA, Towne B, Demerath EW. A changing pattern of childhood BMI growth during the 20th century: 70 y of data from the Fels Longitudinal Study. Am J Clin Nutr. 2012 May;95(5):1136-43. doi: 10.3945/ajcn.111.022269. Epub 2012 Mar 14. PubMed PMID: 22418089; PubMed Central PMCID: PMC3325836.**

**Abstract**

**BACKGROUND:**

The BMI distribution shifted upward in the United States between the 1960s and the 1990s, but little is known about secular trends in the pattern of BMI growth, particularly earlier in the century and early in childhood.

**OBJECTIVE:**

The objective was to examine differences in BMI growth in children born in 1929-1999.

DESIGN:

BMI curves from ages 2 to 18 y were produced for 855 European-American children in the Fels Longitudinal Study born in 1929-1953, 1954-1972, and 1973-1999. Age (A(min)) and BMI (BMI(min)) at adiposity rebound and age (AV(max)), BMI (BMIV(max)), and velocity (V(max)) at maximum velocity were derived; multivariable regression was used to examine whether maternal BMI, infant weight gain, and other covariates mediated the cohort effects on these traits.

RESULTS:

BMI curves showed that children born in 1973-1999 had the lowest BMI values until age 5 y but had the largest values from age 8 y onward. In adjusted models, boys and girls born in 1973-1999 had a 0.15-kg/m<sup>2</sup> per year faster V(max) and a 1-kg/m<sup>2</sup> higher BMIV(max) than did children of the same sex born in 1929-1953, and girls had a 0.8-y earlier A(min) (P < 0.01). Maternal BMI and infant weight gain were associated with an obesity-prone pattern of BMI growth but did not account for the observed trends.

CONCLUSIONS:

Shifts in the BMI growth rate around the time of pubertal initiation were apparent starting after 1973. The BMI growth curve did not increase monotonically over time; rather, children born during the obesity epidemic were characterized by lower BMI values before the adiposity rebound and by rapid subsequent BMI gain.

**515: Sun SS, Deng X, Sabo R, Carrico R, Schubert CM, Wan W, Sabo C. Secular trends in body composition for children and young adults: the Fels Longitudinal Study. Am J Hum Biol. 2012 Jul-Aug;24(4):506-14. doi: 10.1002/ajhb.22256. Epub 2012 Mar 12. PubMed PMID: 22410970; PubMed Central PMCID: PMC3372655.**

Abstract

OBJECTIVES:

To determine secular trends by birth decade in body mass index (BMI), waist circumference/height (W/Ht), percent body fat (PBF), and fat-free mass adjusted for height squared (FFM/Ht<sup>2</sup>) in children and adolescents aged 8-18 years.

METHODS:

Serial data were analyzed from 628 boys and 591 girls aged 8-18 years who participated in the Fels Longitudinal Study. Subjects were stratified by birth decade from 1960 to 1999. Means and standard deviations were computed for all measurements by birth decade, age, and sex. A repeated-measures analysis of variance was used to ascertain secular trends separately for boys and girls.

RESULTS:

Boys and girls born in the 1990s had significantly higher mean BMI, W/Ht, and PBF than did children born in previous decades. Mean FFM/Ht<sup>2</sup> was significantly smaller in boys born in the 1990s than boys of the same age born in earlier decades. No secular trend was noted in FFM/Ht<sup>2</sup> in girls by decade of birth.

CONCLUSION:

Our analysis of serial data collected over 4 decades confirms the secular trend in childhood BMI previously observed in successive cross-sectional studies. Our analysis discloses significant positive secular trends in W/Ht and PBF in both boys and girls and a significant negative secular trend in FFM/Ht<sup>2</sup> in boys over the last 4 decades of the 20th century. The secular changes presage increases in the prevalence of conditions associated with childhood and adolescent obesity-such as

hypertension, glucose intolerance, and dyslipidemia-that may appear as early as the second decade of life.

**516: Shuval K, Leonard T, Murdoch J, Caughy MO, Kohl HW 3rd, Skinner CS. Sedentary behaviors and obesity in a low-income, ethnic-minority population. J Phys Act Health. 2013 Jan;10(1):132-6. Epub 2012 Feb 29. PubMed PMID: 22398752; PubMed Central PMCID: PMC3597085.**

Abstract

BACKGROUND:

Numerous studies have documented adverse health effects from prolonged sitting and TV viewing. These sedentary pastimes are linked to increased risk for obesity and other cardiometabolic risk factors. No studies, however, have examined these associations specifically in low-income, minority communities in the US.

METHODS:

This cross-sectional, community-based study was conducted in South Dallas, TX. Multivariable ordered logistic regression models were used to examine the association between sedentary behaviors (self-report) and measures of objectively assessed obesity (BMI, waist circumference).

RESULTS:

Among a low-income, ethnic-minority population, there were independent and significant associations between higher levels of sitting time, computer use, and transit time with elevated BMI ( $P < .05$ ). Elevated waist circumference was also linked to increased sitting time, computer use, and transit time, yet without statistical significance.

CONCLUSIONS:

Increased time spent in passive-leisure activities is a risk marker for obesity in this population.

**517: Komşu-Ornek Z, Demirel F, Dursun A, Ermiş B, Pişkin E, Bideci A. Leptin receptor gene Gln223Arg polymorphism is not associated with obesity and metabolic syndrome in Turkish children. Turk J Pediatr. 2012 Jan-Feb;54(1):20-4. PubMed PMID: 22397037.**

Abstract

The aim of the study was to investigate the relationship between leptin receptor gene (LEPR) Gln223Arg polymorphism and obesity in Turkish children. Ninety-two obese and 99 lean children (between 5-15 years) were included in the study. Twenty-three of the obese children were diagnosed with metabolic syndrome. Blood samples were collected for morning fasting blood glucose, insulin, leptin, and lipid level measurements. LEPR Gln223Arg polymorphism was analyzed by restriction fragment length polymorphism. Significant differences were observed in anthropometric measurements, fasting blood glucose, insulin, leptin, and lipid levels between obese and lean children. Serum leptin levels were markedly higher in obese children. No significant association was noted between Gln223Arg polymorphism and serum leptin, insulin and lipid levels. There were no differences in the genotype frequencies or allele distribution for Gln223Arg polymorphism among obese, obese with metabolic syndrome and lean children. Our findings suggest that there is no association between Gln223Arg polymorphism and obesity in Turkish children.

**518: Bereket A, Atay Z. Current status of childhood obesity and its associated morbidities in Turkey. J Clin Res Pediatr Endocrinol. 2012 Mar;4(1):1-7. doi: 10.4274/jcrpe.506. PubMed PMID: 22394698; PubMed Central PMCID: PMC3316456.**

Abstract

As a transitional society, rapid changes have occurred in the social, economic, nutritional and lifestyle aspects of the Turkish population over the last three decades. As a result, the prevalence of overweight and obesity has shown a dramatic increase in the adult Turkish population, reaching figures as high as 30-40%. Although there is no nationwide figure regarding the prevalence of overweight and obesity in Turkish children and adolescents, several local studies performed between 2000 and 2010 in different regions of the country have demonstrated varying prevalence rates of 10.3%-17.6% and 1.9%-7.8% for overweight and obesity, respectively, in children aged 6-16 years. The differences in the figures obtained in these regions are thought to be due to variations in the subject sampling. The figures appear to vary depending on residential (urban vs. rural) and economic conditions. Belonging to a high-income family, living in a large city, having obese parents, being of high birth weight, consuming sugar-sweetened beverages (soft drinks, juice drinks, etc.), and spending time in front of TV and PC were identified as the most common risk factors. Complications and co-morbidities of obesity have also started to appear in our pediatric population. Metabolic syndrome, diagnosed according to the International Diabetes Federation criteria, was found in 2.3% of Turkish schoolchildren aged 10-19 years. This rate was 28% in obese children. Preventive public measures have started to be implemented by the State and other bodies to control the rising trends in obesity.

**519: Rodríguez-Hernández A, Cruz-Sánchez Ede L, Feu S, Martínez-Santos R. [Inactivity, obesity and mental health in the Spanish population from 4 to 15 years of age]. Rev Esp Salud Publica. 2011 Aug;85(4):373-82. doi: 10.1590/S1135-57272011000400006. Spanish. PubMed PMID: 22392468.**

Abstract

BACKGROUND:

An active lifestyle and a good weight status are two major health determinants from a public health perspective.

AIM:

To evaluate the degree of association between physical activity, weight status and the emotional and mental health of Spanish schoolchildren.

METHOD:

Mental health status was assessed through the Strengths and Difficulties Questionnaire (SDQ), also leisure time physical activity and body mass index (BMI) in a total of 6 803 children from 4 to 15 years participating in the Spanish National Health Survey 2006. The degree of association between these variables was estimated by a multinomial logistic regression analysis.

RESULTS:

Among sedentary schoolchildren are more common mental health problems (OR 2.10), emotional problems (OR 1.84), conduct problems (OR 1.53), problems with peers (OR 2.35) and social relationship difficulties (OR 1.36). Obesity is associated with poor general mental health (OR 1.58), and obese schoolchildren show more often emotional problems (OR 1.52) and problems with peers (OR 2.43).

#### CONCLUSIONS:

In the Spanish schoolchildren, a healthy BMI is associated with increased mental well-being, although an active lifestyle is the best indicator of a good mental health status.

**520: Villarejo C, Fernández-Aranda F, Jiménez-Murcia S, Peñas-Lledó E, Granero R, Penelo E, Tinahones FJ, Sancho C, Vilarrasa N, Montserrat-Gil de Bernabé M, Casanueva FF, Fernández-Real JM, Frühbeck G, De la Torre R, Treasure J, Botella C, Menchón JM. Lifetime obesity in patients with eating disorders: increasing prevalence, clinical and personality correlates. Eur Eat Disord Rev. 2012 May;20(3):250-4. doi: 10.1002/erv.2166. Epub 2012 Mar 2. PubMed PMID: 22383308; PubMed Central PMCID: PMC3510304.**

#### Abstract

##### OBJECTIVES:

The aims of our study were to examine the lifetime prevalence of obesity rate in eating disorders (ED) subtypes and to examine whether there have been temporal changes among the last 10 years and to explore clinical differences between ED with and without lifetime obesity.

##### METHODS:

Participants were 1383 ED female patients (DSM-IV criteria) consecutively admitted, between 2001 and 2010, to Bellvitge University Hospital. They were assessed by means of the Eating Disorders Inventory-2, the Symptom Checklist-90-Revised, the Bulimic Investigatory Test Edinburgh and the Temperament and Character Inventory-Revised.

##### RESULTS:

The prevalence of lifetime obesity in ED cases was 28.8% (ranging from 5% in anorexia nervosa to 87% in binge-eating disorders). Over the last 10 years, there has been a threefold increase in lifetime obesity in ED patients ( $p < .001$ ). People with an ED and obesity had higher levels of childhood and family obesity ( $p < .001$ ), a later age of onset and longer ED duration; and had higher levels of eating, general and personality symptomatology.

##### CONCLUSIONS:

Over the last 10 years, the prevalence of obesity associated with disorders characterized by the presence of binge episodes, namely bulimic disorders, is increasing, and this is linked with greater clinical severity and a poorer prognosis.

**521: Schell LM, Gallo MV. Overweight and obesity among North American Indian infants, children, and youth. Am J Hum Biol. 2012 May-Jun;24(3):302-13. doi: 10.1002/ajhb.22257. Epub 2012 Mar 1. PubMed PMID: 22378356; PubMed Central PMCID: PMC3514018.**

#### Abstract

The frequency of overweight and obesity among North American Indian children and youth exceeds that of other ethnic groups in the United States. This observation is based on studies using body mass index as the primary measure of overweight and obesity. In the mid-20th century, there were regional differences among North American Indian groups in sub-adults' size and shape and only a few Southwestern groups were characterized by high rates of overweight and obesity. In most populations, the high prevalence of overweight and obesity developed in the last decades of the 20th century. Childhood obesity may begin early in life as many studies report higher birth weights and

greater weight-for-height in the preschool years. Contributing factors include higher maternal weights, a nutritional transition from locally caught or raised foods to store bought items, psychosocial stress associated with threats to cultural identity and national sovereignty, and exposure to obesogenic pollutants, all associated to some degree with poverty. Obesity is part of the profile of poor health among Native Americans in the US and Canada, and contributes to woefully high rates of diabetes, cardiovascular disease, and early mortality. Interventions that are culturally appropriate are needed to reduce weights at all points in the lifespan.

**522: Quon EC, McGrath JJ, Roy-Gagnon MH. Generation of immigration and body mass index in Canadian youth. J Pediatr Psychol. 2012 Sep;37(8):843-53. doi: 10.1093/jpepsy/jss037. Epub 2012 Feb 24. PubMed PMID: 22366576.**

Abstract

OBJECTIVE:

To investigate the role of acculturation, as measured by generational status, on body mass index (BMI) in a sample of Canadian youth.

METHODS:

Population-based data from the National Longitudinal Survey of Children and Youth were used. Participants were divided into 2 age ranges: children aged 6-11 years (n = 14,287) and adolescents aged 12-17 years (n = 12,155). Youth were classified into one of five generations of immigration: first-generation, second-generation, mixed-generation, third-generation, and Aboriginal. Parent- and self-report height and weight were used to calculate BMI Z-scores.

RESULTS:

Generation of immigration was significantly related to BMI Z-score in both childhood and adolescence. First-generation immigrants had more weight gain compared to other groups during adolescence, but not during childhood.

CONCLUSIONS:

Acculturation, as measured by generation of immigration, is an important predictor of BMI in Canadian children and adolescents.

**523: Wicklow BA, Wittmeier KD, MacIntosh AC, Sellers EA, Ryner L, Serrai H, Dean HJ, McGavock JM. Metabolic consequences of hepatic steatosis in overweight and obese adolescents. Diabetes Care. 2012 Apr;35(4):905-10. doi: 10.2337/dc11-1754. Epub 2012 Feb 22. PubMed PMID: 22357180; PubMed Central PMCID: PMC3308285.**

Abstract

OBJECTIVE:

To test the hypothesis that hepatic steatosis is associated with risk factors for type 2 diabetes in overweight and obese youth, mediated by cardiorespiratory fitness.

RESEARCH DESIGN AND METHODS:

This was a cross-sectional study comparing insulin sensitivity between 30 overweight and obese adolescents with hepatic steatosis, 68 overweight and obese adolescents without hepatic steatosis, and 11 healthy weight adolescents without hepatic steatosis. Cardiorespiratory fitness was determined by a graded maximal exercise test on a cycle ergometer. Secondary outcomes included presence of metabolic syndrome and glucose response to a 75-g oral glucose challenge.

RESULTS:

The presence of hepatic steatosis was associated with 55% lower insulin sensitivity ( $P = 0.02$ ) and a twofold greater prevalence of metabolic syndrome ( $P = 0.001$ ). Differences in insulin sensitivity ( $3.5$  vs.  $4.5 \text{ mU} \cdot \text{kg}(-1) \cdot \text{min}(-1)$ ,  $P = 0.03$ ), prevalence of metabolic syndrome ( $48$  vs.  $20\%$ ,  $P = 0.03$ ), and glucose area under the curve ( $816$  vs.  $710$ ,  $P = 0.04$ ) remained between groups after matching for age, sex, and visceral fat. The association between hepatic steatosis and insulin sensitivity ( $\beta = -0.24$ ,  $t = -2.29$ ,  $P < 0.025$ ), metabolic syndrome ( $\beta = -0.54$ ,  $t = -5.8$ ,  $P < 0.001$ ), and glucose area under the curve ( $\beta = 0.33$ ,  $t = 3.3$ ,  $P < 0.001$ ) was independent of visceral and whole-body adiposity. Cardiorespiratory fitness was not associated with hepatic steatosis, insulin sensitivity, or presence of metabolic syndrome.

#### CONCLUSIONS:

Hepatic steatosis is associated with type 2 diabetes risk factors independent of cardiorespiratory fitness, whole-body adiposity, and visceral fat mass.

**524: Pretlow RA. Addiction to highly pleasurable food as a cause of the childhood obesity epidemic: a qualitative Internet study. *Eat Disord.* 2011 Jul-Aug;19(4):295-307. doi: 10.1080/10640266.2011.584803. PubMed PMID: 22352970; PubMed Central PMCID: PMC3144482.**

#### Abstract

An interactive, open-access website was launched as an overweight intervention for teens and preteens, and was generally unsuccessful. An understanding was needed of the reasons for weight loss failures versus successes in youth using the site. Bulletin board posts, chat room transcripts, and poll responses were prospectively gathered and qualitatively and quantitatively analyzed over a ten-year period. Many respondents, ages 8 to 21, exhibited DSM-IV substance dependence (addiction) criteria when describing their relationship with highly pleasurable foods. Further research is needed on possible addiction to highly pleasurable foods in youth. Incorporating substance dependence methods may improve the success rate in combating the childhood obesity epidemic.

**525: Bremer AA, Mietus-Snyder M, Lustig RH. Toward a unifying hypothesis of metabolic syndrome. *Pediatrics.* 2012 Mar;129(3):557-70. doi: 10.1542/peds.2011-2912. Epub 2012 Feb 20. Review. PubMed PMID: 22351884; PubMed Central PMCID: PMC3289531.**

#### Abstract

Despite a lack of consistent diagnostic criteria, the metabolic syndrome (MetS) is increasingly evident in children and adolescents, portending a tsunami of chronic disease and mortality as this generation ages. The diagnostic criteria for MetS apply absolute cutoffs to continuous variables and fail to take into account aging, pubertal changes, and race/ethnicity. We attempt to define MetS mechanistically to determine its specific etiologies and to identify targets for therapy. Whereas the majority of studies document a relationship of visceral fat to insulin resistance, ectopic liver fat correlates better with dysfunctional insulin dynamics from which the rest of MetS derives. In contrast to the systemic metabolism of glucose, the liver is the primary metabolic clearinghouse for 4 specific foodstuffs that have been associated with the development of MetS: trans-fats, branched-chain amino acids, ethanol, and fructose. These 4 substrates (1) are not insulin regulated and (2) deliver metabolic intermediates to hepatic mitochondria without an appropriate "pop-off" mechanism for excess substrate, enhancing lipogenesis and ectopic adipose storage. Excessive fatty acid derivatives

interfere with hepatic insulin signal transduction. Reactive oxygen species accumulate, which cannot be quenched by adjacent peroxisomes; these reactive oxygen species reach the endoplasmic reticulum, leading to a compensatory process termed the "unfolded protein response," driving further insulin resistance and eventually insulin deficiency. No obvious drug target exists in this pathway; thus, the only rational therapeutic approaches remain (1) altering hepatic substrate availability (dietary modification), (2) reducing hepatic substrate flux (high fiber), or (3) increasing mitochondrial efficiency (exercise).

**526: Esteller Moré E, Santos Acosta P, Segarra Isern F, Lopez Diu R, Matíño Soler E, Ademà Alcover JM, Estivill Sancho E. [Long-term persistence of obstructive sleep apnoea-hypopnoea syndrome in children treated with adenotonsillectomy. Analysis of prognostic factors]. Acta Otorrinolaringol Esp. 2012 Mar-Apr;63(2):85-92. doi: 10.1016/j.otorri.2011.08.004. Epub 2012 Feb 18. Spanish. PubMed PMID: 22342641.**

Abstract

INTRODUCTION:

Treatment of obstructive sleep apnoea-hypopnoea syndrome in children with adenotonsillectomy is effective but has a moderate rate of persistent disease.

OBJECTIVES:

To analyse the rate of persistence of sleep apnoea-hypopnoea syndrome in a group of adenotonsillectomy-treated paediatric patients and to assess the possible prognostic factors.

METHODS:

Prospective study of 80 patients aged between 2 and 13 years who had obstructive sleep apnoea-hypopnoea syndrome, treated with adenotonsillectomy. All patients had been followed up clinically and by polysomnography for 1 year after surgery. We analysed the epidemiological and clinical factors that could negatively affect the outcome of surgery.

RESULTS:

The median age was  $5.25 \pm 2.05$  years and the mean apnoea-hypopnoea index (AHI) was  $8.13 \pm 6.06$ . One year after surgery, all clinical parameters improved significantly and the mean AHI was 2.50. Persistent disease ( $AHI \geq 3$ ) was present in 21 of the patients (26.3%). The comparative analysis of clinical and epidemiological factors between the group of non-persistence and persistence did not obtain statistically-significant differences in age, sex, tonsillar size, Friedman degree or severity of preoperative disease. The only significant factor was that patients without persistence were more obese.

CONCLUSION:

The results of our study about the persistence of obstructive sleep apnoea-hypopnoea syndrome after adenotonsillectomy are significant enough to recommend follow-up with polysomnography, especially in high-risk groups. In the series presented here, we were not able to demonstrate these risk factors. Our results are probably conditioned by the characteristics of the population studied: Low age, low obesity rate and less severe levels of apnoea-hypopnoea index.



**527: Scholes S, Bajekal M, Love H, Hawkins N, Raine R, O'Flaherty M, Capewell S. Persistent socioeconomic inequalities in cardiovascular risk factors in England over 1994-2008: a time-trend analysis of repeated cross-sectional data. BMC Public Health. 2012 Feb 14;12:129. doi: 10.1186/1471-2458-12-129. PubMed PMID: 22333887; PubMed Central PMCID: PMC3342910.**

Abstract

BACKGROUND:

Our aims were to determine the pace of change in cardiovascular risk factors by age, gender and socioeconomic groups from 1994 to 2008, and quantify the magnitude, direction and change in absolute and relative inequalities.

METHODS:

Time trend analysis was used to measure change in absolute and relative inequalities in risk factors by gender and age (16-54,  $\geq 55$  years), using repeated cross-sectional data from the Health Survey for England 1994-2008. Seven risk factors were examined: smoking, obesity, diabetes, high blood pressure, raised cholesterol, consumption of five or more daily portions of fruit and vegetables, and physical activity. Socioeconomic group was measured using the Index of Multiple Deprivation 2007.

RESULTS:

Between 1994 and 2008, the prevalence of smoking, high blood pressure and raised cholesterol decreased in most deprivation quintiles. However, obesity and diabetes increased. Increasing absolute inequalities were found in obesity in older men and women ( $p = 0.044$  and  $p = 0.027$  respectively), diabetes in young men and older women ( $p = 0.036$  and  $p = 0.019$  respectively), and physical activity in older women ( $p = 0.025$ ). Relative inequality increased in high blood pressure in young women ( $p = 0.005$ ). The prevalence of raised cholesterol showed widening absolute and relative inverse gradients from 1998 onwards in older men ( $p = 0.004$  and  $p \leq 0.001$  respectively) and women ( $p \leq 0.001$  and  $p \leq 0.001$ ).

CONCLUSIONS:

Favourable trends in smoking, blood pressure and cholesterol are consistent with falling coronary heart disease death rates. However, adverse trends in obesity and diabetes are likely to counteract some of these gains. Furthermore, little progress over the last 15 years has been made towards reducing inequalities. Implementation of known effective population based approaches in combination with interventions targeted at individuals/subgroups with poorer cardiovascular risk profiles are therefore recommended to reduce social inequalities.

**528: Bernardo Cde O, Vasconcelos Fde A. Association of parents' nutritional status, and sociodemographic and dietary factors with overweight/obesity in schoolchildren 7 to 14 years old. Cad Saude Publica. 2012 Feb;28(2):291-304. PubMed PMID: 22331155.**

Abstract

To assess the association of parents' nutritional status, and dietary and sociodemographic factors with overweight/obesity in schoolchildren in Florianópolis Island, Santa Catarina State, Brazil, this cross-sectional epidemiological study examined 2,826 schoolchildren 7 to 14 years old, classified according to body mass index curves for age and sex recommended by the International Obesity Task Force. Data were analyzed using Poisson regression. The final model showed overweight/obesity in boys associated directly with father's educational level, mother's age, and parents' nutritional status,

and inversely with mother's educational level, and number of daily meals. Among girls, it associated directly with parents' nutritional status and the schoolchildren's age, and inversely with consumption of risk foods. The variables that associated with overweight/obesity differed between the sexes, except parents' nutritional status. Boys and girls with both parents overweight or obese were, respectively, 80% and 150% more likely to exhibit the same diagnosis, indicating the need for interventions that include the family environment.

**529: Morimoto Y, Maskarinec G, Conroy SM, Lim U, Shepherd J, Novotny R. Asian ethnicity is associated with a higher trunk/peripheral fat ratio in women and adolescent girls. J Epidemiol. 2012;22(2):130-5. Epub 2012 Feb 11. PubMed PMID: 22327117; PubMed Central PMCID: PMC3798591.**

Abstract

BACKGROUND:

Ethnic differences in body fat mass and distribution may develop in childhood and contribute to increased obesity-related disease risk among Asians. We used dual-energy X-ray absorptiometry (DXA) to evaluate adiposity measures among adult women and their adolescent daughters, who were of predominantly Japanese and white ethnicity.

METHODS:

We obtained DXA whole body scans for 101 mothers aged 30 years or older and 112 daughters aged 10 to 16 years. The participants were classified as Asian, part-Asian, mixed/other, or white. As a measure of central adiposity, we calculated the trunk/peripheral fat ratio (TPFR). General linear models were used to evaluate differences in adiposity measures by ethnic category.

RESULTS:

In mothers, TPFR was significantly higher ( $P(\text{trend}) < 0.01$ ) in Asians and part-Asians ( $1.38 \pm 0.42$  and  $1.32 \pm 0.51$ ) than in mixed/others and whites ( $1.18 \pm 0.27$  and  $1.09 \pm 0.21$ ). The trend was similar among daughters ( $P(\text{trend}) < 0.001$ ), with respective values of  $1.09 \pm 0.18$ ,  $0.97 \pm 0.17$ ,  $0.99 \pm 0.16$ , and  $0.87 \pm 0.11$ . Among mothers, gynoid fat mass and peripheral fat mass were significantly lower in Asians than in whites, whereas none of the regional DXA adiposity measures differed by ethnicity in daughters.

CONCLUSIONS:

These results confirm previous reports of greater central adiposity in women of Asian ancestry and indicate that ethnic differences in adiposity are already present in adolescence.

**530: Nasreddine L, Naja F, Tabet M, Habbal MZ, El-Aily A, Haikal C, Sidani S, Adra N, Hwalla N. Obesity is associated with insulin resistance and components of the metabolic syndrome in Lebanese adolescents. Ann Hum Biol. 2012 Mar;39(2):122-8. doi: 10.3109/03014460.2012.655776. PubMed PMID: 22324838; PubMed Central PMCID: PMC3310480.**

Abstract

BACKGROUND:

Prevalence of metabolic syndrome (MS) in obese adolescents has been reported to range between 18-42%, depending on country of origin, thus suggesting an ethnic-based association between obesity and MS.

AIM:

This study aims to investigate the magnitude of the association between obesity, insulin resistance and components of MS among adolescents in Lebanon.

**SUBJECTS AND METHODS:**

The sample included 263 adolescents at 4(th) and 5(th) Tanner stages of puberty (104 obese; 78 overweight; 81 normal weight). Anthropometric, biochemical and blood pressure measurements were performed. Body fat was assessed using dual-energy X-ray absorptiometry.

**RESULTS:**

According to International Diabetes Federation criteria, MS was identified in 21.2% of obese, 3.8% of overweight and 1.2% of normal weight subjects. The most common metabolic abnormalities among subjects having MS were elevated waist circumference (96.2%), low HDL (96.2%) and hypertriglyceridemia (73.1%). Insulin resistance was identified in all subjects having MS. Regression analyses showed that percentage body fat, waist circumference and BMI were similar in their ability to predict the MS in this age group.

**CONCLUSIONS:**

MS was identified in a substantial proportion of Lebanese obese adolescents, thus highlighting the importance of early screening for obesity-associated metabolic abnormalities and of developing successful multi-component interventions addressing adolescent obesity.

**531: Kong AS, Farnsworth S, Canaca JA, Harris A, Palley G, Sussman AL. An adaptive community-based participatory approach to formative assessment with high schools for obesity intervention\*. J Sch Health. 2012 Mar;82(3):147-54. doi: 10.1111/j.1746-1561.2011.00678.x. PubMed PMID: 22320339; PubMed Central PMCID: PMC3557822.**

**Abstract**

**BACKGROUND:**

In the emerging debate around obesity intervention in schools, recent calls have been made for researchers to include local community opinions in the design of interventions. Community-based participatory research (CBPR) is an effective approach for forming community partnerships and integrating local opinions. We used CBPR principles to conduct formative research in identifying acceptable and potentially sustainable obesity intervention strategies in 8 New Mexico school communities.

**METHODS:**

We collected formative data from 8 high schools on areas of community interest for school health improvement through collaboration with local School Health Advisory Councils (SHACs) and interviews with students and parents. A survey based on formative results was created to assess acceptability of specific intervention strategies and was provided to SHACs. Quantitative data were analyzed using descriptive statistics while qualitative data were evaluated using an iterative analytic process for thematic identification.

**RESULTS:**

Key themes identified through the formative process included lack of healthy food options, infrequent curricular/extracurricular physical activity opportunities, and inadequate exposure to health/nutritional information. Key strategies identified as most acceptable by SHAC members included healthier food options and preparation, a healthy foods marketing campaign, yearly taste tests, an after-school noncompetitive physical activity program, and community linkages to physical activity opportunities.

#### CONCLUSION:

An adaptive CBPR approach for formative assessment can be used to identify obesity intervention strategies that address community school health concerns. Eight high school SHACs identified 6 school-based strategies to address parental and student concerns related to obesity.

**532: Gokee LaRose J, Leahey TM, Weinberg BM, Kumar R, Wing RR. Young adults' performance in a low-intensity weight loss campaign. Obesity (Silver Spring). 2012 Nov;20(11):2314-6. doi: 10.1038/oby.2012.30. Epub 2012 Feb 9. PubMed PMID: 22318313; PubMed Central PMCID: PMC3671910.**

#### Abstract

Young adults (YA) are underrepresented in behavioral weight loss programs and achieve poorer outcomes than older adults (OA). There has been a call to develop programs specifically targeting this age group. This study examined the performance of YA enrolled in a low-intensity, team-based weight loss campaign and compared their outcomes to OA to determine the utility of such an approach for weight loss in this population. Shape Up Rhode Island (SURI) 2009 was a 12-week online team-based weight loss and exercise competition (N = 6,795, 81% female, 94% white, age = 44.7 ± 11.2, BMI = 29.4 ± 5.9). YA was defined as 18-35 years and OA as >35 years; YA and OA were compared on enrollment, retention, weight loss, and change in steps. A total of 1,562 YA enrolled and 715 completed the program. Fewer YA completed compared with OA (46 vs. 62%, P < 0.001). However, among completers, YA achieved greater percent weight loss (-4.5 ± 4.0 vs. -3.8 ± 3.2%) and greater daily step change (+1,578.2 ± 3,877.2 vs. +1,342.2 ± 3,645.7) than OA (P's < 0.001). Further, more YA completers achieved a ≥ 5% weight loss (40 vs. 29%, P < 0.001). Findings were consistent in the overweight/obese (OW/OB) subsample, and using ≤ 25 years of age as the cut off for YA. Weight losses among YA in this low-intensity weight loss campaign were quite promising, with over 700 YA completing the program and on average achieving a 4.5% weight loss. Indeed, the potential public health impact of such an approach is substantial; future efforts to develop programs for this age group may benefit from using a low-intensity, team-based approach.

**533: Scott JA, Ng SY, Cobiac L. The relationship between breastfeeding and weight status in a national sample of Australian children and adolescents. BMC Public Health. 2012 Feb 7;12:107. doi: 10.1186/1471-2458-12-107. PubMed PMID: 22314050; PubMed Central PMCID: PMC3311145.**

#### Abstract

##### BACKGROUND:

Breastfeeding has been shown consistently in observational studies to be protective of overweight and obesity in later life. This study aimed to investigate the association between breastfeeding duration and weight status in a national sample of Australian children and adolescents.

##### METHODS:

A secondary analysis of the 2007 Australian National Children's Nutrition and Physical Activity Survey data involving 2066, males and females aged 9 to 16 years from all Australian states and territories. The effect of breastfeeding duration on weight status was estimated using multivariate logistic regression analysis.

##### RESULTS:

Compared to those who were never breastfed, children breastfed for  $\geq 6$  months were significantly less likely to be overweight (adjusted odds ratio: 0.64, 95%CI: 0.45, 0.91) or obese (adjusted odds ratio: 0.51, 95%CI: 0.29, 0.90) in later childhood, after adjustment for maternal characteristics (age, education and ethnicity) and children's age, gender, mean energy intake, level of moderate and vigorous physical activity, screen time and sleep duration.

**CONCLUSIONS:**

Breastfeeding for 6 or more months appears to be protective against later overweight and obesity in this population of Australian children. The beneficial short-term health outcomes of breastfeeding for the infant are well recognised and this study provides further observational evidence of a potential long-term health outcome and additional justification for the continued support and promotion of breastfeeding to six months and beyond.

**534: Brotman LM, Dawson-McClure S, Huang KY, Theise R, Kamboukos D, Wang J, Petkova E, Ogedegbe G. Early childhood family intervention and long-term obesity prevention among high-risk minority youth. *Pediatrics*. 2012 Mar;129(3):e621-8. doi: 10.1542/peds.2011-1568. Epub 2012 Feb 6. PubMed PMID: 22311988; PubMed Central PMCID: PMC3289522.**

**Abstract**

**OBJECTIVES:**

To test the hypothesis that family intervention to promote effective parenting in early childhood affects obesity in preadolescence.

**METHODS:**

Participants were 186 minority youth at risk for behavior problems who enrolled in long-term follow-up studies after random assignment to family intervention or control condition at age 4. Follow-up Study 1 included 40 girls at familial risk for behavior problems; Follow-up Study 2 included 146 boys and girls at risk for behavior problems based on teacher ratings. Family intervention aimed to promote effective parenting and prevent behavior problems during early childhood; it did not focus on physical health. BMI and health behaviors were measured an average of 5 years after intervention in Study 1 and 3 years after intervention in Study 2.

**RESULTS:**

Youth randomized to intervention had significantly lower BMI at follow-up relative to controls (Study 1  $P = .05$ ; Study 2  $P = .006$ ). Clinical impact is evidenced by lower rates of obesity (BMI  $\geq 95$ th percentile) among intervention girls and boys relative to controls (Study 2: 24% vs 54%,  $P = .002$ ). There were significant intervention-control group differences on physical and sedentary activity, blood pressure, and diet.

**CONCLUSIONS:**

Two long-term follow-up studies of randomized trials show that relative to controls, youth at risk for behavior problems who received family intervention at age 4 had lower BMI and improved health behaviors as they approached adolescence. Efforts to promote effective parenting and prevent behavior problems early in life may contribute to the reduction of obesity and health disparities.

**535: Must A, Phillips SM, Tybor DJ, Lividini K, Hayes C. The association between childhood obesity and tooth eruption. Obesity (Silver Spring). 2012 Oct;20(10):2070-4. doi: 10.1038/oby.2012.23. Epub 2012 Feb 7. PubMed PMID: 22310231; PubMed Central PMCID: PMC3574556.**

Abstract

Obesity is a growth-promoting process as evidenced by its effect on the timing of puberty. Although studies are limited, obesity has been shown to affect the timing of tooth eruption. Both the timing and sequence of tooth eruption are important to overall oral health. The purpose of this study was to examine the association between obesity and tooth eruption. Data were combined from three consecutive cycles (2001-2006) of the National Health and Nutrition Examination Survey (NHANES) and analyzed to examine associations between the number of teeth erupted (NET) and obesity status (BMI z-score >95th percentile BMI relative to the Centers for Disease Control and Prevention (CDC) growth reference) among children 5 up to 14 years of age, controlling for potential confounding by age, gender, race, and socioeconomic status (SES). Obesity is significantly associated with having a higher average NET during the mixed dentition period. On average, teeth of obese children erupted earlier than nonobese children with obese children having on average 1.44 more teeth erupted than nonobese children, after adjusting for age, gender, and race/ethnicity ( $P < 0.0001$ ). SES was not a confounder of the observed associations. Obese children, on average, have significantly more teeth erupted than nonobese children after adjusting for gender, age, and race. These findings may have clinical importance in the area of dental and orthodontic medicine both in terms of risk for dental caries due to extended length of time exposed in the oral cavity and sequencing which may increase the likelihood of malocclusions.

**536: Aounallah-Skhiri H, El Ati J, Traissac P, Ben Romdhane H, Eymard-Duvernay S, Delpuech F, Achour N, Maire B. Blood pressure and associated factors in a North African adolescent population. a national cross-sectional study in Tunisia. BMC Public Health. 2012 Feb 3;12:98. doi: 10.1186/1471-2458-12-98. PubMed PMID: 22305045; PubMed Central PMCID: PMC3331812.**

Abstract

BACKGROUND:

In southern and eastern Mediterranean countries, changes in lifestyle and the increasing prevalence of excess weight in childhood are risk factors for high blood pressure (BP) during adolescence and adulthood. The aim of this study was to evaluate the BP status of Tunisian adolescents and to identify associated factors.

METHODS:

A cross-sectional study in 2005, based on a national, stratified, random cluster sample of 1294 boys and 1576 girls aged 15-19 surveyed in home visits. The socio-economic and behavioral characteristics of the adolescents were recorded. Overweight/obesity were assessed by Body Mass Index (BMI) from measured height and weight (WHO, 2007), abdominal obesity by waist circumference (WC). BP was measured twice during the same visit. Elevated BP was systolic (SBP) or diastolic blood pressure (DBP)  $\geq 90$ th of the international reference or  $\geq 120/80$  mm Hg for 15-17 y., and SBP/DBP  $\geq 120/80$  mm Hg for 18-19 y.; hypertension was SBP/DBP  $\geq 95$ th for 15-17 y. and  $\geq 140/90$  mm Hg for 18-19 y.

Adjusted associations were assessed by logistic regression.

RESULTS:

The prevalence of elevated BP was 35.1%[32.9-37.4]: higher among boys (46.1% vs. 33.3%;  $P < 0.0001$ ); 4.7%[3.8-5.9] of adolescents had hypertension. Associations adjusted for all covariates showed independent relationships with BMI and WC: - obesity vs. no excess weight increased elevated BP (boys OR = 2.1[1.0-4.2], girls OR = 2.3[1.3-3.9]) and hypertension (boys OR = 3.5[1.4-8.9], girls OR = 5.4[2.2-13.4]), - abdominal obesity (WC) was also associated with elevated BP in both genders (for boys: 2nd vs. 1st tertile OR = 1.7[1.3-2.3], 3rd vs.1st tertile OR = 2.8[1.9-4.2]; for girls: 2nd vs. 1st tertile OR = 1.6[1.2-2.1], 3rd vs.1st tertile OR = 2.1[1.5-3.0]) but only among boys for hypertension. Associations with other covariates were weaker: for boys, hypertension increased somewhat with sedentary lifestyle, while elevated BP was slightly more prevalent among urban girls and those not attending school.

#### CONCLUSION:

Within the limits of BP measurement on one visit only, these results suggest that Tunisian adolescents of both genders are likely not spared from early elevated BP. Though further assessment is likely needed, the strong association with overweight/obesity observed suggests that interventions aimed at changing lifestyles to reduce this main risk factor may also be appropriate for the prevention of elevated BP.

**537: Nichols P, Ussery-Hall A, Griffin-Blake S, Easton A. The evolution of the steps program, 2003-2010: transforming the federal public health practice of chronic disease prevention. *Prev Chronic Dis.* 2012;9:E50. Epub 2012 Feb 2. PubMed PMID: 22300870; PubMed Central PMCID: PMC3340214.**

#### Abstract

The Steps program, formerly known as Steps to a HealthierUS, was the first Centers for Disease Control and Prevention (CDC) program to support a community-based, integrated approach to chronic disease prevention. Steps interventions addressed both diseases and risk factors, focusing on the 3 leading causes of preventable deaths in the United States--tobacco use, poor nutrition, and physical inactivity--and the associated chronic conditions of asthma, diabetes, and obesity. When Steps shifted from interventions focused on individual health-risk behaviors to the implementation of policy, systems, and environmental changes, the program became an integral part of changing the way CDC addressed chronic disease prevention. In this article, we describe the shift in intervention strategies that occurred among Steps communities, the model that was developed as Steps evolved, common interventions implemented before and after the shift in approach, challenges experienced by Steps communities, and CDC programs that were modeled after Steps.

**538: Losina E, Thornhill TS, Rome BN, Wright J, Katz JN. The dramatic increase in total knee replacement utilization rates in the United States cannot be fully explained by growth in population size and the obesity epidemic. *J Bone Joint Surg Am.* 2012 Feb 1;94(3):201-7. doi: 10.2106/JBJS.J.01958. PubMed PMID: 22298051; PubMed Central PMCID: PMC3262184.**

#### Abstract

##### BACKGROUND:

Total knee replacement utilization in the United States more than doubled from 1999 to 2008. Although the reasons for this increase have not been examined rigorously, some have attributed the increase to population growth and the obesity epidemic. Our goal was to investigate whether the

rapid increase in total knee replacement use over the past decade can be sufficiently attributed to changes in these two factors.

**METHODS:**

We used data from the Nationwide Inpatient Sample to estimate changes in total knee replacement utilization rates from 1999 to 2008, stratified by age (eighteen to forty-four years, forty-five to sixty-four years, and sixty-five years or older). We obtained data on obesity prevalence and U.S. population growth from federal sources. We compared the rate of change in total knee replacement utilization with the rates of population growth and change in obesity prevalence from 1999 to 2008.

**RESULTS:**

In 2008, 615,050 total knee replacements were performed in the United States adult population, 134% more than in 1999. During the same time period, the overall population size increased by 11%. While the population of forty-five to sixty-four-year-olds grew by 29%, the number of total knee replacements in this age group more than tripled. The number of obese and non-obese individuals in the United States increased by 23% and 4%, respectively. Assuming unchanged indications for total knee replacement among obese and non-obese individuals with knee osteoarthritis over the last decade, these changes fail to account for the 134% growth in total knee replacement use.

**CONCLUSIONS:**

Population growth and obesity cannot fully explain the rapid expansion of total knee replacements in the last decade, suggesting that other factors must also be involved. The disproportionate increase in total knee replacements among younger patients may be a result of a growing number of knee injuries and expanding indications for the procedure.

**539: Meng XJ, Dong GH, Wang D, Liu MM, Liu YQ, Zhao Y, Deng WW, Tian S, Meng X, Zhang HY. Epidemiology of prehypertension and associated risk factors in urban adults from 33 communities in China--the CHPSNE study. *Circ J.* 2012;76(4):900-6. Epub 2012 Feb 1. PubMed PMID: 22293448.**

**Abstract**

**BACKGROUND:**

The Seventh Report of The Joint National Committee has recently introduced the prehypertension category of blood pressure (BP) status that needs monitoring and intervention. Little is known about the epidemiology of prehypertension in urban China, so this study aimed at estimating the prevalence of prehypertension and identifying risk factors in urban Chinese adults.

**METHODS AND RESULTS:**

Using a multistage cluster and random sampling method, a representative sample of 25,196 urban adults aged 18-74 years in northeast of China was selected from 2009 to 2010. The survey of BP and associated risk factors was carried out in 33 communities. Multiple logistic regression methods were used to identify risk factors for prehypertension. Overall, 40.5% of urban Chinese adults had prehypertension, with a prevalence of 47.7% and 33.6% in men and women, respectively. Multivariate logistic regression analysis revealed the risk factors of being overweight (adjusted odds ratio [aOR]=1.38, 95% confidence interval [CI]: 1.26-1.52), obesity (aOR=3.94, 95%CI: 2.99-5.20), central obesity (aOR=2.13, 95%CI: 1.96-2.32). Being female, and having a higher education level, higher family income and diet control were protective factors.

**CONCLUSIONS:**



Prehypertension is common among urban residents in China, and is associated with many risk factors. Comprehensive lifestyle modifications need to be taken to decrease the incidence of prehypertension and to prevent prehypertension progressing to hypertension and cardiovascular disease.

**540: Pausova Z, Mahboubi A, Abrahamowicz M, Leonard GT, Perron M, Richer L, Veillette S, Gaudet D, Paus T. Sex differences in the contributions of visceral and total body fat to blood pressure in adolescence. *Hypertension*. 2012 Mar;59(3):572-9. doi: 10.1161/HYPERTENSIONAHA.111.180372. Epub 2012 Jan 30. PubMed PMID: 22291448.**

Abstract

Excess body fat deposited viscerally rather than elsewhere in the body is associated with higher risk for hypertension; this relationship is stronger in men than in women. Here we investigated whether similar sex dimorphism exists already in adolescence. A population-based sample of adolescent boys (n=237) and girls (n=262), age 12 to 18 years, was studied. Total body fat (TBF) was assessed with multifrequency bioelectrical impedance, and visceral fat (VF) was quantified with MRI. Blood pressure (BP) was measured beat by beat during an hour-long protocol, including supine, standing, sitting, mental stress, and poststress sections. Multivariate mixed-model analysis was used to assess the relative contributions of TBF and VF to BP during these sections. In boys, BP was strongly positively associated with VF ( $P<0.0001$ ), whereas it was less strongly and negatively associated with TBF ( $P=0.004$ ); these relationships did not substantially vary during the protocol. In contrast, in girls, BP was strongly positively associated with TBF ( $P=0.0006$ ), whereas it was not associated with VF ( $P=0.08$ ); the relationship with TBF varied during the protocol and was most apparent during mental stress (TBF\*section interaction:  $P=0.002$ ). Furthermore, when waist circumference was included in multivariate models instead of VF, it was not associated with BP in either sex; this indicates that waist circumference may not be an appropriate surrogate for VF. Thus, in adolescence, adiposity-related BP elevation is driven mainly by visceral fat in males and by fat deposited elsewhere in females. This dimorphism suggests sex-specific mechanisms of obesity-induced hypertension and the need for sex-specific criteria of its prevention.

**541: Crume TL, Ogden LG, Mayer-Davis EJ, Hamman RF, Norris JM, Bischoff KJ, McDuffie R, Dabelea D. The impact of neonatal breast-feeding on growth trajectories of youth exposed and unexposed to diabetes in utero: the EPOCH Study. *Int J Obes (Lond)*. 2012 Apr;36(4):529-34. doi: 10.1038/ijo.2011.254. Epub 2012 Jan 31. PubMed PMID: 22290537; PubMed Central PMCID: PMC3323752.**

Abstract

OBJECTIVE:

To evaluate the influence of breast-feeding on the body mass index (BMI) growth trajectory from birth through 13 years of age among offspring of diabetic pregnancies (ODP) and offspring of non-diabetic pregnancies (ONDP) participating in the Exploring Perinatal Outcomes Among Children Study.

SUBJECTS:

There were 94 ODP and 399 ONDP who had multiple BMI measures obtained from birth throughout childhood. A measure of breast milk-months was derived from maternal self-report to categorize breast-feeding status as adequate ( $\geq 6$  breast milk-months) or low ( $< 6$  breast milk-months). Mixed

linear-effects models were constructed to assess the impact of breast-feeding on the BMI growth curves during infancy (birth to 27 months) and childhood (27 months to 13 years).

**RESULTS:**

ODP who were adequately breast-fed had a slower BMI growth trajectory during childhood ( $P=0.047$ ) and slower period-specific growth velocity with significant differences between 4 and 6 years of age ( $P=0.03$ ) and 6 to 9 years of age ( $P=0.01$ ) compared with ODP with low breast-feeding. A similar pattern was seen in the ONDP, with adequate breast-feeding associated with lower average BMI in infancy ( $P=0.03$ ) and childhood ( $P=0.0002$ ) and a slower growth trajectory in childhood ( $P=0.0002$ ). Slower period-specific growth velocity was seen among the ONDP associated with adequate breast-feeding with significant differences between 12-26 months ( $P=0.02$ ), 4-6 years ( $P=0.03$ ), 6-9 years ( $P=0.0001$ ) and 9-13 years of age ( $P<0.0001$ ).

**CONCLUSION:**

Our study provides novel evidence that breast-feeding is associated with long-term effects on childhood BMI growth that extend beyond infancy into early and late childhood. Importantly, these effects are also present in the high-risk offspring, exposed to overnutrition during pregnancy. Breast-feeding in the early postnatal period may represent a critical opportunity to reduce the risk of childhood obesity.

**542: Madan A, Archambeau OG, Milsom VA, Goldman RL, Borckardt JJ, Grubaugh AL, Tuerk PW, Frueh BC. More than black and white: differences in predictors of obesity among Native Hawaiian/Pacific Islanders and European Americans. Obesity (Silver Spring). 2012 Jun;20(6):1325-8. doi: 10.1038/oby.2012.15. Epub 2012 Jan 28. PubMed PMID: 22286530; PubMed Central PMCID: PMC3346845.**

**Abstract**

Although Native Hawaiians and Pacific Islanders exhibit the highest rates of obesity and associated chronic diseases of any racial/ethnic group, they remain vastly underrepresented in health research. In a cross-sectional survey of college students ( $N = 402$ ) we examined BMI and health outcomes in an ethno-racially diverse rural sample of Native Hawaiian/Pacific Islanders (25.1%), Asian Americans (39.8%), and European Americans (35.1%). Measures assessed BMI, health status, health behaviors, frequency of exercise, and symptoms of psychiatric disorders (i.e., depression, anxiety, posttraumatic stress, and substance abuse and dependence). Regression analyses revealed that an overall model of five predictors (gender, race, regular exercise, difficulty sleeping, and anxiety) was significantly associated with obesity ( $P < 0.001$ ) and correctly classified 84.2% of cases. A 30.7% of Native Hawaiians/Pacific Islanders were obese as compared with 9.2% of European Americans and 10.6% of Asian Americans. These findings suggest that Native Hawaiian/ Pacific Islanders are at high risk for obesity and associated medical comorbidities, but that regular physical activity may ameliorate this risk. Further, these results support the consideration of Native Hawaiians/Pacific Islanders as a distinct racial/ethnic subgroup separate from other Asian populations.

**543: Gearhardt AN, Harrison EL, McKee SA. Does co-morbid depression alter the inverse relationship between obesity and substance use disorders? Drug Alcohol Depend. 2012 Jul 1;124(1-2):185-8. doi: 10.1016/j.drugalcdep.2012.01.002. Epub 2012 Jan 28. PubMed PMID: 22285319; PubMed Central PMCID: PMC3359394.**

Abstract

BACKGROUND:

Substance use disorders and obesity are often inversely related to one another, hypothetically due to competition over shared neurobiological reward circuitry. However, obesity and substance use disorders share common risk factors, such as other psychiatric disorders. It is unknown whether the inverse relationship between obesity and substance use disorders continues to exist in the presence of shared risk factors.

METHODS:

For the current study, we examined the associations between major depression, alcohol and drug use disorders, and overweight/obesity status in a nationally representative sample of U.S. adults (n=40,715).

RESULTS:

Our findings demonstrated that adults with major depression were more likely to be obese, whereas adults with alcohol or drug use disorders were less likely to be obese. However, the inverse relationship between substance use and obesity continued to exist in adults with co-morbid depression. Adults with depression disorders co-morbid with alcohol (Relative Risk [RR]=0.63, 95% CI=0.47-0.84) or drug (RR=0.54, 95% CI=0.36-0.81) use disorders were less likely to be obese vs normal weight.

CONCLUSIONS:

Our findings provide support for the proposal that excess food consumption and excess drug use appear to compete over shared neurobiology even when the motivation to self-medicate with either food or substances might be elevated.

**544: Acosta-Pérez E, Canino G, Ramírez R, Prelip M, Martin M, Ortega AN. Do Puerto Rican youth with asthma and obesity have higher odds for mental health disorders? Psychosomatics. 2012 Mar-Apr;53(2):162-71. doi: 10.1016/j.psych.2011.07.011. Epub 2012 Jan 28. PubMed PMID: 22284423; PubMed Central PMCID: PMC3307841.**

Abstract

BACKGROUND:

Island Puerto Rican (PR) youth experience disproportionately high asthma and obesity rates compared with other racial/ethnic groups on the U.S. mainland. Previous research has demonstrated associations of chronic disease with psychiatric disorders.

OBJECTIVE:

We examined the relationship among anxiety/depressive disorders, asthma, and obesity in an epidemiologic community sample of youth.

METHODS:

The sample (n = 656) was derived from the second wave of an island-wide probabilistic representative household sample of PR youth stratified and based on whether or not they had a

diagnosis of asthma and/or depressive/anxiety disorder. For this study, we used the subpopulation ages 10-19 years.

**RESULTS:**

Asthma and obesity were significantly related to higher odds of depressive/anxiety disorders in youth. Obesity moderated the relationship between asthma attacks and depressive/anxiety disorders. The relationship between asthma attack and higher odds for depressive/anxiety disorders was only present in the non-obese group. Among the obese, females show a significant increase from 11% to 36% in the prevalence of anxiety/depressive disorders. Asthma and obesity were highly prevalent and a significant association was found between asthma attack and depressive/anxiety disorders. The effects of asthma and obesity were not additive; the prevalence for psychiatric disorder for those having both conditions did not increase above the prevalence associated having only one of the conditions.

**CONCLUSIONS:**

Future studies should consider including longitudinal designs and examine the extent to which important variables not included in this study, such as body image dissatisfaction (particularly among females), teasing, and discrimination may moderate the relationship among obesity and depressive and anxiety disorders in youth.

**545: Lawman HG, Wilson DK. A review of family and environmental correlates of health behaviors in high-risk youth. Obesity (Silver Spring). 2012 Jun;20(6):1142-57. doi: 10.1038/oby.2011.376. Epub 2012 Jan 26. Review. PubMed PMID: 22282044; PubMed Central PMCID: PMC3360830.**

**Abstract**

Disparities in the prevalence of obesity in youth place minority and low socioeconomic status youth at increased risk for the development of chronic disease, such as metabolic syndrome and type 2 diabetes. Contributing factors to the increases in obesity include a decline in positive health behaviors, such as making healthy dietary choices, engaging in physical activity, and limiting sedentary behaviors. Family and physical environmental contextual factors related to health behaviors are increasingly the focus of health behavior interventions in line with the bioecological model that encourages a system-focused perspective on understanding health behavior influences. Physical environmental characteristics, such as home and neighborhood characteristics and resources, provide the tangible means to support health behaviors and are important contextual variables to consider that may increase intervention effectiveness. Therefore, the current review seeks to highlight the importance of investigating influences of behavior beyond individual characteristics in understanding factors related to the risk of developing metabolic syndrome and type 2 diabetes in youth at high risk for developing chronic disease. The current study reviews the non-intervention literature on family and physical environmental factors related to health behaviors (i.e., diet, physical activity, and sedentary behavior) in youth who are considered to be at-risk for developing metabolic syndrome and type 2 diabetes. Results on 38 published articles of diet, physical activity, and sedentary behaviors showed support for the role of parenting and physical environmental factors, particularly parental monitoring and neighborhood context, such as social cohesion, as they relate to health behaviors in high-risk youth. Implications and recommendations for future research are discussed.

**546: Ma S, Frick KD, Bleich S, Dubay L. Racial disparities in medical expenditures within body weight categories. J Gen Intern Med. 2012 Jul;27(7):780-6. doi: 10.1007/s11606-011-1983-3. Epub 2012 Jan 26. PubMed PMID: 22278301; PubMed Central PMCID: PMC3378748.**

Abstract

BACKGROUND:

Despite federal guidelines calling for the reduction of obesity and elimination of health disparities, black-white differences in obesity prevalence and in medical expenditures and utilization of health care services persist.

OBJECTIVES:

To examine black-white differences in medical expenditures and utilization of health care services (office-based visits, hospital outpatient visits, ER visits, inpatient stays and prescription medication) within body weight categories.

STUDY DESIGN:

This study used data from the 2006 Medical Expenditures Panel Survey (MEPS) and included 15,164 non-Hispanic white and non-Hispanic black adults. We used a standard two-part econometric model to examine black-white differences in how expenditures (total annual medical expenditures and expenditures for each type of service) vary within body weight categories.

KEY RESULTS:

Blacks in each weight category were less likely to use any medical care than their white counterparts, even after controlling for socio-demographic characteristics, perceived health status, health conditions and health beliefs. Among those who received medical care, there is no significant difference in the total amount spent on care between blacks and whites. Compared to whites, blacks in each body weight category were significantly less likely to use office-based visits, hospital outpatient visits, and medications. Among those who used medications, blacks had significantly lower expenditures than whites. Blacks in obese class II/III were significantly less likely to have any medical expenditures on inpatient care than their white counterparts.

CONCLUSIONS:

Black-white racial differences in total medical expenditures were observed in each body weight category and were significantly different in the obese I class, overweight, and healthy weight categories. Obese blacks also spent a smaller amount than obese whites--the insignificance might be due to the smaller sample size. These differences cannot be fully explained by socio-demographics, health conditions, or health beliefs. Black-white differences in medical expenditures may be largely due to relatively inexpensive types of care (office-based visits, outpatient care, medication) rather than more costly ones (inpatient care, ER).

**547: Vogt M, Sallum AW, Cecatti JG, Morais SS. Factors associated with the prevalence of periodontal disease in low-risk pregnant women. Reprod Health. 2012 Jan 24;9:3. doi: 10.1186/1742-4755-9-3. PubMed PMID: 22273008; PubMed Central PMCID: PMC3283460.**

Abstract

OBJECTIVE:

To evaluate the prevalence of periodontal disease (PD) among Brazilian low-risk pregnant women and its association with sociodemographic factors, habits and oral hygiene.

**METHOD:**

This cross-sectional study included 334 low-risk pregnant women divided in groups with or without PD. Indexes of plaque and gingival bleeding on probing, probing pocket depth, clinical attachment level and gingival recession were evaluated at one periodontal examination below 32 weeks of gestation. Independent variables were: age, race/color, schooling, marital status, parity, gestational age, smoking habit, alcohol and drugs consumption, use of medication, presence of any systemic diseases and BMI (body mass index). Statistical analyses provided prevalence ratios and their respective 95%CI and also a multivariate analysis.

**RESULTS:**

The prevalence of PD was 47% and significantly associated with higher gestational age (PR 1.40; 1.01-1.94 for 17-24 weeks and PR 1.52; 1.10-2.08 for 25-32 weeks), maternal age 25-29 years, obesity (PR 1.65; 1.02-2.68) and the presence of gingival bleeding on probing (OR(adj) 2.01, 95%CI 1.41-2.88). Poor oral hygiene was associated with PD by the mean values of plaque and bleeding on probing indexes significantly greater in PD group.

**CONCLUSIONS:**

The prevalence of PD is high and associated with gingival bleeding on probing, more advanced gestational age and obesity. A program of oral health care should be included in prenatal care for early pregnancy, especially for low-income populations.

**548: Bolen SD, Chang HY, Weiner JP, Richards TM, Shore AD, Goodwin SM, Johns RA, Magnuson TH, Clark JM. Clinical outcomes after bariatric surgery: a five-year matched cohort analysis in seven US states. *Obes Surg.* 2012 May;22(5):749-63. doi: 10.1007/s11695-012-0595-2. PubMed PMID: 22271357; PubMed Central PMCID: PMC4040221.**

**Abstract**

**BACKGROUND:**

Bariatric surgery is the most effective weight loss treatment, yet few studies have reported on short- and long-term outcomes postsurgery.

**METHODS:**

Using claims data from seven Blue Cross/Blue Shield health plans serving seven states, we conducted a non-concurrent, matched cohort study. We followed 22,693 persons who underwent bariatric surgery during 2003-2007 and were enrolled at least 6 months before and after surgery. Using logistic regression, we compared serious and less serious adverse clinical outcomes, hospitalizations, planned procedures, and obesity-related co-morbidities between groups for up to 5 years.

**RESULTS:**

Relative to controls, surgery patients were more likely to experience a serious [odds ratio (OR) 1.9; 95% confidence interval (CI) 1.8-2.0] or less serious (OR 2.5, CI 2.4-2.7) adverse clinical outcome or hospitalization (OR 1.3, CI 1.3-1.4) at 1 year postsurgery. The risk remained elevated until 4 years postsurgery for serious events and 5 years for less serious outcomes and hospitalizations. Some complication rates were lower for patients undergoing laparoscopic surgery. Planned procedures, such as skin reduction, peaked in postsurgery year 2 but remained elevated through year 5. Surgery patients had a 55% decreased risk of obesity-related co-morbidities, such as type 2 diabetes, in the first year postsurgery, which remained low throughout the study (year 5: OR 0.4, CI 0.4-0.5).

**CONCLUSIONS:**

While bariatric surgery is associated with a higher risk of adverse clinical outcomes compared to controls, it also substantially decreased obesity-related co-morbidities during the 5-year follow-up.

**549: Swanson M, Schoenberg NE, Davis R, Wright S, Dollarhide K. Perceptions of healthful eating and influences on the food choices of Appalachian youth. *J Nutr Educ Behav.* 2013 Mar;45(2):147-53. doi: 10.1016/j.jneb.2011.07.006. Epub 2012 Jan 24. PubMed PMID: 22269474; PubMed Central PMCID: PMC3337954.**

Abstract

OBJECTIVE:

Patterns of overweight and obesity have an unequal geographic distribution, and there are elevated rates in Appalachia. Perceptions of Appalachian youth toward healthful eating and influences on food choice were examined as part of formative research to address these disparities.

METHODS:

Eleven focus groups, averaging 6 youth (n = 68) and moderated by experienced local residents, were conducted with participants aged 8-17. Session transcripts were coded for thematic analysis, using measures to enhance rigor and transferability.

RESULTS:

Participants discussed numerous internal and external factors affecting dietary choices. They expressed confidence in their own nutritional knowledge, and they stressed the importance of taste preferences, cost, convenience, social influences, and advertising on diet.

CONCLUSIONS AND IMPLICATIONS:

Appalachian youth awareness of the multiple influences on diet may create opportunities for multifaceted, ecologically based interventions. In particular, participants stressed the importance of social influences on diet and on successful nutrition programming.

**550: Willows ND, Hanley AJ, Delormier T. A socioecological framework to understand weight-related issues in Aboriginal children in Canada. *Appl Physiol Nutr Metab.* 2012 Feb;37(1):1-13. doi: 10.1139/h11-128. Epub 2012 Jan 24. Review. PubMed PMID: 22269027.**

Abstract

Obesity prevention efforts in Aboriginal (First Nations, Métis, or Inuit) communities in Canada should focus predominantly on children given their demographic significance and the accelerated time course of occurrence of type 2 diabetes mellitus in the Aboriginal population. A socioecological model to address childhood obesity in Aboriginal populations would focus on the numerous environments at different times in childhood that influence weight status, including prenatal, sociocultural, family, and community environments. Importantly, for Aboriginal children, obesity interventions need to also be situated within the context of a history of colonization and inequities in the social determinants of health. This review therefore advocates for the inclusion of a historical perspective and a life-course approach to obesity prevention in Aboriginal children in addition to developing interventions around the socioecological framework. We emphasize that childhood obesity prevention efforts should focus on promoting maternal health behaviours before and during pregnancy, and on breastfeeding and good infant and child nutrition in the postpartum and early childhood development periods. Ameliorating food insecurity by focusing on improving the sociodemographic risk factors for it, such as increasing income and educational attainment, are

essential. More research is required to understand and measure obesogenic Aboriginal environments, to examine how altering specific environments modifies the foods that children eat and the activities that they do, and to examine how restoring and rebuilding cultural continuity in Aboriginal communities modifies the many determinants of obesity. This research needs to be done with the full participation of Aboriginal communities as partners in the research.

**551: Prince SA, Kristjansson EA, Russell K, Billette JM, Sawada MC, Ali A, Tremblay MS, Prud'homme D. Relationships between neighborhoods, physical activity, and obesity: a multilevel analysis of a large Canadian city. Obesity (Silver Spring). 2012 Oct;20(10):2093-100. doi: 10.1038/oby.2011.392. Epub 2012 Jan 19. PubMed PMID: 22262164; PubMed Central PMCID: PMC3458203.**

#### Abstract

In Canada, there is limited research examining the associations between objectively measured neighborhood environments and physical activity (PA) and obesity. The purpose of this study was to determine the relationships between variables from built and social environments and PA and overweight/obesity across 86 Ottawa, Canada neighborhoods. Individual-level data including self-reported leisure-time PA (LTPA), height, and weight were examined in a sample of 4,727 adults from four combined cycles (years 2001/03/05/07) of the Canadian Community Health Survey (CCHS). Data on neighborhood characteristics were obtained from the Ottawa Neighbourhood Study (ONS); a large study of neighborhoods and health in Ottawa, Canada. Binomial multivariate multilevel models were used to examine the relationships between environmental and individual variables with LTPA and overweight/obesity using survey weights in men and women separately. Within the sample, ~75% of the adults were inactive (<3.0 kcal/kg/day) while half were overweight/obese. Results of the multilevel models suggested that for females greater park area was associated with increased odds of LTPA and overweight/obesity. Greater neighborhood density of convenience stores and fast food outlets were associated with increased odds of females being overweight/obese. Higher crime rates were associated with greater odds of LTPA in males, and lower odds of male and female overweight/obesity. Season was significantly associated with PA in men and women; the odds of LTPA in winter months were half that of summer months. Findings revealed that park area, crime rates, and neighborhood food outlets may have different roles with LTPA and overweight/obesity in men and women and future prospective studies are needed.

**552: Vivian EM, Becker TL, Carrel AL. Weight perceptions of parents with children at risk for diabetes. BMC Res Notes. 2012 Jan 20;5:47. doi: 10.1186/1756-0500-5-47. PubMed PMID: 22260226; PubMed Central PMCID: PMC3392748.**

#### Abstract

##### BACKGROUND:

The growing epidemic of obesity and diabetes among African American, Latino American, and Native American children in the United States has led to increasing focus on strategies for prevention. However, little is known about the perceptions toward weight, nutrition, and physical activity among these youth. This pilot study explored the perceptions of body weight among overweight and obese children and their parents.

##### RESULTS:



Thirty eight children, ages 8-16 years who were enrolled in a diabetes prevention study were surveyed to assess their perception of their weight. Nearly all (84%) of the children were obese. When asked whether they considered themselves to be overweight, African-American children were less likely to report that they were overweight than other children (33% vs. 80% of other children,  $p = 0.01$ ). The parents of these children ( $n = 29$ ) were also surveyed to assess their perception of their child's weight. The parents of two-thirds (65%) of the children reported that the child was overweight, while the rest reported their child was underweight or the right weight. African-American parents were less likely to report that their child's weight was unhealthy compared to other parents (46% vs. 77%,  $p = 0.069$ ).

**CONCLUSIONS:**

This study's findings indicate that future intervention efforts should assess children's and parents' awareness of obesity and diabetes risk and these factors should be considered when developing prevention interventions for families with youth at risk for diabetes in underserved communities.

**553: Underwood JM, Townsend JS, Stewart SL, Buchanan N, Ekwueme DU, Hawkins NA, Li J, Peaker B, Pollack LA, Richards TB, Rim SH, Rohan EA, Sabatino SA, Smith JL, Tai E, Townsend GA, White A, Fairley TL; Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC). Surveillance of demographic characteristics and health behaviors among adult cancer survivors--Behavioral Risk Factor Surveillance System, United States, 2009. MMWR Surveill Summ. 2012 Jan 20;61(1):1-23. PubMed PMID: 22258477.**

**Abstract**

**PROBLEM/CONDITION:**

Approximately 12 million people are living with cancer in the United States. Limited information is available on national and state assessments of health behaviors among cancer survivors. Using data from the Behavioral Risk Factor Surveillance System (BRFSS), this report provides a descriptive state-level assessment of demographic characteristics and health behaviors among cancer survivors aged  $\geq 18$  years.

**REPORTING PERIOD COVERED:**

2009

**DESCRIPTION OF SYSTEM:**

BRFSS is an ongoing, state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. population aged  $\geq 18$  years. BRFSS collects information on health risk behaviors and use of preventive health services related to leading causes of death and morbidity. In 2009, BRFSS added questions about previous cancer diagnoses to the core module. The 2009 BRFSS also included an optional cancer survivorship module that assessed cancer treatment history and health insurance coverage for cancer survivors. In 2009, all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands administered the core cancer survivorship questions, and 10 states administered the optional supplemental cancer survivorship module. Five states added questions on mammography and Papanicolaou (Pap) test use, eight states included questions on colorectal screening, and five states included questions on prostate cancer screening.

**RESULTS:**

An estimated 7.2% of the U.S. general population aged  $\geq 18$  years reported having received a previous cancer diagnosis (excluding nonmelanoma skin cancer). A total of 78.8% of cancer survivors were

aged  $\geq 50$  years, and 39.2% had received a diagnosis of cancer  $>10$  years previously. A total of 57.8% reported receiving an influenza vaccination during the previous year, and 48.3% reported ever receiving a pneumococcal vaccination. At the time of the interview, 6.8% of cancer survivors had no health insurance, and 12% had been denied health insurance, life insurance, or both because of their cancer diagnosis. The prevalence of cardiovascular disease was higher among male cancer survivors (23.4%) than female cancer survivors (14.3%), as was the prevalence of diabetes (19.6% and 14.7%, respectively). Overall, approximately 15.1% of cancer survivors were current cigarette smokers, 27.5% were obese, and 31.5% had not engaged in any leisure-time physical activity during the past 30 days. Demographic characteristics and health behaviors among cancer survivors varied substantially by state.

**INTERPRETATION:**

Health behaviors and preventive health care practices among cancer survivors vary by state and demographic characteristics. A large proportion of cancer survivors have comorbid conditions, currently smoke, do not participate in any leisure-time physical activity, and are obese. In addition, many are not receiving recommended preventive care, including cancer screening and influenza and pneumococcal vaccinations.

**PUBLIC HEALTH ACTION:**

Health-care providers and patients should be aware of the importance of preventive care, smoking cessation, regular physical activity, and maintaining a healthy weight for cancer survivors. The findings in this report can help public health practitioners, researchers, and comprehensive cancer control programs evaluate the effectiveness of program activities for cancer survivors, assess the needs of cancer survivors at the state level, and allocate appropriate resources to address those needs.

**554: Barclay AW, Brand-Miller J. The Australian paradox: a substantial decline in sugars intake over the same timeframe that overweight and obesity have increased.**

**Nutrients. 2011 Apr;3(4):491-504. doi: 10.3390/nu3040491. Epub 2011 Apr 20.**

**Review. Erratum in: Nutrients. 2014;6(2):663-4. Nutrients. 2011 Aug;3(8):734.**

**PubMed PMID: 22254107; PubMed Central PMCID: PMC3257688.**

**Abstract**

Ecological research from the USA has demonstrated a positive relationship between sugars consumption and prevalence of obesity; however, the relationship in other nations is not well described. The aim of this study was to analyze the trends in obesity and sugar consumption in Australia over the past 30 years and to compare and contrast obesity trends and sugar consumption patterns in Australia with the UK and USA. Data on consumption of sugar in Australia, the UK and USA were obtained from the Food and Agriculture Organization for the years 1980-2003. The prevalence of obesity has increased 3 fold in Australians since 1980. In Australia, the UK and USA, per capita consumption of refined sucrose decreased by 23%, 10% and 20% respectively from 1980 to 2003. When all sources of nutritive sweeteners, including high fructose corn syrups, were considered, per capita consumption decreased in Australia (-16%) and the UK (-5%), but increased in the USA (+23%). In Australia, there was a reduction in sales of nutritively sweetened beverages by 64 million liters from 2002 to 2006 and a reduction in percentage of children consuming sugar-sweetened beverages between 1995 and 2007. The findings confirm an "Australian Paradox"--a substantial decline in refined sugars intake over the same timeframe that obesity has increased. The implication is that

efforts to reduce sugar intake may reduce consumption but may not reduce the prevalence of obesity.

**555: Black MH, Smith N, Porter AH, Jacobsen SJ, Koebnick C. Higher prevalence of obesity among children with asthma. *Obesity (Silver Spring)*. 2012 May;20(5):1041-7. doi: 10.1038/oby.2012.5. Epub 2012 Jan 17. PubMed PMID: 22252049; PubMed Central PMCID: PMC3348709.**

Abstract

The aim of this study is to investigate the association between childhood obesity and asthma, and whether this relationship varies by race/ethnicity. For this population-based, cross-sectional study, measured weight and height, and asthma diagnoses were extracted from electronic medical records of 681,122 patients aged 6-19 years who were enrolled in an integrated health plan 2007-2009. Weight class was assigned based on BMI-for-age. Overall, 18.4% of youth had a history of asthma and 10.9% had current asthma. Adjusted odds of current asthma for overweight, moderately obese, and extremely obese youth relative to those of normal weight were 1.22 (95% confidence interval (CI): 1.20, 1.24), 1.37 (95% CI: 1.34, 1.40), and 1.68 (95% CI: 1.64, 1.73), respectively (P trend < 0.001). Black youth are nearly twice as likely (adjusted odds ratio (OR) = 1.93, 95% CI: 1.89, 1.99), and Hispanic youth are 25% less likely (adjusted OR = 0.75, 95% CI: 0.74, 0.77), to have current asthma than to non-Hispanic white youth. However, the relationship between BMI and asthma was strongest in Hispanic and weakest in black youth. Among youth with asthma, increasing body mass was associated with more frequent ambulatory and emergency department visits, as well as increased inhaled and oral corticosteroid use. In conclusion, overweight, moderate, and extreme obesity are associated with higher odds of asthma in children and adolescents, although the association varies widely with race/ethnicity. Increasing BMI among youth with asthma is associated with higher consumption of corticosteroids and emergency department visits.

**556: El-Koofy NM, Anwar GM, El-Raziky MS, El-Hennawy AM, El-Mougny FM, El-Karakasy HM, Hassanin FM, Helmy HM. The association of metabolic syndrome, insulin resistance and non-alcoholic fatty liver disease in overweight/obese children. *Saudi J Gastroenterol*. 2012 Jan-Feb;18(1):44-9. doi: 10.4103/1319-3767.91738. PubMed PMID: 22249092; PubMed Central PMCID: PMC3271694.**

Abstract

BACKGROUND/AIM:

To study the prevalence of metabolic syndrome (MS), insulin resistance (IR) and non-alcoholic fatty liver disease (NAFLD) in overweight/obese children with clinical hepatomegaly and/or raised alanine aminotransferase (ALT).

PATIENTS AND METHODS:

Thirty-three overweight and obese children, aged 2-13 years, presenting with hepatomegaly and/or raised ALT, were studied for the prevalence of MS, IR and NAFLD. Laboratory analysis included fasting blood glucose, serum insulin, serum triglycerides (TG), total cholesterol, high-density lipoprotein cholesterol (HDL-c), low-density lipoprotein cholesterol (LDL-c) and liver biochemical profile, in addition to liver ultrasound and liver biopsy.

RESULTS:

Twenty patients (60.6%) were labeled with MS. IR was present in 16 (48.4%). Fifteen (44%) patients had biopsy-proven NAFLD. Patients with MS were more likely to have NAFLD by biopsy ( $P=0.001$ ). Children with NAFLD had significantly higher body mass index, waist circumference, ALT, total cholesterol, LDL-c, TG, fasting insulin, and lower HDL-c compared to patients with normal liver histology ( $P < 0.05$ ) and fitted more with the criteria of MS (80% vs. 44%). IR was significantly more common among NAFLD patients (73% vs. 28%).

**CONCLUSION:**

There is a close association between obesity, MS, IR and NAFLD. Obese children with clinical or biochemical hepatic abnormalities are prone to suffer from MS, IR and NAFLD.

**557: Heo M, Kim RS, Wylie-Rosett J, Allison DB, Heymsfield SB, Faith MS. Inverse association between fruit and vegetable intake and BMI even after controlling for demographic, socioeconomic and lifestyle factors. *Obes Facts*. 2011;4(6):449-55. doi: 10.1159/000335279. Epub 2011 Dec 6. PubMed PMID: 22248995; PubMed Central PMCID: PMC3338984.**

**Abstract**

**OBJECTIVE:**

To estimate fruit and vegetable (FV) intake levels of US adult population and evaluate the association between FV intake and BMI status after controlling for confounding demographic, socioeconomic and lifestyle factors. We also sought to identify moderating factors.

**METHODS:**

We used 2007 Behavior Risk Factors Surveillance System ( $N > 400,000$ ) data. FV intake was dichotomized as  $\geq 5$  servings (FV5+) versus  $< 5$  servings/ day. BMI status was categorized as normal, overweight, and obese. Identification of moderators was performed by testing interactions between BMI status and other variables using bivariate analyses followed by multiple logistic regression analysis incorporating complex survey sampling design features.

**RESULTS:**

Only 24.6% of US adults consumed  $\geq 5$  servings per day and less than 4% consumed 9 or more servings. Overweight (% FV5+ = 23.9%) and obese (21.9%) groups consumed significantly less FV than the normal-weight (27.4%) group ( $p < 0.0001$ ). This inverse association remained significant even after controlling for potential confounding factors. Multivariate analysis identified five significant moderators ( $p < 0.0001$ ) after controlling for all evaluated variables: race, sex, smoking status, health coverage, and physical activity. Notably, physically inactive obese males tended to consume the least FV (% FV5+ = 14.7%).

**CONCLUSION:**

Current US population FV intake level is below recommended levels. The inverse association between FV intake and obesity was significant and was moderated by demographic, socioeconomic status, and lifestyle factors. These factors should be considered when developing policies and interventions to increase FV intake.

**558: Micklesfield LK, Goedecke JH, Punyanitya M, Wilson KE, Kelly TL. Dual-energy X-ray performs as well as clinical computed tomography for the measurement of visceral fat. *Obesity (Silver Spring)*. 2012 May;20(5):1109-14. doi: 10.1038/oby.2011.367. Epub 2012 Jan 12. PubMed PMID: 22240726; PubMed Central PMCID: PMC3343346.**

Abstract

Visceral adipose tissue (VAT) is associated with adverse health effects including cardiovascular disease and type 2 diabetes. We developed a dual-energy X-ray absorptiometry (DXA) measurement of visceral adipose tissue (DXA-VAT) as a low cost and low radiation alternative to computed tomography (CT). DXA-VAT was compared to VAT assessed using CT by an expert reader (E-VAT). In addition, the same CT slice was also read by a clinical radiographer (C-VAT) and a best-fit anthropomorphic and demographic VAT model (A-VAT) was developed. Whole body DXA, CT at L4-L5, and anthropometry were measured on 272 black and white South African women (age  $29 \pm 8$  years, BMI  $28 \pm 7$  kg/m<sup>2</sup>), waist circumference (WC)  $89 \pm 16$  cm). Approximately one-half of the dataset (n = 141) was randomly selected and used as a training set for the development of DXA-VAT and A-VAT, which were then used to estimate VAT on the remaining 131 women in a blinded fashion. DXA-VAT (r = 0.93, standard error of the estimate (SEE) = 16 cm<sup>2</sup>) and C-VAT (r = 0.93, SEE = 16 cm<sup>2</sup>) were strongly correlated to E-VAT. These correlations with E-VAT were significantly stronger (P < 0.001) than the correlations of individual anthropometry measurements and the A-VAT model (WC + age, r = 0.79, SEE = 27 cm<sup>2</sup>). The inclusion of anthropometric and demographic measurements did not substantially improve the correlation between DXA-VAT and E-VAT. DXA-VAT performed as well as a clinical read of VAT from a CT scan and better than anthropomorphic and demographic models.

**559: Wein LM, Yang Y, Goldhaber-Fiebert JD. Assessing screening policies for childhood obesity. *Obesity (Silver Spring)*. 2012 Jul;20(7):1437-43. doi: 10.1038/oby.2011.373. Epub 2012 Jan 12. Review. PubMed PMID: 22240724; PubMed Central PMCID: PMC3997741.**

Abstract

To address growing concerns over childhood obesity, the United States Preventive Services Task Force (USPSTF) recently recommended that children undergo obesity screening beginning at age 6. An Expert Committee recommends starting at age 2. Analysis is needed to assess these recommendations and investigate whether there are better alternatives. We model the age- and sex-specific population-wide distribution of BMI through age 18 using National Longitudinal Survey of Youth (NLSY) data. The impact of treatment on BMI is estimated using the targeted systematic review performed to aid the USPSTF. The prevalence of hypertension and diabetes at age 40 are estimated from the Panel Study of Income Dynamics (PSID). We fix the screening interval at 2 years, and derive the age- and sex-dependent BMI thresholds that minimize adult disease prevalence, subject to referring a specified percentage of children for treatment yearly. We compare this optimal biennial policy to biennial versions of the USPSTF and Expert Committee recommendations. Compared to the USPSTF recommendation, the optimal policy reduces adult disease prevalence by 3% in relative terms (the absolute reductions are <1%) at the same treatment referral rate, or achieves the same disease prevalence at a 28% reduction in treatment referral rate. If compared to the Expert Committee recommendation, the reductions change to 6 and 40%, respectively. The optimal policy treats mostly

16-year olds and few children under age 14. Our results suggest that adult disease is minimized by focusing childhood obesity screening and treatment on older adolescents

**560: Coleman KJ, Hsui AC, Koebnick C, Alpern AF, Bley B, Yousef M, Shih EM, Trimble-Cox KJ, Smith N, Porter AH, Woods SD. Implementation of clinical practice guidelines for pediatric weight management. J Pediatr. 2012 Jun;160(6):918-22.e1. doi: 10.1016/j.jpeds.2011.12.027. Epub 2012 Jan 10. PubMed PMID: 22240108; PubMed Central PMCID: PMC3544288.**

Abstract

OBJECTIVE:

To evaluate the effect of computer-assisted decision tools that standardize pediatric weight management in a large, integrated health care system for the diagnosis and management of child and adolescent obesity.

STUDY DESIGN:

This was a large scale implementation study to document the impact of the Kaiser Permanente Southern California Pediatric Weight Management Initiative. An average of 739, 816 outpatient visits per year in children and adolescents from 2007 to 2010 were analyzed. Height, weight, evidence of exercise and nutrition counseling, and diagnoses of overweight and obesity were extracted from electronic medical records.

RESULTS:

Before the initiative, 66% of all children and adolescents had height and weight measured. This increased to 94% in 2010 after 3 years of the initiative ( $P < .001$ ). In children and adolescents who were overweight or obese, diagnosis of overweight or obesity increased significantly from 12% in 2007 to 61% in 2010 ( $P < .001$ ), and documented counseling rates for exercise and nutrition increased significantly from 1% in 2007 to 50% in 2010 ( $P < .001$ ).

CONCLUSIONS:

Computer-assisted decision tools to standardize pediatric weight management with concurrent education of pediatricians can substantially improve the identification, diagnosis, and counseling for overweight or obese children and adolescents.

**561: Hunt KJ, Marlow NM, Gebregziabher M, Ellerbe CN, Mauldin J, Mayorga ME, Korte JE. Impact of maternal diabetes on birthweight is greater in non-Hispanic blacks than in non-Hispanic whites. Diabetologia. 2012 Apr;55(4):971-80. doi: 10.1007/s00125-011-2430-z. Epub 2012 Jan 12. PubMed PMID: 22237686; PubMed Central PMCID: PMC3677815.**

Abstract

AIMS/HYPOTHESIS:

To determine the impact of maternal diabetes during pregnancy on racial disparities in fetal growth.

METHODS:

Using linked birth certificate, inpatient hospital and prenatal claims data we examined live singleton births of mothers resident in South Carolina who self-reported their race as non-Hispanic white (NHW;  $n = 140,128$ ) or non-Hispanic black (NHB;  $n = 82,492$ ) and delivered at 28-42 weeks' gestation between 2004 and 2008.

#### RESULTS:

Prepregnancy diabetes prevalence was higher in NHB (3.0%) than in NHW (1.7%), while the prevalence of gestational diabetes mellitus (GDM) was similar in NHB (6.1%) and NHW (6.3%). At a delivery BMI of 35 kg/m<sup>2</sup>, GDM exposure was associated with an average birthweight only 17 g (95% CI 4, 30) higher in NHW, but 78 g (95% CI 61, 95) higher in NHB (controlling for gestational age, maternal age, infant sex and availability of information on prenatal care). Figures for prepregnancy diabetes were 58 g (95% CI 34, 81) in NHW and 60 g (95% CI 37, 84) in NHB. GDM had a greater impact on birthweight in NHB than in NHW (60 g racial difference [95% CI 39, 82]), while prepregnancy diabetes had a large but similar impact. Similarly, the RR for GDM of having a large- relative to a normal-weight-for-gestational-age infant was lower in NHW (RR 1.41 [95% CI 1.34, 1.49]) than in NHB (RR 2.24 [95% CI 2.05, 2.46]).

#### CONCLUSIONS/INTERPRETATION:

These data suggest that the negative effects of GDM combined with obesity during pregnancy may be greater in NHB than in NHW individuals.

**562: Barros FC, Matijasevich A, Hallal PC, Horta BL, Barros AJ, Menezes AB, Santos IS, Gigante DP, Victora CG. Cesarean section and risk of obesity in childhood, adolescence, and early adulthood: evidence from 3 Brazilian birth cohorts. *Am J Clin Nutr.* 2012 Feb;95(2):465-70. doi: 10.3945/ajcn.111.026401. Epub 2012 Jan 11. PubMed PMID: 22237058; PubMed Central PMCID: PMC3260073.**

#### Abstract

##### BACKGROUND:

The number of cesarean sections (CSs) is increasing in many countries, and there are concerns about their short- and long-term effects. A recent Brazilian study showed a 58% higher prevalence of obesity in young adults born by CS than in young adults born vaginally. Because CS-born individuals do not make contact at birth with maternal vaginal and intestinal bacteria, the authors proposed that this could lead to long-term changes in the gut microbiota that could contribute to obesity.

##### OBJECTIVE:

We assessed whether CS births lead to increased obesity during childhood, adolescence, and early adulthood in 3 birth cohorts.

##### DESIGN:

We analyzed data from 3 birth-cohort studies started in 1982, 1993, and 2004 in Southern Brazil. Subjects were assessed at different ages until 23 y of age. Poisson regression was used to estimate prevalence ratios with adjustment for  $\leq 15$  socioeconomic, demographic, maternal, anthropometric, and behavioral covariates.

##### RESULTS:

In the crude analyses, subjects born by CS had ~50% higher prevalence of obesity at 4, 11, and 15 y of age but not at 23 y of age. After adjustment for covariates, prevalence ratios were markedly reduced and no longer significant for men or women. The only exception was an association for 4-y-old boys in the 1993 cohort, which was not observed in the other 2 cohorts or for girls.

##### CONCLUSION:

In these 3 birth cohorts, CSs do not seem to lead to an important increased risk of obesity during childhood, adolescence, or early adulthood.



**563: Black N, Nabokov V, Vijayadeva V, Novotny R. Higher percent body fat in young women with lower physical activity level and greater proportion Pacific Islander ancestry. *Hawaii Med J.* 2011 Nov;70(11 Suppl 2):43-6. PubMed PMID: 22235159; PubMed Central PMCID: PMC3254223.**

Abstract

Samoan women exhibit high rates of obesity, which can possibly be attenuated through diet and physical activity. Obesity, and body fatness in particular, is associated with increased risk for chronic diseases. Ancestry, physical activity, and dietary patterns have been associated with body composition. Using a cross-sectional design, the relative importance of proportion of Pacific Islander (PI) ancestry, level of physical activity, and macronutrients among healthy women in Honolulu, Hawai'i, ages 18 to 28 years was examined. All data were collected between January 2003 and December 2004. Percent body fat (%BF) was determined by whole body dual energy x-ray absorptiometry (DXA). Nutrient data were derived from a three-day food record. Means and standard deviations were computed for all variables of interest. Bivariate correlation analysis was used to determine correlates of %BF. Multiple regression analysis was used to determine relative contribution of variables significantly associated with %BF. Proportion of PI ancestry was significantly positively associated with %BF ( $P=0.0001$ ). Physical activity level was significantly negatively associated with %BF ( $P=0.0006$ ). Intervention to increase physical activity level of young Samoan women may be effective to decrease body fat and improve health. CRC-NIH grant: 0216.

**564: Gharakhanlou R, Farzad B, Agha-Alinejad H, Steffen LM, Bayati M. Anthropometric measures as predictors of cardiovascular disease risk factors in the urban population of Iran. *Arq Bras Cardiol.* 2012 Feb;98(2):126-35. Epub 2012 Jan 9. English, Portuguese. PubMed PMID: 22231916.**

Abstract

BACKGROUND:

Overweight and obesity are an important public health problem in society, due to their association with various chronic diseases.

OBJECTIVE:

The purpose of this study is to determine the prevalence and distribution of overweight and obesity, using different anthropometric measurements and to identify the best anthropometric indicator which is most closely related to cardiovascular disease (CVD) risk factors in an Iranian urban population.

METHODS:

This cross-sectional study was conducted with 991 men and 1188 women aged 15 to 64 years. Body mass index (BMI), waist circumference (WC), waist-to-hip ratio (WHR), waist-to-height ratio (WHtR) and percentage of body fat were measured. A fasting blood specimen was obtained. CVD risk factors, including fasting blood glucose, triglycerides, total cholesterol (Tchol), low-density (LDL-C) and high-density-lipoprotein cholesterol (HDL-C) were assessed.

RESULTS:

Based on BMI, more than 49% of men and 53% of women were either overweight or obese with 10.2% of men and 18.6% of women being obese. In both men and women, the prevalence of overweight was greater among 40-49 year olds and the prevalence of obesity was greater among those 50+ years. Using the multiple regression analysis, BMI, WHtR and WHR explained the highest



percentage of variation of triglycerides, Tchol/HDL-C ratio and LDL-C in men, respectively, whereas WHR explained the highest percentage of variation of triglycerides and WC explained the highest percentage of variation of Tchol/HDL-C ratio and LDL-C in women.

**CONCLUSION:**

Our data indicated that WHR and WHtR were the anthropometric indicators that best predicted CVD risk factors in men and WHR and WC in women.

**565: Murphy EL, Schlumpf K, Wright DJ, Cable R, Roback J, Sacher R, Busch MP; NHLBI Retrovirus Epidemiology Donor Study II. BMI and obesity in US blood donors: a potential public health role for the blood centre. Public Health Nutr. 2012 Jun;15(6):964-71. doi: 10.1017/S1368980011003405. Epub 2012 Jan 10. PubMed PMID: 22230364; PubMed Central PMCID: PMC3518631.**

**Abstract**

**OBJECTIVE:**

According to the 2007-2008 National Health and Nutrition Examination Survey, the prevalence of obesity in the US population was 33.8 %; 34.3 % and 38.2 %, respectively, in middle-aged men and women. We asked whether available blood donor data could be used for obesity surveillance.

**DESIGN:**

Cross-sectional study of BMI and obesity, defined as BMI  $\geq$  30.0 kg/m<sup>2</sup>. Adjusted odds ratios (aOR) were calculated with logistic regression.

**SETTING:**

A network of six US blood centres.

**SUBJECTS:**

Existing data on self-reported height and weight from blood donors, excluding persons deferred for very low body weight.

**RESULTS:**

Among 1 042 817 donors between January 2007 and December 2008, the prevalence of obesity was 25.1 %; 25.7 % in men and 24.4 % in women. Obesity was associated with middle age (age 50-59 years v. <20 years: aOR = 1.92 for men and 1.81 for women), black (aOR = 1.57 for men and 2.35 for women) and Hispanic (aOR = 1.47 for men and 1.49 for women) race/ethnicity compared with white race/ethnicity, and inversely associated with higher educational attainment (college degree v. high school or lower: aOR = 0.56 for men and 0.48 for women) and double red cell donation and platelet donation.

**CONCLUSIONS:**

Obesity is common among US blood donors, although of modestly lower prevalence than in the general population, and is associated with recognized demographic factors. Blood donors with higher BMI are specifically recruited for certain blood collection procedures. Blood centres can play a public health role in obesity surveillance and interventions.

**566: Low JC, Felner EI, Muir AB, Brown M, Dorcelet M, Peng L, Umpierrez GE. Do obese children with diabetic ketoacidosis have type 1 or type 2 diabetes? Prim Care Diabetes. 2012 Apr;6(1):61-5. doi: 10.1016/j.pcd.2011.11.001. Epub 2012 Jan 9. PubMed PMID: 22230097; PubMed Central PMCID: PMC3746511.**

Abstract

OBJECTIVE:

Many obese children with unprovoked diabetic ketoacidosis (DKA) display clinical features of type 2 diabetes during follow up. We describe the clinical presentation, autoimmune markers and the long-term course of obese and lean children with DKA.

RESEARCH DESIGN AND METHODS:

We reviewed the medical records on the initial acute hospitalization and outpatient follow-up care of 21 newly diagnosed obese and 20 lean children with unprovoked DKA at Emory University affiliated children's hospitals between 1/2003 and 12/2006.

RESULTS:

Obese children with DKA were older and predominantly male, had acanthosis nigricans, and had lower prevalence of autoantibodies to islet cells and glutamic acid decarboxylase than lean children. Half of the obese, but none of the lean children with DKA achieve near-normoglycemia remission and discontinued insulin therapy during follow-up. Time to achieve remission was  $2.2 \pm 2.3$  months. There were no differences on clinical presentation between obese children who achieved near-normoglycemia remission versus those who did not. The addition of metformin to insulin therapy shortly after resolution of DKA resulted in lower hemoglobin A1c (HbA1c) levels, higher rates of near-normoglycemia remission, and lower frequency of DKA recurrence. Near-normoglycemia remission, however, was of short duration and the majority of obese patients required reinstitution of insulin treatment within 15 months of follow-up.

CONCLUSION:

In contrast to lean children with DKA, many obese children with unprovoked DKA display clinical and immunologic features of type 2 diabetes during follow-up. The addition of metformin to insulin therapy shortly after resolution of DKA improves glycemic control, facilitates achieving near-normoglycemia remission and prevents DKA recurrence in obese children with DKA.

**567: Scuteri A, Orru' M, Morrell CH, Tarasov K, Schlessinger D, Uda M, Lakatta EG. Associations of large artery structure and function with adiposity: effects of age, gender, and hypertension. The SardiNIA Study. Atherosclerosis. 2012 Mar;221(1):189-97. doi: 10.1016/j.atherosclerosis.2011.11.045. Epub 2011 Dec 14. PubMed PMID: 22222417; PubMed Central PMCID: PMC3713416.**

Abstract

In the context of obesity epidemic, no large population study has extensively investigated the relationships between total and abdominal adiposity and large artery structure and function nor have such relationships been examined by gender, by age, by hypertensive status. We investigated these potential relationships in a large cohort of community dwelling volunteers participating the SardiNIA Study.

METHODS AND RESULTS:

Total and visceral adiposity and arterial properties were assessed in 6148 subjects, aged 14-102 in a cluster of 4 towns in Sardinia, Italy. Arterial stiffness was measured as aortic pulse wave velocity

(PWV), arterial thickness and lumen as common carotid artery (CCA) intima-media thickness (IMT) and diameter, respectively. We reported a nonlinear relationship between total and visceral adiposity and arterial stiffness, thickness, and diameter. The association between adiposity and arterial properties was steeper in women than in men, in younger than in older subjects. Waist correlated with arterial properties better than BMI. Within each BMI quartile, increasing waist circumference was associated with further significant changes in arterial structure and function.

**CONCLUSION:**

The relationship between total or abdominal adiposity and arterial aging (PWV and CCA IMT) is not linear as described in the current study. Therefore, BMI- and/or waist-specific reference values for arterial measurements might need to be defined.

**568: Damiani D, Kuba VM, Cominato L, Damiani D, Dichtchekian V, Menezes Filho HC. [Metabolic syndrome in children and adolescents: doubts about terminology but not about cardiometabolic risks]. Arq Bras Endocrinol Metabol. 2011 Nov;55(8):576-82. Review. Portuguese. PubMed PMID: 22218439.**

**Abstract**

Metabolic syndrome (MS) has been a condition involved in considerable controversy, starting with the terminology. Gerald Reaven himself, the author who proposed the term MS, advised against the use of this terminology because the definition implies in at least three metabolic alterations, and it is never clear to which group of alterations we are referring to when we say that a patient has MS. In children, the problem is even more complicated, since there are many different adaptations to the criteria used in adults. On the other hand, independent of the terminology, cardiovascular risks are well-established and it is very clear that even children may present metabolic disturbances which predict future metabolic problems. The role of the pediatric endocrinologist or the general pediatrician is to investigate, especially in overweight/obese children, conditions that if treated early, may prevent future complications that today, unfortunately, are being diagnosed only in adult life. In this review, we discuss problems on the definition, epidemiology, pathophysiology, and complications of MS in children and adolescents.

**569: Ritchie LD. Less frequent eating predicts greater BMI and waist circumference in female adolescents. Am J Clin Nutr. 2012 Feb;95(2):290-6. doi: 10.3945/ajcn.111.016881. Epub 2012 Jan 4. PubMed PMID: 22218154; PubMed Central PMCID: PMC3260064.**

**Abstract**

**BACKGROUND:**

Little is known about the effect of eating frequency on adiposity.

**OBJECTIVE:**

The study aim was to assess the prospective relation of an objective measure of eating frequency with adiposity in girls from ages 9-10 to 19-20 y.

**DESIGN:**

By using data from 3-d diet records collected from 2372 girls in the National Heart, Lung, and Blood Institute Growth and Health Study, meal, snack, and total eating frequencies aggregated over the first 2 study years were examined in relation to 10-y change in BMI and waist circumference (WC).

**RESULTS:**

Eating frequency was lower in black and older girls than in white and younger girls ( $P < 0.0001$ ). In whites, lower initial snack and total eating frequencies were related to greater 10-y increases in BMI ( $P = 0.023$  and  $0.012$ , respectively) and WC ( $P = 0.030$  and  $0.015$ , respectively). In blacks, lower initial meal and snack frequencies were related to greater increases in BMI ( $P = 0.004$  and  $0.022$ , respectively) and WC ( $P = 0.052$  and  $0.005$ , respectively). Also, in blacks, lower initial total eating frequency was related to greater increases in WC ( $P = 0.010$ ). After adjustment for baseline adiposity measure, race, parental education, physical activity, television and video viewing, total energy intake, and dieting for weight loss, lower initial total eating frequency remained related to greater 10-y increases in BMI ( $P = 0.013$ ) and WC ( $P = 0.036$ ).

**CONCLUSIONS:**

A lower eating frequency predicts a greater gain in adiposity in adolescent females. Intervention trials are needed to test if changing the frequency of eating can affect obesity risk.

**570: Gomez Duque M, Enciso Olivera C, Peña Torres E, Segura Durán OD, Nieto Estrada VH. [ECAIS study: inadvertent cardiovascular adverse events in sepsis]. Med Intensiva. 2012 Jun-Jul;36(5):343-50. doi: 10.1016/j.medin.2011.11.008. Epub 2012 Jan 2. Spanish. PubMed PMID: 22217461.**

**Abstract**

**OBJECTIVE:**

To describe the incidence of cardiovascular adverse events in patients with sepsis in its various stages.

**DESIGN:**

A longitudinal, descriptive, observational study was carried out.

**SETTING:**

Intensive care units of two university hospitals in Bogotá (Colombia).

**PATIENTS:**

A number of patients consecutively admitted to the adult ICU with a diagnosis of sepsis, and no evidence of previous ischemic myocardial injury.

**INTERVENTIONS:**

Forty-eight hours of electrocardiographic record using Holter technology.

**MAIN VARIABLES:**

Ischemia, cardiac arrhythmia, heart rate variability.

**RESULTS:**

A total of 100 patients were analyzed, 62% being staged as presenting septic shock. Three percent suffered ischemic events detected by Holter and unnoticed through conventional monitoring. Forty-six percent suffered an arrhythmic event detected by Holter, compared with only 6% as detected by conventional monitoring. Mortality was 40%. All patients showed loss of heart rate variability.

**CONCLUSION:**

In this study patients with sepsis showed a low incidence of cardiovascular ischemic events. In contrast, arrhythmic events showed a high incidence. Conventional monitoring failed to detect any of the ischemic events and most arrhythmic events. In this study, cardiovascular events generated by adrenergic discharge had no impact upon mortality.

**571: Kelly AS, Metzger AM, Schwarzenberg SJ, Norris AL, Fox CK, Steinberger J. Hyperleptinemia and hypoadiponectinemia in extreme pediatric obesity. *Metab Syndr Relat Disord.* 2012 Apr;10(2):123-7. doi: 10.1089/met.2011.0086. Epub 2012 Jan 4. PubMed PMID: 22217186; PubMed Central PMCID: PMC3339383.**

Abstract

BACKGROUND:

Adiponectin and leptin, adipokines associated with metabolic syndrome, type 2 diabetes, and cardiovascular disease, have not been well characterized in extreme pediatric obesity. Therefore, levels were compared in youth that were extremely obese (EO) to normal weight (NW), overweight (OW), and obese (OB) youth.

METHODS:

Leptin, adiponectin, body mass index (BMI), blood pressure, fasting glucose, insulin, and lipids were obtained in 277 children and adolescents (age 13.4±2.6 years; 152 boys). Participants were classified into four BMI groups (NW, OW, OB, EO). Variables were compared across groups using analysis of covariance (ANCOVA) adjusted for gender, age, and race.

RESULTS:

Risk factors generally worsened across BMI groups. EO had significantly higher levels of leptin than OB ( $P<0.0001$ ), OW ( $P<0.0001$ ), and NW ( $P<0.0001$ ). Leptin was higher in OB compared to OW ( $P<0.005$ ) and NW ( $P<0.0001$ ) and higher in OW compared to NW ( $P<0.0001$ ). Adiponectin levels in EO did not significantly differ from OB or OW but were significantly lower than NW ( $P<0.0001$ ). Adiponectin was not significantly different among the OB, OW, and NW groups.

CONCLUSIONS:

Leptin was markedly elevated in EO children and adolescents, suggesting that this subset of obese youth may be at particularly high risk of future weight gain and potentially reduced response to weight-loss interventions.

**572: Hoffmann K, Bryl W, Marcinkowski JT, Strażyńska A, Pupek-Musialik D. Estimation of physical activity and prevalence of excessive body mass in rural and urban Polish adolescents. *Ann Agric Environ Med.* 2011 Dec;18(2):398-403. PubMed PMID: 22216819.**

Abstract

Excessive body mass and sedentary lifestyle are well-known factors for cardiovascular risk, which when present in the young population may have significant health consequences, both in the short- and long-term. The aim of the study was to evaluate the prevalence of overweight, obesity, and sedentary lifestyle in two teenage populations living in an urban or rural area. An additional aim was to compare their physical activity. The study was designed and conducted in 2009. The study population consisted of 116 students aged 15-17 years - 61 males (52.7%) and 55 females (47.3%), randomly selected from public junior grammar schools and secondary schools in the Poznań Region. There were 61 respondents from a rural area - 32 males (52.5%) and 29 females (47.5%), whereas 55 teenagers lived in an urban area - 29 males (47.5%) and 26 females (47.3%). Students were asked to complete a questionnaire, which was especially prepared for the study and contained questions concerning health and lifestyle. A basic physical examination was carried out in all 116 students, including measurements of the anthropometric features. Calculations were performed using the statistical package STATISTICA (data analysis software system), Version. 8.0. When comparing these

two populations, no statistically significant differences were detected in the ratio of weight-growth, with the exception of the fact that the urban youths had a larger hip circumference (97.1 v. 94.3 cm,  $p < 0.05$ ). In the group of urban students there were also significantly more subjects with excessive body weight (27.3% v. 24.6%,  $p < 0.05$ ), with a predominant proportion of obese students (60%). There were significantly more male obese individuals (66.7%). In the population of rural teenagers, obesity rate did not differ statistically significantly from the percentage of overweight (11.5% v. 13.1%,  $p > 0.05$ ), the problem of excessive weight affected both sexes in a similar proportion (25% boys and 24.1% girls,  $p > 0.05$ ). In this paper it is shown that there were differences concerning physical activity of teenagers living in urban and rural areas. Urban students much more often declared an active lifestyle (72.7% v. 42.6%,  $p < 0.05$ ), used a variety of additional forms of activity (not counting compulsory physical education classes).

**573: Wang Y. Disparities in pediatric obesity in the United States. Adv Nutr. 2011 Jan;2(1):23-31. doi: 10.3945/an.110.000083. Epub 2011 Jan 10. PubMed PMID: 22211187; PubMed Central PMCID: PMC3042789.**

#### Abstract

This paper describes the disparities in the U.S. childhood obesity epidemic, mainly based on recent nationally representative data. The prevalence of overweight and obesity has increased since the late 1970s; the over time shifts (changes) in distributions of various body fatness measures indicate that U.S. children have become fatter and the obese groups gained more body fat, especially more central obesity, as indicated by waist circumference. However, considerable between-group and regional disparities exist in the prevalence, fatness measures, and over time trends. The disparities and trends are complex, which reflects the complexity and dynamics in obesity etiology. Clearly, some population groups are affected more seriously than others. Native American children have the highest prevalence of obesity, whereas Asians have the lowest rate among all ethnic groups. Preschool age children have a lower obesity prevalence than older children. Young people in some states and cities are twice more likely to be overweight or obese than those living in other regions. Low-socioeconomic status is associated with obesity only among some population groups, e.g. white children and adolescents. Vigorous, effective interventions are needed to promote healthy lifestyles among U.S. young people and to reduce disparities in obesity.

**574: Yoo EG, Park SS, Oh SW, Nam GB, Park MJ. Strong parent-offspring association of metabolic syndrome in Korean families. Diabetes Care. 2012 Feb;35(2):293-5. doi: 10.2337/dc11-1283. Epub 2011 Dec 30. PubMed PMID: 22210569; PubMed Central PMCID: PMC3263909.**

#### Abstract

##### OBJECTIVE:

To investigate the associations of metabolic syndrome (MetS) and its components between adolescents and their parents in Korea.

##### RESEARCH DESIGN AND METHODS:

We analyzed data for 4,657 subjects (1,404 fathers, 1,404 mothers, 957 sons, and 892 daughters) from the Korean National Health and Nutrition Examination Surveys conducted between 1998 and 2008.

##### RESULTS:

Compared with adolescents whose parents did not have MetS, the odds ratio (95% CI) for MetS in adolescents with MetS in one parent was 4.2 (2.1-8.5) and 8.7 (3.4-22.3) in those with MetS in both parents. Among obese adolescents, the prevalence of MetS was 18.2% without parental MetS, whereas 29.2% of obese adolescents with MetS in one parent and 53.9% with MetS in both parents also had MetS (P = 0.01 for trend).

**CONCLUSIONS:**

The risk of MetS increased significantly in adolescents with parental MetS and was especially high in those with coexisting obesity and parental MetS.

**576: Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO. Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region. Int J Behav Nutr Phys Act. 2011 Dec 21;8:140. doi: 10.1186/1479-5868-8-140. PubMed PMID: 22188825; PubMed Central PMCID: PMC3339333.**

**Abstract**

**BACKGROUND:**

Few lifestyle factors have been simultaneously studied and reported for Saudi adolescents. Therefore, the purpose of the present study was to report on the prevalence of physical activity, sedentary behaviors and dietary habits among Saudi adolescents and to examine the interrelationships among these factors using representative samples drawn from three major cities in Saudi Arabia.

**METHODS:**

This school-based cross-sectional study was conducted during the years 2009-2010 in three cities: Al-Khobar, Jeddah and Riyadh. The participants were 2908 secondary-school males (1401) and females (1507) aged 14-19 years, randomly selected using a multistage stratified sampling technique. Measurements included weight, height, sedentary behaviors (TV viewing, playing video games and computer use), physical activity using a validated questionnaire and dietary habits.

**RESULTS:**

A very high proportion (84% for males and 91.2% for females) of Saudi adolescents spent more than 2 hours on screen time daily and almost half of the males and three-quarters of the females did not meet daily physical activity guidelines. The majority of adolescents did not have a daily intake of breakfast, fruit, vegetables and milk. Females were significantly ( $p < 0.05$ ) more sedentary, much less physically active, especially with vigorous physical activity, and there were fewer days per week when they consumed breakfast, fruit, milk and dairy products, sugar-sweetened drinks, fast foods and energy drinks than did males. However, the females' intake of French fries and potato chips, cakes and donuts, and candy and chocolate was significantly ( $p < 0.05$ ) higher than the males'. Screen time was significantly ( $p < 0.05$ ) correlated inversely with the intake of breakfast, vegetables and fruit. Physical activity had a significant ( $p < 0.05$ ) positive relationship with fruit and vegetable intake but not with sedentary behaviors.

**CONCLUSIONS:**

The high prevalence of sedentary behaviors, physical inactivity and unhealthy dietary habits among Saudi adolescents is a major public health concern. There is an urgent need for national policy promoting active living and healthy eating and reducing sedentary behaviors among children and adolescents in Saudi Arabia.

**577: Lee KK, Park HS, Yum KS. Cut-off values of visceral fat area and waist-to-height ratio: diagnostic criteria for obesity-related disorders in Korean children and adolescents. *Yonsei Med J.* 2012 Jan;53(1):99-105. doi: 10.3349/ymj.2012.53.1.99. PubMed PMID: 22187238; PubMed Central PMCID: PMC3250328.**

Abstract

PURPOSE:

The aim of this study was to study the appropriate cut-off value of visceral fat area (VFA) and waist-to-height ratio (WTHR) which increase the risk of obesity-related disorders and to validate the diagnostic criteria of abdominal obesity and metabolic syndrome in Korean children and adolescents.

MATERIALS AND METHODS:

A total 314 subjects (131 boys and 183 girls) were included in this study. The subjects were selected from Korean children and adolescents who visited three University hospitals in Seoul and Uijeongbu from January 1999 to December 2009. All patients underwent computed tomography to measure VFA.

RESULTS:

The cut-off value of VFA associated with an increase risk of obesity-related disorder, according to the receiver operating characteristics curve, was 68.57 cm<sup>2</sup> (sensitivity 59.8%, specificity 76.6%, p=0.01) for age between 10 to 15 years, and 71.10 cm<sup>2</sup> (sensitivity 72.3%, specificity 76.5%, p<0.001) for age between 16 to 18 years. By simple regression analysis, the WTHR corresponding to a VFA of 68.57 cm<sup>2</sup> was 0.54 for boys and 0.61 for girls, and the WTHR corresponding to a VFA of 71.10 cm<sup>2</sup> was 0.51 for boys and 0.56 for girls (p=0.004 for boys, p<0.001 for girls).

CONCLUSION:

Based on the results of this study, VFA which increases the risk of obesity-related disorders was 68.57 cm<sup>2</sup> and the WTHR corresponding to this VFA was 0.54 for boys and 0.61 for girls age between 10-15 years, 71.70 cm<sup>2</sup> and the WTHR 0.51 for boys and 0.56 for girls age between 16-18 years. For appropriate diagnostic criteria of abdominal obesity and obesity-related disorders in Korean children and adolescents, further studies are required.

**578: Green DM, Cox CL, Zhu L, Krull KR, Srivastava DK, Stovall M, Nolan VG, Ness KK, Donaldson SS, Oeffinger KC, Meacham LR, Sklar CA, Armstrong GT, Robison LL. Risk factors for obesity in adult survivors of childhood cancer: a report from the Childhood Cancer Survivor Study. *J Clin Oncol.* 2012 Jan 20;30(3):246-55. doi: 10.1200/JCO.2010.34.4267. Epub 2011 Dec 19. PubMed PMID: 22184380; PubMed Central PMCID: PMC3269951.**

Abstract

PURPOSE:

Many Childhood Cancer Survivor Study (CCSS) participants are at increased risk for obesity. The etiology of their obesity is likely multifactorial but not well understood.

PATIENTS AND METHODS:

We evaluated the potential contribution of demographic, lifestyle, treatment, and intrapersonal factors and self-reported pharmaceutical use to obesity (body mass index  $\geq$  30 kg/m<sup>2</sup>) among 9,284 adult (> 18 years of age) CCSS participants. Independent predictors were identified using



multivariable regression models. Interrelationships were determined using structural equation modeling (SEM).

**RESULTS:**

Independent risk factors for obesity included cancer diagnosed at 5 to 9 years of age (relative risk [RR], 1.12; 95% CI, 1.01 to 1.24; P = .03), abnormal Short Form-36 physical function (RR, 1.19; 95% CI, 1.06 to 1.33; P < .001), hypothalamic/pituitary radiation doses of 20 to 30 Gy (RR, 1.17; 95% CI, 1.05 to 1.30; P = .01), and paroxetine use (RR, 1.29; 95% CI, 1.08 to 1.54; P = .01). Meeting US Centers for Disease Control and Prevention guidelines for vigorous physical activity (RR, 0.90; 95% CI, 0.82 to 0.97; P = .01) and a medium amount of anxiety (RR, 0.86; 95% CI, 0.75 to 0.99; P = .04) reduced the risk of obesity. Results of SEM (N = 8,244; comparative fit index = 0.999; Tucker Lewis index = 0.999; root mean square error of approximation = 0.014; weighted root mean square residual = 0.749) described the hierarchical impact of the direct predictors, moderators, and mediators of obesity.

**CONCLUSION:**

Treatment, lifestyle, and intrapersonal factors, as well as the use of specific antidepressants, may contribute to obesity among survivors. A multifaceted intervention, including alternative drug and other therapies for depression and anxiety, may be required to reduce risk.

**579: Must A, Phillips SM, Naumova EN. Occurrence and timing of childhood overweight and mortality: findings from the Third Harvard Growth Study. J Pediatr. 2012 May;160(5):743-50. doi: 10.1016/j.jpeds.2011.10.037. Epub 2011 Dec 17. PubMed PMID: 22183448; PubMed Central PMCID: PMC3397161.**

**Abstract**

**OBJECTIVE:**

To assess the mortality experience of participants in the Third Harvard Growth Study (1922-1935) who provided  $\geq 8$  years of growth data.

**STUDY DESIGN:**

A total of 1877 participants provided an average of 10.5 body mass index measurements between age 6 and 18 years. Based on these measurements, the participants were classified as ever overweight or ever  $>85$ th percentile for height in childhood. Age at peak height velocity was used to indicate timing of overweight relative to puberty. Relative risks of all-cause and cause-specific mortality according to measures of childhood growth were estimated using Cox proportional hazards survival analysis.

**RESULTS:**

For women, ever being overweight in childhood increased the risks of all-cause and breast cancer death; the risk of death from ischemic heart disease was increased in men. Men with a first incidence of overweight before puberty were significantly more likely to die from ischemic heart disease; women in the same category were more likely to die from all causes and from breast cancer.

**CONCLUSION:**

We find evidence of long-term effects of having ever been overweight, with some evidence that incidence before puberty influences the pattern of risk.

**580: Brown HW, Roberts J. Exploring the factors contributing to sibling correlations in BMI: a study using the Panel Study of Income Dynamics. Obesity (Silver Spring). 2012 May;20(5):978-84. doi: 10.1038/oby.2011.351. Epub 2011 Dec 15. PubMed PMID: 22173572; PubMed Central PMCID: PMC3346928.**

Abstract

Understanding the mechanisms contributing to correlated BMI outcomes in a social network such as siblings will help policy makers reduce the burden of disease associated with obesity. There are two potential mechanisms explaining correlated BMI outcomes in a biologically related social network: (i) time constant factors such as genetic heritability and habits formed during childhood and (ii) factors that change over time some of which are dependent on the frequency of interactions between the social network, for example, social norms shaped by the social network's shifting attitudes towards weight and behaviors related to weight, or environmental factors like opportunities for exercise. This study aims to distinguish between time constant factors from factors that are likely to change over time to gain a better understanding of the mechanisms explaining the correlation in sibling BMI. We exploit data from the Panel Study of Income Dynamics (PSID) over 1999-2007 estimating the correlation in BMI for adult siblings who currently live in separate households but grew-up in the same household and adolescent siblings currently living in the same household to isolate the influence of factors that change over time. The findings indicate that time constant factors explain some of the overall correlation in sibling BMI for both cohorts of siblings. Factors that change over time only significantly impact on the overall correlation in BMI for adolescent siblings suggesting if there is a social network influence on correlations in BMI this is facilitated by sharing the same household.

**581: Chippirraz EL, Sorlí L, Montero M, Mas V, Granados EL, Vilaplana C, Alvarez-Lerma F, Knobel H, Horcajada JP. [Predictive factors for pneumonia in adults infected with the new pandemic A (H1N1) influenza virus]. Rev Esp Quimioter. 2011 Dec;24(4):204-8. Spanish. PubMed PMID: 22173190.**

Abstract

BACKGROUND:

On April 2009 a new A (H1N1) influenza virus was identified with a higher incidence of severe outcome in younger people, most of them with pneumonia. The objective of our study was to identify the predictive risk factors of pneumonia in patients with the new A (H1N1) influenza virus infection.

METHODS:

Prospective cohort study of adults infected with the new A (H1N1) influenza virus, admitted in a university hospital, from June 2009 to January 2010. Pneumonia was defined as the presence of any pulmonary infiltrate of any distribution with no other evident cause, in the chest radiography. A comparative analysis was made with patients with A (H1N1) influenza without pneumonia.

RESULTS:

281 patients with influenza A (H1N1) were treated. Thirty of them (10.6%) had pneumonia and 11 (3.9%) required intensive care. The global mortality was 0.7%. For the comparative analysis, 42 patients with influenza A (H1N1) without pneumonia were analysed (20 hospitalized and 22 nonhospitalised). In the multivariate analysis, obesity (BMI>30), (OR: 3.8; IC 95%: 0.99-15.0), time since symptom onset until hospital admission (OR 1.34; IC 95% 1.04-1.72), serum C reactive protein

levels (OR:1.10; IC 95%: 0.98-1.24) and serum IgG2 levels (OR:1.08; IC 95%: 1.0- 1.01), were identified as independent risk factors for pneumonia.

**CONCLUSION:**

Obesity, delay in medical care and higher levels of C reactive protein and IgG2 were predictive factors for pneumonia in adult patients with A (H1N1) influenza infection.

**582: Centers for Disease Control and Prevention (CDC). Obesity in K-8 students - New York City, 2006-07 to 2010-11 school years. MMWR Morb Mortal Wkly Rep. 2011 Dec 16;60(49):1673-8. PubMed PMID: 22169977.**

**Abstract**

Overweight and obese children are more likely to develop risk factors that can lead to respiratory, metabolic, and cardiovascular illness. The increase in prevalence of childhood overweight and obesity in the United States since the 1960s has been well documented. In New York City, in 1996, an estimated 19.7% of third grade children and 21.2% of sixth grade children in public and private schools were found to be overweight; in 2003, an estimated 43% of the city's public elementary school students were found to be overweight, and 24% of these students were obese. To update city data on childhood obesity and evaluate public health interventions, the New York City Department of Health and Mental Hygiene analyzed body mass index (BMI) data for public schoolchildren in kindergarten through eighth grade (K-8), using data from the 2006-07 to 2010-11 school years. This report summarizes the results of that analysis, which found that, overall, the prevalence of obesity in grades K-8 decreased 5.5%, from 21.9% in 2006-07 to 20.7% in 2010-11. Obesity decreased significantly among children in all age groups and in all socioeconomic and racial/ethnic populations; however, the decrease was smaller among black (1.9%) and Hispanic (3.4%) children than among Asian/Pacific Islander (7.6%) and white (12.5%) children. Despite the decreases in obesity, continued public health interventions are needed to further reduce the prevalence of obesity and to eliminate disparities among schoolchildren in New York City.

**583: Pappa E, Kontodimopoulos N, Papadopoulos AA, Tountas Y, Niakas D. Physician consultations according to different BMI levels of the Greek general population. Int J Environ Res Public Health. 2011 Nov;8(11):4300-11. doi: 10.3390/ijerph8114300. Epub 2011 Nov 14. PubMed PMID: 22163208; PubMed Central PMCID: PMC3228572.**

**Abstract**

Obesity constitutes a global epidemic which is rapidly becoming a major public health problem in many parts of the world, threatening peoples' health and quality of life. The aim of our study was to estimate the prevalence and impact of overweight and obesity on physician consultations and frequency of use and furthermore, to investigate whether physician consultations in each of the groups defined by BMI level correspond to the need for care implied by health risk level, using logistic regression models. The survey was carried out in Greece in 2006 and involved complete data from 645 individuals consulted by physicians. Overweight and obese users constituted 41.7% and 19% of the sample respectively. The findings showed firstly that the odds of obese individuals visiting a physician (OR 2.15) or making more than three visits (OR 2.12) was doubled compared to the odds of individuals with normal weight. Secondly, we conclude that physician consultations in overweight and obese subgroups as well as the frequency of visits were predicted by factors such as co-morbidities,

low HRQL, low educational level which are associated directly or indirectly with obesity, and thus with a greater health need, assuming vertical equity in the utilization of such services.

**584: Herring SJ, Henry TQ, Klotz AA, Foster GD, Whitaker RC. Perceptions of low-income African-American mothers about excessive gestational weight gain. *Matern Child Health J.* 2012 Dec;16(9):1837-43. doi: 10.1007/s10995-011-0930-6. PubMed PMID: 22160656; PubMed Central PMCID: PMC3835695.**

Abstract

A rising number of low-income African-American mothers gain more weight in pregnancy than is recommended, placing them at risk for poor maternal and fetal health outcomes. Little is known about the perceptions of mothers in this population that may influence excessive gestational weight gain. In 2010-2011, we conducted 4 focus groups with 31 low-income, pregnant African-Americans in Philadelphia. Two readers independently coded the focus group transcripts to identify recurrent themes. We identified 9 themes around perceptions that encouraged or discouraged high gestational weight gain. Mothers attributed high weight gain to eating more in pregnancy, which was the result of being hungrier and the belief that consuming more calories while pregnant was essential for babies' health. Family members, especially participants own mothers, strongly reinforced the need to "eat for two" to make a healthy baby. Mothers and their families recognized the link between poor fetal outcomes and low weight gains but not higher gains, and thus, most had a greater pre-occupation with too little food intake and weight gain rather than too much. Having physical symptoms from overeating and weight retention after previous pregnancies were factors that discouraged higher gains. Overall, low-income African-American mothers had more perceptions encouraging high gestational weight gain than discouraging it. Interventions to prevent excessive weight gain need to be sensitive to these perceptions. Messages that link guideline recommended weight gain to optimal infant outcomes and mothers' physical symptoms may be most effective for weight control.

**585: Mendoza JA, Nicklas TA, Liu Y, Stuff J, Baranowski T. General versus central adiposity and relationship to pediatric metabolic risk. *Metab Syndr Relat Disord.* 2012 Apr;10(2):128-36. doi: 10.1089/met.2011.0064. Epub 2011 Dec 13. PubMed PMID: 22149935; PubMed Central PMCID: PMC3339386.**

Abstract

BACKGROUND:

The influence of moderate-to-vigorous physical activity (MVPA) and general versus central adiposity on pediatric metabolic risk is not well described.

METHODS:

Secondary analyses on pediatric participants from the National Health and Nutrition Examination Survey, 2003-2006 (n=2,155). MVPA (min/day) and adherence to MVPA recommendations were assessed objectively by accelerometers. Body mass index (BMI) z-score and waist circumference (WC) were measured by standard protocols. The main dependent variables included an overall metabolic risk score and clinical tests related to metabolic risk. A series of linear regression analyses were used to examine BMI z-score versus WC as a mediator of the relationship between MVPA and the metabolic risk score or the individual components, controlling for sociodemographic covariates. All

analyses with BMI z-score as an independent variable controlled for WC and vice versa. The product-of-coefficients method was used to test for mediation.

**RESULTS:**

MVPA adherence was inversely associated and WC was positively associated with the metabolic risk score (all  $P < 0.05$ ). MVPA was inversely associated with systolic blood pressure and positively associated with high-density lipoprotein cholesterol (HDL-C) (all  $P < 0.05$ ). WC was inversely associated with HDL-C and positively associated with C-reactive protein (CRP), glycohemoglobin, fasting triglycerides, and fasting insulin (all  $P < 0.05$ ). WC mediated the relationship between MVPA and CRP or HDL-C (both  $P < 0.05$ ).

**CONCLUSIONS:**

MVPA correlated with pediatric metabolic risk and this relationship was mediated by central adiposity for CRP and HDL-C. This finding suggests the need for programs to screen for and improve children's MVPA and WC.

**586: Svendstrup M, Knudsen NJ, Jørgensen T, Rasmussen LB, Ovesen L, Perrild H, Laurberg P. Stagnation in body mass index in Denmark from 1997/1998 to 2004/2005, but with geographical diversity. Dan Med Bull. 2011 Dec;58(12):A4344. PubMed PMID: 22142573.**

**Abstract**

**INTRODUCTION:**

We analyzed the trend in body mass index (BMI) as well as in the prevalence of overweight and obesity among Danish adults, mainly women, from 1997/1998 to 2004/2005 and evaluated any regional differences.

**MATERIAL AND METHODS:**

Data were drawn from two cross-sectional population-based studies conducted in parallel in Aalborg and Copenhagen from 1997/1998 and 2004/2005. Height and weight were measured in a total of 7,487 participants in the two cohorts.

**RESULTS:**

In the total cohort, we found no significant difference in BMI from 1997/1998 to 2004/2005 ( $p = 0.828$ ). There was an increase in BMI in Aalborg of 0.32 ( $p = 0.030$ ), while in Copenhagen we observed a statistically significant decrease in BMI of 0.30 ( $p = 0.017$ ). The difference in change over time in BMI between the two regions was significant ( $p = 0.002$ ). Also the difference in the trend in prevalence of overweight and obesity was statistically significant between the two cities ( $p = 0.010$ ).

**CONCLUSION:**

Our results indicate that the obesity epidemic is leveling off - at least among women - and that it may even be receding in Copenhagen. Nevertheless, the absolute average BMI values and the prevalence of overweight and obesity in both cities are high which underlines the need for further initiatives to prevent obesity-related health risks in the future.

**FUNDING:**

The DanThyr studies were supported by funding from the Tømmerhandler Vilhelm Bang Foundation, the Copenhagen Corporation Research Foundation, the 1991 Pharmacy Foundation, the Danish Medical Foundation, the Health Insurance Foundation, the Agnes and Knut Mørk Foundation, the Wedel Wedelsborg Foundation, the Ortho-Clinical Foundation and BRAHMS Diagnostica.

**TRIAL REGISTRATION:**

not relevant.

**587: Hannon TS, Rofey DL, Ryan CM, Clapper DA, Chakravorty S, Arslanian SA. Relationships among obstructive sleep apnea, anthropometric measures, and neurocognitive functioning in adolescents with severe obesity. J Pediatr. 2012 May;160(5):732-5. doi: 10.1016/j.jpeds.2011.10.029. Epub 2011 Dec 3. PubMed PMID: 22137667; PubMed Central PMCID: PMC3297729.**

Abstract

OBJECTIVE:

To explore associations between measures of obstructive sleep apnea (OSA) and sleep quality, anthropometrics, and neurocognitive functioning in severely obese adolescents.

STUDY DESIGN:

This was a cross-sectional pilot study performed at an academic medical center in 37 severely obese (body mass index [BMI] >97th percentile) adolescents. Study evaluations included polysomnography, BMI, waist circumference, and standardized neurocognitive tests to assess memory, executive functioning, psychomotor efficiency, academic achievement, and an approximation of full-scale IQ. Outcome data were evaluated categorically, based on clinical criteria for the diagnosis of OSA, and continuously to quantify associations between sleep parameters, anthropometrics, and neurocognitive test results.

RESULTS:

Sleep fragmentation and poorer sleep quality were associated with reduced psychomotor efficiency, poorer memory recall, and lower scores on standardized academic tests. Having evidence of OSA was associated with lower math scores, but not with other neurocognitive measures. BMI and waist circumference were negatively associated with oxygen saturation.

CONCLUSION:

Our pilot study findings suggest that sleep fragmentation and poorer sleep quality have implications for neurocognitive functioning in obese adolescents. The epidemic of childhood obesity has dire implications, not only for increasing cardiometabolic pathology, but also for possibly promoting less readily apparent neurologic alterations associated with poor sleep quality.

**588: Ross KR, Storfer-Isser A, Hart MA, Kibler AM, Rueschman M, Rosen CL, Kercsmar CM, Redline S. Sleep-disordered breathing is associated with asthma severity in children. J Pediatr. 2012 May;160(5):736-42. doi: 10.1016/j.jpeds.2011.10.008. Epub 2011 Dec 1. PubMed PMID: 22133422; PubMed Central PMCID: PMC3975834.**

Abstract

OBJECTIVE:

To examine the relationships among obesity, sleep-disordered breathing (SDB, defined as intermittent nocturnal hypoxia and habitual snoring), and asthma severity in children. We hypothesized that obesity and SDB are associated with severe asthma at a 1- year follow-up.

STUDY DESIGN:

Children aged 4-18 years were recruited sequentially from a specialty asthma clinic and underwent physiological, anthropometric, and biochemical assessment at enrollment. Asthma severity was determined after 1 year of follow-up and guideline-based treatment, using a composite measure of level of controller medication, symptom burden, and health care utilization. Multivariate logistic

regression was used to examine adjusted associations of SDB and obesity with asthma severity at 12-month follow-up.

**RESULTS:**

Among 108 subjects (mean age, 9.1±3.4 years; 45.4% African-American; 67.6% male), obesity and SDB were common, affecting 42.6% and 29.6% of subjects, respectively. After adjusting for obesity, race, and sex, children with SDB had a 3.62-fold increased odds of having severe asthma at follow-up (95% CI, 1.26-10.40). Obesity was not associated with asthma severity.

**CONCLUSION:**

SDB is a modifiable risk factor for severe asthma after 1 year of specialty asthma care. Further studies are needed to determine whether treating SDB improves asthma morbidity.

**589: Foley LS, Maddison R, Jiang Y, Olds T, Ridley K. It's not just the television: survey analysis of sedentary behaviour in New Zealand young people. Int J Behav Nutr Phys Act. 2011 Dec 1;8:132. doi: 10.1186/1479-5868-8-132. PubMed PMID: 22133039; PubMed Central PMCID: PMC3247842.**

**Abstract**

**BACKGROUND:**

Sedentary behaviour has been linked with adverse health outcomes in young people; however, the nature and context of being sedentary is poorly understood. Accurate quantification and description of sedentary behaviour using population-level data is required. The aim of this research was to describe sedentary behaviour among New Zealand (NZ) youth and examine whether sedentary behaviour differs by Body Mass Index (BMI) status in this population.

**METHODS:**

A national representative cross-sectional survey of young people aged 5-24 years (n = 2,503) was conducted in 2008-2009. Data from this survey, which included subjectively (recall diary; n = 1,309) and objectively (accelerometry; n = 960) measured sedentary behaviour for participants aged 10-18 years were analysed using survey weighted methods.

**RESULTS:**

Participants self-reported spending on average 521 minutes per day (standard error [SE] 5.29) in total sedentary behaviour, 181 minutes per day (SE 3.91) in screen-based sedentary activities (e.g., television and video games), and 340 minutes per day (SE 5.22) in other non-screen sedentary behaviours (e.g., school, passive transport and self-care). Accelerometer-measured total sedentary behaviour was on average 420 minutes per day (SE 4.26), or 53% (SE 0.42%) of monitored time. There were no statistically significant differences in time spent in sedentary behaviour among overweight, obese and healthy/underweight young people.

**CONCLUSIONS:**

Both subjective and objective methods indicate that NZ youth spend much of their waking time being sedentary. No relationships were found between sedentary behaviour and BMI status. These findings extend previous research by describing engagement in specific sedentary activities, as well as quantifying the behaviour using an objective method. Differences in what aspects of sedentary behaviour the two methods are capturing are discussed. This research highlights the potential for future interventions to target specific sedentary behaviours or demographic groups.



**590: Williams PT. Evidence that obesity risk factor potencies are weight dependent, a phenomenon that may explain accelerated weight gain in western societies. PLoS One. 2011;6(11):e27657. doi: 10.1371/journal.pone.0027657. Epub 2011 Nov 23. PubMed PMID: 22132124; PubMed Central PMCID: PMC3223188.**

Abstract

BACKGROUND:

We have shown that individuals at the highest percentiles of the body mass index (BMI) distribution (i.e., most overweight) experience greater increases in body weight from sedentary lifestyle than those from the lowest percentiles. The purpose of the current analyses was to assess whether recent, accelerated increases in obesity could potentially be due to increased vulnerability to obesity risk factors as the population has become more overweight.

METHODOLOGY/PRINCIPAL FINDINGS:

Quantile regression was used to compare BMI population percentiles to obesity risk factors (lower education, diets characterized by high-meat/low-fruit content, parental adiposity) in two independent samples of men (N(1) = 3,513, N(2) = 11,365) and women (N(1) = 15,809, N(2) = 10,159). The samples were subsets of the National Walkers' (Study 1) and Runners' (Study 2) Health Studies whose physical activities fell short of nationally recommended activity levels. The data were adjusted for age, race, and any residual effects of physical activity. The regression slopes for BMI vs. education, diet, and family history became progressively stronger from the lowest (e.g., 5(th), 6(th)...) to the highest (e.g., ..., 94(th), 95(th)) BMI percentiles. Compared to the 10(th) BMI percentile, their effects on the 90(th) BMI percentile were: 1) 2.7- to 8.6-fold greater in women and 2.0- to 2.4-fold greater in men for education; 2) 3.6- to 4.8-fold greater in women and 1.7- to 2.7-fold greater in men for diet; and 3) 2.0- to 2.6-fold greater in women and 1.7-fold greater in men for family history.

CONCLUSIONS/SIGNIFICANCE:

Thus we propose risk factors that produce little weight gain in lean individuals may become more potent with increasing adiposity. This leads us to hypothesize that an individual's obesity is itself a major component of their obesogenic environment, and that, the cycle of weight gain and increased sensitivity to obesity risk factors may partly explain recent increases in obesity in western societies.

**591: Lerret SM, Garcia-Rodriguez L, Skelton J, Biank V, Kilway D, Telega G. Predictors of nonalcoholic steatohepatitis in obese children. Gastroenterol Nurs. 2011 Nov-Dec;34(6):434-7. doi: 10.1097/SGA.0b013e3182371356. PubMed PMID: 22129796; PubMed Central PMCID: PMC3977472.**

Abstract

As the prevalence of childhood obesity increases, the incidence of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis (NASH) also escalates. This study's purpose was to identify the clinical criteria to aid in determining when a liver biopsy is indicated for this growing population because currently no guidelines exist. We performed a retrospective chart review on all patients who were seen in the Nutrition Exercise and Weight Loss Kids™ Program at the Children's Hospital of Wisconsin from July 2003 through December 2004. We analyzed only individuals who underwent liver biopsy with the following criteria: (1) no evidence of other liver disease and (2) aspartate transaminase or alanine aminotransferase greater than 200 IU/L or any elevation of or for more than 6 months. Of the 284 patients reviewed, only eight patients (3%) met the criteria for analysis. Biopsy results demonstrated that 100% had histological evidence of NASH with steatosis, and seven of the eight



(87.5%) had NASH with fibrosis, cirrhosis, or both. Obese children with an aspartate transaminase or alanine aminotransferase greater than 200 IU/L or any elevation of aspartate transaminase or alanine aminotransferase for more than 6 months, have a strong likelihood of having NASH with or without fibrosis, cirrhosis, or both.

**592: Samara-Boustani D, Colmenares A, Elie C, Dabbas M, Beltrand J, Caron V, Ricour C, Jacquin P, Tubiana-Rufi N, Levy-Marchal C, Delcroix C, Martin D, Benadjaoud L, Jacqz Aigrain E, Trivin C, Laborde K, Thibaud E, Robert JJ, Polak M. High prevalence of hirsutism and menstrual disorders in obese adolescent girls and adolescent girls with type 1 diabetes mellitus despite different hormonal profiles. Eur J Endocrinol. 2012 Feb;166(2):307-16. doi: 10.1530/EJE-11-0670. Epub 2011 Nov 29. PubMed PMID: 22127492.**

Abstract

OBJECTIVES:

To compare the pubertal development, the hormonal profiles and the prevalence of hirsutism and menstrual disorders in obese adolescent girls and adolescent girls with type 1 diabetes mellitus (T1DM).

METHODS:

Data were collected from 96 obese adolescent girls and 78 adolescent girls with T1DM at Tanner stage IV or V, whose ages ranged between 11.9 and 17.9 years.

RESULTS:

High prevalence of hirsutism and menstrual disorder was found in the obese adolescent girls (36.5 and 42% respectively) and the adolescent girls with T1DM (21 and 44% respectively). The obese girls were significantly younger at pubarche, thelarche and menarche than the girls with T1DM. Hirsutism in the obese girls and those with T1DM was associated with hyperandrogenaemia and a raised free androgen index (FAI). When the cause of the raised FAI was investigated in both the groups of girls with hirsutism, the raised FAI in the obese girls was due to low serum sex hormone-binding globulin (SHBG) levels. In contrast, the raised FAI of the girls with T1DM and hirsutism was due to hyperandrogenaemia. Menstrual disorders in the T1DM girls were associated also with hyperandrogenaemia unlike obese girls.

CONCLUSIONS:

Hirsutism and menstrual disorders are common in obese adolescent girls and adolescent girls with T1DM. Although hyperandrogenaemia is present in both groups of girls, the androgenic profiles of the two groups differ. The hyperandrogenaemia in the obese girls is primarily due to their decreased serum SHBG levels, whereas the hyperandrogenaemia in the girls with T1DM is due to their increased androgen production.

**593: Singhal N, Mathur P, Pathak R. Validity of simple, novel measures of generalized and central obesity among young Asian Indian women. Indian J Med Sci. 2011 Dec;65(12):518-27. doi: 10.4103/0019-5359.109901. PubMed PMID: 23548252.**

Abstract

OBJECTIVE:

The study examined the validity of simple and novel measures of generalized obesity- [body mass index (BMI, kg/m<sup>2</sup>), fat mass index (FMI, kg/m<sup>2</sup>), and body fat percent (BF%)] and central obesity--

[waist circumference (WC, cm), waist-hip ratio (WHR), and waist-to-height ratio (WC/ht ratio)] against BF% and BMI as criteria. It also aimed to predict fat-free mass index (FFMI, kg/m<sup>2</sup>), FMI, and BF% ranges for various BMI categories.

DESIGN:

Cross-sectional study.

MATERIALS AND METHODS:

Weight, BF%, fat mass (FM), and fat-free mass (FFM) were measured using leg-to-leg bioelectrical impedance in 183 women. Height, hip, and waist circumferences were taken using standard methods. The indices [FMI, FFMI, WHR, W/ht ratio] were computed.

RESULTS:

The study revealed that FMI, BMI, WC, and WC/ht ratio were highly correlated with BF% ( $r = 0.978$ ;  $r = 0.939$ ;  $r = 0.894$ ;  $r = 0.890$ , respectively,  $P < 0.01$ ), whereas WHR had the least correlation ( $r = 0.497$ ,  $P < 0.01$ ). The FMI showed a higher positive predictive value (PPV) in diagnosing generalized obesity compared to BMI with BF% as criterion and higher PPV than BF% with BMI as criterion. Considering only the indices of central obesity, WC was the most predictive in identifying women with high BF% ( $\geq 30\%$  and  $\geq 35\%$ ), whereas WC/ht ratio proved to be a better index in identifying women with BMI greater than 23 and 25 kg/m<sup>2</sup>. The normal BMI for Asians (18.5-23 kg/m<sup>2</sup>), the at-risk group (23- 25 kg/m<sup>2</sup>), and the obese class I (25-30 kg/m<sup>2</sup>) corresponded to FFMI values of 14.1-15.1 kg/m<sup>2</sup>, 15.1-15.5 kg/m<sup>2</sup>, 15.5-16.1 kg/m<sup>2</sup>, respectively, and to FMI values of 4.4-7.9 kg/m<sup>2</sup>, 7.9-9.5 kg/m<sup>2</sup>, 9.5-13.9 kg/m<sup>2</sup>, respectively. The BMI cutoff of 18.5, 23, 25, 27.5, and 30 kg/m<sup>2</sup> corresponded to BF% of 23.6, 34.3, 38.3, 42.6, and 46.3%, respectively.

CONCLUSION:

FMI was a better predictor of generalized obesity compared to BMI and BF%. Considering abdominal obesity as an independent risk factor for insulin resistance, both WC and WC/ht ratio were able to predict central obesity better than WHR. Finally, the study presents ranges for FFMI and FMI for various BMI categories.

**594: Guedes DP, Rocha GD, Silva AJ, Carvalho IM, Coelho EM. Effects of social and environmental determinants on overweight and obesity among Brazilian schoolchildren from a developing region. Rev Panam Salud Publica. 2011 Oct;30(4):295-302. PubMed PMID: 22124687.**

Abstract

OBJECTIVE:

To identify the social and environmental determinants most strongly associated with overweight and obesity in Brazilian schoolchildren from a developing region.

METHODS:

Data were collected from a community-based survey of schoolchildren from the Valley of Jequitinhonha, Minas Gerais, Brazil. The sample was composed of 5 100 school children aged 6-18 years. Overweight and obesity were defined by body mass index based on the current method recommended by the World Health Organization in 2007. Social and environmental determinants were collected by using a structured questionnaire.

RESULTS:

The prevalence of overweight and obesity was 11.1% and 2.7% in girls and 8.2% and 1.5% in boys, respectively. The chance of overweight was higher in schoolchildren who engaged in remunerated work (odds ratio [OR] = 2.19, 95% confidence interval [CI] 1.30- 3.26), whose parents had higher

education levels (OR = 1.52, 95% CI 1.12-2.07), who had two or fewer siblings (OR = 1.74, 95% CI 1.21-2.49), and who were in a high economic class (OR = 1.93, 95% CI 1.32-2.85). Schoolchildren who traveled by car to school (OR = 1.50, 95% CI 1.14-1.91), lived < 5 km from school (OR = 1.64, 95% CI 1.06-2.39), and consumed foods sold in the school cafeteria (OR = 1.56, 95% CI 1.19-2.16) presented high odds of being overweight.

#### CONCLUSIONS:

The background from a particular region of a country should be considered when implementing preventive measures regarding overweight and obesity, especially for very poor, developing regions like the Valley of Jequitinhonha. Measures taken should consider a multilevel intervention that includes the family, school, and physical environment.

**595: Fulkerson JA, Farbakhsh K, Lytle L, Hearst MO, Dengel DR, Pasch KE, Kubik MY. Away-from-home family dinner sources and associations with weight status, body composition, and related biomarkers of chronic disease among adolescents and their parents. J Am Diet Assoc. 2011 Dec;111(12):1892-7. doi: 10.1016/j.jada.2011.09.035. Erratum in: J Am Diet Assoc. 2012 May;112(5):762. PubMed PMID: 22117665; PubMed Central PMCID: PMC3230299.**

#### Abstract

Information regarding associations between types of away-from-home family meal sources and obesity and other chronic diseases could help guide dietetics practitioners. The present study describes the purchase frequency of away-from-home food sources for family dinner (fast food, other restaurant purchases, home delivery, and takeout foods) and associations with weight status and percent body fat among adolescents (n=723) and parents (n=723) and related biomarkers of chronic disease among adolescents (n=367). A cross-sectional study design was used with baseline parent surveys and anthropometry/fasting blood samples from two community-based obesity studies (2006-2008) in Minnesota. Logistic regression and general linear modeling assessed associations between frequency of family dinner sources (weekly vs none in past week) and outcomes (parent and adolescent overweight/obesity and percent body fat; adolescent metabolic risk cluster z score, cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein, triglycerides, fasting glucose, insulin, and systolic blood pressure. Models accounted for clustering and adjusted for study allocation, baseline meal frequency, and demographic characteristics. The odds of overweight/obesity were considerably greater when families reported at least one away-from-home dinner purchase in the past week (odds ratio=1.2 to 2.6). Mean percent body fat, metabolic risk cluster z scores, and insulin levels were significantly greater with weekly purchases of family dinner from fast-food restaurants (P<0.05). Mean percent body fat, metabolic risk cluster z scores, and high-density lipoprotein levels were significantly higher for families who purchased weekly family dinner from takeout sources (P<0.05). Although frequent family dinners may be beneficial for adolescents, the source of dinners is likely as important in maintaining a healthy weight. Interventions should focus on encouragement of healthful family meals.

**596: van Vliet M, Heymans MW, von Rosenstiel IA, Brandjes DP, Beijnen JH, Diamant M. Cardiometabolic risk variables in overweight and obese children: a worldwide comparison. *Cardiovasc Diabetol.* 2011 Nov 24;10:106. doi: 10.1186/1475-2840-10-106. Review. PubMed PMID: 22114790; PubMed Central PMCID: PMC3258193.**

Abstract

The growing prevalence rate of pediatric obesity, which is frequently accompanied by several cardiometabolic risk factors, has become a serious global health issue. To date, little is known regarding differences for cardiometabolic risk factors (prevalence and means) in children from different countries. In the present review, we aimed to provide a review for the available evidence regarding cardiometabolic risk factors in overweight pediatric populations. We therefore provided information with respect to the prevalence of impaired fasting glucose/impaired glucose tolerance, high triglycerides, low HDL-cholesterol and hypertension (components of the metabolic syndrome) among cohorts from different countries. Moreover, we aimed to compare the means of glucose and lipid levels (triglycerides and HDL-cholesterol) and systolic/diastolic blood pressure values. After careful selection of articles describing cohorts with comparable age and sex, it was shown that both prevalence rates and mean values of cardiometabolic risk factors varied largely among cohorts of overweight children. After ranking for high/low means for each cardiometabolic risk parameter, Dutch-Turkish children and children from Turkey, Hungary, Greece, Germany and Poland were in the tertile with the most unfavorable risk factor profile overall. In contrast, cohorts from Norway, Japan, Belgium, France and the Dominican Republic were in the tertile with most favorable risk profile. These results should be taken with caution, given the heterogeneity of the relatively small, mostly clinical cohorts and the lack of information concerning the influence of the values of risk parameters on true cardiometabolic outcome measures in comparable cohorts. The results of our review present a fair estimation of the true differences between cardiometabolic risk profiles among pediatric cohorts worldwide, based on available literature.

**597: Stotland N, Tsoh JY, Gerbert B. Prenatal weight gain: who is counseled? *J Womens Health (Larchmt).* 2012 Jun;21(6):695-701. doi: 10.1089/jwh.2011.2922. Epub 2011 Nov 23. PubMed PMID: 22111873; PubMed Central PMCID: PMC3366096.**

Abstract

BACKGROUND:

Because prenatal counseling is associated with adherence to weight gain guidelines, we sought to identify patient-level characteristics associated with the receipt of counseling on weight gain, nutrition, and exercise during prenatal care.

METHODS:

We performed a secondary data analysis on a cohort of women enrolled in a prenatal counseling intervention study. We controlled for study group assignment (intervention versus usual care) as well as patient characteristics in a multivariable analysis. We performed three separate multivariable analyses for predictors of provider-patient discussions about (1) weight gain, (2) nutrition, and (3) exercise.

RESULTS:

The cohort consisted of 311 predominantly low-income prenatal patients receiving care at several sites in the San Francisco Bay Area. Prepregnancy body mass index, nutrition knowledge, maternal

age, parity, and type of insurance were not significantly associated with receipt of counseling about weight gain, nutrition, and exercise. In the multivariable analysis, white women were significantly less likely to be counseled about nutrition than non-white women ( $p=0.02$ ). Former smokers were more likely to receive counseling about nutrition and exercise than never smokers ( $p<0.05$ ). More advanced gestational age was associated with a higher rate of counseling on weight gain ( $p=0.01$ ).

**CONCLUSIONS:**

Despite having the highest rates of excessive weight gain nationally, white women were the least likely to receive counseling about nutrition during pregnancy. Interventions that prompt clinicians and simplify counseling may improve counseling rates for all patients during prenatal care.

**598: Schönbeck Y, Talma H, van Dommelen P, Bakker B, Buitendijk SE, Hirasing RA, van Buuren S. Increase in prevalence of overweight in Dutch children and adolescents: a comparison of nationwide growth studies in 1980, 1997 and 2009. PLoS One. 2011;6(11):e27608. doi: 10.1371/journal.pone.0027608. Epub 2011 Nov 15. PubMed PMID: 22110687; PubMed Central PMCID: PMC3216980.**

**Abstract**

**OBJECTIVE:**

To assess the prevalence of overweight and obesity among Dutch children and adolescents, to examine the 30-years trend, and to create new body mass index reference charts.

**DESIGN:**

Nationwide cross-sectional data collection by trained health care professionals.

**PARTICIPANTS:**

10,129 children of Dutch origin aged 0-21 years.

**MAIN OUTCOME MEASURES:**

Overweight (including obesity) and obesity prevalences for Dutch children, defined by the cut-off values on body mass index references according to the International Obesity Task Force.

**RESULTS:**

In 2009, 12.8% of the Dutch boys and 14.8% of the Dutch girls aged 2-21 years were overweight and 1.8% of the boys and 2.2% of the girls were classified as obese. This is a two to three fold higher prevalence in overweight and four to six fold increase in obesity since 1980. Since 1997, a substantial rise took place, especially in obesity, which increased 1.4 times in girls and doubled in boys. There was no increase in mean BMI SDS in the major cities since 1997.

**CONCLUSIONS:**

Overweight and obesity prevalences in 2009 were substantially higher than in 1980 and 1997. However, the overweight prevalence stabilized in the major cities. This might be an indication that the rising trend in overweight in The Netherlands is starting to turn.

**599: Borys JM, Le Bodo Y, Jebb SA, Seidell JC, Summerbell C, Richard D, De Henauw S, Moreno LA, Romon M, Visscher TL, Raffin S, Swinburn B; EEN Study Group. EPODE approach for childhood obesity prevention: methods, progress and international development. *Obes Rev.* 2012 Apr;13(4):299-315. doi: 10.1111/j.1467-789X.2011.00950.x. Epub 2011 Nov 23. Review. PubMed PMID: 22106871; PubMed Central PMCID: PMC3492853.**

Abstract

Childhood obesity is a complex issue and needs multi-stakeholder involvement at all levels to foster healthier lifestyles in a sustainable way. 'Ensemble Prévenons l'Obésité Des Enfants' (EPODE, Together Let's Prevent Childhood Obesity) is a large-scale, coordinated, capacity-building approach for communities to implement effective and sustainable strategies to prevent childhood obesity. This paper describes EPODE methodology and its objective of preventing childhood obesity. At a central level, a coordination team, using social marketing and organizational techniques, trains and coaches a local project manager nominated in each EPODE community by the local authorities. The local project manager is also provided with tools to mobilize local stakeholders through a local steering committee and local networks. The added value of the methodology is to mobilize stakeholders at all levels across the public and the private sectors. Its critical components include political commitment, sustainable resources, support services and a strong scientific input--drawing on the evidence-base--together with evaluation of the programme. Since 2004, EPODE methodology has been implemented in more than 500 communities in six countries. Community-based interventions are integral to childhood obesity prevention. EPODE provides a valuable model to address this challenge.

**600: Gigante DP, de França GV, Sardinha LM, Iser BP, Meléndez GV. Temporal variation in the prevalence of weight and obesity excess in adults: Brazil, 2006 to 2009. *Rev Bras Epidemiol.* 2011 Sep;14 Suppl 1:157-65. English, Portuguese. PubMed PMID: 22002152.**

Abstract

Overweight and obesity are public health issues that affect an important part of the world population. This study aims at describing the trends in overweight and obesity prevalence rates from 2006 to 2009, by means of telephone surveys in 27 Brazilian cities, with a population aged 18 years or older. The body mass index (BMI) was calculated by the reported height and weight; overweight and obesity were considered as BMI >25 kg/m<sup>2</sup> and >30 kg/m<sup>2</sup>, respectively. Temporal variation in overweight and obesity prevalence is presented for men and women, according to age group, schooling, stable relationship, and skin color. Poisson regression was used for the analysis. Overweight prevalence was 43.0, 42.7, 44.2 and 46.6%, for each year of the period from 2006 to 2009, respectively. For obesity, in the same period, the trend was: 11.4, 12.7, 13.2 and 13.8%. The temporal trend varied in relation to some demographic and socioeconomic variables. The prevalence was higher among women and young adults. The temporal trend was independent of the relationship status of the interviewees, but the prevalence was higher among white women and those with less years of schooling. The results in this study confirmed the urgent need for effective prevention and control measures, as the increasing trend is occurring in a short period of time, especially among youngsters.

**601: Conde WL, Borges C. The risk of incidence and persistence of obesity among Brazilian adults according to their nutritional status at the end of adolescence. Rev Bras Epidemiol. 2011 Sep;14 Suppl 1:71-9. English, Portuguese. PubMed PMID: 22002144.**

Abstract

INTRODUCTION:

The prevalence of obesity has increased among adults living in developed or developing countries. In Brazil, obesity among adults affected at least 10% of population from 2008 to 2009.

OBJECTIVES:

Based on data from VIGITEL, we will estimate the incidence and persistence of obesity among Brazilian adults from 2006 to 2009.

METHODS:

We used complete cases with demographic, socioeconomic, and anthropometric data of samples from 2006 to 2009. All estimates were adapted for the Brazilian population in 2007. The relative risk (RR) for incidence and persistence of overweight or obesity was estimated by the Poisson multiple regression. All estimates were adjusted for smoking behavior, age, and practice of physical activity.

RESULTS:

The incidence of overweight among individuals with low or normal weight at the age of 20 is estimated in 40% for males and 30% for females. The persistence of obesity, in turn, is estimated in 65% for males and 47% for females. The gradient of obesity as a function of schooling is virtually inexistent in males. Among females, the gradient is negative, with linear and statistically significant associations.

CONCLUSION:

These characteristics, combined with the increase of obesity among young adults found in other studies, show the urgent need to use more effective public policies, which reduce public exposure to foods of poor nutritional quality and develop initiatives to promote physical activity.

**602: Fielding JE, Teutsch S, Koh H. Health reform and Healthy People initiative. Am J Public Health. 2012 Jan;102(1):30-3. doi: 10.2105/AJPH.2011.300312. Epub 2011 Nov 28. PubMed PMID: 22095359; PubMed Central PMCID: PMC3490564.**

Abstract

The passage of the Affordable Care Act builds on and strengthens the foundation for prevention and wellness that Healthy People--the nation's health promotion and disease prevention aspirations for a healthier nation--established. The Affordable Care Act reaffirms the themes of Healthy People by promoting population-based prevention and sets the stage for Healthy People 2020. The heart of Healthy People 2010 lies in its leading health indicators, reflecting high-priority health issues for the nation. National progress requires broad application of the ecological health model. We reviewed the status of each Healthy People 2010 indicator and noted how the Affordable Care Act drives future positive health outcomes using the ecological model of health as a prism for viewing health improvement.

**603: Troost JP, Rafferty AP, Luo Z, Reeves MJ. Temporal and regional trends in the prevalence of healthy lifestyle characteristics: United States, 1994-2007. Am J Public Health. 2012 Jul;102(7):1392-8. doi: 10.2105/AJPH.2011.300326. Epub 2012 May 21. PubMed PMID: 22095344; PubMed Central PMCID: PMC3478033.**

Abstract

OBJECTIVES:

We examined temporal and regional trends in the prevalence of health lifestyles in the United States.

METHODS:

We used 1994 to 2007 data from the Behavioral Risk Factor Surveillance System to assess 4 healthy lifestyle characteristics: having a healthy weight, not smoking, consuming fruits and vegetables, and engaging in physical activity. The concurrent presence of all 4 characteristics was defined as a healthy overall lifestyle. We used logistic regression to assess temporal and regional trends.

RESULTS:

The percentages of individuals who did not smoke (4% increase) and had a healthy weight (10% decrease) showed the strongest temporal changes from 1994 to 2007. There was little change in fruit and vegetable consumption or physical activity. The prevalence of healthy lifestyles increased minimally over time and varied modestly across regions; in 2007, percentages were higher in the Northeast (6%) and West (6%) than in the South (4%) and Midwest (4%).

CONCLUSIONS:

Because of the large increases in overweight and the declines in smoking, there was little net change in the prevalence of healthy lifestyles. Despite regional differences, the prevalence of healthy lifestyles across the United States remains very low.

**604: Lee S, Kim CM, Kim HJ, Park HS. Interactive effects of main genotype, caloric intakes, and smoking status on risk of obesity. Asia Pac J Clin Nutr. 2011;20(4):563-71. PubMed PMID: 22094842.**

Abstract

The aim of this study was to determine the strong candidate genes increasing susceptibility to obesity among previously reported obesity-related genes in Korean subjects and evaluate gene-environmental interactions in susceptibility to obesity. The study population comprised of 163 adolescents (95 boys and 68 girls) and their parents (97 men and 96 women). We used multivariable-adjusted logistic regression analysis, and classification and regression tree (CART) analysis incorporating both the genetic (ADRB2 R16G genotype) and environmental (overeating, smoking status, and parent's obese status) variables. The polymorphisms were genotyped with SNP-ITTM assays using the SNPstream 25KTM System (Orchid Biosciences, New Jersey, USA). Arg16 allele of ADRB2 R16G, smoking and overeating were linked to an increased risk of obesity in adults. CART analysis showed that smoking parents who overate and carried the Arg allele, ADRB2 R16G, had an odds ratio (OR) of 11.7 (95% confidence interval (CI), 2.13-64.04) for obesity compared to non-smoking parents who had none of these factors. Among children, the highest risk group for obesity was the overeater with obese parents (OR, 5.20; 95% CI, 1.86-14.53). The results of the study indicate that beta2-adrenoceptor polymorphism may contribute to the development of obesity through gene-environmental interactions. Further replication studies with larger sample size would be needed to confirm our study results.



**605: Cook S, Kavey RE. Dyslipidemia and pediatric obesity. *Pediatr Clin North Am.* 2011 Dec;58(6):1363-73, ix. doi: 10.1016/j.pcl.2011.09.003. Review. PubMed PMID: 22093856; PubMed Central PMCID: PMC3220879.**

Abstract

Cardiovascular disease is the leading cause of death in the United States despite a reduction in mortality over the past 4 decades. Much of this success is attributed to public health efforts and more aggressive treatment of clinical disease. The rising rates of obesity and diabetes, especially among adolescents and young adults, raise concern for increases in mortality. National vital statistics have shown a leveling of cardiovascular disease death rates in the fifth decade of life. Public health efforts have begun to address childhood obesity. This article reviews the dyslipidemia associated with obesity in childhood and outlines a proposed approach to management.

**606: Al Saran K, Elsayed S, Sabry A, Hamada M. Obesity and metabolic syndrome in hemodialysis patients: single center experience. *Saudi J Kidney Dis Transpl.* 2011 Nov;22(6):1193-8. PubMed PMID: 22089780.**

Abstract

Recent evidence highlights the relationship between metabolic syndrome (MS) and increased risk of cardiovascular (CV) diseases. The overall prevalence of the MS is increased in hemodialysis population. To evaluate the prevalence of the MS and obesity in our hemodialysis (HD) patients, we studied 234 HD patients and 34 patients were excluded from the study due to incomplete data at the time of analysis. For the remaining 200 patients, 92% were below the age of 70 years old, 162 (81%) were hypertensive, 90(45%) were diabetic, 54 (27%) had ischemic heart diseases, and 116 (58%) had MS. The incidence of MS in the male and female patients was 50% and 67%, respectively, with a mean abdominal girth more than 94 cm in males and only 14% of the patients revealed abdominal girth measurement below 80 cm in females. We conclude that there is a high prevalence of obesity and MS in our HD patients. Such patients may be at risk of developing morbidities and may benefit from therapy such as lifestyle changes including weight reduction and increased physical activity.

**607: Rokholm B, Silventoinen K, Tynelius P, Gamborg M, Sørensen TI, Rasmussen F. Increasing genetic variance of body mass index during the Swedish obesity epidemic. *PLoS One.* 2011;6(11):e27135. doi: 10.1371/journal.pone.0027135. Epub 2011 Nov 7. PubMed PMID: 22087252; PubMed Central PMCID: PMC3210134.**

Abstract

BACKGROUND AND OBJECTIVES:

There is no doubt that the dramatic worldwide increase in obesity prevalence is due to changes in environmental factors. However, twin and family studies suggest that genetic differences are responsible for the major part of the variation in adiposity within populations. Recent studies show that the genetic effects on body mass index (BMI) may be stronger when combined with presumed risk factors for obesity. We tested the hypothesis that the genetic variance of BMI has increased during the obesity epidemic.

METHODS:

The data comprised height and weight measurements of 1,474,065 Swedish conscripts at age 18-19 y born between 1951 and 1983. The data were linked to the Swedish Multi-Generation Register and

the Swedish Twin Register from which 264,796 full-brother pairs, 1,736 monozygotic (MZ) and 1,961 dizygotic (DZ) twin pairs were identified. The twin pairs were analysed to identify the most parsimonious model for the genetic and environmental contribution to BMI variance. The full-brother pairs were subsequently divided into subgroups by year of birth to investigate trends in the genetic variance of BMI.

**RESULTS:**

The twin analysis showed that BMI variation could be explained by additive genetic and environmental factors not shared by co-twins. On the basis of the analyses of the full-siblings, the additive genetic variance of BMI increased from 4.3 [95% CI 4.04-4.53] to 7.9 [95% CI 7.28-8.54] within the study period, as did the unique environmental variance, which increased from 1.4 [95% CI 1.32-1.48] to 2.0 [95% CI 1.89-2.22]. The BMI heritability increased from 75% to 78.8%.

**CONCLUSION:**

The results confirm the hypothesis that the additive genetic variance of BMI has increased strongly during the obesity epidemic. This suggests that the obesogenic environment has enhanced the influence of adiposity related genes.

**608: Montezuma T, Antônio FI, Rosa e Silva AC, Sá MF, Ferriani RA, Ferreira CH.**

**Assessment of symptoms of urinary incontinence in women with polycystic ovary syndrome. Clinics (Sao Paulo). 2011;66(11):1911-5. PubMed PMID: 22086521; PubMed Central PMCID: PMC3203963.**

**Abstract**

**OBJECTIVES:**

The pelvic floor muscles are sensitive to androgens, and due to hyperandrogenism, women with polycystic ovary syndrome can have increased mass in these muscles compared to controls. The aim of this study is to compare reports of urine leakage and quality of life between women with and without polycystic ovary syndrome.

**METHODS:**

One hundred thirteen 18-to 40-year-old nulliparous women with polycystic ovary syndrome or without the disease (controls) were recruited at the University Hospital of School Medicine of São Paulo University at Ribeirão Preto City, Brazil. The subjects were not taking any hormonal medication, had not undergone previous pelvic surgery and did not exercise their pelvic floor muscles. The women were divided into the following four groups: I-polycystic ovary syndrome with normal body mass index (n = 18), II-polycystic ovary syndrome with body mass index >25 (n = 32), III-controls with normal body mass index (n = 29), and IV-controls with Body Mass Index >25 (n = 34). Quality of life was evaluated using the SF-36 questionnaire, and the subjects with urinary complaints also completed the International Consultation on Incontinence Questionnaire Short Form to evaluate the severity of their urinary incontinence.

**RESULTS:**

The replies to the International Consultation on Incontinence Questionnaire Short Form revealed a significant difference in urinary function between groups, with 24% of the subjects in group IV reporting urinary incontinence. The mean scores for the SF-36 questionnaire revealed that group II had the lowest quality of life.

**CONCLUSIONS:**

The control obese group (IV) reported a higher prevalence of urinary incontinence. There was no difference in the reported frequency of urine loss between the polycystic ovary syndrome and control

groups with normal body mass index or between the polycystic ovary syndrome and control groups with body mass index >25.

**609: Grandone A, Perrone L, Cirillo G, Di Sessa A, Corona AM, Amato A, Cresta N, Romano T, Miraglia del Giudice E. Impact of phosphodiesterase 8B gene rs4704397 variation on thyroid homeostasis in childhood obesity. Eur J Endocrinol. 2012 Feb;166(2):255-60. doi: 10.1530/EJE-11-0703. Epub 2011 Nov 14. PubMed PMID: 22084153.**

Abstract

CONTEXT:

Several studies demonstrated that obese children have higher TSH than normal-weight children. The polymorphism rs4704397 in the phosphodiesterase 8B (PDE8B) gene showed an association with TSH.

OBJECTIVES:

i) To assess the effect of PDE8B on TSH in obese children; ii) to dissect the role of obesity degree in modulating this association; and iii) to stratify the individual risk to show hyperthyrotropinaemia according to PDE8B genotype.

METHODS:

Eight hundred and sixty-seven Italian obese children were investigated. Clinical data and thyroid hormones were evaluated and the PDE8B rs4704397 was genotyped.

RESULTS:

PDE8B A/A homozygous subjects showed higher TSH ( $P=0.0005$ ) compared with A/G or G/G. No differences were found for peripheral thyroid hormones. Among A/A children, 22% had hyperthyrotropinaemia, compared with 11.6% of heterozygotes and 10.8% of G/G ( $P=0.0008$ ). Consistently, A/A had an odds ratio (OR) to show abnormal TSH level of 2.25 ( $P=0.0004$ ). Body mass index (BMI) appeared correlated with TSH ( $P=0.0001$ ), but the strength of the effect of PDE8B on TSH was independent of BMI ( $P=0.1$ ). Children were subdivided into six groups according to obesity degree and genotypes. PDE8B A/A with BMI SDS above 3 had the highest OR (OR 2.6,  $P=0.0015$ ) to have hyperthyrotropinaemia, whereas G/G with BMI SDS below 3 showed the lowest possibilities (OR 0.3,  $P=0.005$ ).

CONCLUSIONS:

We have shown: i) in obese children, PDE8B is associated with TSH; ii) the interaction between adiposity and PDE8B on TSH is not synergistic, but follows an additive model; and iii) impact of this association in the stratification of individual risk to have hyperthyrotropinaemia.

**610: Nyberg ST, Heikkilä K, Fransson EI, Alfredsson L, De Bacquer D, Bjorner JB, Bonenfant S, Borritz M, Burr H, Casini A, Clays E, Dragano N, Erbel R, Geuskens GA, Goldberg M, Hoofman WE, Houtman IL, Jöckel KH, Kittel F, Knutsson A, Koskenvuo M, Leineweber C, Lunau T, Madsen IE, Hanson LL, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Rugulies R, Siegrist J, Suominen S, Vahtera J, Virtanen M, Westerholm P, Westerlund H, Zins M, Ferrie JE, Theorell T, Steptoe A, Hamer M, Singh-Manoux A, Batty GD, Kivimäki M; IPD-Work Consortium. Job strain in relation to body mass index: pooled analysis of 160 000 adults from 13 cohort studies. *J Intern Med.* 2012 Jul;272(1):65-73. doi: 10.1111/j.1365-2796.2011.02482.x. Epub 2011 Dec 5. PubMed PMID: 22077620; PubMed Central PMCID: PMC3437471.**

Abstract

BACKGROUND:

Evidence of an association between job strain and obesity is inconsistent, mostly limited to small-scale studies, and does not distinguish between categories of underweight or obesity subclasses.

OBJECTIVES:

To examine the association between job strain and body mass index (BMI) in a large adult population.

METHODS:

We performed a pooled cross-sectional analysis based on individual-level data from 13 European studies resulting in a total of 161 746 participants (49% men, mean age, 43.7 years). Longitudinal analysis with a median follow-up of 4 years was possible for four cohort studies (n = 42 222).

RESULTS:

A total of 86 429 participants were of normal weight (BMI 18.5-24.9 kg m<sup>-2</sup>), 2149 were underweight (BMI < 18.5 kg m<sup>-2</sup>), 56 572 overweight (BMI 25.0-29.9 kg m<sup>-2</sup>) and 13 523 class I (BMI 30-34.9 kg m<sup>-2</sup>) and 3073 classes II/III (BMI ≥ 35 kg m<sup>-2</sup>) obese. In addition, 27 010 (17%) participants reported job strain. In cross-sectional analyses, we found increased odds of job strain amongst underweight [odds ratio 1.12, 95% confidence interval (CI) 1.00-1.25], obese class I (odds ratio 1.07, 95% CI 1.02-1.12) and obese classes II/III participants (odds ratio 1.14, 95% CI 1.01-1.28) as compared with participants of normal weight. In longitudinal analysis, both weight gain and weight loss were related to the onset of job strain during follow-up.

CONCLUSIONS:

In an analysis of European data, we found both weight gain and weight loss to be associated with the onset of job strain, consistent with a 'U'-shaped cross-sectional association between job strain and BMI. These associations were relatively modest; therefore, it is unlikely that intervention to reduce job strain would be effective in combating obesity at a population level.

**611: Kelly AS, Metzger AM, Rudser KD, Fitch AK, Fox CK, Nathan BM, Deering MM, Schwartz BL, Abuzzahab MJ, Gandrud LM, Moran A, Billington CJ, Schwarzenberg SJ. Exenatide as a weight-loss therapy in extreme pediatric obesity: a randomized, controlled pilot study. Obesity (Silver Spring). 2012 Feb;20(2):364-70. doi: 10.1038/oby.2011.337. Epub 2011 Nov 10. PubMed PMID: 22076596; PubMed Central PMCID: PMC3684414.**

Abstract

The objective of this pilot study was to evaluate the effects of exenatide on BMI (primary endpoint) and cardiometabolic risk factors in nondiabetic youth with extreme obesity. Twelve children and adolescents (age 9-16 years old) with extreme obesity (BMI  $\geq 1.2$  times the 95th percentile or BMI  $\geq 35$  kg/m<sup>2</sup>) were enrolled in a 6-month, randomized, open-label, crossover, clinical trial consisting of two, 3-month phases: (i) a control phase of lifestyle modification and (ii) a drug phase of lifestyle modification plus exenatide. Participants were equally randomized to phase-order (i.e., starting with control or drug therapy) then crossed-over to the other treatment. BMI, body fat percentage, blood pressure, lipids, oral glucose tolerance tests (OGTT), adipokines, plasma biomarkers of endothelial activation, and endothelial function were assessed at baseline, 3-, and 6-months. The mean change over each 3-month phase was compared between treatments. Compared to control, exenatide significantly reduced BMI (-1.7 kg/m<sup>2</sup>), 95% confidence interval (CI) (-3.0, -0.4),  $P = 0.01$ , body weight (-3.9 kg, 95% CI (-7.11, -0.69),  $P = 0.02$ ), and fasting insulin (-7.5 mU/l, 95% CI (-13.71, -1.37),  $P = 0.02$ ). Significant improvements were observed for OGTT-derived insulin sensitivity ( $P = 0.02$ ) and  $\beta$ -cell function ( $P = 0.03$ ). Compliance with the injection regimen was excellent ( $\geq 94\%$ ) and exenatide was generally well-tolerated (the most common adverse event was mild nausea in 36%). These preliminary data suggest that exenatide should be evaluated in larger, well-controlled trials for its ability to reduce BMI and improve cardiometabolic risk factors in youth with extreme obesity.

**612: Peltzer K, Pengpid S. Overweight and obesity and associated factors among school-aged adolescents in Ghana and Uganda. Int J Environ Res Public Health. 2011 Oct;8(10):3859-70. doi: 10.3390/ijerph8103859. Epub 2011 Sep 28. PubMed PMID: 22073017; PubMed Central PMCID: PMC3210586.**

Abstract

The aim of this study was to assess overweight and obesity and associated factors in school-going adolescents in low income African countries (Ghana, Uganda). The total sample included 5,613 school children aged 13 to 15 years from nationally representative samples from two African countries. Bivariate and multivariable analyses were conducted to assess the relationship between dietary behavior, substance use, physical activity, psychosocial factors and overweight or obesity. The prevalence of overweight and obesity was determined based on self-reported height and weight and the international child body mass index standards. Results indicate a prevalence of overweight or obesity of 10.4% among girls and 3.2% among boys, and 0.9% and 0.5% obesity only among girls and boys, respectively. Among girls smoking cigarettes and loneliness and among boys smoking cigarettes were found to be associated with overweight or obesity in multivariable analysis. Overweight status was not associated with the intake of fruits, vegetables, and sedentary behavior. Low prevalence rates of overweight or obesity were found in Ghana and Uganda. Smoking cessation and social programs could be integrated into strategies to prevent and treat overweight and obesity in youth.

KEYWORDS:

Ghana; Uganda; dietary behavior; global school-based health survey; obesity; overweight; physical activity; psychosocial factors; sedentary behavior.

**613: Olson ML, Maalouf NM, Oden JD, White PC, Hutchison MR. Vitamin D deficiency in obese children and its relationship to glucose homeostasis. J Clin Endocrinol Metab. 2012 Jan;97(1):279-85. doi: 10.1210/jc.2011-1507. Epub 2011 Nov 9. PubMed PMID: 22072738; PubMed Central PMCID: PMC3251943.**

Abstract

OBJECTIVES:

The aim of the study was to compare the prevalence of vitamin D deficiency in obese and non-overweight children in North Texas, to examine relationships between dietary habits and 25-hydroxyvitamin D [25(OH)D] level in obese children, and to examine the relationship between 25(OH)D level and markers of abnormal glucose metabolism and blood pressure.

PATIENTS AND METHODS:

Using a cross-sectional design, systolic and diastolic blood pressure, dietary information, serum 25(OH)D, fasting glucose and insulin, 2-h glucose from oral glucose tolerance test, hemoglobin A1c, and homeostasis model assessment of insulin resistance were recorded for 411 obese subjects (6-16 yr old) at an obesity referral clinic. 25(OH)D was also obtained from 87 control non-overweight subjects (6-16 yr old).

RESULTS:

Ninety-two percent of obese subjects had a 25(OH)D level below 75 nmol/liter, and 50% were below 50 nmol/liter. Among non-overweight subjects, these frequencies were 68 and 22%, respectively (both  $P < 0.01$  compared with obese subjects). 25(OH)D was negatively associated with soda intake ( $P < 0.001$ ), juice intake ( $P = 0.009$ ), and skipping breakfast ( $P < 0.001$ ). 25(OH)D was negatively correlated with homeostasis model assessment of insulin resistance ( $r = -0.19$ ;  $P = 0.001$ ) and 2-h glucose ( $r = -0.12$ ;  $P = 0.04$ ) after adjustment for body mass index and age but was not correlated with hemoglobin A1c, systolic blood pressure Z score, or diastolic blood pressure Z score.

CONCLUSIONS:

Vitamin D deficiency is common in children in this southern United States location and is significantly more prevalent in obese children. Lower 25(OH)D level is associated with risk factors for type 2 diabetes in obese children.

**614: Aguilar Cordero MJ, González Jiménez E, Álvarez Ferré J, Padilla López CA, Rivas García F, Perona JS, García Aguilar R. [Study of the serum levels of leptin, ceruloplasmin and lipoprotein (a) as indicators of cardiovascular risk in a population of adolescents in Granada (Spain)]. Nutr Hosp. 2011 Sep-Oct;26(5):1130-3. doi: 10.1590/S0212-16112011000500032. Spanish. PubMed PMID: 22072364.**

Abstract

Numerous studies have focused on establishing a relation between the serum values of biomolecules such as leptin, ceruloplasmin, and lipoprotein (a), and the nutritional state and levels of diastolic and systolic blood pressure in subjects with problems of overweight or obesity. However, in many cases, the results obtained have not been conclusive. The results of our study confirm the existence of a

statistically significant association between the serum levels of these biomolecules, the nutritional state of the subjects, and levels of diastolic and systolic blood pressure. For the population of overweight and obese adolescents studied, the evaluation of the serum concentrations of these biomolecules was found to be an important instrument that could be used to identify those subjects with an elevated risk of suffering cardiovascular disorders basically derived from a hypertensive status.

**615: Soler Marín A, Xandri Graupera JM. Nutritional status of intellectual disabled persons with Down syndrome. Nutr Hosp. 2011 Sep-Oct;26(5):1059-66. doi: 10.1590/S0212-16112011000500021. PubMed PMID: 22072353.**

Abstract

BACKGROUND:

To evaluate the nutritional status in young adults with Down syndrome (DS).

METHODS:

38 persons, 15 (39.5%) women and 23 (60.5%) men (age range 16-38 years) with DS. Body composition was analyzed from anthropometric parameters according to standard protocols, levels of physical activity and nutrient intake was determined using validated questionnaires: a 72 h recall and consumption food frequency questionnaire (recorded by the tutors of the participants). The following biochemical parameters were estimated: blood lipids profile (total cholesterol, HDL-cholesterol, LDL-cholesterol and triglycerides), glucose, uric acid, proteins (ferritin and transferrin), minerals (Fe, Zn, Cu, Mg and Se) and vitamins (B12, B9, E, C and  $\beta$ -carotene). The data were statistically analysed with Student t tests.

RESULTS:

From the 38 participants, 36.8% were overweight (BMI: 25-29.9 kg/m<sup>2</sup>) and 36.8% were obese (BMI $\geq$ 30 kg/m<sup>2</sup>). The BMI differed from women to men (P<0.001) (29.1 $\pm$ 4.3 and 27.9 $\pm$ 4.6 kg/m<sup>2</sup>, respectively). The average values of the biochemical parameters, except for uric acid, both in women and men were within normal ranges. The average energy intake was 1,909 $\pm$ 337 and 2,260 $\pm$ 284 kcal/day for women and men, respectively. The contribution of proteins to total caloric intake was 18.8 and 16.3% for women and men, respectively, while carbohydrates contributed 43.3 and 45.6%, and lipids 37.9 and 38.1%. All participants were sedentary.

CONCLUSION:

In this group presented a high prevalence of overweight and obesity. Further research is required in the development and evaluation of appropriate intervention programs to improve their nutritional status and quality of life.

**616: González Jiménez E, Aguilar Cordero MJ, García García CJ, García López PA, Álvarez Ferré J, Padilla López CA. [Prevalence of nutritional overweight and obesity and hypertension as well as their relationship with anthropometric indicators in a population of students in Granada and its provinces]. Nutr Hosp. 2011 Sep-Oct;26(5):1004-10. doi: 10.1590/S0212-16112011000500013. Spanish. PubMed PMID: 22072345.**

Abstract

INTRODUCTION:

Several authors have found correlations between anthropometric parameters and blood pressure levels in overweight and obese subjects. This paper is an update on the potential of these parameters as a tool for predicting cardiovascular risk.

AIMS:

to estimate the prevalence of overweight and obesity. Second verify the existence of a significant correlation between the main anthropometric indicators and the blood pressure levels.

SAMPLE:

The population consisted of 977 children and adolescents between 9 and 17 years of age belonging to 13 schools in the province of Granada and city.

METHODOLOGY:

anthropometric evaluation in which they were assessed six skinfolds, waist circumference, hip and determination of blood pressure in three consecutive occasions. The anthropometric assessment phase began in March 2008 lasted until April 2009.

RESULTS:

We found that the prevalence of overweight in girls varied between 18.3% and 32.2%. For its part, the prevalence among boys was between 10.9% and 26.1%. Regarding the prevalence of obesity, the girls had similar rates between 4.5% and 15.1%. Among boys the prevalence of obesity was similar, and found rates between 4.7% and 12.6%. Of all the parameters measured, body mass index and waist circumference were the anthropometric indicators that showed a better correlation to blood pressure.

CONCLUSIONS:

BMI and WC are useful anthropometric indicators to predict cardiovascular risk in non adults.

**617: Fernández Morales I, Aguilar Vilas MV, Mateos Vega CJ, Martínez Para MC. Breakfast quality and its relationship to the prevalence of overweight and obesity in adolescents in Guadalajara (Spain). Nutr Hosp. 2011 Sep-Oct;26(5):952-8. doi: 10.1590/S0212-16112011000500005. PubMed PMID: 22072337.**

Abstract

INTRODUCTION:

Many young people today skip the first meal of the day in order to lose weight.

OBJECTIVE:

To study the impact of breakfast quality and skipping breakfast on the BMI and on the prevalence of overweight and obesity.

METHOD:

A nutritional study was carried out on a population of 467 secondary school students (12-17 years of age) in Guadalajara, Spain based on seven-day food journal and food frequency questionnaires.



Sociodemographic data were also collected. Anthropometric measurements of weight and adiposity (BMI, percentage body fat) were also taken.

**RESULTS:**

Boys aged 15-17 ate the highest proportion of full breakfasts (18.18%), compared with 4.34% for girls the same age. Inverse relationships were recorded between breakfast energy intake and the BMI (-0.1132) and between the BMI and calcium, fibre, dairy product, and cereal intake. There was practically no correlation between protein intake and the BMI. Subjects who did not eat dairy products and those who ate cooked breakfasts had the highest BMIs.

**CONCLUSIONS:**

Skipping breakfast was not an effective way to lose weight, and weight was inversely related to breakfast quality.

**618: Pinheiro AC, Rojas P, Carrasco F, Gómez P, Mayas N, Morales I. Acanthosis nigricans as an indicator of insulin resistance in Chilean adult population. Nutr Hosp. 2011 Sep-Oct;26(5):940-4. doi: 10.1590/S0212-16112011000500003. PubMed PMID: 22072335.**

**Abstract**

**BACKGROUND:**

Insulin resistance (IR) is associated with a higher risk of multiple diseases and its early detection would allow to minimize the associated risk; the presence of acanthosis nigricans (AN) it's associated to the presence of IR.

**OBJECTIVE:**

To evaluate the sensibility and specificity of AN to diagnose IR in a group of Chilean patients.

**METHODS:**

We designed a cross-sectional study and it was included subjects that were attended at the Center for the Attention of Metabolic Diseases at the Faculty of Medicine, University of Chile. Sixty subjects (18-60 years age) were included. It was determined BMI and diagnosed AN and skin phototype; blood samples were taken and calculated the HOMA-IR. The normality of the variables where analyzed by Kolmogorov-Smirnov test. There were used  $\chi^2$  and the diagnostic concordance between AN and IR was determined using the Kappa index and Pearson's correlation. Sensibility, specificity, positive and negative predictive value were calculated and accepted  $p < 0.05$ .

**RESULTS:**

The IR diagnose was 67% and AN was 43%. The major proportion of subjects diagnosed as positive for IR were also positive for AN (84.6%). The sensibility of AN to find IR was an 84% and specificity was 100%. Positive and negative predictive values were 100% and 89% respectively. It was observed a positive association between BMI and HOMA-IR ( $r=0.674$ ;  $r^2=0.454$ ;  $p < 0.001$ ).

**CONCLUSION:**

To detect acanthosis nigricans in Chilean population may be effective for the early diagnose of insulin resistance and, therefore, reduce the associated cost of the late treatment of glucose metabolic disturbances.

**619: Bilinski H, Rennie D, Duggleby W. Weight status and health characteristics of rural Saskatchewan children. Rural Remote Health. 2011;11(4):1699. Epub 2011 Oct 24. PubMed PMID: 22070419.**

Abstract

**INTRODUCTION:**

The present and future health of children is significantly threatened by physical inactivity, poor diet, and the obesity epidemic. Limited studies on the health of children living in rural settings suggest that rural children have a higher prevalence of overweight and may not be as active as their urban counterparts. The purpose of this study was to examine the health behaviors and weight status of children aged 8 to 13 years living in rural Saskatchewan, Canada.

**METHODS:**

A cross-sectional health questionnaire assessed the health behaviors (eg physical activity, sedentary behaviors, dietary patterns) and perception of health status (eg very healthy, quite healthy, not very healthy) of 99 children attending a rural school. Heights and weights were measured and used to calculate BMI's (kg/m<sup>2</sup>). The BMIs were used to categorize children as healthy weight, overweight, or obese.

**RESULTS:**

Thirty-four percent of children were overweight (23.7%) or obese (10.3%) with a significantly higher prevalence of overweight/obesity in boys aged 6 to 8 years ( $p < 0.05$ ). A significantly higher proportion of children living in town (vs living on a farm) watched two or more hours of television a day ( $p < 0.05$ ). Many children (65%) used active transport (bus or car) to school or after-school activities. The majority of children reported they were very healthy. Most children reported eating fruit and vegetables more frequently, and sugared drinks and French fries less frequently.

**CONCLUSION:**

Prevalence of overweight/obesity in these rural children was high with gender differences evident at a very young age. Most children reported eating healthy diets but many participated in several hours of daily 'screen time' (eg watching television or using a computer). Despite their weight status or patterns of physical inactivity, children perceived themselves as being very healthy. Understanding the health behaviors and weight status of rural children may assist in the development of effective health promotion programs for rural children.

**620: Casazza K, Cardel M, Dulin-Keita A, Hanks LJ, Gower BA, Newton AL, Wallace S. Reduced carbohydrate diet to improve metabolic outcomes and decrease adiposity in obese peripubertal African American girls. J Pediatr Gastroenterol Nutr. 2012 Mar;54(3):336-42. doi: 10.1097/MPG.0b013e31823df207. PubMed PMID: 22067112; PubMed Central PMCID: PMC3288466.**

Abstract

**OBJECTIVE:**

Obesity prevalence among African American (AA) girls is higher than that in other groups. Because typical energy-restriction obesity treatment strategies have had limited success, alterations in macronutrient composition may effectively improve metabolic outcomes in this population and affect future body composition trajectories. The objective was to evaluate the efficacy of a

moderately restricted carbohydrate (CHO) versus a standard CHO diet on weight/fat loss and metabolic parameters in overweight/obese AA girls ages 9 to 14 years.

**METHODS:**

A total of 26 AA girls (ranging from 92nd body mass index percentile and above) were assigned to either a reduced- (SPEC: 42% energy from CHO, n=12) or a standard- (STAN: 55% of energy from CHO, n=14) CHO diet (protein held constant) for 16 weeks. All of the meals were provided and clinically tailored to meet the estimated energy requirements (resting energy expenditure  $\times$  1.2 in eucaloric phase and resting energy expenditure  $\times$  1.2 - 1000 kcal in energy deficit phase). The first 5 weeks encompassed a eucaloric phase evaluating metabolic changes in the absence of weight change. The subsequent 11 weeks were hypocaloric (1000 kcal/day deficit) to promote weight/fat loss. Meal tests were performed during the eucaloric phase for metabolic analyses. Dual-energy x-ray absorptiometry was used to evaluate body composition.

**RESULTS:**

Both groups experienced reductions in weight/adiposity, but the difference did not reach significance. The solid meal test indicated improved glucose/insulin homeostasis on the SPEC diet up to 3 hours postingestion. In addition, significantly lower triglycerides ( $P < 0.001$ ) were observed on the SPEC diet.

**CONCLUSIONS:**

Dietary CHO reduction favorably influences metabolic parameters but did not result in greater weight/fat loss relative to a standard diet in obese AA girls. Future research is needed to determine long-term effectiveness of a reduced CHO diet on glucose and insulin homeostasis and how it may apply to weight maintenance/fat loss during development alone and/or in combination with additional weight loss/metabolic improvement strategies.

**621: Aradillas-García C, Rodríguez-Morán M, Garay-Sevilla ME, Malacara JM, Rascon-Pacheco RA, Guerrero-Romero F. Distribution of the homeostasis model assessment of insulin resistance in Mexican children and adolescents. Eur J Endocrinol. 2012 Feb;166(2):301-6. doi: 10.1530/EJE-11-0844. Epub 2011 Nov 7. PubMed PMID: 22065856.**

**Abstract**

**OBJECTIVE:**

Several cutoff points of the homeostasis model assessment of insulin resistance (HOMA-IR; varying from 2.5 to 4.0) have been suggested for diagnosing IR in youth. In this study, we determined the distribution of the HOMA-IR in Mexican children and adolescents.

**DESIGN AND METHODS:**

A total of 6132 children and adolescents from San Luis Potosi, León, Queretaro, and Durango, which are cities in central and northern Mexico, were enrolled in a population-based cross-sectional study. Eligible participants were apparently healthy children and adolescents aged 6-18 years. Pregnancy and the presence of chronic illnesses were exclusion criteria.

**RESULTS:**

A total of 3701 (60.3%) girls and 2431 (39.7%) boys were included in this study. In the overall population, the mean body mass index, insulin levels, and fasting glucose levels were  $21.8 \pm 1.3$  kg/m<sup>2</sup>,  $7.1 \pm 3.2$   $\mu$ U/ml, and  $86.2 \pm 10.0$  mg/dl respectively. The concentrations of insulin and fasting glucose gradually increased from 6 to 12 years of age, whereas the concentrations tended to

plateau in the 13- to 18-year-old population. The absolute mean of the HOMA-IR was  $2.89 \pm 0.7$ . The HOMA-IR gradually increased with age and reached a plateau at 13 years of age.

**CONCLUSIONS:**

Because the insulin concentrations, glucose levels, and HOMA-IR exhibited a gradual increase with age that was not related to obesity, our results suggested that the evaluation of IR in children should be based on percentiles of the HOMA-IR rather than a dichotomous value derived from a single cutoff point.

**622: Day FR, Loos RJ. Developments in obesity genetics in the era of genome-wide association studies. J Nutrigenet Nutrigenomics. 2011;4(4):222-38. doi: 10.1159/000332158. Epub 2011 Nov 2. Review. PubMed PMID: 22056736.**

**Abstract**

Obesity is an important factor contributing to the global burden of morbidity and mortality. By identifying obesity susceptibility genes, scientists aim to elucidate some of its aetiology. Early studies used candidate gene and genome-wide linkage approaches to search for such genes with limited success. However, the advent of genome-wide association studies (GWAS) has dramatically increased the pace of gene discovery. So far, GWAS have identified at least 50 loci robustly associated with body mass index (BMI), waist-to-hip ratio, body fat percentage and extreme obesity. Some of these have been shown to replicate in non-white populations and in children and adolescents. Furthermore, for some loci interaction studies have shown that the BMI-increasing effect is attenuated in physically active individuals. Despite many successful discoveries, the effect sizes of the established loci are small, and combined they explain only a fraction of the inter-individual variation in BMI. The low predictive value means that their value in mainstream health care is limited. However, as most of these newly established loci were not previously linked to obesity, they may provide new insights into body weight regulation. Continued efforts in gene discovery, using a range of approaches, will be needed to increase our understanding of obesity.

**623: Levi Z, Kark JD, Barchana M, Liphshitz I, Zavdi O, Tzur D, Derazne E, Furman M, Niv Y, Gordon B, Afek A, Shamiss A. Measured body mass index in adolescence and the incidence of colorectal cancer in a cohort of 1.1 million males. Cancer Epidemiol Biomarkers Prev. 2011 Dec;20(12):2524-31. doi: 10.1158/1055-9965.EPI-11-0531. Epub 2011 Nov 4. PubMed PMID: 22056504.**

**Abstract**

**BACKGROUND AND AIMS:**

The increasing prevalence of adolescent obesity affects adult health. We investigated the association of adolescent overweight with colorectal cancer incidence in a large cohort of males.

**METHODS:**

Body mass index (BMI) was measured in 1.1 million Jewish Israeli males who underwent a general health examination at ages 16 to 19 between 1967 and 2005. Overweight was defined as BMI  $\geq$  85th percentile of the standard U.S. distribution in adolescence. Colorectal cancer was identified by linkage with the Israel National Cancer Registry up to 2006. The mean follow-up period was  $17.6 \pm 10.9$  years, reflecting 19.5 million person-years. Cox proportional hazards modeling was used.

**RESULTS:**

The prevalence of adolescent overweight increased from 9.9% to 16.8% in the first 10 and last 10 annual examination cohorts. Colon (n = 445) and rectal cancer (n = 193) cases were detected. Overweight predicted an increased risk of colon cancer [HR = 1.53; 95% confidence interval (CI), 1.17-2.02, P = 0.002] but not of rectal cancer (HR = 1.09; 95% CI, 0.38-1.73, P = 0.72). The risk was greatest for nonmucinous adenocarcinoma of the colon (HR = 1.68, 95% CI, 1.26-2.23, P = 0.001). The association of BMI  $\geq$  85th percentile with colon cancer was even more pronounced in analyses that were restricted to men followed until at least 40 years of age [N = 367,478; HR = 1.75 (95% CI, 1.33-2.3, P < 0.001)].

**CONCLUSIONS:**

Adolescent overweight is substantially associated with colon cancer incidence in young to middle-aged adults.

**IMPACT:**

These long-term sequelae add to the urgency to seriously address increasing childhood and adolescent obesity with its attendant increasing population impact.

**624: Bancalari R, Díaz C, Martínez-Aguayo A, Aglony M, Zamorano J, Cerda V, Fernández M, Garbin F, Cavada G, Valenzuela M, García H. [Prevalence of hypertension in school age children and its association with obesity]. Rev Med Chil. 2011 Jul;139(7):872-9. doi: /S0034-98872011000700007. Epub 2011 Sep 16. Spanish. PubMed PMID: 22051824.**

**Abstract**

**BACKGROUND:**

Hypertension in children is a frequently overlooked problem that is an important cardiovascular risk factor.

**AIM:**

To determine the prevalence of hypertension among school age children.

**MATERIAL AND METHODS:**

Cross-sectional study of 2980 children aged 10  $\pm$  2 years (48% females) from 10 schools of middle and lower class in Metropolitan Santiago. Blood pressure (BP) was measured in the sitting position on three occasions after a rest period, using a mercury sphygmomanometer with appropriate cuff arm diameter, averaging the results of the measurements. Systolic and diastolic hypertension were defined as blood pressure values over 95 percentile for age, sex and height.

**RESULTS:**

The overall prevalence of hypertension was 12.2% in women and 15% in men (p < 0.05). According to nutritional status, the prevalence was 6.7, 8.9, 13.6 and 26% in underweight, eutrophic, overweight and obese children, respectively (p < 0.01). Compared with normal weight children, the risk of being hypertensive for overweight children was 1.6 (95% confidence intervals (CI) 1.2-2.3) and for obese children was 3.6 (95% CI 2.8-4.7).

**CONCLUSIONS:**

The studied children had a high prevalence of hypertension, that was directly related to a higher body mass index.

**625: Eyzaguirre F, Silva R, Román R, Palacio A, Cosentino M, Vega V, García H. [Prevalence of metabolic syndrome in children and adolescents who consult with obesity]. Rev Med Chil. 2011 Jun;139(6):732-8. doi: /S0034-98872011000600006. Epub 2011 Sep 14. Spanish. PubMed PMID: 22051753.**

Abstract

BACKGROUND:

The higher prevalence of childhood obesity has led to search for metabolic syndrome (MS) in this age group.

AIM:

To study the prevalence of MS in obese children and adolescents.

MATERIAL AND METHODS:

Cross sectional study of 255 obese children and adolescents aged  $11.3 \pm 2.4$  years, 45% males, 60% pubertal, with a body mass index (BMI) z score of  $2.7 \pm 0.6$ , who were evaluated for obesity. MS was defined as the presence of at least three of the following criteria, according to Ferranti: fasting glucose (FG)  $\geq 100$  mg/dl, triglycerides (TG)  $\geq 100$  mg/dl, HDL  $< 50$  mg/dl, waist circumference (WC)  $>$  percentile (p) 75 and blood pressure (BP)  $> p90$ . Patients were also classified using Cook criteria: FG  $\geq 100$  mg/dl, TG  $\geq 110$  mg/dl, HDL  $< 40$  mg/dl, WC  $> p 90$ , BP  $> p 90$ .

RESULTS:

MS was observed in 45 and 22.7% of patients, according to Ferranti and Cook definitions, respectively. WC was the most frequent criteria and glucose was the most uncommon. Males had higher body mass index, WC and TG levels than females. According to Ferranti and Cook definitions, MS prevalence was 53.5 and 28% in males and 37.6 and 18.4% in females ( $p < 0.05$ ). Fifty and 26.1% of pubertal patients exhibited MS vs 36.9 and 17.5% in pre-pubertal subjects ( $p < 0.05$ ) using Ferranti and Cook criteria, respectively. The frequency of MS increased along with a higher BMI.

CONCLUSIONS:

MS is a prevalent condition in obese children and adolescents, especially in males and pubertal children. It is necessary to have a better and universal definition for MS in pediatrics including all ages, in order to be focused in obesity prevention and treatment.

**627: Lloyd LJ, Langley-Evans SC, McMullen S. Childhood obesity and risk of the adult metabolic syndrome: a systematic review. Int J Obes (Lond). 2012 Jan;36(1):1-11. doi: 10.1038/ijo.2011.186. Epub 2011 Nov 1. Review. PubMed PMID: 22041985; PubMed Central PMCID: PMC3255098.**

Abstract

BACKGROUND:

While many studies have demonstrated positive associations between childhood obesity and adult metabolic risk, important questions remain as to the nature of the relationship. In particular, it is unclear whether the associations reflect the tracking of body mass index (BMI) from childhood to adulthood or an independent level of risk. This systematic review aimed to investigate the relationship between childhood obesity and a range of metabolic risk factors during adult life.

OBJECTIVE:

To perform an unbiased systematic review to investigate the association between childhood BMI and risk of developing components of metabolic disease in adulthood, and whether the associations observed are independent of adult BMI.

**DESIGN:**

Electronic databases were searched from inception until July 2010 for studies investigating the association between childhood BMI and adult metabolic risk. Two investigators independently reviewed studies for eligibility according to the inclusion/exclusion criteria, extracted the data and assessed study quality using the Newcastle-Ottawa Scale.

**RESULTS:**

The search process identified 11 articles that fulfilled the inclusion and exclusion criteria. Although several identified weak positive associations between childhood BMI and adult total cholesterol, low-density lipoprotein-cholesterol, triglyceride and insulin concentrations, these associations were ameliorated or inverted when adjusted for adult BMI or body fatness. Of the four papers that considered metabolic syndrome as an end point, none showed evidence of an independent association with childhood obesity.

**CONCLUSIONS:**

Little evidence was found to support the view that childhood obesity is an independent risk factor for adult blood lipid status, insulin levels, metabolic syndrome or type 2 diabetes. The majority of studies failed to adjust for adult BMI and therefore the associations observed may reflect the tracking of BMI across the lifespan. Interestingly, where adult BMI was adjusted for, the data showed a weak negative association between childhood BMI and metabolic variables, with those at the lower end of the BMI range in childhood, but obese during adulthood at particular risk.

**628: Senbanjo IO, Oshikoya KA. Obesity and blood pressure levels of adolescents in Abeokuta, Nigeria. *Cardiovasc J Afr.* 2012 Jun;23(5):260-4. doi: 10.5830/CVJA-2011-037. Epub 2011 Oct 28. PubMed PMID: 22038484; PubMed Central PMCID: PMC3721855.**

**Abstract**

**BACKGROUND:**

We determined the prevalence of general and central obesity and their relationship with blood pressure levels among adolescents in Abeokuta, Nigeria.

**METHODS:**

We selected 423 adolescents from seven schools in Abeokuta, Nigeria, using a multistage random-sampling technique. Body mass index (BMI), waist circumference (WC) and blood pressures were measured.

**RESULTS:**

Twenty-one (5%) children had general obesity and 109 (24.5%) had central obesity. Of those with general obesity, 20 (95.1%) children were centrally obese. With simple linear regression analysis, BMI and WC explained 10.7 and 8.4%, respectively of the variance in systolic blood pressure (SBP), and 3.6 and 2.7%, respectively of the variance in diastolic blood pressure (DBP). Following logistic regression analysis, BMI was the major factor determining SBP levels (OR 0.8, 95% CI: 0.65-0.99,  $p < 0.05$ ).

**CONCLUSION:**

BMI remains an important anthropometric screening tool for high blood pressure in Nigerian adolescents.

**629: Xi B, Liang Y, He T, Reilly KH, Hu Y, Wang Q, Yan Y, Mi J. Secular trends in the prevalence of general and abdominal obesity among Chinese adults, 1993-2009. *Obes Rev.* 2012 Mar;13(3):287-96. doi: 10.1111/j.1467-789X.2011.00944.x. Epub 2011 Oct 31. Review. PubMed PMID: 22034908; PubMed Central PMCID: PMC3276709.**

Abstract

The objective of this study is to examine the trends in body mass index (BMI), waist circumference (WC) and prevalence of overweight (BMI 25-27.49 kg m<sup>-2</sup>), general obesity (BMI ≥ 27.5 kg m<sup>-2</sup>) and abdominal obesity (WC ≥ 90 cm for men and ≥80 cm for women) among Chinese adults from 1993 to 2009. Data were obtained from the China Health and Nutrition Survey, which was conducted from 1993 to 2009 and included a total of 52,621 Chinese adults. During the period of 1993-2009, mean BMI values increased by 1.6 kg m<sup>-2</sup> among men and 0.8 kg m<sup>-2</sup> among women; mean WC values increased by 7.0 cm among men and 4.7 cm among women. The prevalence of overweight increased from 8.0 to 17.1% among men (P < 0.001) and from 10.7 to 14.4% among women (P < 0.001); the prevalence of general obesity increased from 2.9 to 11.4% among men (P < 0.001) and from 5.0 to 10.1% among women (P < 0.001); the prevalence of abdominal obesity increased from 8.5 to 27.8% among men (P < 0.001) and from 27.8 to 45.9% among women (P < 0.001). Similar significant trends were observed in nearly all age groups and regions for both men and women. The prevalence of overweight, general obesity and abdominal obesity among Chinese adults has increased greatly during the past 17 years.

**630: Mariz Cde A, Albuquerque Mde F, Ximenes RA, Melo HR, Bandeira F, Oliveira TG, Carvalho EH, Silva AP, Miranda Filho Dde B. Body mass index in individuals with HIV infection and factors associated with thinness and overweight/obesity. *Cad Saude Publica.* 2011 Oct;27(10):1997-2008. PubMed PMID: 22031204.**

Abstract

A cross-sectional study was conducted using body mass index (BMI) to estimate the prevalence of thinness and overweight/obesity and associated factors in 2,018 individuals with HIV/AIDS attending health services referral centers. The dependent variable was classified as thinness, overweight/obesity and eutrophy. Multinomial logistic regression analyses were performed considering eutrophy as the reference level. The prevalence of thinness was 8.8% and of overweight/obesity, 32.1%. The variables associated with thinness were anemia and CD4 cell count < 200mm<sup>3</sup>. The variables associated with risk of overweight/obesity were age > 40 years and diabetes, and the variables identified as decreasing likelihood of overweight/obesity were having no long-term partner, smoking, presence of an opportunistic disease, anemia, and albumin levels < 3.5mg/dL. The main nutritional problem observed in this population was overweight and obesity, which were much more prevalent than thinness. Older individuals with diabetes should be targeted for nutritional interventions and lifestyle changes.



**631: Bhattacharjee R, Kim J, Alotaibi WH, Kheirandish-Gozal L, Capdevila OS, Gozal D. Endothelial dysfunction in children without hypertension: potential contributions of obesity and obstructive sleep apnea. Chest. 2012 Mar;141(3):682-91. doi: 10.1378/chest.11-1777. Epub 2011 Oct 26. PubMed PMID: 22030801; PubMed Central PMCID: PMC3296460.**

Abstract

BACKGROUND:

Endothelial dysfunction can develop in the context of both obesity and obstructive sleep apnea (OSA) in children. However, the potential interactions between OSA and obesity have not been defined.

METHODS:

Children who were prepubertal and nonhypertensive were recruited. Endothelial function was assessed in a morning fasted state, using a modified hyperemic test involving cuff-induced occlusion of the radial and ulnar arteries, and blood was drawn for assessment of myeloid-related protein 8/14 (MRP8/14) levels using a commercial enzyme-linked immunosorbent assay. Overnight polysomnography defined the presence of OSA or absence of OSA (NOSA) in subjects investigated for sleep-disordered breathing. Anthropometric measurements were performed to assign subjects to obese (OB) and nonobese (NOB) categories.

RESULTS:

Fifty-four children with OSA who were obese and nonobese (mean age,  $7.90 \pm 0.26$  years; mean BMI z-score,  $1.70 \pm 0.3$ ; obstructive apnea-hypopnea index [OAH],  $7.36 \pm 1.09$ ) were compared with 54 children without OSA who were obese and nonobese (mean age,  $8.26 \pm 0.24$  years; mean BMI z-score,  $1.41 \pm 0.18$ ; OAH,  $0.86 \pm 0.07$ ). Of those subjects, 62.5% of the OB-OSA category, 38.7% of the OB-NOSA category, and 20.0% of the NOB-OSA category had evidence of endothelial dysfunction, compared with 0.0% of the NOB-NOSA category ( $P < .01$ ). The degree of endothelial dysfunction in all groups was associated with circulating MRP8/14 levels ( $r = 0.343$ ,  $P < .001$ ).

CONCLUSIONS:

Both obesity and OSA can independently increase the risk for endothelial dysfunction, and the concurrent presence of both markedly increases such risk. Although the mechanisms underlying endothelial dysfunction remain unclear, a potential role for MRP8/14 as an inflammatory biomarker of endothelial dysfunction is suggested.

**632: Costa FF, Montenegro VB, Lopes TJ, Costa EC. Combination of risk factors for metabolic syndrome in the military personnel of the Brazilian Navy. Arq Bras Cardiol. 2011 Dec;97(6):485-92. Epub 2011 Oct 27. English, Portuguese. PubMed PMID: 22030564.**

Abstract

BACKGROUND:

Cardiovascular diseases are the major cause of death in the population, and metabolic syndrome (MS) is a clinical condition significantly associated with the increase in morbidity and mortality.

OBJECTIVE:

To describe the pattern of combination of the risk factors related to the diagnosis of MS in the military personnel of the Brazilian Navy and to identify variables associated with the presence of MS in that population.

METHODS:

Cross-sectional study involving 1,383 men (18-62 years) assigned to military organizations in the city of Natal, state of Rio Grande do Norte. The criterion proposed by the International Diabetes Association was used for the diagnosis of MS. The ratio between observed and expected prevalence and the respective confidence intervals were used to identify the combinations of risk factors that exceeded that expected for the population. Logistic regression was used to identify variables associated with MS.

**RESULTS:**

The prevalence of MS was 17.6%. Approximately one third of the military personnel studied had two or more risk factors for MS. All specific combinations of risk factors for MS that exceeded the expected prevalence had abdominal obesity as one of its components. In the adjusted analyses, age, smoking and physical activity level remained associated with MS.

**CONCLUSION:**

Our findings reinforce the constant presence of abdominal obesity in the phenotype of MS. In addition, our data also support the idea that age, smoking and low level of physical activity are independent variables for the occurrence of MS.

**633: Athanasopoulos DT, Garopoulou AI, Dragoumanos VP. Childhood obesity and associated factors in a rural Greek island. Rural Remote Health. 2011;11(4):1641. Epub 2011 Oct 26. PubMed PMID: 22029381.**

**Abstract**

**INTRODUCTION:**

Childhood obesity has increased dramatically in the past few decades both in developed and developing countries. The objectives of this study were to estimate the prevalence of increased weight in children and adolescents on a remote Greek island in the Aegean Sea, and to assess the factors influencing this phenomenon.

**METHODS:**

A cross-sectional study was conducted involving children and adolescents aged 8-16 years, resident on the island of Kalymnos, Greece. Their height and weight were measured in the school environment. Information about the children's leisure habits, a plain dietary history, whether they were exposed to tobacco smoke at home, parental nutritional status and socioeconomic status were collected via a written questionnaire. Obesity was defined according to the International Obesity Task Force curves. Univariable and multivariable logistic regression analysis were conducted in order to identify any factor correlated to increased weight.

**RESULTS:**

In total, 232 children took part in the study (91.6% participation), and 20.6% (n=48) were classified as overweight while 8.1% (n=19) were obese. The majority of the children (85.9%) had been breastfed and 45.6% (n=106) were exposed to smoke at home. In the multivariable analysis, statistically significant terms associated with childhood increased weight were: maternal obesity, maternal occupation and weekly consumption of sugar-sweetened soft drinks.

**CONCLUSIONS:**

The high prevalence of increased weight in children and adolescents on this remote island is part of the major global public health problem. The evidence suggests that maternal nutritional status and occupation, together with children's dietary habits, are associated with childhood body weight.

**634: Wronka I. Growth and development of overweight and obese girls. *Pediatr Endocrinol Diabetes Metab.* 2011;17(3):125-8. PubMed PMID: 22027064.**

Abstract

INTRODUCTION:

The pattern of development of obesity during childhood and adolescence is unclear, hindering preventive strategies.

AIM OF THE STUDY:

The aim of this study was to investigate the differences in growth and tempo of maturation between overweight or obese and normal weight girls.

MATERIALS AND METHODS:

The data were obtained from 1008 schoolgirls aged 16-18 years for whom earlier data on weight and height were available. The height and body mass were measured and the BMI was calculated. Height and weight in early life were assessed by medical records review. Underweight, overweight and obesity were assessed using the international BMI cut points, defined by Cole et al.

RESULTS:

Girls in higher BMI categories at 7 years had significantly higher values of BMI at 9, 14 and 16-18 years of age, however only 10% of them were also overweight or obese at youth. Overweight and obese girls tend to lose body weight after the puberty period, whereas normal weight children tend to gain body weight. Overweight and obese children were significantly taller than their peers at 7, 9 and 14 years. Those differences vanished after the puberty period. The rate of height gain between ages 7 and 16-18 years was lower in girls with higher BMI values at childhood. Girls, those who were overweight or obese at young age experience menarche at a younger age than normal weight girls.

CONCLUSION:

The obtained data show that overweight and obesity in childhood is associated with rapid tempo of growth and maturity.

**635: Huot M, Arsenault BJ, Gaudreault V, Poirier P, Pérusse L, Tremblay A, Bouchard C, Després JP, Rhéaume C. Insulin resistance, low cardiorespiratory fitness, and increased exercise blood pressure: contribution of abdominal obesity. *Hypertension.* 2011 Dec;58(6):1036-42. doi: 10.1161/HYPERTENSIONAHA.111.180349. Epub 2011 Oct 24. PubMed PMID: 22025379.**

Abstract

Individuals with insulin resistance and low cardiorespiratory fitness are frequently found to have an increased waist circumference and high exercise blood pressure. We tested the hypothesis that the relationships among insulin resistance, low cardiorespiratory fitness, and increased exercise blood pressure may be mediated by an elevated waist circumference. This study included 317 apparently healthy men and women (mean age: 34.8±12.8 years; mean body mass index: 26.1±5.2 kg/m<sup>2</sup>). Exercise blood pressure values were measured using a submaximal ergometer test evaluating physical working capacity. Plasma insulin and glucose levels were measured during a 3-hour oral glucose tolerance test. Multivariate regression analyses showed that waist circumference accounted for 32.8% (P<0.0001) and 45.1% (P<0.0001) of the variance in exercise systolic blood pressure in men and women, respectively. Participants were classified into tertiles according to either insulin response, measured during the oral glucose tolerance test, or fitness levels and then further subdivided into 2 subgroups using sex-specific waist circumference thresholds. Individuals with an

increased waist circumference ( $\geq 94$  cm and  $\geq 80$  cm for men and women, respectively) had higher exercise systolic blood pressure compared with individuals with low waist circumference, irrespective of their level of insulin resistance (10.6 versus 6.8, 12.2 versus 7.7, and 13.2 versus 8.7 mm Hg/metabolic equivalent, respectively, for the low, intermediate, and high tertiles;  $P < 0.05$ ) or fitness levels (13.1 versus 8.2, 12.0 versus 7.9, and 10.6 versus 7.1 mm Hg/metabolic equivalent, respectively, for the low, intermediate, and high tertiles;  $P < 0.05$ ). Individuals with a higher waist circumference have elevated exercise systolic blood pressure, regardless of their insulin sensitivity or level of cardiorespiratory fitness.

**636: Neumark-Sztainer D, Wall MM, Larson N, Story M, Fulkerson JA, Eisenberg ME, Hannan PJ. Secular trends in weight status and weight-related attitudes and behaviors in adolescents from 1999 to 2010. *Prev Med.* 2012 Jan;54(1):77-81. doi: 10.1016/j.ypmed.2011.10.003. Epub 2011 Oct 15. PubMed PMID: 22024221; PubMed Central PMCID: PMC3266744.**

Abstract

OBJECTIVE:

To examine secular trends from 1999 to 2010 in weight status and weight-related attitudes and behaviors among adolescents.

METHODS:

A repeated cross-sectional design was used. Participants were from Minneapolis/St. Paul middle schools and high schools and included 3072 adolescents in 1999 (mean age  $14.6 \pm 1.8$ ) and 2793 adolescents in 2010 (mean age  $14.4 \pm 2.0$ ). Trends in weight-related variables were examined using inverse probability weighting to control for changes in socio-demographics over time.

RESULTS:

The prevalence of obesity among boys increased by 7.8% from 1999 to 2010, with large ethnic/racial disparities. In black boys the prevalence of obesity increased from 14.4% to 21.5% and among Hispanic boys, obesity prevalence increased from 19.7% to 33.6%. Trends were more positive among girls: weight status did not significantly increase, perceptions of overweight status were more accurate, the use of healthy weight control behaviors remained high, dieting decreased by 6.7%, unhealthy weight control behaviors decreased by 8.2% and extreme weight control behaviors decreased by 4.5%.

CONCLUSIONS:

Trends indicate a need to intensify efforts to prevent obesity and other weight-related problems, particularly for boys from ethnic/racial minorities. The decreases in unhealthy weight control behaviors among girls are encouraging.

**637: Barnett S, Klein JD, Pollard RQ Jr, Samar V, Schlehofer D, Starr M, Sutter E, Yang H, Pearson TA. Community participatory research with deaf sign language users to identify health inequities. *Am J Public Health.* 2011 Dec;101(12):2235-8. doi: 10.2105/AJPH.2011.300247. Epub 2011 Oct 20. PubMed PMID: 22021296; PubMed Central PMCID: PMC3222424.**

Abstract

Deaf people who use American Sign Language (ASL) are medically underserved and often excluded from health research and surveillance. We used a community participatory approach to develop and

administer an ASL-accessible health survey. We identified deaf community strengths (e.g., a low prevalence of current smokers) and 3 glaring health inequities: obesity, partner violence, and suicide. This collaborative work represents the first time a deaf community has used its own data to identify health priorities.

**638: Khullar D, Oreskovic NM, Perrin JM, Goodman E. Optimism and the socioeconomic status gradient in adolescent adiposity. J Adolesc Health. 2011 Nov;49(5):553-5. doi: 10.1016/j.jadohealth.2011.04.003. Epub 2011 Jun 8. PubMed PMID: 22018574; PubMed Central PMCID: PMC3202293.**

Abstract

PURPOSE:

To assess whether dispositional optimism is associated with adiposity and to explore whether dispositional optimism mediates the relationship between parent education and adiposity (body mass index [BMI] z-score).

METHODS:

Multivariate regression analyses of data were collected from 1,298 non-Hispanic black and white adolescents aged 12-19 years from a single Midwestern public school district.

RESULTS:

Less optimistic adolescents had higher BMI z-scores ( $r = -.09$ ,  $p < .001$ ). Addition of dispositional optimism to the regression model caused an approximately 10% attenuation of the parent education and BMI z-score relationship. Sobel tests confirmed that this attenuation indicated partial mediation.

CONCLUSION:

Lower dispositional optimism is associated with higher adiposity and this association accounts for some of the influence of parent education on adolescent adiposity.

**639: Antunes A, Moreira P. [Prevalence of overweight and obesity in Portuguese children and adolescents]. Acta Med Port. 2011 Mar-Apr;24(2):279-84. Epub 2011 May 20. Review. Portuguese. PubMed PMID: 22011600.**

Abstract

In Portugal, there have been many studies on the prevalence of overweight and obesity in children and adolescents. However, because many of the studies are not submitted to publication in scientific journals, these results remain unknown.

OBJECTIVE:

To obtain recent data on the prevalence of overweight and obesity in Portuguese children and adolescents.

MATERIAL AND METHODS:

Database search of articles with peer-review, academic theses, websites and materials of scientific meetings on obesity; search terms included Portugal, overweight, obesity, children, and adolescents. We evaluated the procedure for collection of anthropometric data, and the year of data collection, considering only those studies that included evaluations since 2007. We rejected studies that: relied only on measures of self-declaration for the anthropometric assessment; did not present the date of assessment; or were performed on samples of small size ( $n < 100$ ).

RESULTS:

We identified 21 studies and the criteria commonly used to estimate the prevalence rates were the CDC for children, and the IOTF in adolescents. Although the values are very different between studies, the frequency of overweight and obesity have reached very high values. The prevalence of overweight varied according to the criteria: the CDC, between 8.3% and 27.4% for males and 13.4% and 35% for females, the IOTF, between 8.6% and 29.6% for males and between 8.8% and 31.4% for females, the WHO, between 21.1% and 22.1% for males and between 19.7% and 31.3% for females. Prevalence of obesity varied: considering the CDC criteria, between 5.9% and 26% for males, and 6.1% and 21.3% for females; considering the IOTF, between 3.2% and 14.6% for males, and 0.6% and 13.1% for females; and considering the WHO criteria, between 4.4% and 22.9% for males, and 3.8% and 8.2% for females.

**CONCLUSION:**

The results confirm that overweight and obesity are a serious public health problem in Portuguese children and adolescents, and urgent measures are needed to suppress this epidemic and reverse the situation as soon as possible.

**640: Weker H, Barańska M. Models of safe nutrition of children and adolescents as a basis for prevention of obesity. Med Wieku Rozwoj. 2011 Jul-Sep;15(3):288-97. Review. PubMed PMID: 22006483.**

**Abstract**

**AIM:**

The aim of the study was to present up-to-date nutrition models for children and adolescents in Poland on the basis of current research on obesity prevention.

**MATERIAL AND METHODS:**

Up-to-date results of research on the link between nutritional factor and the nutritional status of children and adolescents, nutritional standards and recommendations of expert teams on healthy diet were analysed, based on the review of literature (Medline database) from the years 2005-2010.

**RESULTS:**

The main components of the model of safe nutrition for children and adolescents, which according to the current views should be combined with obesity prevention, include the frequency of meals, selection of products in a daily diet and observance of norms concerning energy and nutritional value of the diets. Other factors include family and environmental determinants, including dietary habits and behaviour, knowledge about nutrition and physical activity.

**CONCLUSIONS:**

The models of safe nutrition for children and adolescents in Poland are compliant with the current nutritional recommendations of the WHO and EU standards. The developed models of safe nutrition for children and adolescents must not only be popularised but also their efficiency needs to be increased by adjusting them to various groups of recipients.

**641: Gurzowska B, Grajda A, Kułaga Z, Napieralska E, Litwin M. Distribution of body mass index categories among Polish children and adolescents from rural and urban areas. Med Wieku Rozwoj. 2011 Jul-Sep;15(3):250-7. PubMed PMID: 22006480.**

Abstract

AIM:

To demonstrate differences in nutritional status of school-aged children and adolescents depending on school localization (urban/rural), school level (elementary/middle) and gender.

MATERIALS AND METHODS:

Results of current health survey 'Elaboration of the reference range of arterial blood pressure for the population of children and adolescents in Poland' - PL0080 OLAF were used in the analysis. Data were analysed by SAS. 9.2 for Windows, EpiInfo 3.5.1 and LMSgrowth. The frequency and the Odds Ratio of underweight, overweight, obesity and normal weight were calculated by school localization, school level and gender.

RESULTS:

Data from 13 129 pupils were used in the analysis: 5 118 from elementary schools in urban areas, 3638 from elementary schools in rural areas, 2792 from middle schools in urban areas and 1581 from middle schools in rural areas. The frequency of normal weight was lower in urban compared with rural elementary schools (67.2% vs 70.0%; OR=0.88; p=0.005). The frequency of underweight, overweight and obesity was higher in urban compared with rural elementary schools, both boys and girls. The frequency of obesity was higher in urban middle schools than rural (3.0% vs 1.6%; OR=1.88; p=0.006). In the case of boys, statistically significant difference in frequency of overweight and obesity (together) was noted in urban middle schools compared to rural middle schools (16.7% vs 11.9%; OR=1.48; p=0.003). In the case of girls, the frequency of underweight was lower in urban compared with rural middle schools (12.7% vs 15.9%; OR= 0.77; p=0.032).

CONCLUSIONS:

Knowing differences in the nutritional status between pupils in urban and rural areas gives the opportunity to modify nutritional education programmes depending on needs identified in the particular type of area and target groups. In urban regions, in both elementary and middle schools, boys are a risk group for excess body weight, and require more attention in preventive undertakings. In rural areas, girls in middle schools should be targeted for preventive measures dealing with underweight.

**642: Grajda A, Kułaga Z, Gurzowska B, Napieralska E, Litwin M. Regional differences in the prevalence of overweight, obesity and underweight among Polish children and adolescents. Med Wieku Rozwoj. 2011 Jul-Sep;15(3):258-65. PubMed PMID: 22006473.**

Abstract

AIM:

The aim of the study was to compare the prevalence of overweight, obesity, and underweight in children and adolescents from different provinces in Poland.

MATERIALS AND METHODS:

Data from the recent, large, population-representative sample of school-aged children and adolescents (N=17573) OLAF study: "Elaboration of the reference range of arterial blood pressure for the population of children and adolescents in Poland" - PL0080 OLAF were used in the analysis. The

survey was conducted in all provinces of Poland (N=16). Data were analyzed using SAS 9.2, EpiInfo 3.5.1 and LMSgrowth software packages. The frequency of overweight, obesity, and underweight were determined. For overweight and obesity (jointly) and underweight the odds ratio (OR) was calculated for gender and voivodship of residence. The body mass index (BMI) was standardized and expressed as a z-score. The statistical significance of differences between BMI z-scores depending on voivodship of residence was assessed by the t-test.

**RESULTS:**

Significant differences were found in the occurrence of overweight and obesity among the analysed regions, and voivodships with a lower (małopolskie, świętokrzyskie, lubelskie, and podkarpackie) and higher (mazowieckie) risk of overweight and obesity were identified. In case of underweight, łódzkie and podkarpackie (<0.040) provinces were higher risk areas, while mazowieckie (<0.001) had lower risk. The prevalence of overweight (including obesity) was higher compared to the prevalence of underweight in the majority of provinces (15 out of 16).

**CONCLUSIONS:**

Analysis of regional differences in the prevalence of obesity, overweight and underweight in children and adolescents may point to the direction in which nationwide and local efforts should be made to reduce the inequalities stemming from nutritional status.

**643: Duffy SA, Cohen KA, Choi SH, McCullagh MC, Noonan D. Predictors of obesity in Michigan Operating Engineers. J Community Health. 2012 Jun;37(3):619-25. doi: 10.1007/s10900-011-9492-1. PubMed PMID: 22005801; PubMed Central PMCID: PMC3345034.**

**Abstract**

Blue collar workers are at risk for obesity. Little is known about obesity in Operating Engineers, a group of blue collar workers, who operate heavy earth-moving equipment in road building and construction. Therefore, 498 Operating Engineers in Michigan were recruited to participate in a cross-sectional survey to determine variables related to obesity in this group. Bivariate and multivariate analyses were conducted to determine personal, psychological, and behavioral factors predicting obesity. Approximately 45% of the Operating Engineers screened positive for obesity, and another 40% were overweight. Multivariate analysis revealed that younger age, male sex, higher numbers of self-reported co-morbidities, not smoking, and low physical activity levels were significantly associated with obesity among Operating Engineers. Operating Engineers are significantly at risk for obesity, and workplace interventions are needed to address this problem.

**644: Boles M, Dilley JA, Dent C, Elman MR, Duncan SC, Johnson DB. Changes in local school policies and practices in Washington State after an unfunded physical activity and nutrition mandate. Prev Chronic Dis. 2011 Nov;8(6):A129. Epub 2011 Oct 17. PubMed PMID: 22005622; PubMed Central PMCID: PMC3221571.**

**Abstract**

**INTRODUCTION:**

Policies and practices in schools may create environments that encourage and reinforce healthy behaviors and are thus a means for stemming the rising rates of childhood obesity. We assessed the effect of a 2005 statewide school physical activity and nutrition mandate on policies and practices in middle and high schools in Washington State.



#### METHODS:

We used 2002, 2004, and 2006 statewide School Health Profiles survey data from Washington, with Oregon as a comparison group, to create longitudinal linear regression models to describe changes in relevant school policies after the Washington statewide mandate. Policy area composite measures were generated by principal component factor analysis from survey questions about multiple binary measure policy and practice.

#### RESULTS:

Relative to expected trends without the mandate, we found significant percentage-point increases in various policies, including restricted access to competitive foods in middle and high schools (increased by 18.8-20.0 percentage points); school food practices (increased by 10.4 percentage points in middle schools); and eliminating exemptions from physical education (PE) for sports (16.6 percentage-point increase for middle schools), exemptions from PE for community activities (12.8 and 14.4 percentage-point increases for middle and high schools, respectively) and exemptions from PE for academics (18.1 percentage-point increase for middle schools).

#### CONCLUSION:

Our results suggest that a statewide mandate had a modest effect on increasing physical activity and nutrition policies and practices in schools. Government policy is potentially an effective tool for addressing the childhood obesity epidemic through improvements in school physical activity and nutrition environments.

**645: da Silva PL, de Mello MT, Cheik NC, Sanches PL, Piano A, Corgosinho FC, Campos RM, Carnier J, Inoue D, do Nascimento CM, Oyama LM, Tock L, Tufik S, Dâmaso AR. The role of pro-inflammatory and anti-inflammatory adipokines on exercise-induced bronchospasm in obese adolescents undergoing treatment. *Respir Care*. 2012 Apr;57(4):572-82. doi: 10.4187/respcare.01307. Epub 2011 Oct 13. PubMed PMID: 22004715.**

#### Abstract

##### BACKGROUND:

Recent studies have demonstrated a greater prevalence in exercise-induced bronchospasm (EIB) in obese adolescents. However, the role of pro-/anti-inflammatory adipokines and the repercussions of obesity treatment on EIB need to be explored further. Therefore, the objective of this study was to evaluate the role of pro-/anti-inflammatory adipokines on EIB in obese adolescents evaluated after long-term interdisciplinary therapy.

##### METHODS:

Thirty-five post-pubertal obese adolescents, including 20 non-EIB (body mass index [BMI]  $36 \pm 5$  kg/m<sup>2</sup>) and 15 EIB (BMI  $36 \pm 5$  kg/m<sup>2</sup>), were enrolled in this study. Body composition was measured by plethysmography, using the BOD POD body composition system, and visceral fat was analyzed by ultrasound. Serum levels of adiponectin and leptin were analyzed. EIB and lung function were evaluated according to the American Thoracic Society criteria. Patients were recruited to a 1-year interdisciplinary intervention of weight loss, consisting of medical, nutritional, exercise, and psychological components.

##### RESULTS:

Anthropometrics and lung function variables improved significantly after the therapy in both groups. Furthermore we observed a reduction in EIB occurrence in obese adolescents after treatment. There was an increase in adiponectin levels and a reduction in leptin levels after the therapy. In addition, a

low FEV(1) value was a risk factor associated with EIB occurrence at baseline, and was correlated after treatment with changes in anthropometric and maximal O(2) consumption values as well as the adipokines profile.

**CONCLUSIONS:**

In the present study it was demonstrated that 1 year of interdisciplinary therapy decreased EIB frequency in obese adolescents, paralleled by an increase in lung function and improvement in pro-/anti-inflammatory adipokines.

**646: Oliveira RJ, Bottaro M, Júnior JT, Farinatti PT, Bezerra LA, Lima RM.**

**Identification of sarcopenic obesity in postmenopausal women: a cutoff proposal.**

**Braz J Med Biol Res. 2011 Nov;44(11):1171-6. Epub 2011 Oct 13. PubMed PMID:**

**22002095.**

**Abstract**

Sarcopenic obesity is the combination of reduced fat-free mass (FFM) and increased fat mass (FM) with advancing age but there is lack of clear criteria for its identification. The purposes of the present investigation were: 1) to determine the prevalence of postmenopausal women with reduced FFM relative to their FM and height, and 2) to examine whether there are associations between the proposed classification and health-related variables. A total of 607 women were included in this cross-sectional study and were separated into two subsets: 258 older women with a mean age of  $66.8 \pm 5.6$  years and 349 young women aged 18-40 years (mean age,  $29.0 \pm 7.5$  years). All volunteers underwent body composition assessment by dual-energy X-ray absorptiometry. The FFM index relative to FM and height was calculated and the cutoff value corresponded to two standard deviations below the mean of the young reference group. To examine the clinical significance of the classification, all older participants underwent measurements of quadriceps strength and cardiorespiratory fitness. Values were compared between those who were classified as low FFM or not, using an independent samples t-test and correlations were examined. The cutoff corresponded to a residual of -3.4 and generated a sarcopenic obesity prevalence of 19.8% that was associated with reduced muscle strength and aerobic fitness among the older participants. Also, the index correlated significantly with the health-related fitness variables. The results demonstrated reduced functional capacity for those below the proposed cutoff and suggested applicability of the approach as a definition for sarcopenic obesity.

**647: Pierce MB, Kuh D, Hardy R. The role of BMI across the life course in the relationship between age at menarche and diabetes, in a British Birth Cohort.**

**Diabet Med. 2012 May;29(5):600-3. doi: 10.1111/j.1464-5491.2011.03489.x. PubMed**

**PMID: 21999522; PubMed Central PMCID: PMC3397674.**

**Abstract**

**AIMS:**

Previous research showing an inverse association between age of menarche and adult diabetes relied on recalled age at menarche and did not adjust for BMI across the life course. We investigated the relationship between age at menarche and diabetes, and whether childhood, adolescent or adult BMI attenuates this relationship.

**METHODS:**

We used data from the Medical Research Council National Survey of Health and Development, a British birth cohort study of men and women born in 1946, with contemporaneous recording of the age of menarche, BMI at 2, 7, 15 and 20-53 years and diabetes status to 53 years.

**RESULTS:**

A significant inverse relationship between age at menarche and diabetes [hazard ratio = 0.73 per year older age at menarche (95% CI 0.56-0.96),  $P = 0.02$ ] was attenuated by adjustment for adult BMI [hazard ratio 0.85 (95% CI 0.65-1.10),  $P = 0.2$ ]. The effect of age at menarche on Type 2 diabetes was very similar to that for all types of diabetes. Attenuation of the association between age at menarche and diabetes was also observed with BMI at 15 years, but less so with BMI measured earlier in childhood.

**CONCLUSIONS:**

Earlier age at menarche is associated with a higher risk of diabetes, and specifically Type 2 diabetes, in later life, which is most strongly attenuated by adolescent and adult adiposity. Early menarche may be clinically useful in identifying women who are at risk of later adiposity and so of developing Type 2 diabetes.

**648: Roos N, Kieler H, Sahlin L, Ekman-Ordeberg G, Falconer H, Stephansson O. Risk of adverse pregnancy outcomes in women with polycystic ovary syndrome: population based cohort study. BMJ. 2011 Oct 13;343:d6309. doi: 10.1136/bmj.d6309. PubMed PMID: 21998337; PubMed Central PMCID: PMC3192872.**

**Abstract**

**OBJECTIVE:**

To study the risk of adverse pregnancy outcomes in women with polycystic ovary syndrome, taking into account maternal characteristics and assisted reproductive technology.

**DESIGN:**

Population based cohort study.

**SETTING:**

Singleton births registered in the Swedish medical birth register between 1995 and 2007.

**PARTICIPANTS:**

By linkage with the Swedish patient register, 3787 births among women with a diagnosis of polycystic ovary syndrome and 1,191,336 births among women without such a diagnosis.

**MAIN OUTCOME MEASURES:**

Risk of adverse pregnancy outcomes (gestational diabetes, pre-eclampsia, preterm birth, stillbirth, neonatal death, low Apgar score (<7 at five minutes), meconium aspiration, large for gestational age, macrosomia, small for gestational age), adjusted for maternal characteristics (body mass index, age), socioeconomic factors (educational level, and cohabitating with infant's father), and assisted reproductive technology.

**RESULTS:**

Women with polycystic ovary syndrome were more often obese and more commonly used assisted reproductive technology than women without such a diagnosis (60.6% v 34.8% and 13.7% v 1.5%). Polycystic ovary syndrome was strongly associated with pre-eclampsia (adjusted odds ratio 1.45, 95% confidence interval 1.24 to 1.69) and very preterm birth (2.21, 1.69 to 2.90) and the risk of gestational diabetes was more than doubled (2.32, 1.88 to 2.88). Infants born to mothers with polycystic ovary syndrome were more prone to be large for gestational age (1.39, 1.19 to 1.62) and

were at increased risk of meconium aspiration (2.02, 1.13 to 3.61) and having a low Apgar score (<7) at five minutes (1.41, 1.09 to 1.83).

**CONCLUSIONS:**

Women with polycystic ovary syndrome are at increased risk of adverse pregnancy and birth outcomes that cannot be explained by assisted reproductive technology. These women may need increased surveillance during pregnancy and parturition.

**649: Neuman M, Finlay JE, Davey Smith G, Subramanian SV. The poor stay thinner: stable socioeconomic gradients in BMI among women in lower- and middle-income countries. Am J Clin Nutr. 2011 Nov;94(5):1348-57. doi: 10.3945/ajcn.111.018127. Epub 2011 Oct 12. PubMed PMID: 21993437; PubMed Central PMCID: PMC3192480.**

**Abstract**

**BACKGROUND:**

Recent studies have shown a strong positive association between individual BMI (in kg/m<sup>2</sup>) or overweight prevalence and socioeconomic status (SES) in low- and middle-income countries (LMICs). However, it is not clear whether this association is weakening or reversing over time.

**OBJECTIVE:**

With the use of nationally representative data collected at 2 time points in 37 LMICs, we compared the associations of SES with BMI and of SES with overweight between the earlier surveys and the later surveys.

**DESIGN:**

We conducted a cross-sectional analysis of nationally representative samples of 547,056 ever-married nonpregnant women aged 15-49 y: 208,570 women in the earlier round of surveys conducted between 1991 and 2003 and 338,486 women in the later round conducted between 1998 and 2008. We used linear and modified Poisson analyses with a country fixed effect to obtain a pooled estimate and a country-stratified analysis for country-specific estimates.

**RESULTS:**

In adjusted models, BMI was 2.32 units higher (95% CI: 2.23, 2.41 units) among women in the wealthiest quintile compared with women in the poorest quintile in the earlier surveys and was 3.00 units higher (95% CI: 2.92, 3.07 units) in the later surveys. The association between BMI and wealth was positive in 37 countries in the earlier round of surveys and in 36 countries in the later round. Patterns were similar for overweight prevalence.

**CONCLUSION:**

The association between SES and BMI or overweight is positive in most LMICs and has not weakened over time. It appears that the burden of overweight is consistently greater among wealthier populations within LMICs.

**651: Fontaine KR, McCubrey R, Mehta T, Pajewski NM, Keith SW, Bangalore SS, Crespo CJ, Allison DB. Body mass index and mortality rate among Hispanic adults: a pooled analysis of multiple epidemiologic data sets. *Int J Obes (Lond)*. 2012 Aug;**36(8)**:1121-6. doi: 10.1038/ijo.2011.194. Epub 2011 Oct 11. PubMed PMID: 21986709; PubMed Central PMCID: PMC3271144.**

Abstract

OBJECTIVE:

To evaluate the association between body mass index (BMI, kg m<sup>-2</sup>) and mortality rate among Hispanic adults.

METHODS AND PROCEDURES:

Analysis of five data sets (total N=16,798) identified after searching for publicly available, prospective cohort data sets containing relevant information for at least 500 Hispanic respondents (≥18 years at baseline), at least 5 years of mortality follow-up, and measured height and weight. Data sets included the third National Health and Nutrition Examination Survey, the Puerto Rico Heart Health Program (PRHHP), the Hispanic Established Population for Epidemiologic Studies of the Elderly (HEPESE), the San Antonio Heart Study (SAHS) and the Sacramento Area Latino Study on Aging.

RESULTS:

Cox proportional hazards regression models, adjusting for sex and smoking, were fit within three attained-age strata (18 to younger than 60 years, 60 to younger than 70 years, and 70 years and older). We found that underweight was associated with elevated mortality rate for all age groups in the PRHHP (hazard ratios [HRs]=1.38-1.60) and the SAHS (HRs=1.88-2.51). Overweight (HRs=0.38 and 0.84) and obesity grade 2-3 (HRs=0.75 and 0.60) associated with reduced mortality rate in the HEPESSE dataset for those in the 60 to younger than 70 years, and 70 years and older attained-age strata. Weighted estimates combining the HRs across the data sets revealed a similar pattern.

CONCLUSION:

Among Hispanic adults, there was no clear evidence that overweight and obesity associate with elevated mortality rate.

**652: Hallman DM, Friedel VC, Eissa MA, Boerwinkle E, Huber JC Jr, Harrist RB, Srinivasan SR, Chen W, Dai S, Labarthe DR, Berenson GS. The association of variants in the FTO gene with longitudinal body mass index profiles in non-Hispanic white children and adolescents. *Int J Obes (Lond)*. 2012 Jan;**36(1)**:61-8. doi: 10.1038/ijo.2011.190. Epub 2011 Oct 11. PubMed PMID: 21986706; PubMed Central PMCID: PMC3495000.**

Abstract

OBJECTIVE:

To investigate possible age-related changes in associations between polymorphisms in the fat mass and obesity-associated (FTO) gene and higher body mass index (BMI).

DESIGN AND SUBJECTS:

Multilevel mixed regression models were used to examine associations between four FTO variants and longitudinal BMI profiles in non-Hispanic white and African American children and adolescents 8-17 years of age from two different longitudinal cohort studies, the Bogalusa Heart Study (BHS) and Project HeartBeat! (PHB). In the BHS, there were 1551 examinations of 478 African Americans and

3210 examinations of 1081 non-Hispanic whites; in PHB, there were 971 examinations of 131 African Americans and 4458 examinations of 505 non-Hispanic whites.

**RESULTS:**

In African Americans, no significant FTO associations with BMI were found. In non-Hispanic whites, linkage disequilibrium among all four variants made haplotype analysis superfluous, so we focused on the single-nucleotide polymorphism, rs9939609. In longitudinal multilevel models, the A/A genotype of rs9939609 was associated with higher BMI in non-Hispanic whites in both cohorts at all ages. A significant age-by-genotype interaction found only in the BHS cohort predicted that in those with the A/A genotype, BMI would be ~0.7 kg m<sup>-2</sup> higher at age 8 and ~1.6 kg m<sup>-2</sup> higher at age 17 than in those with A/T or T/T genotypes. The design of PHB limited follow-up of any single individual to 4 years, and may have reduced the ability to detect any age-by-genotype interaction in this cohort.

**CONCLUSIONS:**

The A/A genotype of rs9939609 in the FTO gene is associated with higher longitudinal BMI profiles in non-Hispanic whites from two different cohorts. The association may change with age, with the A/A genotype being associated with a larger BMI difference in late adolescence than in childhood, though this was observed only in the BHS cohort and requires verification.

**653: Macfarlane GJ, de Silva V, Jones GT. The relationship between body mass index across the life course and knee pain in adulthood: results from the 1958 birth cohort study. *Rheumatology (Oxford)*. 2011 Dec;50(12):2251-6. doi: 10.1093/rheumatology/ker276. Epub 2011 Oct 8. PubMed PMID: 21984765.**

**Abstract**

**OBJECTIVES:**

To determine whether a high BMI in childhood or early adulthood has a long-term influence on the likelihood of knee pain.

**METHODS:**

A birth cohort study of persons born during first week of 1958 in Great Britain. Participants were followed up throughout childhood and adulthood, most recently at 45 years, when information was collected on knee pain. Information on BMI was collected at follow-up intervals throughout childhood and adulthood. **RESULTS;** A total of 8579 individuals participated and the prevalence of being overweight and obesity increased throughout life from 0.2% at the age of 7 years to 65.5% at the age of 45 years. A total of 1636 individuals reported knee pain at the age of 45 years, giving a prevalence of 19.1% (95% CI 18.2, 19.9%). BMI was associated with knee pain: persons with a BMI of >30 kg/m<sup>2</sup> at 23, 33 or 45 years experienced approximately a doubling in the risk of knee pain at 45 years. There was a significant association with knee pain at the age of 45 years with high BMI from as early as age 11 years, but the association was stronger at the age of 16 years [relative risk (RR)(BMI 20-25) (v)(s) (<20) = 1.2 (95% CI 1.1, 1.3); RR(25-30) = 1.3 (95% CI 1.1, 1.6); RR(>30) = 1.6 (95% CI 1.05, 2.4)].

**CONCLUSION:**

This study has demonstrated the long-term effects of childhood and early adult obesity and the importance of early intervention programmes to try to reduce weight and maintain weight loss.

**654: Cinar N, Kizilarlanoglu MC, Harmanci A, Aksoy DY, Bozdog G, Demir B, Yildiz BO. Depression, anxiety and cardiometabolic risk in polycystic ovary syndrome. Hum Reprod. 2011 Dec;26(12):3339-45. doi: 10.1093/humrep/der338. Epub 2011 Oct 7. PubMed PMID: 21984577.**

Abstract

BACKGROUND:

Polycystic ovary syndrome (PCOS) is associated with psychological and metabolic disturbances. The aim of this study was to determine whether depression, anxiety and reduced health-related quality of life (HRQOL) are more common in women with PCOS and associated with metabolic risk.

METHODS:

The study included 226 PCOS patients and 85 BMI-matched healthy control women. All participants completed standardized questionnaires assessing depression (Beck Depression Inventory), anxiety (State-Trait Anxiety Inventory) and both depression and anxiety (Hospital Anxiety and Depression Scale and General Health Questionnaire). Patients also completed a PCOS HRQOL questionnaire. Hirsutism scores, serum androgens and lipids were obtained. All subjects underwent a standard oral glucose tolerance test.

RESULTS:

28.6% of PCOS women versus 4.7% of control women had clinical depression scores indicating an 8.1-fold increased risk of depression in PCOS ( $P < 0.001$ ). Depression and anxiety scores were higher in PCOS women than controls ( $P < 0.01$  for all subscales). Obese PCOS subjects had higher depression scores and rates than non-obese PCOS women ( $P < 0.05$ ). Depression scores were significantly correlated with insulin resistance and lipid parameters and with the number of components comprising the metabolic syndrome. Menstrual and hirsutism problems were the most serious concerns followed by emotional problems on the HRQOL.

CONCLUSIONS:

Depression and anxiety are more common in patients with PCOS compared with healthy women. Depression in PCOS might be associated with obesity and metabolic abnormalities including insulin resistance and dyslipidemia.

**655: Marques-Vidal P, Paccaud F, Ravasco P. Ten-year trends in overweight and obesity in the adult Portuguese population, 1995 to 2005. BMC Public Health. 2011 Oct 7;11:772. doi: 10.1186/1471-2458-11-772. PubMed PMID: 21982584; PubMed Central PMCID: PMC3206479.**

Abstract

BACKGROUND:

There is little information regarding the trends in body mass index (BMI) and obesity in the overall Portuguese population, namely if these trends are similar according to educational level. In this study, we assessed the trends in the prevalence of overweight and obesity in the Portuguese population, overall and by educational level.

METHODS:

Cross-sectional national health interview surveys conducted in 1995-6 ( $n = 38,504$ ), 1998-9 ( $n = 38,688$ ) and 2005-6 ( $n = 25,348$ ). Data were derived from the population and housing census of 1991 and two geographically-based strata were defined. The sampling unit was the house, and all subjects living in the sampling unit were surveyed. Height and weight were self-reported; the effects of

gender, age group and educational level were also assessed by self-reported structured questionnaires. Bivariate comparisons were performed using Chi-square or analysis of variance (ANOVA). Trends in BMI levels were assessed by linear regression analysis, while trends in the prevalence of obesity were assessed by logistic regression.

**RESULTS:**

Mean ( $\pm$ standard deviation) BMI increased from  $25.2 \pm 4.0$  in 1995-6 to  $25.7 \pm 4.5$  kg/m<sup>2</sup> in 2005-6. Prevalence of overweight remained stable (36.1% in 1995-6 and 36.4% in 2005) while prevalence of obesity increased (11.5% in 1995-6 and 15.1% in 2005-6). Similar findings were observed according to age group. Mean age-adjusted BMI increase (expressed in kg/m<sup>2</sup>/year and 95% confidence interval) was 0.073 (0.062, 0.084), 0.016 (0.000, 0.031) and 0.073 (0.049, 0.098) in men with primary, secondary and university levels, respectively; the corresponding values in women were 0.085 (0.073, 0.097), 0.052 (0.035, 0.069) and 0.062 (0.038, 0.084). Relative to 1995-6, obesity rates increased by 48%, 41% and 59% in men and by 40%, 75% and 177% in women with primary, secondary and university levels, respectively. The corresponding values for overweight were 6%, 1% and 23% in men and 5%, 7% and 65% in women.

**CONCLUSION:**

Between 1995 and 2005, obesity increased while overweight remained stable in the adult Portuguese population. Although higher rates were found among lesser educated subjects, the strong increase in BMI and obesity levels in highly educated subjects is of concern.

**656: Medeiros CC, Ramos AT, Cardoso MA, França IS, Cardoso Ada S, Gonzaga NC. Insulin resistance and its association with metabolic syndrome components. Arq Bras Cardiol. 2011 Nov;97(5):380-9. Epub 2011 Sep 30. English, Portuguese. PubMed PMID: 21971636.**

**Abstract**

**BACKGROUND:**

Individuals with insulin resistance are more prone to the development of metabolic syndrome (MS), Type 2 Diabetes Mellitus and Cardiovascular Disease (CVD) **OBJECTIVE:** To evaluate the association between insulin resistance (IR) and metabolic syndrome components.

**METHODS:**

Cross-sectional study of 196 individuals between 2 and 18 years, treated at the Brazilian Public Healthcare system. The association of IR with the MS components was evaluated by Chi-square test, adopting the Homeostasis model assessment-insulin resistance (HOMA-IR) value  $> 2.5$ , and by analysis of variance (ANOVA) and Tukey's test, by comparing the means of the components in the HOMA-IR quartiles. Statistical analysis was performed using SPSS 17.0 software and significance level was set at 5%.

**RESULTS:**

IR was observed in 41.3% of the studied population and was associated with age between 10-18 years ( $p = 0.002$  PR = 3.2), to MS in both sexes [Male ( $p = 0.022$  PR = 3.7) and female ( $p = 0.007$  PR = 2.7)] and altered triglycerides ( $p = 0.005$  PR = 2.9) in females. The mean values of the MS components differed significantly between HOMA-IR quartiles ( $p < 0.01$ ), except for HDL-cholesterol.

**CONCLUSION:**

Insulin resistance can be considered a marker of cardiovascular risk.



**657: Tu W, Eckert GJ, DiMeglio LA, Yu Z, Jung J, Pratt JH. Intensified effect of adiposity on blood pressure in overweight and obese children. Hypertension. 2011 Nov;58(5):818-24. doi: 10.1161/HYPERTENSIONAHA.111.175695. Epub 2011 Oct 3. PubMed PMID: 21968752; PubMed Central PMCID: PMC3433397.**

Abstract

In children, blood pressure (BP) and risk for hypertension are proportional to degree of adiposity. Whether the relationship to BP is similar over the full range of adiposity is less clear. Subjects from a cohort study (n=1111; 50% male and 42% black) contributed 9102 semiannual BP and height/weight assessments. The mean enrollment age was 10.2 years, and mean follow-up was 4.5 years. Adiposity was expressed as body mass index percentile, which accounted for effects of age and sex. The following observations were made. The effect of relative adiposity on BP was minimal until the body mass index percentile reached 85, beginning of the overweight category, at which point the effect of adiposity on BP increased by 4-fold. Similarly intensified adiposity effects on BP were observed in children aged  $\leq 10$ , 11 to 14 years, and  $\geq 15$  years. Serum levels of the adipose tissue-derived hormone, leptin, together with heart rate, showed an almost identically patterned relation to BP to that of body mass index percentile and BP, thus implicating a possible mediating role for leptin. In conclusion, there is a marked intensification of the influence of adiposity on BP when children reach the categories of overweight and obese. Among the possible pathways, leptin may be a potentially important mediator acting through the sympathetic nervous system (reflected in heart rate). The findings have relevance to interventions designed to prevent or treat adiposity-related increases in BP and to the analytic approaches used in epidemiological studies.

**658: Poterico JA, Stanojevic S, Ruiz-Grosso P, Bernabe-Ortiz A, Miranda JJ. The association between socioeconomic status and obesity in Peruvian women. Obesity (Silver Spring). 2012 Nov;20(11):2283-9. doi: 10.1038/oby.2011.288. Epub 2011 Sep 29. PubMed PMID: 21959344; PubMed Central PMCID: PMC3340518.**

Abstract

Historically in developing countries, the prevalence of obesity has been greater in more advantaged socioeconomic groups. However, in recent years the association between socioeconomic status (SES) and obesity has changed and varies depending on the country's development stage. This study examines the relationship between SES and obesity using two indicators of SES: education or possession assets. Using the cross-sectional 2008 National Demographic and Family Health Survey of Peru (ENDES 2008), we investigated this relationship in women aged 15-49 years living in rural and urban settings. Descriptive, linear and logistic regressions analyses were conducted accounting for the multistage nature of the sampling design. The overall prevalence of obesity in this study was 14.1% (95% confidence interval (CI): 13.3-14.8); 8.4% (95% CI: 7.5-9.3) in rural areas and 16.2% (95% CI: 15.2-17.2) in urban areas. Wealthier women were more likely to be obese, and this association was stronger in rural areas. Conversely, more educated women were less likely to be obese, especially in urban areas. The distribution of obesity in Peruvian women is strongly related to socioeconomic position, and differs whether measured as possession assets or by level of education. These findings could have important implications for policy development in Peru.

**659: Goedecke JH, Evans J, Keswell D, Stimson RH, Livingstone DE, Hayes P, Adams K, Dave JA, Victor H, Levitt NS, Lambert EV, Walker BR, Seckl JR, Olsson T, Kahn SE. Reduced gluteal expression of adipogenic and lipogenic genes in Black South African women is associated with obesity-related insulin resistance. J Clin Endocrinol Metab. 2011 Dec;96(12):E2029-33. doi: 10.1210/jc.2011-1576. Epub 2011 Sep 28. PubMed PMID: 21956425; PubMed Central PMCID: PMC3977037.**

Abstract

CONTEXT:

Black South African women are less insulin sensitive than their White counterparts, despite less central and greater peripheral fat deposition. We hypothesized that this paradox may be explained, in part, by differences in the adipogenic capacity of sc adipose tissue (SAT).

OBJECTIVE:

Our objective was to measure adipogenic and lipogenic gene expression in abdominal and gluteal SAT depots and determine their relationships with insulin sensitivity (S(I)) in South African women.

PARTICIPANTS AND DESIGN:

Fourteen normal-weight [body mass index (BMI) <25 kg/m(2)] Black, 13 normal-weight White, 14 obese (BMI >30 kg/m(2)) Black, and 13 obese White premenopausal South African women participated in this cross-sectional study.

MAIN OUTCOMES:

S(I) (frequently sampled i.v. glucose tolerance test) in relation to expression of adipogenic and lipogenic genes in abdominal and gluteal SAT depots.

RESULTS:

With increasing BMI, Black women had less visceral fat (P = 0.03) and more abdominal (P = 0.017) and gynoid (P = 0.041) SAT but had lower S(I) (P < 0.01) than White women. The expression of adipogenic and lipogenic genes was proportionately lower with obesity in Black but not White women in the gluteal and deep SAT depots (P < 0.05 for ethnicity × BMI effect). In Black women only, the expression of these genes correlated positively with S(I) (all P < 0.05), independently of age and fat mass.

CONCLUSIONS:

Obese Black women have reduced SAT expression of adipogenic and lipogenic genes compared with White women, which associates with reduced S(I). These findings suggest that obesity in Black women impairs SAT adipogenesis and storage, potentially leading to insulin resistance and increased risk of type 2 diabetes.

**660: Pakalnis A, Kring D. Chronic daily headache, medication overuse, and obesity in children and adolescents. J Child Neurol. 2012 May;27(5):577-80. doi: 10.1177/0883073811420869. Epub 2011 Sep 27. PubMed PMID: 21954426; PubMed Central PMCID: PMC3777610.**

Abstract

Obesity and headaches are common in children and adults. Adult studies suggest obesity is a risk factor for chronic daily headache and increased migraine frequency and severity. Pediatric studies have suggested a relationship between obesity, increasing headache frequency, and disability. The authors retrospectively evaluated 925 children from their Pediatric Headache Clinic between July 2004 and July 2008, assessing headache frequency, medication overuse, and body mass index compared to population-based norms. The pediatric headache group as a whole had a greater

percentage of overweight than the general population. This was also true with the subgroup of patients with chronic tension-type headache, although the numbers were small. Data did not show increased incidence of overweight in children with medication overuse or chronic migraine. This contrasts with adult data, which have suggested a closer link between chronic migraine and obesity and have not supported a link with chronic tension-type headache.

**661: Sigmundová D, El Ansari W, Sigmund E, Frömel K. Secular trends: a ten-year comparison of the amount and type of physical activity and inactivity of random samples of adolescents in the Czech Republic. BMC Public Health. 2011 Sep 26;11:731. doi: 10.1186/1471-2458-11-731. PubMed PMID: 21943194; PubMed Central PMCID: PMC3192689.**

Abstract

BACKGROUND:

An optimal level of physical activity (PA) in adolescence influences the level of PA in adulthood. Although PA declines with age have been demonstrated repeatedly, few studies have been carried out on secular trends. The present study assessed levels, types and secular trends of PA and sedentary behaviour of a sample of adolescents in the Czech Republic.

METHODS:

The study comprised two cross-sectional cohorts of adolescents ten years apart. The analysis compared data collected through a week-long monitoring of adolescents' PA in 1998-2000 and 2008-2010. Adolescents wore either Yamax SW-701 or Omron HJ-105 pedometer continuously for 7 days (at least 10 hours per day) excluding sleeping, hygiene and bathing. They also recorded their number of steps per day, the type and duration of PA and sedentary behaviour (in minutes) on record sheets. In total, 902 adolescents (410 boys; 492 girls) aged 14-18 were eligible for analysis.

RESULTS:

Overweight and obesity in Czech adolescents participating in this study increased from 5.5% (older cohort, 1998-2000) to 10.4% (younger cohort, 2008-2010). There were no inter-cohort significant changes in the total amount of sedentary behaviour in boys. However in girls, on weekdays, there was a significant increase in the total duration of sedentary behaviour of the younger cohort (2008-2010) compared with the older one (1998-2000). Studying and screen time (television and computer) were among the main sedentary behaviours in Czech adolescents. The types of sedentary behaviour also changed: watching TV (1998-2000) was replaced by time spent on computers (2008-2010). The Czech health-related criterion (achieving 11,000 steps per day) decreased only in boys from 68% (1998-2000) to 55% (2008-2010). Across both genders, 55%-75% of Czech adolescents met the health-related criterion of recommended steps per day, however less participants in the younger cohort (2008-2010) met this criterion than in the older cohort (1998-2000) ten years ago. Adolescents' PA levels for the monitored periods of 1998-2000 and 2008-2010 suggest a secular decrease in the weekly number of steps achieved by adolescent boys and girls.

CONCLUSION:

In the younger cohort (2008-2010), every tenth adolescent was either overweight or obese; roughly twice the rate when compared to the older cohort (1998-2000). Sedentary behaviour seems relatively stable across the two cohorts as the increased time that the younger cohort (2008-2010) spent on computers is compensated with an equally decreased time spent watching TV or studying. Across both cohorts about half to three quarters of the adolescents met the health-related criterion for achieved number of steps. The findings show a secular decrease in PA amongst adolescents. The

significant interaction effects (cohort × age; and cohort × gender) that this study found suggested that secular trends in PA differ by age and gender.

**662: Reddy SP, Resnicow K, James S, Funani IN, Kambaran NS, Ouardien RG, Masuka P, Sewpaul R, Vaughan RD, Mbewu A. Rapid increases in overweight and obesity among South African adolescents: comparison of data from the South African National Youth Risk Behaviour Survey in 2002 and 2008. Am J Public Health. 2012 Feb;102(2):262-8. doi: 10.2105/AJPH.2011.300222. Epub 2011 Nov 28. PubMed PMID: 21940919; PubMed Central PMCID: PMC3483977.**

Abstract

OBJECTIVES:

To aid future policy and intervention initiatives, we studied the prevalence and correlates of overweight and obesity among participants in the South African National Youth Risk Behaviour Survey in 2002 and 2008.

METHODS:

The survey collected data from nationally representative cross-sectional samples of students in grades 8 through 11 (n = 9491 in 2002 and 9442 in 2008) by questionnaire and measurement of height and weight. We stratified data on overweight and obesity rates by age, socioeconomic status, and race/ethnicity.

RESULTS:

Among male adolescents, overweight rates increased from 6.3% in 2002 to 11.0% in 2008 (P < .01); among female adolescents, overweight rates increased from 24.3% in 2002 to 29.0% in 2008 (P < .01). Obesity rates more than doubled among male adolescents from 1.6% in 2002 to 3.3% in 2008 (P < .01) and rose from 5.0% to 7.5% among female adolescents (P < .01). We observed a dose-response relationship in overweight and obesity rates across socioeconomic categories. Rates of overweight and obesity were significantly higher among urban youths than among rural youths (P < .01).

CONCLUSIONS:

South Africa is experiencing a chronic disease risk transition. Further research is needed to better understand and effectively address this rapid change.

**663: Bacha F, Gungor N, Lee S, Arslanian SA. Type 2 diabetes in youth: are there racial differences in  $\beta$ -cell responsiveness relative to insulin sensitivity? Pediatr Diabetes. 2012 May;13(3):259-65. doi: 10.1111/j.1399-5448.2011.00820.x. Epub 2011 Sep 20. PubMed PMID: 21933317; PubMed Central PMCID: PMC3618982.**

Abstract

OBJECTIVE:

Non-diabetic African American (AA) youth have an upregulated insulin secretion relative to insulin sensitivity (IS) compared with their American White (AW) peers. We investigated if similar racial differences exist in youth with T2DM.

RESEARCH DESIGN AND METHODS:

Fourteen AAs and 14 AWs T2DM adolescents underwent evaluation of IS and clearance (hyperinsulinemic-euglycemic clamp), first- and second-phase insulin and C-peptide secretion (hyperglycemic clamp); body composition (DEXA); and abdominal adiposity (CT).

RESULTS:

AA and AW T2DM had similar HbA1c, diabetes duration, BMI, and % body fat, with lower visceral fat in AAs ( $p = 0.013$ ). While insulin-stimulated glucose disposal was similar in AA and AW ( $7.5 \pm 1.0$  vs.  $7.3 \pm 0.9$  mg/kg FFM/min), IS tended to be lower ( $2.5 \pm 0.4$  vs.  $3.8 \pm 0.6$  mg/kg FFM/min per  $\mu\text{U/mL}$ ,  $p = 0.081$ ). First-phase insulin ( $175.7 \pm 52.9$  vs.  $66.6 \pm 10.8$   $\mu\text{U/mL}$ ,  $p = 0.01$ ) and second-phase insulin ( $236.2 \pm 40.7$  vs.  $105.1 \pm 17.9$   $\mu\text{U/mL}$ ,  $p = 0.008$ ), and first-phase C-peptide ( $8.2 \pm 1.2$  vs.  $5.0 \pm 0.3$  ng/mL,  $p = 0.02$ ) and second-phase C-peptide ( $10.8 \pm 0.9$  vs.  $7.6 \pm 0.6$  ng/mL,  $p = 0.012$ ) were higher in AA.  $\beta$ -Cell function relative to IS was higher in AA vs. AW ( $259.5 \pm 35.3$  vs.  $168.8 \pm 25.1$  mg/kg FFM/min,  $p = 0.043$ ).

**CONCLUSIONS:**

Racial differences in insulin secretion can be demonstrated with the clamp technique in obese adolescents with T2DM. Similar to non-diabetic youth, AA adolescents with T2DM compared with their AW counterparts have an upregulated  $\beta$ -cell function relative to IS, the reasons for which remain to be investigated.

**664: Piernas C, Popkin BM. Increased portion sizes from energy-dense foods affect total energy intake at eating occasions in US children and adolescents: patterns and trends by age group and sociodemographic characteristics, 1977-2006. Am J Clin Nutr. 2011 Nov;94(5):1324-32. doi: 10.3945/ajcn.110.008466. Epub 2011 Sep 14. PubMed PMID: 21918222; PubMed Central PMCID: PMC3192477.**

**Abstract**

**BACKGROUND:**

Larger portion sizes of foods and beverages could affect overall energy intake at meals and promote overeating.

**OBJECTIVE:**

We investigated trends in portion sizes of energy-dense foods and energy intakes at eating occasions in US children and adolescents.

**DESIGN:**

Four US nationally representative surveys from 1977 to 2006 were analyzed ( $n = 31,337$ ). We measured trends in portion sizes (kcal, g, and mL) of selected foods [sugar-sweetened beverages (SSBs), salty snacks, desserts, French fries, burgers, pizzas, and Mexican fast foods] and energy intake (kcal) at eating occasions during which selected foods were consumed. Trends were reported by age group (2-6-, 7-12-, and 13-18-y-olds), sex, and socioeconomic status.

**RESULTS:**

In 2003-2006, the selected foods accounted for 38% of daily energy intake in 13-18-y-olds, 35% of the daily energy intake in 7-12-y-olds, and 28% of the daily energy intake in 2-6-y-olds. In all age groups, larger portion sizes of pizza coincided with higher energy intakes at eating occasions during which pizzas were consumed. In 7-12- and 13-18-y-olds, higher energy intakes at meals coincided with larger portion sizes of SSBs, French fries, or salty snacks. In all age groups, nonsignificant larger portions of Mexican fast foods were related to higher energy intakes at meals. Adolescent boys consumed larger portion sizes of the selected foods and had higher energy intakes at meals for all periods than did girls ( $P < 0.01$ ). The percentage of kilocalories from pizza within a meal increased more sharply in non-Hispanic African Americans, in Hispanics, and in the group with a low household education than in the other groups.

**CONCLUSIONS:**

Adolescents are more susceptible to increased portion sizing than are younger children. The group of non-Hispanic African Americans and Hispanics and individuals with a lower education represents key concerns for public health policies.

**665: Mahfouz AA, Shatoor AS, Khan MY, Daffalla AA, Mostafa OA, Hassanein MA. Nutrition, physical activity, and gender risks for adolescent obesity in Southwestern Saudi Arabia. Saudi J Gastroenterol. 2011 Sep-Oct;17(5):318-22. doi: 10.4103/1319-3767.84486. PubMed PMID: 21912058; PubMed Central PMCID: PMC3178919.**

Abstract

BACKGROUND/AIM:

The aim of the study was to investigate gender differences in obesity and related behavior among adolescent school boys and girls in southwestern Saudi Arabia.

PATIENTS AND METHODS:

A cross-sectional study on a stratified sample of 1,249 adolescent boys and 620 adolescent girls, was conducted in southwestern Saudi Arabia. They were interviewed and examined for weight and height using standardized techniques.

RESULTS:

The prevalence of obesity and overweight in the present study amounted to 23.2% among boys and 29.4% among girls. The following significant risk factors were identified; being a female [adjusted odds ratio (aOR) =1.372, 95% confidence interval (CI) =1.099-1.753] and lack of class physical exercise (aOR =1.452, 95% CI =1.149-2.117).

CONCLUSION:

Obesity among adolescents is a public health problem in Southwestern Saudi Arabia. The problem is more prevalent among girls. Thus, there is a need for a national programme in the country to prevent and control obesity among adolescents.

**666: Selassie A, Wagner CS, Laken ML, Ferguson ML, Ferdinand KC, Egan BM. Progression is accelerated from prehypertension to hypertension in blacks. Hypertension. 2011 Oct;58(4):579-87. doi: 10.1161/HYPERTENSIONAHA.111.177410. Epub 2011 Sep 12. PubMed PMID: 21911708; PubMed Central PMCID: PMC3186683.**

Abstract

Prehypertension is a major risk factor for hypertension. Blacks have more prevalent and severe hypertension than whites, but it is unknown whether progression from prehypertension is accelerated in blacks. We examined this question in a prospective cohort study of 18 865 nonhypertensive persons (5733 black [30.4%] and 13 132 white [69.6%]) aged 18 to 85 years. Electronic health record data were obtained from 197 community-based outpatient clinics in the Southeast United States. Days elapsing from study entry to hypertension diagnosis, mainly blood pressure  $\geq 140$  mm Hg systolic and/or  $\geq 90$  mm Hg diastolic on 2 consecutive visits established conversion time within a maximum observation period of 2550 days. Cox regression modeling was used to examine conversion to hypertension as a function of race, while controlling for age, sex, baseline systolic and diastolic blood pressures, body mass index, diabetes mellitus, and chronic kidney disease. The covariable adjusted median conversion time when 50% became hypertensive was 365 days earlier for blacks than whites (626 versus 991 days;  $P < 0.001$ ). Among covariables, baseline systolic blood pressure 130 to 139 mm Hg (hazard ratio: 1.77 [95% CI: 1.69 to 1.86]) and 120 to 129

mm Hg (hazard ratio: 1.52 [95% CI: 1.44 to 1.60]), as well as age  $\geq$ 75 years (hazard ratio: 1.40 [95% CI: 1.29 to 1.51]) and 55 to 74 years (hazard ratio: 1.29 [95% CI: 1.23 to 1.35]) were the strongest predictors of hypertension. Additional predictors included age 35 to 54 years, diastolic blood pressure 80 to 89 mm Hg, overweight and obesity, and diabetes mellitus (all  $P < 0.001$ ). Conversion from prehypertension to hypertension is accelerated in blacks, which suggests that effective interventions in prehypertension could reduce racial disparities in prevalent hypertension.

**667: Long MD, Crandall WV, Leibowitz IH, Duffy L, del Rosario F, Kim SC, Integlia MJ, Berman J, Grunow J, Colletti RB, Schoen BT, Patel AS, Baron H, Israel E, Russell G, Ali S, Herfarth HH, Martin C, Kappelman MD; ImproveCareNow Collaborative for Pediatric IBD. Prevalence and epidemiology of overweight and obesity in children with inflammatory bowel disease. *Inflamm Bowel Dis*. 2011 Oct;17(10):2162-8. doi: 10.1002/ibd.21585. Epub 2010 Dec 17. PubMed PMID: 21910178; PubMed Central PMCID: PMC3116044.**

Abstract

BACKGROUND:

Obesity is a significant public health threat to children in the United States. The aims were to: 1) Determine the prevalence of obesity in a multicenter cohort of children with inflammatory bowel disease (IBD); 2) Evaluate whether overweight and obese status is associated with patient demographics or disease characteristics.

METHODS:

We used data from the ImproveCareNow Collaborative for pediatric IBD, a multicenter registry of children with IBD, collected between April 2007 and December 2009. Children ages 2-18 years were classified into body mass index (BMI) percentiles. Bivariate analyses and multivariate logistic regression were used to compare demographic and disease characteristics by overweight (BMI  $>85\%$ ) and obese (BMI  $>95\%$ ) status.

RESULTS:

The population consisted of 1598 children with IBD. The prevalence of overweight/obese status in pediatric IBD is 23.6%, (20.0% for Crohn's disease [CD] and 30.1% for ulcerative colitis [UC] and indeterminate colitis [IC]). African American race (odds ratio [OR] 1.64, 95% confidence interval [CI] 1.10-2.48) and Medicaid insurance (OR 1.67, 95% CI 1.19-2.34) were positively associated with overweight/obese status. Prior IBD-related surgery (OR 1.73, 95% CI 1.07-2.82) was also associated with overweight and obese status in children with CD. Other disease characteristics were not associated with overweight and obesity in children with IBD.

CONCLUSIONS:

Approximately one in five children with CD and one in three with UC are overweight or obese. Rates of obesity in UC are comparable to the general population. Obese IBD patients may have a more severe disease course, as indicated by increased need for surgery. Sociodemographic risk factors for obesity in the IBD population are similar to those in the general population.



**668: Kwon DG, Kang SC, Chung CY, Lee SH, Lee KM, Choi IH, Cho TJ, Yoo WJ, Park YJ, Park MS. Prevalence of obesity in ambulatory patients with cerebral palsy in the Korean population: a single institution's experience. Clin Orthop Surg. 2011 Sep;3(3):211-6. doi: 10.4055/cios.2011.3.3.211. Epub 2011 Aug 19. PubMed PMID: 21909468; PubMed Central PMCID: PMC3162201.**

Abstract

BACKGROUND:

There is a worldwide tendency of an increasing prevalence of obesity. Therefore, this study aimed at determining whether such a trend exists among cerebral palsy (CP) patients. We also tried to compare this trend with the trend in the general population. We also discuss the importance of obesity trends in CP patients.

METHODS:

This retrospective study was performed on 766 ambulatory patients who were diagnosed with CP since 1996 in our institution. The associations among the prevalence of obesity and the body mass index, age, gender, the type of CP, the gross motor function classification system and the time of survey were investigated.

RESULTS:

The overall prevalence of obesity was 5.7%, and the overall prevalence of obesity together with being overweight was 14.6% for the ambulatory patients with CP. The prevalence of obesity and of obesity together with being overweight did not show a statistically significant temporal increase. On the other hand, age and gender were found to affect the body mass index of the ambulatory CP patients ( $p < 0.001$  and  $0.003$ , respectively).

CONCLUSIONS:

The extent of obesity and being overweight in the ambulatory patients with CP in this study was far less than that reported in the United States (US). In addition, it appears that the differences of the prevalence of obesity in children and adolescents between those with and without CP are disappearing in the US, whereas the differences of the prevalence of obesity in children and adolescents between those with and without CP seem to be becoming more obvious in Korea. Accordingly, care should be taken when adopting the data originating from the US because this data might be affected by the greater prevalence of obesity and the generally higher body mass indices of the US.

KEYWORDS:

Body mass index; Cerebral palsy; Gross motor function classification system; Obesity.

**669: Michalsky M, Kramer RE, Fullmer MA, Polfuss M, Porter R, Ward-Begnoche W, Getzoff EA, Dreyer M, Stolzman S, Reichard KW. Developing criteria for pediatric/adolescent bariatric surgery programs. Pediatrics. 2011 Sep;128 Suppl 2:S65-70. doi: 10.1542/peds.2011-0480F. PubMed PMID: 21885647.**

Abstract

The prevalence of morbid obesity in adolescents is rising at an alarming rate. Comorbidities known to predispose to cardiovascular disease are increasingly being diagnosed in these children. Bariatric surgery has become an acceptable treatment alternative for morbidly obese adults, and criteria have been developed to establish center-of-excellence designation for adult bariatric surgery programs. Evidence suggests that bariatric surgical procedures are being performed with increasing numbers in



adolescents. We have examined and compiled the current expert recommendations for guidelines and criteria that are needed to deliver safe and effective bariatric surgical care to adolescents.

670: Drescher AA, Goodwin JL, Silva GE, Quan SF. Caffeine and screen time in adolescence: associations with short sleep and obesity. *J Clin Sleep Med*. 2011 Aug 15;7(4):337-42. doi: 10.5664/JCSM.1182. PubMed PMID: 21897768; PubMed Central PMCID: PMC3161764.

#### Abstract

##### OBJECTIVE:

To investigate the associations between sleep duration and obesity incidence and risk factors among pre-adolescents and adolescents.

##### DESIGN:

Cross-sectional study of a community based cohort

##### SETTING:

The Tucson Children's Assessment of Sleep Apnea follow-up study (TuCASA) cohort.

##### PARTICIPANTS:

319 Caucasian and Hispanics between 10-17 years.

##### MAIN OUTCOME:

Parent-reported sleep duration and BMI z-score.

##### OUTCOME MEASURES:

Surveys of electronic screen time, dietary and caffeine intake, exercise and sleep habits by parents, and anthropometric measures.

##### RESULTS:

Parent-reported total sleep time (TST) was inversely associated with BMI z-score, but not significantly correlated with any of the examined nutritional variables or exercise components. Hispanic ethnicity was associated with significantly lower parent-reported TST and higher BMI z-score. Parent-reported TST was inversely related to electronic screen time and caffeine use, but these findings were differentially related to age. Caffeine consumption was associated with decreasing parent-reported TST primarily in older adolescents. Electronic screen time was associated with lower parent-reported TST in younger adolescents.

##### CONCLUSIONS:

Hispanic ethnicity and parental reports of TST were found to be the most closely associated with BMI z-score. Decreased TST and increased caffeine intake and screen time may result in higher obesity risk in the adolescent population.

##### KEYWORDS:

Hispanic; Obesity; adolescent; caffeine; sleep; video games.

**671: Silva GE, Goodwin JL, Parthasarathy S, Sherrill DL, Vana KD, Drescher AA, Quan SF. Longitudinal association between short sleep, body weight, and emotional and learning problems in Hispanic and Caucasian children. Sleep. 2011 Sep 1;34(9):1197-205. doi: 10.5665/SLEEP.1238. PubMed PMID: 21886357; PubMed Central PMCID: PMC3157661.**

Abstract

STUDY OBJECTIVE:

To determine the impact of lower amounts of childhood sleep assessed by polysomnogram on development of obesity, being anxious or depressed, or having learning problems 5 years later.

DESIGN:

Prospective cohort.

PARTICIPANTS:

Subjects were 304 community participants from the Tucson Children's Assessment of Sleep Apnea study, aged 6-12 years old at baseline.

MEASUREMENTS AND RESULTS:

Children were classified according to baseline sleep as those who slept  $\geq 9$  h/night, those who slept  $> 7.5$  to  $< 9$  h/night, and those who slept  $\leq 7.5$  h/night. Odds of overweight/obese ( $\geq 85$ (th) BMI percentile), obese ( $\geq 95$ (th) BMI percentile), anxious or depressed, and learning problems at follow-up were assessed according to baseline sleep categories. Children who slept  $\leq 7.5$  h/night had higher odds of being obese (OR = 3.3,  $P < 0.05$ ) at follow-up than children who slept  $\geq 9$  h/night. Borderline significance for overweight/obese (OR = 2.2,  $P < 0.1$ ), anxious or depressed (OR = 3.3,  $P < 0.1$ ), and having learning problems (OR = 11.1,  $P < 0.1$ ) were seen for children who slept  $\leq 7.5$  h/night as compared to those who slept  $\geq 9$  h/night. A mean increase in BMI of 1.7 kg/m<sup>2</sup> ( $P = 0.01$ ) over the 5 years of follow-up was seen for children who slept  $\leq 7.5$  h/night compared to those who slept  $\geq 9$  h/night. These relationships did not differ between Hispanic and Caucasian children.

CONCLUSIONS:

Children with reduced amounts of sleep ( $\leq 7.5$  h/night) had an increased risk for higher body weight in early adolescence. Similarly, children who slept  $\leq 7.5$  h/night had higher risk of being anxious or depressed or having learning problems in early adolescence.

KEYWORDS:

Sleep time; body mass index; childhood; obesity.

**672: Teranishi K, Hayes DK, Iwaishi LK, Fuddy LJ. Poorer general health status in children is associated with being overweight or obese in Hawai'i: findings from the 2007 National Survey of Children's Health. Hawaii Med J. 2011 Jul;70(7 Suppl 1):16-20. PubMed PMID: 21886288; PubMed Central PMCID: PMC3158452.**

Abstract

Obesity is a widespread national issue that affects the health and well-being of millions of people; particular attention has been focused on the burden among children. The National Survey of Children's Health data from 2007 was used to examine the relationship of child health status and unhealthy weight (overweight/obese defined as body mass index in  $\geq 85$  th percentile) among 874 children aged 10 to 17 years of age in Hawai'i. In particular, the parentally reported child's general health status was assessed comparing those with a poorer health status (defined as "good/fair/poor") to those with a better one (defined as "excellent/very good"). Descriptive analysis and multiple

logistic regression analysis examined risk for overweight/obese with child's general health status, accounting for gender, race, and socioeconomic factors. More children with a poorer health status (46.5%; 95%CI=33.2-60.2) were overweight/obese compared to those of better health status (25.8%; 95%CI=21.9-30.2). Estimates of overweight/obese were high in Native Hawaiian/Pacific Islander (38.6%; 95%CI: 28.9-49.4), multiracial (30.9%; 95%CI=24.2-38.6) children, and children whose parents had less than 12 years education (56.8%; 95%CI=32.8-78.0). Multivariate logistic regression modeling showed a 2.92 (95%CI=1.52-5.61) greater odds for overweight/obese status in children with a poorer health status compared to those of better health status after accounting for age, race, gender, and parental education. Gender, race, and parental education were also significant factors associated with overweight/obese in the final adjusted model. It is important that children that are overweight or obese receive appropriate health screenings including assessments of general health status. Children in high risk socioeconomic groups should be a particular focus of prevention efforts to promote health equity and provide opportunities for children to reach their potential.

**673: Reyes J M, Díaz B E, Lera M L, Burrows A R. [Intake and energy metabolism in a sample of overweight and obese Chilean adolescents]. Rev Med Chil. 2011 Apr;139(4):425-31. doi: /S0034-98872011000400002. Epub 2011 Aug 25. Spanish. PubMed PMID: 21879179.**

#### Abstract

##### BACKGROUND:

In the last decades, a seven to nine fold increase in the prevalence of teenage obesity and overweight has occurred.

##### AIM:

To assess energy intake and metabolism in a sample of overweight and obese adolescents.

##### MATERIAL AND METHODS:

In a sample of 113 overweight and obese Chilean adolescents (aged 13 to 16 years, 67 females) we studied anthropometry, body composition by deuterium isotope dilution water, resting energy expenditure by indirect calorimetry and 24-h diet and physical activity recalls.

##### RESULTS:

Most participants (87% of men and 67.2% of women) had an intake that was adequate compared to requirements (FAO/WHO 2005). However, 82.6% of men and 83.6% of women showed reduced energy expenditure. The sample was classified as sedentary, with a physical activity level of 1.29.

##### CONCLUSIONS:

In our sample of overweight and obese adolescents there was a sedentary behavior, resulting in low energy expenditure that would explain a sustained caloric retention. Preventive and therapeutic interventions should encourage the increase in physical activity.

**674: Gletsu-Miller N, Broderius M, Frediani JK, Zhao VM, Griffith DP, Davis SS Jr, Sweeney JF, Lin E, Prohaska JR, Ziegler TR. Incidence and prevalence of copper deficiency following roux-en-y gastric bypass surgery. *Int J Obes (Lond)*. 2012 Mar;36(3):328-35. doi: 10.1038/ijo.2011.159. Epub 2011 Aug 30. PubMed PMID: 21876546; PubMed Central PMCID: PMC3748601.**

Abstract

INTRODUCTION AND OBJECTIVES:

The frequency of copper deficiency and clinical manifestations following roux-en-y gastric bypass (RYGB) surgery is not yet clear. Objectives were to determine the prevalence and incidence of copper deficiency in patients who have undergone RYGB.

DESIGN AND METHODS:

We sought to determine the number of RYGB patients undergoing medical and nutritional follow-up visits at the Emory Bariatric Center who experienced copper deficiency and associated hematological and neurological complaints (n=136). Separately, in patients followed longitudinally before and during 6 and 24 months following RYGB surgery, we obtained measures of copper status (n=16). Systemic blood cell counts and measures of copper, zinc and ceruloplasmin were determined using standardized assays in reference laboratories including atomic absorption spectrometry and immunoassays.

RESULTS:

Thirteen patients were identified to have copper deficiency suggesting a prevalence of copper deficiency of 9.6%, and the majority of these had concomitant complications including anemia, leukopenia and various neuro-muscular abnormalities. In the longitudinal study, plasma copper concentrations and ceruloplasmin activity decreased over 6 and 24 months following surgery, respectively (P<0.05), but plasma zinc concentrations did not change. A simultaneous decrease in white blood cells was observed (P<0.05). The incidence of copper deficiency in these subjects was determined to be 18.8%.

CONCLUSIONS:

The prevalence and incidence of copper deficiency following RYGB surgery was determined to be 9.6% and 18.8%, respectively, with many patients experiencing mild-to-moderate symptoms. Given that copper deficiency can lead to serious and irreversible complications if untreated, frequent monitoring of the copper status of RYGB patients is warranted.

**675: Ma J, Flanders WD, Ward EM, Jemal A. Body mass index in young adulthood and premature death: analyses of the US National Health Interview Survey linked mortality files. *Am J Epidemiol*. 2011 Oct 15;174(8):934-44. doi: 10.1093/aje/kwr169. Epub 2011 Aug 26. PubMed PMID: 21873602.**

Abstract

Knowledge of the association between body mass index (weight (kg)/height (m)<sup>2</sup>) and premature death in young adulthood is very limited, especially for specific causes of death. Using the US National Health Interview Survey linked mortality files, the authors examined the relation between body mass index and premature death from all causes, cardiovascular disease (CVD), and cancer among 112,328 persons aged 18-39 years who participated in the National Health Interview Survey in the years 1987, 1988, and 1990-1995. During an average of 16 years of follow-up (ending on December 31, 2006), there were 3,178 deaths: 573 from CVD and 733 from cancer. Hazard ratios and

95% confidence intervals were estimated using multivariate proportional hazards models adjusting for age, gender, race/ethnicity, education, and smoking status. In analyses restricted to participants who had never smoked, the hazard ratios for death from all causes were 1.07 (95% confidence interval (CI): 0.91, 1.26) for overweight participants, 1.41 (95% CI: 1.16, 1.73) for obese participants, and 2.46 (95% CI: 1.91, 3.16) for extremely obese participants, compared with those of normal weight. Monotonically increasing risks for excess body weight were also observed for deaths from cancer and CVD. The associations found in this young cohort were much stronger than those in middle-aged or older populations.

**676: Ali MK, Bullard KM, Beckles GL, Stevens MR, Barker L, Narayan KM, Imperatore G. Household income and cardiovascular disease risks in U.S. children and young adults: analyses from NHANES 1999-2008. Diabetes Care. 2011 Sep;34(9):1998-2004. doi: 10.2337/dc11-0792. PubMed PMID: 21868776; PubMed Central PMCID: PMC3161277.**

Abstract

OBJECTIVE:

To assess the cardiovascular risk profile of youths across socioeconomic groups in the U.S.

RESEARCH DESIGN AND METHODS:

Analysis of 1999-2008 National Health and Nutrition Examination Surveys (NHANES) including 16,085 nonpregnant 6- to 24-year-olds to estimate race/ethnicity-adjusted prevalence of obesity, central obesity, sedentary behaviors, tobacco exposure, elevated systolic blood pressure, glycosylated hemoglobin, non-HDL cholesterol (non-HDL-C), and high-sensitivity C-reactive protein according to age-group, sex, and poverty-income ratio (PIR) tertiles.

RESULTS:

Among boys aged 6-11 years, 19.9% in the lowest PIR tertile were obese and 30.0% were centrally obese compared with 13.2 and 21.6%, respectively, in the highest-income tertile households ( $P(\text{obesity}) < 0.05$  and  $P(\text{central obesity}) < 0.01$ ). Boys aged 12-17 years in lowest-income households were more likely than their wealthiest family peers to be obese (20.6 vs. 15.6%,  $P < 0.05$ ), sedentary (14.8 vs. 9.3%,  $P < 0.05$ ), and exposed to tobacco (19.0 vs. 6.5%,  $P < 0.01$ ). Compared with girls aged 12-17 years in highest-income households, lowest-income household girls had higher prevalence of obesity (17.9 vs. 13.1%,  $P < 0.05$ ), central obesity (41.5 vs. 29.2%,  $P < 0.01$ ), sedentary behaviors (20.4 vs. 9.4%,  $P < 0.01$ ), and tobacco exposure (14.1 vs. 5.9%,  $P < 0.01$ ). Apart from higher prevalence of elevated non-HDL-C among low-income women aged 18-24 years (23.4 vs. 15.8%,  $P < 0.05$ ), no other cardiovascular disease risk factor prevalence differences were observed between lowest- and highest-income background young adults.

CONCLUSIONS:

Independent of race/ethnicity, 6- to 17-year-olds from low-income families have higher prevalence of obesity, central obesity, sedentary behavior, and tobacco exposure. Multifaceted cardiovascular health promotion policies are needed to reduce health disparities between income groups.

**677: Le Strat Y, Le Foll B. Obesity and cannabis use: results from 2 representative national surveys. Am J Epidemiol. 2011 Oct 15;174(8):929-33. doi: 10.1093/aje/kwr200. Epub 2011 Aug 24. PubMed PMID: 21868374.**

Abstract

The role of cannabis and endocannabinoids in appetite regulation has been extensively studied, but the association of cannabis use with weight in the general population is not known. The authors used data from 2 representative epidemiologic studies of US adults aged 18 years or older, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; 2001-2002) and the National Comorbidity Survey-Replication (NCS-R; 2001-2003), to estimate the prevalence of obesity as a function of cannabis use. The adjusted prevalences of obesity in the NESARC and the NCS-R were 22.0% and 25.3%, respectively, among participants reporting no use of cannabis in the past 12 months and 14.3% and 17.2%, respectively, among participants reporting the use of cannabis at least 3 days per week. These differences were not accounted for by tobacco smoking status. Additionally, after adjustment for sex and age, the use of cannabis was associated with body mass index differences in both samples. The authors conclude that the prevalence of obesity is lower in cannabis users than in nonusers.

**678: Naude CE, Senekal M, Laubscher R, Carey PD, Fein G. Growth and weight status in treatment-naïve 12-16 year old adolescents with alcohol use disorders in Cape Town, South Africa. Nutr J. 2011 Aug 23;10:87. doi: 10.1186/1475-2891-10-87. PubMed PMID: 21861902; PubMed Central PMCID: PMC3173299.**

Abstract

BACKGROUND:

Heavy alcohol consumption during adolescence has many known harmful health and social consequences and is strongly associated with numerous health risk behaviours. The consequences of heavy alcohol use during adolescence on nutritional status, specifically growth and weight status are largely unknown at this time.

METHODS:

Substance use, anthropometric indices of growth and weight, dietary energy intake and physical activity in heavy drinking adolescents (meeting DSM-IV criteria for alcohol use disorders) and matched light/non-drinking control adolescents were assessed.

RESULTS:

Lifetime alcohol dose, measured in standard drinks of alcohol, was orders of magnitude higher in adolescents with alcohol use disorders (AUDs) compared to controls. The AUDs group was selected to represent relatively 'pure' AUDs, with minimal other drug use and no psychiatric diagnoses. The growth and weight status of adolescents with AUDs were generally comparable to that of controls, and is in line with the growth and weight status of the South African adolescent population. A greater proportion of overweight/obese females was found in both groups, with this percentage tending to be greater, although not significantly so, in the AUDs group. Adolescent females with AUDs had increased odds of being overweight/obese compared to controls, after adjustment for smoking, physical activity and energy intake.

CONCLUSION:

Anthropometric indices of growth and weight status of participants in the Control and AUD groups were generally comparable. Female adolescents with AUDs may have an increased risk of being

overweight/obese compared to adolescent females without AUDs. The presence of an AUD in our adolescent sample was associated with higher energy intake. Longitudinal studies are needed to elucidate the effects of heavy alcohol use on energy balance, growth and weight status in adolescents as they age. Nonetheless, the current study contributes to our understanding of the impacts of heavy alcohol consumption on important aspects of adolescent development.

PMID: 21861902 [PubMed - indexed for MEDLINE] PMCID: PMC3173299 Free PMC Article

**679: Iloh G, Amadi AN, Nwankwo BO, Ugwu VC. Obesity in adult Nigerians: a study of its pattern and common primary co-morbidities in a rural Mission General Hospital in Imo state, South-Eastern Nigeria. Niger J Clin Pract. 2011 Apr-Jun;14(2):212-8. doi: 10.4103/1119-3077.84019. PubMed PMID: 21860142.**

Abstract

OBJECTIVES:

This study was generally aimed at determining the prevalence and pattern of obesity using body mass index (BMI) criterion and specifically screening for its common primary co-morbidities among adult Nigerians attending a rural Mission General Hospital in Imo state, South-Eastern Nigeria.

MATERIALS AND METHODS:

A descriptive study was carried out from June 2008 to May 2009. A total of 2156 consecutive new adult patients aged 18-90 years were screened for obesity using the BMI criterion, and 129 patients had BMI  $\geq 30$  kg/m<sup>2</sup> and met the inclusion criteria. The data collected included age, sex, marital status, education, occupation, social class, weight, height and blood pressure, fasting blood sugar and lipid profile.

RESULTS:

The prevalence of obesity was 6.0%, with class I obesity (86.1%) being the most common pattern. Hypertension (16.3%) was the most common primary co-morbidity; others included low high-density lipoprotein-cholesterol (21.7%), high low-density lipoprotein-cholesterol (9.3%), high total cholesterol (7.8%), high triglyceridemia (4.7%) and diabetes mellitus (3.9%).

CONCLUSIONS:

This study has shown that obesity and its primary co-morbidities are emerging as a serious health problem among the study population, with class I obesity being the most common pattern and hypertension being the most common primary co-morbidity. Anthropometric determination of obesity and screening for its common primary co-morbidities should be integrated as part of the clinic baseline assessment of adult Nigerians attending rural hospitals to facilitate their early detection and institutionalization of appropriate preventive and therapeutic measures.

**680: Ge S, Kubota M, Nagai A, Mamemoto K, Kojima C. Retrospective individual tracking of body mass index in obese and thin adolescents back to childhood. Asia Pac J Clin Nutr. 2011;20(3):432-7. PubMed PMID: 21859663.**

Abstract

The objective of this study is to track body mass index (BMI) in obese or thin adolescents from adolescence to childhood on an individual basis. This was performed at a single school with a 12-year combination education system in an urban city in Japan. A total of 617 students in the 3rd grade of senior high school (17 years old) during 2005-2009 were enrolled. Based on the Japanese BMI reference in childhood adjusted for age and gender, obesity and thinness were defined as  $\geq 90$ th

percentile and  $\leq$ 5th percentile, respectively. Sixty-three (10.2%) and 84 (13.6%) students were found to be obese and thin, respectively. Complete annual tracking of BMI back to the 1st grade of elementary school (6 years old) (1994-1998) was possible in 47 obese (74.6%) and 67 thin students (80.0%). The most common ages when obesity was first detected were 6-8 years for males, and 12-14 years for females, and the most common ages when thinness was first detected were 12-14 years for males, and 15-17 years for females. Once obesity or thinness started, these conditions remained until 17 years old in most students. Obese students whose obesity started earlier tended to have higher BMIs at 17 years old in both genders. This will be the first tracking study of BMI in obese and thin adolescents on an individual basis. A longitudinal study of BMI during childhood is useful for establishing intervention programs to prevent obesity or thinness in adolescence.

**681: Kotlyarevska K, Wolfgram P, Lee JM. Is waist circumference a better predictor of insulin resistance than body mass index in U.S. adolescents? J Adolesc Health. 2011 Sep;49(3):330-3. doi: 10.1016/j.jadohealth.2010.12.008. Epub 2011 May 4. PubMed PMID: 21856529; PubMed Central PMCID: PMC3188962.**

Abstract

PURPOSE:

To determine whether waist circumference (WC) is a better predictor of insulin resistance (IR) than body mass index (BMI) in U.S. adolescents aged 12-18 years.

METHODS:

Using data from the National Health and Nutrition Examination Survey 1999-2002, we evaluated an ethnically diverse sample of 1,571 adolescents with regard to BMI, WC, and fasting glucose and insulin levels. Children were classified as having IR if they had a homeostasis model assessment of insulin resistance ( $\text{insulin [U/mL]} \times \text{glucose [mmol/L]} / 22.5$ ) of greater than 4.39. We created receiver operating characteristic curves predicting IR across various thresholds of WC and BMI, and area under the curve was compared.

RESULTS:

The prevalence rate of IR in the study population was 11.8%. Measures of test performance (sensitivity and specificity) for predicting IR were similar for abnormal BMI and WC thresholds; that is, thresholds of BMI 85th% and WC 75th% and thresholds of BMI 95th% and WC 90th% were quite similar. There were no significant differences in area under the curve for WC versus BMI (.85; 95% CI, .83-.88;  $p = .84$ ) either for the overall population or for specific racial groups.

CONCLUSIONS:

WC does not seem to provide a distinct advantage over BMI for identifying adolescents with IR.

**682: Kim SS, Luan X, Canning DA, Landis JR, Keren R. Association between body mass index and urolithiasis in children. J Urol. 2011 Oct;186(4 Suppl):1734-9. doi: 10.1016/j.juro.2011.04.009. Epub 2011 Aug 19. PubMed PMID: 21855900; PubMed Central PMCID: PMC3362488.**

Abstract

PURPOSE:

The prevalence of obesity and urolithiasis in children has increased with time. We evaluated the relationship between body mass and urolithiasis in children.

MATERIALS AND METHODS:



We performed a matched case-control study in a network of 30 primary care pediatric practices. Cases included subjects with ICD-9 codes for urolithiasis and controls were matched on age, duration of observation before the index date and clinical practice. Age and sex specific body mass index z scores at the time of the stone episode were calculated. Continuous body mass index z scores and clinical weight categories were evaluated with covariates, including race, ethnicity, gender and payer status. The OR and 95% CI were calculated using multivariate conditional logistic regression.

**RESULTS:**

We identified 110 cases and 396 matched controls, of whom 1.9% and 4.3% were overweight, and 3.7% and 4.5% were obese, respectively. On multivariate conditional logistic regression analysis the continuous body mass index z score (OR 0.84, 95% CI 0.63-1.12,  $p = 0.18$ ), overweight status (OR 0.13, 95% CI 0.01-1.18) and obese status (OR 0.18, 95% CI 0.02-1.40) were not associated with urolithiasis. However, black race (OR 0.35, 95% CI 0.15-0.85) and Medicaid payer status (OR 0.47, 95% CI 0.24-0.93) were associated with a significant decrease in the odds of urolithiasis.

**CONCLUSIONS:**

High body mass was not associated with urolithiasis in our primary care pediatric practice network. However, black race and Medicaid payer status were associated with decreased odds of urolithiasis.

**683: Cohen PA, Benner C, McCormick D. Use of a pharmaceutically adulterated dietary supplement, Pai You Guo, among Brazilian-born women in the United States. J Gen Intern Med. 2012 Jan;27(1):51-6. doi: 10.1007/s11606-011-1828-0. Epub 2011 Aug 16. PubMed PMID: 21845487; PubMed Central PMCID: PMC3250540.**

**Abstract**

**BACKGROUND:**

Pai You Guo is a weight loss supplement manufactured in China and adulterated with the banned pharmaceutical products sibutramine and phenolphthalein. The US Food and Drug Administration (FDA) announced a voluntary recall of Pai You Guo in 2009, yet clinicians have noted its continued use among Brazilian-born women in Massachusetts.

**OBJECTIVE:**

To assess prevalence of Pai You Guo use, associated side effects, modes of acquisition, and impact of FDA regulatory action on these outcomes.

**DESIGN:**

Cross-sectional study using an anonymous questionnaire.

**PARTICIPANTS:**

Women  $\leq 60$  years of age, born in Brazil who attended one primary care clinic or one of six churches in Massachusetts.

**MAIN MEASURES:**

Prevalence of use, how users first heard about the product, location of purchase, associated side effects, patterns of use before and after the FDA recall.

**KEY RESULTS:**

Twenty-three percent (130/565) of respondents reported using Pai You Guo. In multivariate analysis, obesity (adj OR 3.7,  $p$ -value  $< 0.001$ ) and lack of insurance (adj OR 2.6,  $p$ -value 0.005) were associated with use. The majority of users (85%) reported at least one side effect. Dry mouth (59%), anxiety (29%), and insomnia (26%) were most commonly reported adverse effects. Nearly thirty-percent of users (38/130) purchased Pai You Guo from local stores and 9% (11/130) purchased it over the

Internet. The majority of respondents (79/130; 61%) purchased Pai You Guo after the FDA recall. No respondent was aware of the FDA recall.

**CONCLUSIONS:**

Use of this pharmaceutically adulterated supplement is common among Brazilian-born women in Massachusetts. The FDA alerts and recall did not appear to decrease its use.

**684: Wang D, Zhu JY, Li GM, Leng XS. [Results of long-time follow up of patients who survived more than 5 years after liver transplantation: a single center experience]. Beijing Da Xue Xue Bao. 2011 Aug 18;43(4):612-5. Chinese. PubMed PMID: 21844979.**

**Abstract**

**OBJECTIVE:**

To investigate liver transplantation patients who survived for more than 5 years for the occurrences of their various long-term complications, prevention and treatment.

**METHODS:**

By May 31, 2010, totally 69 patients who had received liver transplantation from July 2000 to May 2005 in Peking University People's Hospital were still alive. We reviewed the clinical data of these patients and the recent records of their liver and kidney functions, blood pressure, blood sugar and blood fat, etc. The occurrences of their various long-term complications were summarized and the status of treatment was studied.

**RESULTS:**

In these 69 patients, 39.1% (27/69) of them were overweight or obese, 33.3% (23/69) had post transplantation diabetes mellitus (PTDM), 26.1% (18/69) had hyperlipemia, 20.3% (14/69) suffered from renal insufficiency, 15.9% (11/69) had hypertension and 23.2% (16/69) had hyperuricemia. Interestingly, the occurrences of PTDM and hyperlipemia in overweight or obese patients were higher than those in normal weight patients (48.2% vs. 23.8% and 40.7% vs. 16.7%,  $P < 0.05$ ). In addition, hepatitis B virus (HBV) infection recurred in 4 patients out of the 61 patients who had HBV related liver disease pre-operation, and liver cancer relapsed in 3 patients out of the 19 patients who had hepatocellular carcinoma (HCC) pre-operation. Totally 4 patients received re-transplant during the follow-up.

**CONCLUSION:**

The occurrences of long-term complications in liver transplantation patients who survived for more than 5 years were rather high, so the follow-up should be strengthened and procedures done to avoid the exacerbation of these complications.

**685: Astrup A, Carraro R, Finer N, Harper A, Kunesova M, Lean ME, Niskanen L, Rasmussen MF, Rissanen A, Rössner S, Savolainen MJ, Van Gaal L; NN8022-1807 Investigators. Safety, tolerability and sustained weight loss over 2 years with the once-daily human GLP-1 analog, liraglutide. *Int J Obes (Lond)*. 2012 Jun;36(6):843-54. doi: 10.1038/ijo.2011.158. Epub 2011 Aug 16. Erratum in: *Int J Obes (Lond)*. 2012 Jun;36(6):890. *Int J Obes (Lond)*. 2013 Feb;37(2):322. PubMed PMID: 21844879; PubMed Central PMCID: PMC3374073.**

Abstract

OBJECTIVE:

Having demonstrated short-term weight loss with liraglutide in this group of obese adults, we now evaluate safety/tolerability (primary outcome) and long-term efficacy for sustaining weight loss (secondary outcome) over 2 years.

DESIGN:

A randomized, double-blind, placebo-controlled 20-week study with 2-year extension (sponsor unblinded at 20 weeks, participants/investigators at 1 year) in 19 European clinical research centers.

SUBJECTS:

A total of 564 adults (n=90-98 per group; body mass index 30-40 kg m<sup>-2</sup>) enrolled, 398 entered the extension and 268 completed the 2-year trial. Participants received diet (500 kcal deficit per day) and exercise counseling during 2-week run-in, before being randomly assigned (with a telephone or web-based system) to once-daily subcutaneous liraglutide (1.2, 1.8, 2.4 or 3.0 mg, n=90-95), placebo (n=98) or open-label orlistat (120 mg × 3, n=95). After 1 year, liraglutide/placebo recipients switched to liraglutide 2.4 mg, then 3.0 mg (based on 20-week and 1-year results, respectively). The trial ran from January 2007-April 2009 and is registered with Clinicaltrials.gov, number NCT00480909.

RESULTS:

From randomization to year 1, liraglutide 3.0 mg recipients lost 5.8 kg (95% confidence interval 3.7-8.0) more weight than those on placebo and 3.8 kg (1.6-6.0) more than those on orlistat (P=0.0001; intention-to-treat, last-observation-carried-forward). At year 2, participants on liraglutide 2.4/3.0 mg for the full 2 years (pooled group, n=184) lost 3.0 kg (1.3-4.7) more weight than those on orlistat (n=95; P<0.001). Completers on liraglutide 2.4/3.0 mg (n=92) maintained a 2-year weight loss of 7.8 kg from screening. With liraglutide 3.0 mg, 20-week body fat decreased by 15.4% and lean tissue by 2.0%. The most frequent drug-related side effects were mild to moderate, transient nausea and vomiting. With liraglutide 2.4/3.0 mg, the 2-year prevalence of prediabetes and metabolic syndrome decreased by 52 and 59%, with improvements in blood pressure and lipids.

CONCLUSION:

Liraglutide is well tolerated, sustains weight loss over 2 years and improves cardiovascular risk factors.

**686: Patel SP, Rodriguez A, Little MP, Elliott P, Pekkanen J, Hartikainen AL, Pouta A, Laitinen J, Harju T, Canoy D, Järvelin MR. Associations between pre-pregnancy obesity and asthma symptoms in adolescents. J Epidemiol Community Health. 2012 Sep;66(9):809-14. doi: 10.1136/jech.2011.133777. Epub 2011 Aug 15. PubMed PMID: 21844604; PubMed Central PMCID: PMC3412048.**

Abstract

BACKGROUND:

The high prevalence of children's asthma symptoms, worldwide, is unexplained. We examined the relation between maternal pre-pregnancy weight and body mass index (BMI), and asthma symptoms in adolescents.

METHODS:

Data from 6945 adolescents born within the Northern Finland Birth Cohort 1986 were used. Prospective antenatal and birth outcome data, including maternal pre-pregnancy weight and BMI, and asthma symptoms in adolescent offspring at age 15-16 years, were employed. Logistic regression analyses were performed to examine the associations between relevant prenatal factors and asthma symptoms during adolescence.

RESULTS:

Current wheeze (within the past year) was reported by 10.6% of adolescents, and physician-diagnosed asthma by 6.0%. High maternal pre-pregnancy BMI was a significant predictor of wheeze in the adolescents (increase per kilogram per square metre unit; 2.7%, 95% CI 0.9 to 4.4 for ever wheeze; 3.5%, 95% CI 1.3 to 5.8 for current wheeze), and adjusting for potential confounders further increased the risk (2.8%, 95% CI 0.5 to 5.1; 4.7%, 95% CI 1.9 to 7.7, respectively). High maternal pre-pregnancy weight, in the top tertile, also significantly increased the odds of current wheeze in the adolescent by 20% (95% CI 4 to 39), and adjusting for potential confounders further increased the risk (OR=1.52, 95% CI 1.19 to 1.95). Results were similar for current asthma. Furthermore, these significant associations were observed only among adolescents without parental history of atopy but not among those with parental history of atopy.

CONCLUSIONS:

The association demonstrated here between maternal pre-pregnancy overweight and obesity, and asthma symptoms in adolescents suggests that increase in asthma may be partly related to the rapid rise in obesity in recent years.

**687: Kwong JC, Campitelli MA, Rosella LC. Obesity and respiratory hospitalizations during influenza seasons in Ontario, Canada: a cohort study. Clin Infect Dis. 2011 Sep;53(5):413-21. doi: 10.1093/cid/cir442. PubMed PMID: 21844024; PubMed Central PMCID: PMC3156143.**

Abstract

BACKGROUND:

Previous studies suggest that obesity may be a risk factor for complications from pandemic influenza A(H1N1) infection. We aimed to examine the association between obesity and respiratory hospitalizations during seasonal influenza epidemics and to determine the extent of this association among individuals without established risk factors for serious complications due to influenza infection.

METHODS:

We conducted a cohort study over 12 influenza seasons (1996-1997 through 2007-2008) of 82545 respondents to population health surveys in Ontario, Canada. We included individuals aged 18-64 years who had responded to a survey within 5 years prior to the start of an influenza season. We used logistic regression to examine the association between self-reported body mass index (BMI) and hospitalization for selected respiratory diseases (pneumonia and influenza, acute respiratory diseases, and chronic lung diseases), both in the entire cohort and stratified by chronic condition status.

**RESULTS:**

Obese class I (BMI, 30-34.9) (odds ratio [OR], 1.45 [95% confidence interval {CI}, 1.03-2.05]) and obese class II or III (BMI,  $\geq 35$ ) individuals (OR, 2.12 [95% CI, 1.45-3.10]) were more likely than normal weight individuals to have a respiratory hospitalization during influenza seasons. Among obese class II or III individuals, the association was present both for those without previously identified risk factors (OR, 5.10 [95% CI, 2.53-10.24]) and for those with 1 risk factor (OR, 2.11 [95% CI, 1.10-4.06]).

**CONCLUSIONS:**

Severely obese individuals with and without chronic conditions are at increased risk for respiratory hospitalizations during influenza seasons. They should be considered a priority group for preventive influenza measures, such as vaccination and treatment with antiviral medications.

**688: Minihan PM, Must A, Anderson B, Popper B, Dworetzky B. Children with special health care needs: acknowledging the dilemma of difference in policy responses to obesity. *Prev Chronic Dis.* 2011 Sep;8(5):A95. Epub 2011 Aug 15. PubMed PMID: 21843425; PubMed Central PMCID: PMC3181195.**

**Abstract**

Children with special health care needs (SHCN) account for part of the increasing prevalence of childhood obesity in the general population and can face an elevated risk for obesity. The federal government, in partnership with states, has assumed the role of steward for this vulnerable population and supports a network of services designed to promote their health through increased access to quality health services. Addressing obesity-related health risks among children with SHCN requires policies that support family- and community-based initiatives in addition to health services. We discuss the ethics of child obesity policy from the perspective of children with SHCN and their families, and identify salient issues to optimize benefits for children and families. We refer to the dilemma of difference to identify policy concerns that are specific to children with SHCN and ethically may require different approaches. Determining the appropriate mix of inclusive and special obesity prevention initiatives for children with SHCN and identifying approaches to ensure their full participation in community-based obesity prevention activities present challenges. Children with SHCN from low-income and minority communities are particularly vulnerable and warrant special attention.

**689: Jannini SN, Dória-Filho U, Damiani D, Silva CA. Musculoskeletal pain in obese adolescents. J Pediatr (Rio J). 2011 Jul-Aug;87(4):329-35. doi: doi:10.2223.JPED.2111. English, Portuguese. PubMed PMID: 21842110.**

Abstract

OBJECTIVE:

To determine the prevalence of pain, musculoskeletal syndromes, orthopedic disorders and using computers and playing videogames among obese adolescents.

METHODS:

This was a cross-sectional study that investigated 100 consecutive obese adolescents and 100 healthy-weight controls using a confidential, self-report questionnaire covering demographic data, sports participation, painful musculoskeletal system symptoms and using computers and playing videogames. The questionnaire's test-retest reliability was tested. Physical examination covered six musculoskeletal syndromes and seven orthopedic disorders.

RESULTS:

The kappa index for test-retest was 0.724. Pain and musculoskeletal syndromes were equally prevalent in both groups (44 vs. 56%,  $p = 0.09$ ; 12 vs. 16%,  $p = 0.541$ ; respectively). Notwithstanding, orthopedic disorders (98 vs. 76%,  $p = 0.0001$ ), tight quadriceps (89 vs. 44%,  $p = 0.0001$ ) and genu valgum (87 vs. 24%,  $p = 0.0001$ ) were significantly more prevalent in obese adolescents than in controls. Median time spent using a computer the day before, on Saturdays and on Sundays were all lower among the obese subjects (30 vs. 60 minutes,  $p = 0.0001$ ; 1 vs. 60 minutes,  $p = 0.001$ ; and 0 vs. 30 minutes,  $p = 0.02$ ; respectively). Obese adolescents were less likely to play handheld videogames (2 vs. 11%,  $p = 0.003$ ) and there was no difference in the two groups' use of full-sized videogames ( $p > 0.05$ ). Comparing obese adolescents with pain to those free from pain revealed that pain was more frequent among females (59 vs. 39%,  $p = 0.048$ ) and was associated with greater median time spent playing on Sundays [0 (0-720) vs. 0 (0-240) minutes,  $p = 0.028$ ].

CONCLUSIONS:

Obesity can cause osteoarticular system damage at the start of adolescence, particularly to the lower limbs. Programs developed specifically for obese female adolescents with musculoskeletal pain are needed.

**690: Relton C, Bissell P, Smith C, Blackburn J, Cooper CL, Nicholl J, Tod A, Copeland R, Loban A, Chater T, Thomas K, Young T, Weir C, Harrison G, Millbourn A, Manners R. South Yorkshire Cohort: a 'cohort trials facility' study of health and weight - protocol for the recruitment phase. BMC Public Health. 2011 Aug 11;11:640. doi: 10.1186/1471-2458-11-640. PubMed PMID: 21834964; PubMed Central PMCID: PMC3175187.**

Abstract

BACKGROUND:

Growing levels of both obesity and chronic disease in the general population pose a major public health problem. In the UK, an innovative 'health and weight' cohort trials facility, the 'South Yorkshire Cohort', is being built in order to provide robust evidence to inform policy, commissioning and clinical decisions in this field. This protocol reports the design of the facility and outlines the recruitment phase methods.

METHOD/DESIGN:

The South Yorkshire Cohort health and weight study uses the cohort multiple randomised controlled trial design. This design recruits a large observational cohort of patients with the condition(s) of interest which then provides a facility for multiple randomised controlled trials (with large representative samples of participants, long term outcomes as standard, increased comparability between each trial conducted within the cohort and increased efficiency particularly for trials of expensive interventions) as well as ongoing information as to the natural history of the condition and treatment as usual. This study aims to recruit 20,000 participants to the population based South Yorkshire Cohort health and weight research trials facility. Participants are recruited by invitation letters from their General Practitioners. Data is collected using postal and/or online patient self completed Health Questionnaires. NHS numbers will be used to facilitate record linkage and access to routine data. Participants are eligible if they are: aged 16 - 85 years, registered with one of 40 practices in South Yorkshire, provide consent for further contact from the researchers and to have their information used to look at the benefit of health treatments. The first wave of data is being collected during 2010/12 and further waves are planned at 2 - 5 year intervals for the planned 20 year duration of the facility.

#### DISCUSSION:

The South Yorkshire Cohort combines the strengths of the standard observational, longitudinal cohort study design with a population based cohort facility for multiple randomised controlled trials in a range of long term health and weight related conditions (including obesity). This infrastructure will allow the rapid and cheap identification and recruitment of patients, and facilitate the provision of robust evidence to inform the management and self-management of health and weight.

**691: Powell-Wiley TM, Ayers CR, Banks-Richard K, Berry JD, Khera A, Lakoski SG, McGuire DK, de Lemos JA, Das SR. Disparities in counseling for lifestyle modification among obese adults: insights from the Dallas Heart Study. Obesity (Silver Spring). 2012 Apr;20(4):849-55. doi: 10.1038/oby.2011.242. Epub 2011 Aug 4. PubMed PMID: 21818156; PubMed Central PMCID: PMC3514073.**

#### Abstract

Clinician counseling is a catalyst for lifestyle modification in obesity. Unfortunately, clinicians do not appropriately counsel all obese patients about lifestyle modification. The extent of disparities in clinician counseling is not well understood. Obese participants (BMI  $\geq 30$  kg/m<sup>2</sup>, N = 2097) in the Dallas Heart Study (DHS), a probability-based sample of Dallas County residents ages 18-65, were surveyed regarding health-care utilization and lifestyle counseling over the year prior to DHS enrollment. Health-care utilization and counseling were compared between obese participants across three categories based on the presence of 0, 1, or 2+ of the following cardiovascular (CV) risk factors: hypertension, hypercholesterolemia, or diabetes. Logistic regression modeling was used to determine likelihood of counseling in those with 0 vs. 1+ CV risk factors, stratified by race, adjusting for age, sex, insurance status, and education. Among obese subjects who sought medical care, those with 0 CV risk factors, compared to those with 1 or 2+ CV risk factors, were less likely to report counseling about losing weight (41% vs. 67% vs. 87%, P trend <0.001), dietary changes (44% vs. 71% vs. 85%, P trend <0.001), and physical activity (46% vs. 71% vs. 86%, P trend <0.001). Blacks and Hispanics without CV risk factors had a lower odds of receiving counseling than whites without risk factors on weight loss (adjusted odds ratio (OR), 95% confidence interval (CI) for nonwhites 0.19, [0.13-0.28], whites 0.48, [0.26-0.87]); dietary changes (nonwhites 0.19, [0.13-0.27], whites 0.37, [0.21-0.64]); and physical activity (nonwhites 0.22, [0.16-0.32], whites 0.32, [0.18-0.57]). Lifestyle counseling rates by

clinicians are suboptimal among obese patients without CV risk factors, especially blacks and Hispanics. Systematic education about and application of lifestyle interventions could capitalize on opportunities for primary CV risk prevention.

**692: Frighi V, Stephenson MT, Morovat A, Jolley IE, Trivella M, Dudley CA, Anand E, White SJ, Hammond CV, Hockney RA, Barrow B, Shakir R, Goodwin GM. Safety of antipsychotics in people with intellectual disability. Br J Psychiatry. 2011 Oct;199(4):289-95. doi: 10.1192/bjp.bp.110.085670. PubMed PMID: 21816867.**

Abstract

BACKGROUND:

Despite frequent use, little is known about the metabolic and endocrine side-effects of antipsychotics in individuals with intellectual disability.

AIMS:

To compare indices of obesity, glucose, lipids and prolactin between antipsychotic-treated and antipsychotic-naive individuals with intellectual disability and also between participants with intellectual disability and controls from the general population.

METHOD:

Observational study comparing 138 antipsychotic-treated and 64 antipsychotic-naive participants with intellectual disability in one National Health Service trust with general population controls.

RESULTS:

Antipsychotic treatment comprised: risperidone 48%, olanzapine 18%, thioxanthenes 10%, other 24%; monotherapy 95% of participants; mean treatment duration 8 years; median daily chlorpromazine equivalent dose 108 mg (range 16–667). Metabolic indices were the same or more favourable in the intellectual disability group than the general population control group but overweight/obesity and type 2 diabetes were more prevalent in the women in the intellectual disability group than the control group. Metabolic indices were similar, statistically or clinically, between the antipsychotic-treated and the antipsychotic-naive groups but there was a non-significant trend towards a higher rate of type 2 diabetes in the antipsychotic group. A total of 100% and 70% of participants on amisulpride/sulpiride and risperidone respectively had hyperprolactinaemia, with secondary hypogonadism in 77% and 4% of affected women and men.

CONCLUSIONS:

Antipsychotics, on average, did not increase metabolic risk, although the existence of a susceptible subgroup at risk of diabetes cannot be excluded. Some antipsychotics induced hyperprolactinaemic hypogonadism, requiring active management. However, our findings suggest that antipsychotics at the low doses routinely prescribed for people with intellectual disability are generally safe in relation to metabolic adverse effects, even if efficacy remains poorly defined.



**693: Unick JL, Bond DS, Jakicic JM, Vithiananthan S, Ryder BA, Roye GD, Pohl D, Trautvetter J, Wing RR. Comparison of two objective monitors for assessing physical activity and sedentary behaviors in bariatric surgery patients. *Obes Surg.* 2012 Mar;22(3):347-52. doi: 10.1007/s11695-011-0491-1. PubMed PMID: 21814865; PubMed Central PMCID: PMC3242159.**

Abstract

BACKGROUND:

Objective quantification of physical activity (PA) is needed to understand PA and sedentary behaviors in bariatric surgery patients, yet it is unclear whether PA estimates produced by different monitors are comparable and can be interpreted similarly across studies.

METHODS:

We compared PA estimates from the Stayhealthy RT3 triaxial accelerometer (RT3) and the Sensewear Pro(2) Armband (SWA) at both the group and individual participant level. Bariatric surgery candidates were instructed to wear the RT3 and SWA during waking hours for 7 days. Participants meeting valid wear time requirements ( $\geq 4$  days of  $\geq 8$  h/day) for both monitors were included in the analyses. Time spent in sedentary ( $< 1.5$  METs), light (1.5-2.9 METs), moderate-to-vigorous (MVPA;  $\geq 3.0$  METs), and total PA (TPA;  $\geq 1.5$  METs) according to each monitor was compared.

RESULTS:

Fifty-five participants (BMI  $48.4 \pm 8.2$  kg/m<sup>2</sup>) met wear time requirements. Daily time spent in sedentary (RT3  $582.9 \pm 94.3$ ; SWA  $602.3 \pm 128.6$  min), light (RT3  $131.9 \pm 60.0$ ; SWA  $120.6 \pm 65.7$  min), MVPA (RT3  $25.9 \pm 20.9$ ; SWA  $29.9 \pm 19.5$  min), and TPA (RT3  $157.8 \pm 74.5$ ; SWA  $150.6 \pm 80.7$  min) was similar between monitors ( $p > 0.05$ ). While the average difference in TPA between the two monitors at the group level was  $7.2 \pm 64.2$  min; the average difference between the two monitors for each participant was  $45.6 \pm 45.4$  min. At the group level, the RT3 and SWA provide similar estimates of PA and sedentary behaviors; however, concordance between monitors may be compromised at the individual level.

CONCLUSIONS:

Findings related to PA and sedentary behaviors at the group level can be interpreted similarly across studies when either monitor is used.

**694: Hosseini-Esfahani F, Mousavi Nasl Khameneh A, Mirmiran P, Ghanbarian A, Azizi F. Trends in risk factors for cardiovascular disease among Iranian adolescents: the Tehran Lipid and Glucose Study, 1999-2008. *J Epidemiol.* 2011;21(5):319-28. doi: 10.2188/jea.JE20100162. Epub 2011 Jul 30. PubMed PMID: 21804294; PubMed Central PMCID: PMC3899430.**

Abstract

OBJECTIVES:

Data on secular trends in adolescent obesity and dyslipidemia are limited. Data on obesity status collected during 3 surveys were used to evaluate these trends in obesity and dyslipidemia among Tehranian adolescents and to assess the likelihood of risk factors for cardiovascular disease.

METHODS:

We analyzed data for adolescents (age 10 to 19 years) from 3 cross-sectional surveys of the Tehran Lipid and Glucose Study: 1999-2001 ( $n = 3010$ , 47.2% males), 2002-2005 ( $n = 1107$ , 48.4% males), and 2006-2008 ( $n = 1090$ , 46.6% males). Overweight and abdominal obesity were defined using Iranian

body mass index (BMI) percentiles, International Obesity Task Force (IOTF) criteria, and Iranian waist circumference (WC) charts. Hypertension was defined by using the National Heart, Lung, and Blood Institute's recommended cut points, and dyslipidemia was defined according to the recent recommendations of the American Heart Association.

#### RESULTS:

The overall adjusted prevalences of "at risk for overweight" and overweight changed from 13% and 8% (using Iranian cutoffs), respectively, and 14.8% and 4.7% (using IOTF criteria) in 1999-2001 to 19% and 15% (Iranian cutoffs) and 23.0% and 9.2% (IOTF criteria) in 2006-2008 ( $P < 0.01$  for all comparisons). The prevalence of abdominal obesity increased in males from 14.5% in 1999-2001 to 33.3% in 2006-2008 ( $P < 0.001$ ). Almost half the adolescents had low high-density lipoprotein cholesterol (HDL-C) in the 3 surveys. In all surveys, as BMI and WC increased, multivariate age- and sex-adjusted odds ratios of low HDL-C and high triglyceride levels significantly increased. Overweight was associated with a greater likelihood of these risk factors, as compared with increased WC.

#### CONCLUSIONS:

Overweight and abdominal obesity are increasing in Tehranian adolescents, and these increases are accompanied by abnormalities in levels of serum triglyceride and HDL-C.

**695: Klein CJ, Villavicencio SA, Schweitzer A, Bethupu JS, Hoffman HJ, Mirza NM. Energy prediction equations are inadequate for obese Hispanic youth. J Am Diet Assoc. 2011 Aug;111(8):1204-10. doi: 10.1016/j.jada.2011.05.010. PubMed PMID: 21802568; PubMed Central PMCID: PMC3170752.**

#### Abstract

Assessing energy requirements is a fundamental activity in clinical dietetics practice. A study was designed to determine whether published linear regression equations were accurate for predicting resting energy expenditure (REE) in fasted Hispanic children with obesity (aged 7 to 15 years). REE was measured using indirect calorimetry; body composition was estimated with whole-body air displacement plethysmography. REE was predicted using four equations: Institute of Medicine for healthy-weight children (IOM-HW), IOM for overweight and obese children (IOM-OS), Harris-Benedict, and Schofield. Accuracy of the prediction was calculated as the absolute value of the difference between the measured and predicted REE divided by the measured REE, expressed as a percentage. Predicted values within 85% to 115% of measured were defined as accurate. Participants ( $n=58$ ; 53% boys) were mean age  $11.8 \pm 2.1$  years, had  $43.5 \pm 5.1\%$  body fat, and had a body mass index of  $31.5 \pm 5.8$  ( $98.6 \pm 1.1$  body mass index percentile). Measured REE was  $2,339 \pm 680$  kcal/day; predicted REE was  $1,815 \pm 401$  kcal/day (IOM-HW),  $1,794 \pm 311$  kcal/day (IOM-OS),  $1,151 \pm 300$  kcal/day (Harris-Benedict), and,  $1,771 \pm 316$  kcal/day (Schofield). Measured REE adjusted for body weight averaged  $32.0 \pm 8.4$  kcal/kg/day (95% confidence interval 29.8 to 34.2). Published equations predicted REE within 15% accuracy for only 36% to 40% of 58 participants, except for Harris-Benedict, which did not achieve accuracy for any participant. The most frequently accurate values were obtained using IOM-HW, which predicted REE within 15% accuracy for 55% (17/31) of boys. Published equations did not accurately predict REE for youth in the study sample. Further studies are warranted to formulate accurate energy prediction equations for this population.

**696: Poti JM, Popkin BM. Trends in energy intake among US children by eating location and food source, 1977-2006. J Am Diet Assoc. 2011 Aug;111(8):1156-64. doi: 10.1016/j.jada.2011.05.007. PubMed PMID: 21802561; PubMed Central PMCID: PMC3148484.**

Abstract

BACKGROUND:

Little is known about the influence of location of food consumption and preparation upon daily energy intake of children.

OBJECTIVE:

To examine trends in daily energy intake by children for foods eaten at home or away from home, by source of preparation, and for combined categories of eating location and food source.

SUBJECTS:

The analysis uses data from 29,217 children aged 2 to 18 years from the 1977-1978 Nationwide Food Consumption Survey, 1989-1991 and 1994-1998 Continuing Survey of Food Intakes by Individuals, and 2003-2006 National Health and Nutrition Examination Surveys.

METHODS:

Nationally representative weighted percentages and means of daily energy intake by eating location were analyzed for trends from 1977 to 2006. Comparisons by food source were examined from 1994 to 2006. Analyses were repeated for three age groups: 2 to 6 years, 7 to 12 years, and 13 to 18 years. Difference testing was conducted using a t test.

RESULTS:

Increased energy intake (+179 kcal/day) by children from 1977-2006 was associated with a major increase in energy eaten away from home (+255 kcal/day). The percentage of daily energy eaten away from home increased from 23.4% to 33.9% from 1977-2006. No further increase was observed from 1994-2006, but the sources of energy shifted. The percentage of energy from fast food increased to surpass intake from schools and become the largest contributor to foods prepared away from home for all age groups. For foods eaten away from home, the percentage of daily energy from stores increased to become the largest source of energy eaten away from home. Fast food eaten at home and store-bought food eaten away from home increased significantly.

CONCLUSIONS:

Eating location and food source significantly influence daily energy intake for children. Foods prepared away from home, including fast food eaten at home and store-prepared food eaten away from home, are fueling the increase in total energy intake. However, further research using alternative data sources is necessary to verify that store-bought foods eaten away from home are increasingly store-prepared.

**697: Sadeghi-Bazargani H, Jafarzadeh H, Fallah M, Hekmat S, Bashiri J, Hosseingolizadeh Gh, Soltanmohammadzadeh MS, Mortezaazadeh A, Shaker A, Danehzan M, Zohouri A, Khosravi O, Nasimidoust R, Malekpour N, Kharazmi E, Babaei M, Nadirmohammadi M, Mashhadi-Abdollahi H. Risk factor investigation for cardiovascular health through WHO STEPS approach in Ardabil, Iran. *Vasc Health Risk Manag.* 2011;7:417-24. doi: 10.2147/VHRM.S22727. Epub 2011 Jul 11. PubMed PMID: 21796256; PubMed Central PMCID: PMC3141914.**

Abstract

OBJECTIVES:

Reliable evidence is the keystone for any noncommunicable disease (NCD) prevention plan to be initiated. In this study we carried out a risk factor investigation based on the WHO Stepwise approach to Surveillance (STEPS).

METHODS:

The study was conducted on 1000 adults between 15 and 64 years of age living in Ardabil province, north-west Iran during 2006, based on the WHO STEPS approach to surveillance of risk factors for NCD. At this stage only the first and second steps were carried out. Data were collected through standard questionnaires and methods analyzed using STATA version 8 statistical software package.

RESULTS:

29.0% of men and 2.6% of women were current daily tobacco smokers. The mean number of manufactured cigarettes smoked per day was 18.9 among current daily smokers. Smoking was most prevalent among men of low-income families and those of lower education. The mean body mass index (BMI) was 26.6 kg/m<sup>2</sup>, and was significantly correlated with systolic blood pressure. 58.9% were overweight or obese; 18.0% had raised blood pressure and 3.7% had isolated systolic hypertension. The mean number of servings of fruit consumed per day was 1.1; 33.1% had low levels of activity. Combined risk factor analysis showed that 4.1% of participants were in the low-risk group (up to 5.1% among men and 3.2% among women). Those in the high-risk group comprised 25.6% in the 25- to 44-year age group and 49.7% in the 45- to 64-year age group. Mean BMI increased by age in both sexes at least at the first three decades of adult life.

CONCLUSION:

Based on observed status of risk for cardiovascular health, burden of cardiovascular diseases is expected to increase if an effective prevention strategy is not undertaken.

KEYWORDS:

WHO STEPS; cardiovascular health; noncommunicable diseases; obesity; physical activity; smoking.

**698: Hack M, Schluchter M, Andreias L, Margevicius S, Taylor HG, Drotar D, Cuttler L. Change in prevalence of chronic conditions between childhood and adolescence among extremely low-birth-weight children. *JAMA.* 2011 Jul 27;306(4):394-401. doi: 10.1001/jama.2011.1025. Erratum in: *JAMA.* 2011 Sep 7;306(9):933. PubMed PMID: 21791688; PubMed Central PMCID: PMC3575170.**

Abstract

CONTEXT:

Extremely low-birth-weight (ELBW) children have high rates of chronic conditions during childhood. Information on their trajectory of health during adolescence is needed for health care planning.

OBJECTIVE:

To examine changes in the rates of chronic conditions between the ages of 8 and 14 years among ELBW children compared with normal-birth-weight (NBW) controls.

**DESIGN, SETTING, AND PARTICIPANTS:**

Cohort study conducted from 2004 through 2009 of 181 ELBW children (weight < 1 kg) and 115 NBW controls of similar sociodemographic status born from 1992 through 1995 in Cleveland, Ohio.

**MAIN OUTCOME MEASURES:**

Rates of chronic conditions overall (measured with the revised Questionnaire for Identifying Children With Chronic Conditions) and rates of asthma and obesity.

**RESULTS:**

The overall rates of chronic conditions did not change significantly between the ages of 8 and 14 years among ELBW children (75% at age 8 years vs 74% at age 14 years) or NBW controls (37% at age 8 years vs 47% at age 14 years). In generalized estimating equations logistic regression adjusting for sociodemographic status, sex, and race, ELBW children continued to have a higher rate of chronic conditions than NBW controls at age 14 years (74% vs 47%, respectively, adjusted odds ratio [AOR], 2.8 [95% confidence interval {CI}, 1.7 to 4.6]). Rates of asthma requiring medication did not change between the ages of 8 and 14 years among ELBW children (23% at both ages) but increased among NBW controls from 8% at age 8 years to 17% at age 14 years (P = .002). Differences in rates of asthma between ELBW and NBW children were no longer significant at the age of 14 years (23% vs 17%, respectively; AOR, 1.5 [95% CI, 0.8 to 2.8]). Mean z scores for body mass index increased in ELBW children from 0.06 at age 8 years to 0.38 at age 14 years (P < .001) and rates of obesity increased from 12% at age 8 years to 19% at age 14 years (P = .02). However, the scores and rates did not change among NBW controls such that at the age of 14 years the differences between ELBW and NBW children in mean z scores for body mass index (0.38 vs 0.56, respectively; adjusted mean difference - 0.2 [95% CI, -0.5 to 0.1]) or rates of obesity (19% vs 20%, respectively; AOR, 1.1 [95% CI, 0.6 to 2.0]) were not significant.

**CONCLUSIONS:**

Among ELBW children, rates of overall chronic conditions and asthma did not change between the ages of 8 and 14 years but the rate of obesity increased. Compared with NBW controls, the rates of chronic conditions were higher but there were no significant differences in the rates of asthma or obesity.

**700: Gavin AR, Hill KG, Hawkins JD, Maas C. The role of maternal early-life and later-life risk factors on offspring low birth weight: findings from a three-generational study. J Adolesc Health. 2011 Aug;49(2):166-71. doi: 10.1016/j.jadohealth.2010.11.246. Epub 2011 Mar 12. PubMed PMID: 21783049; PubMed Central PMCID: PMC3867286.**

**Abstract**

**PURPOSE:**

This study examined three research questions: (1) Is there an association between maternal early-life economic disadvantage and the birth weight of later-born offspring? (2) Is there an association between maternal abuse in childhood and the birth weight of later-born offspring? (3) To what extent are these early-life risks mediated through adolescent and adult substance use, mental and physical health status, and adult socioeconomic status (SES)?

**METHODS:**

Analyses used structural equation modeling to examine data from two longitudinal studies, which included three generations. The first generation (G1) and the second generation (G2) were enrolled in the Seattle Social Development Project (SSDP), and the third generation (G3) was enrolled in the SSDP Intergenerational Project. Data for the study (N = 136) focused on (G2) mothers enrolled in the SSDP and their children (G3).

**RESULTS:**

Analyses revealed that G2 low childhood SES predicted G3 offspring birth weight. Early childhood abuse among G2 respondents predicted G3 offspring birth weight through a mediated pathway including G2 adolescent substance use and G2 prenatal substance use. Birth weight was unrelated to maternal adult SES, depression, or obesity.

**CONCLUSIONS:**

To our knowledge, this is the first study to identify the effect of maternal early-life risks of low childhood SES and child maltreatment on later-born offspring birth weight. These findings have far-reaching effects on the cumulative risk associated with early-life economic disadvantage and childhood maltreatment. Such findings encourage policies and interventions that enhance child health at birth by taking the mother's own early-life and development into account.

701: Chen JL, Weiss S, Heyman MB, Cooper B, Lustig RH. The efficacy of the web-based childhood obesity prevention program in Chinese American adolescents (Web ABC study). *J Adolesc Health*. 2011 Aug;49(2):148-54. doi: 10.1016/j.jadohealth.2010.11.243. Epub 2011 Mar 12. PubMed PMID: 21783046; PubMed Central PMCID: PMC3143380.

**Abstract**

**PURPOSE:**

To examine the feasibility and efficacy of a theory-driven and family-based program delivered online to promote healthy lifestyles and weights in Chinese American adolescents.

**METHODS:**

A randomized controlled study of a web-based intervention was developed and conducted in 54 Chinese American adolescents (ages, 12-15 years) and their families. Data on anthropometry, blood pressure, dietary intake, physical activity, and knowledge and self-efficacy regarding physical activity and nutrition were collected at baseline and 2, 6, and 8 months after the baseline assessment. Data were analyzed using linear mixed modeling.

**RESULTS:**

The intervention resulted in significant decreases in waist-to-hip ratio and diastolic blood pressure and increases in vegetable and fruit intake, level of physical activity, and knowledge about physical activity and nutrition.

**CONCLUSION:**

This web-based behavior program for Chinese American adolescents and their families seems feasible and effective in the short-term. Long-term effects remain to be determined. This type of program can be adapted for other minority ethnic groups who are at high-risk for overweight and obesity and have limited access to programs that promote healthy lifestyles.

**702: Duncan S, Duncan EK, Fernandes RA, Buonani C, Bastos KD, Segatto AF, Codogno JS, Gomes IC, Freitas IF Jr. Modifiable risk factors for overweight and obesity in children and adolescents from São Paulo, Brazil. BMC Public Health. 2011 Jul 22;11:585. doi: 10.1186/1471-2458-11-585. PubMed PMID: 21781313; PubMed Central PMCID: PMC3154175.**

Abstract

**BACKGROUND:**

Brazil is currently experiencing a nutrition transition: the displacement of traditional diets with foods high in saturated fat, sodium, and cholesterol and an increase in sedentary lifestyles. Despite these trends, our understanding of child obesity in Brazil is limited. Thus, the aims of this study were (1) to investigate the current prevalence of overweight and obesity in a large sample of children and adolescents living in São Paulo, Brazil, and (2) to identify the lifestyle behaviors associated with an increased risk of obesity in young Brazilians.

**METHODS:**

A total of 3,397 children and adolescents (1,596 male) aged 7-18 years were randomly selected from 22 schools in São Paulo, Brazil. Participants were classified as normal weight, overweight, or obese based on international age- and sex-specific body mass index thresholds. Selected sociodemographic, physical activity, and nutrition behaviors were assessed via questionnaire.

**RESULTS:**

Overall, 19.4% of boys and 16.1% of girls were overweight while 8.9% and 4.3% were obese. Two-way analysis of variance revealed that the prevalence of overweight and obesity was significantly higher in boys and in younger children when compared to girls and older children, respectively ( $P < 0.05$  for both). Logistic regression analysis revealed that overweight was associated with more computer usage, parental encouragement to be active, and light soft drink consumption after controlling for differences in sex, age, and parental education ( $P < 0.05$  for all). Conversely, overweight was associated with less active transport to school, eating before sleep, and consumption of breakfast, full-sugar soft drinks, fried food and confectionery ( $P < 0.05$  for all).

**CONCLUSIONS:**

Our results show that obesity in São Paulo children and adolescents has reached a level equivalent to that seen in many developed countries. We have also identified three key modifiable factors related to obesity that may be appropriate targets for future intervention in Brazilian youth: transport mode to school, computer usage, and breakfast consumption.

**703: Bloomfield GS, Hogan JW, Keter A, Sang E, Carter EJ, Velazquez EJ, Kimaiyo S. Hypertension and obesity as cardiovascular risk factors among HIV seropositive patients in Western Kenya. PLoS One. 2011;6(7):e22288. doi: 10.1371/journal.pone.0022288. Epub 2011 Jul 14. PubMed PMID: 21779407; PubMed Central PMCID: PMC3136516.**

Abstract

**BACKGROUND:**

There is increased risk of cardiovascular disease among HIV seropositive individuals. The prevalence of HIV is highest in sub-Saharan Africa; however, HIV-related cardiovascular risk research is largely derived from developed country settings. Herein, we describe the prevalence of hypertension and obesity in a large HIV treatment program in Kenya.

#### METHODS:

We performed a retrospective analysis of the electronic medical records of a large HIV treatment program in Western Kenya between 2006 and 2009. We calculated the prevalence of hypertension and obesity among HIV+ adults as well as utilized multiple logistic regression analyses to examine the relationship between clinical characteristics, HIV-related characteristics, and hypertension.

#### RESULTS:

Our final sample size was 12,194. The median systolic/diastolic blood pressures were similar for both sexes (male: 110/70 mmHg, female: 110/70 mmHg). The prevalence of hypertension among men and women were 11.2% and 7.4%, respectively. Eleven percent of men and 22.6% of women were overweight/obese (body mass index  $\geq 25$  kg/m<sup>2</sup>). Ordinal logistic regression analyses showed that overweight/obesity was more strongly associated with hypertension among HIV+ men (OR 2.41, 95% CI 1.88-3.09) than a higher successive age category (OR 1.62, 95% CI 1.40-1.87 comparing 16-35, 36-45 and >45 years categories). Among women, higher age category and overweight/obesity were most strongly associated with hypertension (age category: OR 2.21, 95% CI 1.95-2.50, overweight/obesity: OR 1.80, 95% CI 1.50-2.16). Length of time on protease inhibitors was not found to be related to hypertension for men (OR 1.62, 95% CI 0.42-6.20) or women (OR 1.17, 95% CI 0.37-2.65) after adjustment for CD4 count, age and BMI.

#### CONCLUSION:

In Western Kenya, there is a high prevalence of hypertension and overweight/obesity among HIV+ patients with differences observed between men and women. The care of HIV+ patients in sub-Saharan Africa should also include both identification and management of associated cardiovascular risk factors.

**704: Taber DR, Stevens J, Evenson KR, Ward DS, Poole C, Maciejewski ML, Murray DM, Brownson RC. State policies targeting junk food in schools: racial/ethnic differences in the effect of policy change on soda consumption. Am J Public Health. 2011 Sep;101(9):1769-75. doi: 10.2105/AJPH.2011.300221. Epub 2011 Jul 21. PubMed PMID: 21778484; PubMed Central PMCID: PMC3154241.**

#### Abstract

##### OBJECTIVES:

We estimated the association between state policy changes and adolescent soda consumption and body mass index (BMI) percentile, overall and by race/ethnicity.

##### METHODS:

We obtained data on whether states required or recommended that schools prohibit junk food in vending machines, snack bars, concession stands, and parties from the 2000 and 2006 School Health Policies and Programs Study. We used linear mixed models to estimate the association between 2000-2006 policy changes and 2007 soda consumption and BMI percentile, as reported by 90 730 students in 33 states and the District of Columbia in the Youth Risk Behavior Survey, and to test for racial/ethnic differences in the associations.

##### RESULTS:

Policy changes targeting concession stands were associated with 0.09 fewer servings of soda per day among students (95% confidence interval [CI] = -0.17, -0.01); the association was more pronounced among non-Hispanic Blacks (0.19 fewer servings per day). Policy changes targeting parties were associated with 0.07 fewer servings per day (95% CI = -0.13, 0.00). Policy changes were not associated with BMI percentile in any group.



#### CONCLUSIONS:

State policies targeting junk food in schools may reduce racial/ethnic disparities in adolescent soda consumption, but their impact appears to be too weak to reduce adolescent BMI percentile.

**705: Power C, Thomas C. Changes in BMI, duration of overweight and obesity, and glucose metabolism: 45 years of follow-up of a birth cohort. *Diabetes Care*. 2011 Sep;34(9):1986-91. doi: 10.2337/dc10-1482. Epub 2011 Jul 20. Erratum in: *Diabetes Care*. 2011 Oct;34(10):2338. PubMed PMID: 21775760; PubMed Central PMCID: PMC3161304.**

#### Abstract

##### OBJECTIVE:

Long-term implications of childhood obesity and BMI change over the life course for risk of type 2 diabetes remain uncertain. The objective was to establish whether there are effects on adult glucose metabolism of 1) sensitive periods of BMI gain or 2) long duration of overweight and obesity.

##### RESEARCH DESIGN AND METHODS:

Participants in the 1958 British birth cohort with child to adult BMI and glycosylated hemoglobin (HbA(1c)) at 45 years (n = 7,855).

##### RESULTS:

Prevalence of type 2 diabetes or HbA(1c)  $\geq 7$  was 2%. BMI gains in child- and adulthood were associated with higher HbA(1c): for every SD of 5-year BMI increase from 0 to 7 years, there was a 75% (95% CI 1.42-2.16) increased risk of HbA(1c)  $\geq 7$ , increasing to a 4.7-fold (3.12-7.00) risk for the interval 23-33 years. Associations for BMI gain in adulthood were related to attained BMI but were independent for the longer period birth (or 7 years) to 45 years. Duration of obesity was also associated with HbA(1c); compared with the never obese, those with childhood onset had a 23.9-fold risk (13.5-42.1) of HbA(1c)  $\geq 7$ %; odds ratios were 16.0 (10.6-24.2) and 2.99 (1.77-5.03), respectively, for young and midadulthood onset. Similar trends by onset age were found in mean HbA(1c) levels and for onset of overweight. Those with the earliest age of onset had higher BMI and waist circumference at 45 years, which markedly explained the associations for onset age and HbA(1c).

##### CONCLUSIONS:

Excessive BMI gain across the life span and earlier onset of overweight/obesity are associated with impaired glucose metabolism, in part through attained adult BMI.

**706: Taber DR, Stevens J, Poole C, Maciejewski ML, Evenson KR, Ward DS. State disparities in time trends of adolescent body mass index percentile and weight-related behaviors in the United States. *J Community Health*. 2012 Feb;37(1):242-52. doi: 10.1007/s10900-011-9442-y. PubMed PMID: 21773818; PubMed Central PMCID: PMC3363325.**

#### Abstract

Evidence is conflicting as to whether youth obesity prevalence has reached a plateau in the United States overall. Trends vary by state, and experts recommend exploring whether trends in weight-related behaviors are associated with changes in weight status trends. Thus, our objective was to estimate between-state variation in time trends of adolescent body mass index (BMI) percentile and weight-related behaviors from 2001 to 2007. A time series design combined cross-sectional Youth Risk Behavior Survey data from 272,044 adolescents in 29 states from 2001 to 2007. Self-reported

height, weight, sports participation, physical education, television viewing, and daily consumption of 100% fruit juice, milk, and fruits and vegetables were collected. Linear mixed models estimated state variance in time trends of behaviors and BMI percentile. Across states, BMI percentile trends were consistent despite differences in behavioral trends. Boys experienced a modest linear increase in BMI percentile ( $\beta = 0.18$ , 95% CI: 0.07, 0.30); girls experienced a non-linear increase, as the rate of increase declined over time from 1.02 units in 2001-2002 (95% CI: 0.68, 1.36) to 0.23 units in 2006-2007 (95% CI: -0.09, 0.56). States in which BMI percentile decreased experienced a greater decrease in TV viewing than states where BMI percentile increased. Otherwise, states with disparate BMI percentile trends did not differ with respect to behaviors. Future research should explore the role of other behaviors (e.g., soda consumption), measurement units (e.g., portion size), and societal trends (e.g., urban sprawl) on state and national adiposity trends.

**707: Ng SW, Zaghloul S, Ali H, Harrison G, Yeatts K, El Sadig M, Popkin BM. Nutrition transition in the United Arab Emirates. Eur J Clin Nutr. 2011 Dec;65(12):1328-37. doi: 10.1038/ejcn.2011.135. Epub 2011 Jul 20. PubMed PMID: 21772317; PubMed Central PMCID: PMC3304306.**

#### Abstract

##### BACKGROUND/OBJECTIVES:

The United Arab Emirates has undergone remarkable economic and social transformations over the past few decades. We present findings on the prevalence of overweight and obesity, dietary and activity patterns among Emiratis in 2009/10, and explore associated urbanization and wealth factors.

##### SUBJECTS/METHODS:

A cross-sectional study was conducted in 628 randomly selected households in all seven emirates. Sociodemographics, 24-h dietary recalls, physical activity and anthropometric data were collected from adult females ( $\geq 19$  years), adolescents (11-18 years) and children (6-10 years) in each family via in-person interviews using validated questionnaires.

##### RESULTS:

In 2009/10, 65% of adult women, 28% of male adolescents and 40% of female adolescents, 25% of male children and 41% of female children were overweight or obese. 43% of girls and 38% of boys (6-10 years) consumed more calories than their estimated energy requirements. Snacking represents a major source of Emirati caloric intake (>20%) of total calories. In addition, caloric beverages account for 8-14% of total calories. Meanwhile, physical activity levels are low, especially among females Emiratis and those living in urban areas.

##### CONCLUSIONS:

These trends represent the potential risk for severe cardiometabolic problems in the United Arab Emirates. The significant gender differentials among children and adolescents are driven by diet and activity differences. More attention should be paid to educate the public on nutrition (for example, limit the consumption of sugared sodas, fruit drinks and whole milk, promote water and low-fat/skim milk consumption instead) and encourage physical activity from a young age, especially among females. Built environments and social support for improved lifestyle choices by individuals are needed.

**708: Jasik CB, Adams SH, Irwin CE Jr, Ozer E. The association of BMI status with adolescent preventive screening. *Pediatrics*. 2011 Aug;128(2):e317-23. doi: 10.1542/peds.2010-2559. Epub 2011 Jul 18. PubMed PMID: 21768313; PubMed Central PMCID: PMC3146353.**

Abstract

OBJECTIVE:

To examine the relationship between BMI status (normal, overweight, and obese) and preventive screening among adolescents at their last checkup.

METHODS:

We used population-based data from the 2003-2007 California Health Interview Surveys, telephone interviews of adolescents aged 12 to 17 years with a checkup in the past 12 months (n = 9220). Respondents were asked whether they received screening for nutrition, physical activity, and emotional distress. BMI was calculated from self-reported height and weight: (1) normal weight or underweight (<85th percentile); (2) overweight (85th-94th percentile); and (3) obese (>95th percentile). Multivariate logistic regression models tested how screening by topic differed according to BMI status, adjusting for age, gender, income, race/ethnicity, and survey year.

RESULTS:

Screening percentages in the pooled sample (all 3 years) were higher for obese, but not overweight, adolescents for physical activity (odds ratio: 1.4; P < .01) and nutrition (odds ratio: 1.6; screening did not differ P < .01). Stratified analysis by year revealed higher screening for obese (versus normal-weight) adolescents for nutrition and physical activity in 2003 and for all 3 topics in 2005. However, by 2007, screening did not differ according to BMI status. Overall screening between 2003 and 2007 declined for nutrition (75%-59%; P < .01), physical activity (74%-60%; P < .01), and emotional distress (31%-24%; P < .01).

CONCLUSIONS:

Obese adolescents receive more preventive screening versus their normal-weight peers. Overweight adolescents do not report more screening, but standards of care dictate increased attention for this group. These results are discouraging amid a rise in pediatric obesity and new guidelines that recommend screening by BMI status.

**709: Clark SJ, Falchi M, Olsson B, Jacobson P, Cauchi S, Balkau B, Marre M, Lantieri O, Andersson JC, Jernäs M, Aitman TJ, Richardson S, Sjöström L, Wong HY, Carlsson LM, Froguel P, Walley AJ. Association of sirtuin 1 (SIRT1) gene SNPs and transcript expression levels with severe obesity. *Obesity (Silver Spring)*. 2012 Jan;20(1):178-85. doi: 10.1038/oby.2011.200. Epub 2011 Jul 14. PubMed PMID: 21760635; PubMed Central PMCID: PMC3760128.**

Abstract

Recent studies have reported associations of sirtuin 1 (SIRT1) single nucleotide polymorphisms (SNPs) to both obesity and BMI. This study was designed to investigate association between SIRT1 SNPs, SIRT1 gene expression and obesity. Case-control analyses were performed using 1,533 obese subjects (896 adults, BMI >40 kg/m<sup>2</sup>) and 637 children, BMI >97th percentile for age and sex) and 1,237 nonobese controls, all French Caucasians. Two SNPs (in high linkage disequilibrium (LD), r(2) = 0.96) were significantly associated with adult obesity, rs33957861 (P value = 0.003, odds ratio (OR) = 0.75, confidence interval (CI) = 0.61-0.92) and rs11599176 (P value: 0.006, OR = 0.74, CI = 0.61-0.90).

Expression of SIRT1 mRNA was measured in BMI-discordant siblings from 154 Swedish families. Transcript expression was significantly correlated to BMI in the lean siblings ( $r(2) = 0.13$ ,  $P$  value =  $3.36 \times 10^{-7}$ ) and lower SIRT1 expression was associated with obesity ( $P$  value =  $1.56 \times 10^{-35}$ ). There was also an association between four SNPs (rs11599176, rs12413112, rs33957861, and rs35689145) and BMI ( $P$  values:  $4 \times 10^{-4}$ ,  $6 \times 10^{-4}$ ,  $4 \times 10^{-4}$ , and  $2 \times 10^{-3}$ ) with the rare allele associated with a lower BMI. However, no SNP was associated with SIRT1 transcript expression level. In summary, both SNPs and SIRT1 gene expression are associated with severe obesity.

**710: Pradinuk M, Chanoine JP, Goldman RD. Obesity and physical activity in children. Can Fam Physician. 2011 Jul;57(7):779-82. PubMed PMID: 21753100; PubMed Central PMCID: PMC3135442.**

Abstract

QUESTION:

What advice should I give parents of overweight children about physical activity? How can we encourage these children to become more physically active?

ANSWER:

The Canadian Paediatrics Society 2002 position statement on healthy living for children and youth, which is currently being revised, recommends that physicians advise children and adolescents to increase the time they spend on physical activities by at least 30 minutes a day, with at least 10 minutes involving vigorous activities, and that goals should be reset to reach at least 90 minutes a day of total physical activity. The extent to which children and youth are physically active is influenced by a multitude of complex, interrelated factors. Addressing physical inactivity and its contribution to childhood obesity requires a comprehensive and holistic approach.

**711: Garza JR, Pérez EA, Prelip M, McCarthy WJ, Feldman JM, Canino G, Ortega AN. Occurrence and correlates of overweight and obesity among island Puerto Rican youth. Ethn Dis. 2011 Spring;21(2):163-9. PubMed PMID: 21749019; PubMed Central PMCID: PMC3379892.**

Abstract

OBJECTIVE AND MAIN OUTCOME MEASURES: This article provides 2005-2008 population-based prevalence data on obesity and overweight among youth residing in Puerto Rico.

DESIGN AND SETTING:

Data for this report are from the Asthma, Depression, and Anxiety in Puerto Rican Youth (ADA) study. Measures included height and weight level data on youth in Puerto Rico aged 10 to 19 years with and without asthma as well as body mass index data on their caregivers.

PARTICIPANTS:

A total of 436 youth-caregiver dyads were selected and weighted to represent the general population of youth in Puerto Rico using 2008 US Census data.

RESULTS:

Household surveys demonstrated that 40% of youth aged 10 to 19 were overweight or obese. Twenty-five percent met moderate-to-vigorous-intensity physical activity guidelines, however, physical activity was not associated with overweight or obesity in this sample. In multivariate analyses, females were 50% less likely than males to be overweight or obese. Older youth were 73% less likely to be overweight or obese than younger youth. Youth whose parents were obese were

more than two times more likely to be overweight or obese than those whose parents were at a desirable weight.

**CONCLUSIONS:**

Youth in Puerto Rico have higher rates of overweight and obesity and lower compliance to moderate-to-vigorous-intensity physical activity guidelines than rates reported for youth on the mainland. More population-based research is needed to understand the epidemiology of obesity and overweight among island Puerto Rican youth and the contribution of physical activity to the phenomenon.

**712: Gundogdu Z, Eryilmaz N. Correlation between peak flow and body mass index in obese and non-obese children in Kocaeli, Turkey. Prim Care Respir J. 2011 Dec;20(4):403-6. doi: 10.4104/pcrj.2011.00061. PubMed PMID: 21743953.**

**Abstract**

**AIMS:**

To investigate the relationship between body mass index (BMI) and peak expiratory flow (PEF) values in children between the ages of 6 and 14 years.

**METHODS:**

Data were collected from 1,439 children during public health screening. Each child was classified on the basis of age- and sex-specific BMI percentile as non-obese or obese (BMI >95th percentile). PEF and BMI were compared among age-sex-BMI percentile groups.

**RESULTS:**

PEF values were lower in obese children than in non-obese children. There were also significant differences between girls and boys.

**CONCLUSIONS:**

The association of higher BMI with lower PEF may indicate that obesity is an important risk factor for reduced airflow or lung function in children. These findings emphasise the importance of the prevention of obesity in children and adolescents in order to avoid possible future respiratory problems.

**713: Ying-Xiu Z, Shu-Rong W. Secular trends in body mass index and the prevalence of overweight and obesity among children and adolescents in Shandong, China, from 1985 to 2010. J Public Health (Oxf). 2012 Mar;34(1):131-7. doi: 10.1093/pubmed/fdr053. Epub 2011 Jul 8. PubMed PMID: 21742740.**

**Abstract**

**BACKGROUND:**

There is strong evidence of a positive secular trend in body mass index (BMI) and the prevalence of obesity has increased substantially over the last several decades. However, no studies on this trend have been reported in Shandong Province, China. The present study assessed the decennial change in BMI in Shandong Province during the past 25 years and the prevalence of overweight and obesity among children and adolescents.

**METHODS:**

The BMI of children and adolescents aged 7-18 was calculated using data from five national surveys on students' constitution and health carried out by the government in 1985, 1995, 2000, 2005 and 2010 in Shandong Province, China. The distribution of BMI was reported, and the prevalence of overweight and obesity was obtained according to the screening criteria of overweight and obesity

for Chinese students using BMI [Working Group on Obesity in China (WGOC) standard]. Overweight and obesity prevalence were also computed using the International Obesity Task Force (IOTF) cutoffs.

**RESULTS:**

In the past 25 years, the P(50) (50th percentile) of BMI increased. The average increments of BMI were 2.18 kg/m<sup>2</sup> for boys and 1.21 kg/m<sup>2</sup> for girls, respectively. The prevalence of overweight and obesity increased rapidly: using WGOC standard, the prevalence of overweight increased from 1.91% for boys and 2.02% for girls in 1985 to 17.34% for boys and 11.97% for girls in 2010, and the prevalence of obesity increased from 0.27% for boys and 0.23% for girls in 1985 to 15.83% for boys and 7.12% for girls in 2010; using IOTF standard, the prevalence of overweight increased from 1.54% for boys and 1.27% for girls in 1985 to 19.06% for boys and 13.42% for girls in 2010, and the prevalence of obesity increased from 0.04% for boys and 0.03% for girls in 1985 to 9.33% for boys and 2.42% for girls in 2010, respectively.

**CONCLUSIONS:**

The average value of BMI has increased over time; overweight and obesity among children and adolescents have become a serious public health problem. Comprehensive evidence-based strategies of intervention should be introduced, including periodic monitoring.

**714: Murray ET, Mishra GD, Kuh D, Guralnik J, Black S, Hardy R. Life course models of socioeconomic position and cardiovascular risk factors: 1946 birth cohort. *Ann Epidemiol.* 2011 Aug;21(8):589-97. doi: 10.1016/j.annepidem.2011.04.005. PubMed PMID: 21737047; PubMed Central PMCID: PMC3226834.**

Abstract

PURPOSE:

To identify the life course model that best describes the association between life course socioeconomic position (SEP) and cardiovascular (CVD) risk factors (ie, body mass index [BMI], systolic and diastolic blood pressure, total cholesterol, low-density lipoprotein, high-density lipoprotein, triglycerides, and glycated hemoglobin) and explore BMI across the life course as mediators of the relationship.

METHODS:

The Medical Research Council National Survey of Health and Development was used to compare partial F-tests of simpler nested life course SEP models corresponding to critical period, accumulation, and social mobility models with a saturated model. Then, the chosen life course model for each CVD risk factor was adjusted for BMI at age 53 and lifetime BMI (ages 4, 26, 43, and 53 years).

RESULTS:

Among women, SEP was generally associated with CVD risk factors in a cumulative manner, whereas childhood critical period was the prominent model for men. When the best-fitting SEP models were used, we found that adjustment for BMI at age 53 reduced associations for all outcomes in both genders. Further adjustment for lifetime BMI (4, 26, 43, and 53 years) did not substantially alter most associations (except for triglycerides).

CONCLUSIONS:

SEP at different points across life influences CVD risk factors differently in men and women.

**715: Bac A, Woźniacka R, Matusik S, Golec J, Golec E. Prevalence of overweight and obesity in children aged 6-13 years-alarming increase in obesity in Cracow, Poland. *Eur J Pediatr.* 2012 Feb;171(2):245-51. doi: 10.1007/s00431-011-1519-1. Epub 2011 Jul 7. PubMed PMID: 21735054; PubMed Central PMCID: PMC3258396.**

Abstract

This study in children aged 6-13 years (n = 1,499) was performed between October 2008 and March 2009. Height and weight measurements were taken to calculate BMI. The prevalence of overweight and obesity was determined by means of IOTF cut-offs with respect to age. Alarming is the fact that the percentage of obese children in Cracow increased dramatically from 1.04% in boys and 0.20% in girls in 1971 to 7% in boys and 3.6% in girls in 2009. In this report, a higher percentage of overweight boys was observed in rural boys (28.14%) than in urban ones (27.31%). Obesity was identified in an almost twice as high percentage of urban boys (7.78%) as in rural ones (3.52%). A higher percentage of overweight girls was registered in rural areas (16.49%) than in urban ones (16.09%). Obesity was prevailing in rural girls (4.12%) relative to their urban counterparts (3.44%). The highest number of overweight urban boys was diagnosed in the group of 12-year-olds (n = 48) and rural boys in the group of 10-year-olds (n = 39), as well as in urban girls aged 11 (n = 17) and rural girls aged 9 (n = 9). The highest number of obesity was observed in rural boys aged 12 (n = 3) and in urban boys aged 9

and 10 (n = 9 in both groups). In the group of girls, obesity prevailed in urban 9-year-olds (n = 5) and in rural 7-year-olds (n = 5).

**CONCLUSIONS:**

Overweight and obesity affect boys almost twice as frequently as girls. Obesity is twice as frequent in urban boys as in their rural peers.

**716: Sung V, Beebe DW, Vandyke R, Fenchel MC, Crimmins NA, Kirk S, Hiscock H, Amin R, Wake M. Does sleep duration predict metabolic risk in obese adolescents attending tertiary services? A cross-sectional study. Sleep. 2011 Jul 1;34(7):891-8. doi: 10.5665/SLEEP.1122. PubMed PMID: 21731139; PubMed Central PMCID: PMC3119831.**

**Abstract**

**STUDY OBJECTIVES:**

To determine, in a clinical sample of obese adolescents, whether shorter sleep duration is associated with metabolic risk and obesity severity.

**DESIGN:**

Cross-sectional study.

**SETTING:**

Tertiary care weight-management clinic in Cincinnati, OH, USA.

**PARTICIPANTS:**

133 obese adolescents aged 10-16.9 years.

**INTERVENTIONS:**

N/A.

**MEASUREMENTS:**

Multifaceted sleep duration data were examined with fasting venipuncture and anthropometric data collected during clinical care.

**PRIMARY OUTCOME:**

presence of metabolic syndrome.

**SECONDARY OUTCOMES:**

waist circumference, triglycerides, HDL-cholesterol, blood pressure, glucose, insulin resistance (HOMA-IR), and body mass index (BMI).

**PREDICTORS:**

Sleep duration by (1) parent-report, (2) self-report, and (3) multi-night actigraphy.

**ANALYSIS:**

Relationships between sleep duration and each outcome were examined via regression models, adjusted for potential confounders.

**RESULTS:**

Regardless of how measured, sleep duration showed no strong association with metabolic syndrome (OR 1.1 to 1.5, P = 0.2 to 0.8), BMI ( $\beta$  -0.03 to -0.01, P = 0.2 to 0.8), or most other outcomes. Lower triglycerides were predicted by shorter sleep duration by self-report ( $\beta$  12.3, P = 0.01) and actigraphy ( $\beta$  13.6, P = 0.03), and shorter parent-reported sleep duration was associated with higher HDL-cholesterol ( $\beta$  = -2.7, P = 0.002).

**CONCLUSIONS:**

Contrary to expectations, sleep duration was not associated with metabolic outcomes, and showed limited associations with lipid profiles. Although inadequate sleep may affect other areas of



functioning, it appears premature to expect that lengthening sleep will improve BMI or metabolic outcomes in clinical samples of obese adolescents.

KEYWORDS:

Sleep; adolescent; cross sectional studies; metabolic syndrome; obesity.

**717: Vozoris NT, Leung RS. Sedative medication use: prevalence, risk factors, and associations with body mass index using population-level data. Sleep. 2011 Jul 1;34(7):869-74. doi: 10.5665/SLEEP.1116. PubMed PMID: 21731136; PubMed Central PMCID: PMC3119828.**

Abstract

STUDY OBJECTIVES:

To estimate the prevalence of and identify sociodemographic risk factors for sedative medication use in the general Canadian population, and to examine the association between sedative medication use and body mass index (BMI).

DESIGN:

Cross-sectional study

SETTING:

Canadian population

PARTICIPANTS:

Participants from the 1994-2003 Canadian national health surveys, the National Population Health Survey (NPHS) and the Canadian Community Health Survey (CCHS). For the 2003 CCHS, n = 134,072, ages 12-80+ years.

INTERVENTIONS:

Not applicable

MEASUREMENTS AND RESULTS:

The overall prevalence of sedative medication use in Canada in 2003 was 5.5%, having more than doubled since 1994. Notable rises in sedative medication use have occurred among men, non-elderly, and obese individuals. After adjusting for potential sociodemographic and health status confounders, including psychiatric comorbidities, the odds of sedative use were significantly greater among morbidly obese (BMI  $\geq 35$  kg/m<sup>2</sup>) men (OR = 1.89, 95%CI = 1.02-3.53) and underweight (BMI < 18.5 kg/m<sup>2</sup>) women (OR = 2.11, 95%CI = 1.26-3.53).

CONCLUSIONS:

The use of sedative medications has substantially risen among the general Canadian population, and among particular population subgroups. The greater odds of sedative medication use found among morbidly obese men may reflect the presence of underlying obstructive sleep apnea, which may in turn serve to explain in part the known relationship between sedative medications and mortality. The increase in sedative medications coupled with their known adverse health associations raises potential public health concerns.

KEYWORDS:

Sedative; body mass index; epidemiology.

**718: Brummett BH, Babyak MA, Siegler IC, Shanahan M, Harris KM, Elder GH, Williams RB. Systolic blood pressure, socioeconomic status, and biobehavioral risk factors in a nationally representative US young adult sample. Hypertension. 2011 Aug;58(2):161-6. doi: 10.1161/HYPERTENSIONAHA.111.171272. Epub 2011 Jul 5. PubMed PMID: 21730296; PubMed Central PMCID: PMC3160108.**

Abstract

In the National Longitudinal Study of Adolescent Health, a US longitudinal study of >15 000 young adults, we examined the extent to which socioeconomic status is linked to systolic blood pressure (SBP) and whether biobehavioral risk factors mediate the association. More than 62% of the participants had SBP >120 mm Hg and 12% had SBP >140 mm Hg. More than 66% were classified as at least overweight (body mass index >25 kg/m<sup>2</sup>), with >36% meeting criteria for at least class I obesity (body mass index >30 kg/m<sup>2</sup>). Multivariate models showed that higher household income and being married were independently associated with lower SBP. Higher body mass index, greater waist circumference, smoking, and higher alcohol intake were each independently associated with higher SBP. Meditational analyses suggested that higher education level was associated with lower SBP by way of lower body mass, smaller waist circumference, and lower resting heart rate. When these indirect effects were accounted for, education was not significantly associated with SBP. In contrast, household income remained associated with SBP even with control for all of the covariates. Results reinforce current public health concerns about rates of obesity and high blood pressure among young adults and suggest that disparities in education level and household income may play an important role in the observed decrements in health. Identifying modifiable mechanisms that link socioeconomic status to SBP using data from a large representative sample may improve risk stratification and guide the development of effective interventions.

**719: Giannini C, Santoro N, Caprio S, Kim G, Lartaud D, Shaw M, Pierpont B, Weiss R. The triglyceride-to-HDL cholesterol ratio: association with insulin resistance in obese youths of different ethnic backgrounds. Diabetes Care. 2011 Aug;34(8):1869-74. doi: 10.2337/dc10-2234. Epub 2011 Jul 5. PubMed PMID: 21730284; PubMed Central PMCID: PMC3142016.**

Abstract

OBJECTIVE:

We evaluated whether the triglyceride-to-HDL cholesterol (TG/HDL-C) ratio is associated with insulin resistance (IR) in a large multiethnic cohort of obese youths.

RESEARCH DESIGN AND METHODS:

Obese youths (1,452) had an oral glucose tolerance test and a fasting lipid profile. Insulin sensitivity was estimated using the whole body insulin sensitivity index (WBISI) and homeostasis model assessment (HOMA)-IR and evaluated, in a subgroup of 146 obese youths, by the hyperinsulinemic-euglycemic clamp. The cohort was divided by ethnicity (612 whites, 357 Hispanics, and 483 African Americans) and then stratified into ethnicity-specific tertiles of TG/HDL-C ratio. Differences across tertiles were evaluated, and the association between the TG/HDL-C ratio and insulin sensitivity (WBISI) was defined by a multiple stepwise linear regression analysis. The area under the receiver operating characteristic (ROC) curve (AUC) was determined to calculate the TG/HDL-C ratio cutoff to identify insulin-resistant subjects by ethnicity.

RESULTS:

In each ethnic group and across rising tertiles of TG/HDL-C ratio, insulin sensitivity (WBISI) progressively decreased, whereas 2-h glucose and the AUC-glucose progressively increased. The cutoff for TG/HDL-C ratio was 2.27, and the odds of presenting with IR, in youths with TG/HDL-C ratio higher than the cutoff, was 6.023 (95% CI 2.798-12.964;  $P < 0.001$ ) in white girls and boys, whereas for both Hispanics and African Americans the AUC-ROCs were not significant, thus not allowing the calculation of an optimal cutoff TG/HDL-C value.

**CONCLUSIONS:**

The TG/HDL-C ratio is associated with IR mainly in white obese boys and girls and thus may be used with other risk factors to identify subjects at increased risk of IR-driven morbidity.

**720: Kouda K, Fujita Y, Nakamura H, Takeuchi H, Iki M. Effect of recovery from obesity on cardiovascular risk factors among Japanese schoolchildren: the Iwata population-based follow-up study. J Epidemiol. 2011;21(5):370-5. doi: 10.2188/jea.JE20100140. Epub 2011 Jul 2. PubMed PMID: 21727757; PubMed Central PMCID: PMC3899436.**

**Abstract**

**BACKGROUND:**

The effect of recovery from obesity on cardiovascular risk factors is not well understood in Japanese children.

**METHODS:**

We analyzed follow-up data from the Iwata city population-based study of schoolchildren in Japan. The Iwata Board of Education conducted health screenings of children aged 10 and 14 years. A total of 914 children aged 10 years (451 boys and 463 girls, 87.1% of all children in the city in 1997) were followed until 14 years of age and classified by pattern of obesity as Normal, Recovered, Worsened, or Persistent.

**RESULTS:**

Of the 914 children, 111 (12%) were obese at 10 years of age. Of those children, 44 (40%) were no longer obese at 14 years (ie, Recovered). At follow-up, Recovered boys had the greatest decrease in non-HDL cholesterol (mean  $\pm$  SE,  $-21.3 \pm 3.6$  mg/dL) among the 4 groups, and Recovered girls had a significantly lower level of non-HDL cholesterol (Recovered,  $107.1 \pm 5.4$  mg/dL vs. Persistent,  $126.1 \pm 4.5$  mg/dL). The Recovered boys also had a significantly higher level of HDL cholesterol at age 14 (Recovered,  $67.2 \pm 2.7$  mg/dL vs. Persistent,  $53.3 \pm 2.1$  mg/dL). In the Recovered group, 68% of children who were dyslipidemic at baseline had normal cholesterol levels at age 14. The recovery rate from dyslipidemia was significantly higher in the Recovered group (cumulative incidence rate ratio, 2.5; 95% confidence interval, 1.4-4.7) as compared with the Persistent group.

**CONCLUSIONS:**

Dyslipidemia was reversed in children who recovered from obesity. Our findings suggest that reducing obesity is beneficial to the health of Japanese schoolchildren.

**721: El-Koofy NM, El-Karaksy HM, Mandour IM, Anwar GM, El-Raziky MS, El-Hennawy AM. Genetic polymorphisms in non-alcoholic fatty liver disease in obese Egyptian children. Saudi J Gastroenterol. 2011 Jul-Aug;17(4):265-70. doi: 10.4103/1319-3767.82582. PubMed PMID: 21727734; PubMed Central PMCID: PMC3133985.**

Abstract

BACKGROUND/AIM:

Polymorphisms in the promoter of microsomal triglyceride transfer protein (MTP) lead to decreased MTP transcription, less export of triglyceride from hepatocytes, and greater intracellular triglyceride accumulation. Therefore, functional polymorphisms in MTP may be involved in determining susceptibility to nonalcoholic steatohepatitis (NASH). The aim of this study is to examine the effect of some genetic influences among a group of obese Egyptian children.

PATIENTS AND METHODS:

A cross-sectional study was conducted on 76 overweight and obese children presenting to the Pediatric Endocrinology Unit, Cairo University Children's Hospital, Egypt, as well as on 20 healthy controls. Anthropometric measurements were taken for all the patients and they underwent clinical examination, ultrasonographic examination of the liver, and liver biopsy when appropriate. Liver functions, blood glucose, serum insulin, C-peptide, and lipid profile were assessed and HOMA-IR calculated. Blood samples from biopsy-proven NASH patients and controls were analyzed by polymerase chain reaction (PCR) and restriction fragment length polymorphism for the -493 G/T polymorphism in the promoter of MTP and the 1183 T/C polymorphism in the mitochondrial targeting sequence of manganese superoxide dismutase (MnSOD).

RESULTS:

Eight had biopsy-proven simple steatosis and 7 had NASH. NASH patients had a much higher incidence of the MTP G/G genotype ( $P = 0.002$ , CI: 2.9-392) compared with the controls. NASH patients also had a 100% prevalence of the MnSOD T/T genotype.

CONCLUSION:

Certain genotypes in MTP and MnSOD are significantly more prevalent among obese children with NASH and may be responsible for such a phenotype.

**722: Grunseit AC, Taylor AJ, Hardy LL, King L. Composite measures quantify households' obesogenic potential and adolescents' risk behaviors. Pediatrics. 2011 Aug;128(2):e308-16. doi: 10.1542/peds.2010-3331. Epub 2011 Jul 4. PubMed PMID: 21727105.**

Abstract

OBJECTIVE:

The aims of this study were to generate composite measures quantifying a household's obesogenic potential and to examine the relationship of the composite variables with older children's eating, physical activity (PA), and small screen recreation.

METHODS:

Data were from surveys with 1685 child-parent pairs in which the child was in grade 6, 8, or 10 (mean age: 14 years). Composite measures of the obesogenic household environment were generated from 11 measures using nonlinear principal components analysis. Associations between the composite measures and the children's healthy and unhealthy food intake, PA, and screen time were tested (adjusting for demographic characteristics).

#### RESULTS:

Two scales were generated: (1) obesogenic control, which clustered together factors that mitigate risk; and (2) obesogenic risk. Higher scores on the control scale were associated with higher adolescent intake of healthy foods, lower intake of unhealthy foods, higher PA, and less screen time. Higher scores on the risk scale were associated with lower adolescent intake of healthy foods, higher intake of unhealthy foods, lower PA, and more screen time. There were significant 2-way interactions between the scales for soft drink consumption and PA.

#### CONCLUSIONS:

Household obesogenic potential may be quantified as 2 factors reflecting cumulative risk and control practices. These factors have both additive associations with obesogenic behaviors and, in some cases, modify each other, suggesting that a healthy home environment requires attention to both. Health promotion messages could incorporate these 2 different but interacting factors that parents can use to modify the obesogenic potential of their household.

**723: Bettini V, Maffei P, Pagano C, Romano S, Milan G, Favaretto F, Marshall JD, Paisey R, Scolari F, Greggio NA, Tosetto I, Naggert JK, Siculo N, Vettor R. The progression from obesity to type 2 diabetes in Alström syndrome. *Pediatr Diabetes*. 2012 Feb;13(1):59-67. doi: 10.1111/j.1399-5448.2011.00789.x. Epub 2011 Jul 3. PubMed PMID: 21722283; PubMed Central PMCID: PMC3345208.**

#### Abstract

##### BACKGROUND:

Alström syndrome (ALMS) is a rare autosomal recessive monogenic disease associated with obesity, hyperinsulinemia, and alterations of glucose metabolism that often lead to the development of type 2 diabetes at a young age.

##### OBJECTIVE:

To study the relationship between weight and metabolism in a group of ALMS patients and matched controls.

##### RESEARCH DESIGN AND METHODS:

Fifteen ALMS patients (eight males, seven females; aged 3-51) were compared in a cross-sectional study with an age- and weight-matched control population. Anthropometric parameters, fat mass, glucose and insulin secretion in basal and dynamic oral glucose tolerance test (OGTT) conditions were measured. Furthermore, anthropometric and body composition data were obtained from an international group of 27 ALMS patients (13 males, 14 females, age range: 4-29 yr).

##### RESULTS:

In ALMS we observed an inverse correlation between age and standard deviation scores for height, weight, and body mass index. The OGTT glycemic curves of ALMS subjects were similar to those of age-matched controls, whereas insulin response was clearly greater. In ALMS individuals the insulin response showed a reduction with age. We documented pathologic values of the derived indices homeostasis model assessment of insulin resistance (HOMA-IR), insulin sensitivity index, HOMA $\beta$ -cell and insulinogenic index in ALMS, but unlike the insulin-resistance indices, the  $\beta$ -cell function indices showed a significant reduction with age.

##### CONCLUSIONS:

In ALMS the progression from the early onset obesity toward the impaired fasting glucose or impaired glucose tolerance and overt diabetes is mostly because of a progressive failure of  $\beta$ -cell

insulin secretion without any further worsening of insulin resistance with age, even in the presence of weight reduction.

**724: Borade A, Kadam GS, Bhide G, Dhongade R. Study of blood pressure and blood sugar levels in adolescence and comparison with body mass index. Indian J Med Sci. 2011 Jul;65(7):297-310. doi: 10.4103/0019-5359.107391. PubMed PMID: 23422703.**

Abstract

BACKGROUND:

Worldwide prevalence of overweight and obesity is increasing and its consequences prompted the WHO to designate obesity as a global epidemic in 2002. Being overweight is a risk factor for significant illness, especially diabetes and hypertension in adult life.

OBJECTIVES:

To study the blood pressure and blood sugar levels and lifestyle parameters in adolescence and comparison with body mass index.

MATERIALS AND METHODS:

In a prospective case control study, out of the 1000 screened, a total of 200 adolescents were considered out of which 100 were with high body mass index (BMI) and the other 100 were with normal BMI. Height, weight, BMI, waist hip ratio (WHR), blood pressure (BP), BSL, and associated risk factors like physical activity, fast food consumption, and computer/television watching were measured and screened.

RESULTS AND OBSERVATIONS:

109 (54.5%) males and 91 (45.5%) females were included. Maximum number [90 (45%)] of adolescents screened were in the age group of 17-19 years, while 54 (27%) and 56 (28%) adolescents were in the age group of 10-13 years and 14-16 years, respectively. According to CDC charts 2000, prevalence of overweight was 24% which was double when compared to WHO charts 2007. There was significant difference in prevalence of obesity; according to CDC chart it was 26%, whereas according to WHO chart it was 39%. The difference in blood pressures between cases and controls as per both CDC and WHO charts was found to be statistically significant ( $P < 0.0001$ ). Positive family history of hypertension has a highly significant correlation ( $P < 0.001$ ) with BMI. Blood sugar level (BSL) was significantly higher in cases (high BMI) when compared to controls (normal BMI). The comparison of WHR in the study group showed highly significant correlation ( $P < 0.0001$ ) between cases and controls. The present study shows highly significant correlation of physical activity ( $P < 0.0001$ ) and fast food ( $P < 0.05$ ) between cases and controls, whereas there was no significant correlation of computer/television watching ( $P > 0.05$ ) with BMI.

CONCLUSION:

The adolescents seem to have become heavier owing to environmental influences on growth patterns. So, a consideration should be given to shift the cut-offs for overweight and obesity to higher BMI percentiles if recent growth charts are to be followed. Adolescents with a BMI above the 95<sup>th</sup> percentile (obese) are most likely to have obesity-related health risks.

**725: Carlsson A, Kockum I, Lindblad B, Engleson L, Nilsson A, Forsander G, Karlsson AK, Kernell A, Ludvigsson J, Marcus C, Zachrisson I, Ivarsson SA, Lernmark A; Swedish Better Diabetes Diagnosis Study Group. Low risk HLA-DQ and increased body mass index in newly diagnosed type 1 diabetes children in the Better Diabetes Diagnosis study in Sweden. *Int J Obes (Lond)*. 2012 May;36(5):718-24. doi: 10.1038/ijo.2011.122. Epub 2011 Jun 28. PubMed PMID: 21712811; PubMed Central PMCID: PMC3192932.**

Abstract

OBJECTIVE:

Type 1 diabetes and obesity has increased in childhood. We therefore tested the hypothesis that type 1 diabetes human leukocyte antigen DQ (HLA-DQ) risk genotypes may be associated with increased body mass index (BMI).

DESIGN:

The type 1 diabetes high-risk HLA-DQ A1\*05:01-B1\*02:01/A1\*03:01-B1\*03:02 genotype along with lower risk DQ genotypes were determined at the time of clinical onset by PCR and hybridization with allele-specific probes. BMI was determined after diabetes was stabilized.

SUBJECTS:

A total of 2403 incident type 1 diabetes children below 18 years of age were ascertained in the Swedish national Better Diabetes Diagnosis (BDD) study between May 2005 to September 2009. All children classified with type 1 diabetes, including positivity for at least one islet autoantibody, were investigated.

RESULTS:

Overall, type 1 diabetes HLA-DQ risk was negatively associated with BMI ( $P < 0.0008$ ). The proportion of the highest risk A1\*05:01-B1\*02:01/A1\*03:01-B1\*03:02 genotype decreased with increasing BMI ( $P < 0.0004$ ). However, lower risk type 1 diabetes DQ genotypes were associated with an increased proportion of patients who were overweight or obese ( $P < 0.0001$ ). Indeed, the proportion of patients with the low-risk A1\*05:01-B1\*02:01/A1\*05:01-B1\*02:01 genotype increased with increasing BMI ( $P < 0.003$ ). The magnitude of association on the multiplicative scale between the A1\*05:01-B1\*02:01/A1\*05:01-B1\*02:01 genotype and increased BMI was significant ( $P < 0.006$ ). The odds ratio in patients with this genotype of being obese was 1.80 (95% confidence interval 1.21-2.61;  $P < 0.006$ ). The increased proportion of overweight type 1 diabetes children with the A1\*05:01-B1\*02:01 haplotype was most pronounced in children diagnosed between 5 and 9 years of age.

CONCLUSIONS:

Susceptibility for childhood type 1 diabetes was unexpectedly found to be associated with the A1\*05:01-B1\*02:01/A1\*05:01-B1\*02:01 genotype and an increased BMI. These results support the hypothesis that overweight may contribute to the risk of type 1 diabetes in children positive for HLA-DQ A1\*05:01-B1\*02:01.

**726: Council on Communications and Media, Strasburger VC. Children, adolescents, obesity, and the media. Pediatrics. 2011 Jul;128(1):201-8. doi: 10.1542/peds.2011-1066. Epub 2011 Jun 27. Erratum in: Pediatrics. 2011 Sep;128(3):594. PubMed PMID: 21708800.**

Abstract

Obesity has become a worldwide public health problem. Considerable research has shown that the media contribute to the development of child and adolescent obesity, although the exact mechanism remains unclear. Screen time may displace more active pursuits, advertising of junk food and fast food increases children's requests for those particular foods and products, snacking increases while watching TV or movies, and late-night screen time may interfere with getting adequate amounts of sleep, which is a known risk factor for obesity. Sufficient evidence exists to warrant a ban on junk-food or fast-food advertising in children's TV programming. Pediatricians need to ask 2 questions about media use at every well-child or well-adolescent visit: (1) How much screen time is being spent per day? and (2) Is there a TV set or Internet connection in the child's bedroom?

**727: Wang R, Wu MJ, Ma XQ, Zhao YF, Yan XY, Gao QB, He J. Body mass index and health-related quality of life in adults: a population based study in five cities of China. Eur J Public Health. 2012 Aug;22(4):497-502. doi: 10.1093/eurpub/ckr080. Epub 2011 Jun 25. PubMed PMID: 21705786.**

Abstract

BACKGROUND:

To investigate the relationship between obesity and health-related quality of life (HRQL) in a randomly selected Chinese sample.

METHODS:

A total of 3600 residents aged 18-80 years were sampled in five cities of China using a randomized stratified multiple-stage sampling method to receive the interview, with a self-completed questionnaire to collect demographic information, and the Mandarin version of Short Form 36 Health Survey questionnaire (SF-36) to assess HRQL, followed by height and weight measurements for calculating body mass index (BMI). Cross-sectional association between BMI and HRQL was analysed.

RESULTS:

Among the 3207 participants (mean age 42 years) suitable for analysis, BMI differed by age and gender. Based on the international or the Asian BMI categories, in women, meaningful impairments were seen between obese and normal weight participants in four physical health scales, and only one scale of the four mental health scales--vitality scale was affected by obesity; in men, impairments by obesity were not found in all of the eight SF-36 scales, and better HRQL in two mental health scales were observed in obese participants compared to normal weight ones; after adjusting related variables, several physical but not mental health scales were found impaired by obesity.

CONCLUSION:

Obesity impaired physical but not mental health, and the impairments varied between genders. Public health agencies and government should emphasize the impairments of obesity on physical health.



**728: Tudor-Locke C, Craig CL, Cameron C, Griffiths JM. Canadian children's and youth's pedometer-determined steps/day, parent-reported TV watching time, and overweight/obesity: the CANPLAY Surveillance Study. Int J Behav Nutr Phys Act. 2011 Jun 25;8:66. doi: 10.1186/1479-5868-8-66. PubMed PMID: 21702982; PubMed Central PMCID: PMC3141616.**

Abstract

**BACKGROUND:**

This study examines associations between pedometer-determined steps/day and parent-reported child's Body Mass Index (BMI) and time typically spent watching television between school and dinner.

**METHODS:**

Young people (aged 5-19 years) were recruited through their parents by random digit dialling and mailed a data collection package. Information on height and weight and time spent watching television between school and dinner on a typical school day was collected from parents. In total, 5949 boys and 5709 girls reported daily steps. BMI was categorized as overweight or obese using Cole's cut points. Participants wore pedometers for 7 days and logged daily steps. The odds of being overweight and obese by steps/day and parent-reported time spent television watching were estimated using logistic regression for complex samples.

**RESULTS:**

Girls had a lower median steps/day (10682 versus 11059 for boys) and also a narrower variation in steps/day (interquartile range, 4410 versus 5309 for boys). 11% of children aged 5-19 years were classified as obese; 17% of boys and girls were overweight. Both boys and girls watched, on average, < 40 minutes of television between school and dinner on school days. Adjusting for child's age and sex and parental education, the odds of a child being obese decreased by 20% for every extra 3000 steps/day and increased by 21% for every 30 minutes of television watching. There was no association of being overweight with steps/day, however the odds of being overweight increased by 8% for every 30 minutes of additional time spent watching television between school and dinner on a typical school day.

**DISCUSSION:**

Television viewing is the more prominent factor in terms of predicting overweight, and it contributes to obesity, but steps/day attenuates the association between television viewing and obesity, and therefore can be considered protective against obesity. In addition to replacing opportunities for active alternative behaviours, exposure to television might also impact body weight by promoting excess energy intake.

**CONCLUSIONS:**

In this large nationally representative sample, pedometer-determined steps/day was associated with reduced odds of being obese (but not overweight) whereas each parent-reported hour spent watching television between school and dinner increased the odds of both overweight and obesity.

**729: Matthews VL, Wien M, Sabaté J. The risk of child and adolescent overweight is related to types of food consumed. *Nutr J.* 2011 Jun 24;10:71. doi: 10.1186/1475-2891-10-71. PubMed PMID: 21702912; PubMed Central PMCID: PMC3130644.**

Abstract

BACKGROUND/AIMS:

To investigate the association between the risk of overweight and the consumption of food groups in children and adolescents.

METHODS:

We studied 1764 healthy children and adolescents (age 6-19y) attending 16 Seventh-Day Adventist schools and 13 public schools using a 106-item non-quantitative food frequency questionnaire from the late 1980 Child-Adolescent Blood Pressure Study. Logistic regression models were used to compute the risk of overweight according to consumption of grains, nuts, vegetables, fruits, meats/fish/eggs, dairy, and, low nutrient-dense foods (LNDF).

RESULTS:

The frequency of consumption of grains, nuts, vegetables and LNDF were inversely related to the risk of being overweight and dairy increased the risk. Specifically, the odds ratio (95% CI) for children in the highest quartile or tertile of consumption compared with the lowest quartile or tertile were as follows: grains 0.59(0.41-0.83); nuts 0.60(0.43-0.85); vegetables 0.67(0.48-0.94); LNDF 0.43(0.29-0.63); and, dairy 1.36(0.97, 1.92).

CONCLUSION:

The regular intake of specific plant foods may prevent overweight among children and adolescents.

**730: Smith NR, Kelly YJ, Nazroo JY. The effects of acculturation on obesity rates in ethnic minorities in England: evidence from the Health Survey for England. *Eur J Public Health.* 2012 Aug;22(4):508-13. doi: 10.1093/eurpub/ckr070. Epub 2011 Jun 22. PubMed PMID: 21697245.**

Abstract

OBJECTIVES:

To investigate the extent of generational differences in adult health-related lifestyles and socio-economic circumstances, and explore whether these differences might explain changing patterns of obesity in ethnic minorities in England.

METHODS:

Seven ethnic minority groups were selected from the ethnically boosted 1999 and 2004 Health Survey for England (Indian n = 1580; Pakistani n = 1858; Bangladeshi n = 1549; Black Caribbean n = 1472; Black African n = 587; Chinese n = 1559; and Irish n = 889). Age and sex adjusted odds of being obese in the second generation when compared with the first were estimated before and after adjusting for generational differences in health-related behaviours (snacking, eating cakes and fried foods, low levels of physical exercise, any drinking, current smoker, etc.) and socio-economic factors (social class, equalized income and highest qualification).

RESULTS:

Indian [OR: 1.76 (1.14-2.71)] and Chinese [OR: 3.65 (1.37-9.78)] groups were more likely to be obese in the second generation than the first after adjusting for age and sex, with no significant differences observed in all other groups. However, the risk of obesity in all groups converged between generations to the risk observed in the White reference group, with exception to the Black Caribbean

group. Adjusting independently for the mixed patterns of acculturative changes and the uniform upward social mobility in all groups increased the risk of obesity in the second generation.

**CONCLUSIONS:**

Obesity converged to the risk in the majority population following acculturation. Future research needs to consider generation and trans-cultural identities as a fundamental variable in determining the causes of ethnic health inequalities.

**732: Sola AO, Steven AO, Kayode JA, Olayinka AO. Underweight, overweight and obesity in adults Nigerians living in rural and urban communities of Benue State. Ann Afr Med. 2011 Apr-Jun;10(2):139-43. doi: 10.4103/1596-3519.82081. PubMed PMID: 21691021.**

**Abstract**

**OBJECTIVE:**

To assess the prevalence of underweight, overweight and obesity among Nigerians aged 18-45 years, living in urban and rural settlements in one state in Nigeria.

**MATERIALS AND METHODS:**

Four hundred and thirty-five subjects between 18 and 45 years of age were recruited for height, weight and waist circumference (WC) measurements. Body mass index (BMI) was calculated (weight/height<sup>2</sup>, kg/m<sup>2</sup>); WHO criteria determined BMI and WC categories.

**RESULTS:**

Based on BMI, about 2% of the study population was underweight, 22% was overweight and 4% was obese. There were more normal weight persons in rural than in urban settlement. About 40 and 30% of females in urban and rural settlement, respectively, were either overweight or obese. Based on WC of the sample population, 10.34% had increased risk for metabolic syndrome [action level I (defined as WC ≥94 cm in men and ≥80 cm in women)] and 2.8% had substantially increased risk [action level II (defined as WC ≥102 cm in men and ≥88 cm in women)]. At action level II, there was no obese male.

**CONCLUSION:**

This study revealed that underweight, overweight and obesity exist in young adults, but overweight and obesity are more prevalent. Therefore, concerted efforts should be made to control this in young adults for their present well-being and to possibly avoid the risk of disease later in life.

**733: Al-Daghri NM, Al-Attas OS, Alokail MS, Alkharfy KM, Yousef M, Sabico SL, Chrousos GP. Diabetes mellitus type 2 and other chronic non-communicable diseases in the central region, Saudi Arabia (Riyadh cohort 2): a decade of an epidemic. BMC Med. 2011 Jun 20;9:76. doi: 10.1186/1741-7015-9-76. PubMed PMID: 21689399; PubMed Central PMCID: PMC3141541.**

**Abstract**

**BACKGROUND:**

Follow-up epidemiologic studies are needed to assess trends and patterns of disease spread. No follow-up epidemiologic study has been done in the Kingdom of Saudi Arabia to assess the current prevalence of major chronic, noncommunicable diseases, specifically in the urban region, where modifiable risk factors remain rampant. This study aims to fill this gap.

#### METHODS:

A total of 9,149 adult Saudis ages seven to eighty years (5,357 males (58.6%) and 3,792 females (41.4%)) were randomly selected from the Riyadh Cohort Study for inclusion. Diagnosis of type 2 diabetes mellitus (DMT2) and obesity were based on the World Health Organization definitions. Diagnoses of hypertension and coronary artery disease (CAD) were based on the Seventh Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and American Heart Association criteria, respectively.

#### RESULTS:

The overall crude prevalence of DMT2 was 23.1% (95% confidence interval (95% CI) 20.47 to 22.15). The age-adjusted prevalence of DMT2 was 31.6%. DMT2 prevalence was significantly higher in males, with an overall age-adjusted prevalence of 34.7% (95% CI 32.6 to 35.4), than in females, who had an overall age-adjusted prevalence of 28.6% (95% CI 26.7 to 29.3) ( $P < 0.001$ ). The overall crude prevalence of obesity was 31.1% (95% CI 30.1 to 32.0). The age-adjusted prevalence of obesity was 40.0%. The prevalence of obesity was higher in females, with an overall prevalence of 36.5% (95% CI 35.1 to 37.83), than in males (25.1% (95% CI 23.7 to 26.3)) ( $P < 0.001$ ). The age-adjusted prevalence of hypertension and CAD were 32.6% (95% CI 31.7 to 33.6) and 6.9% (95% CI 6.4 to 7.4), respectively.

#### CONCLUSION:

Comparisons of our findings with earlier data show that the prevalence of DMT2, hypertension and CAD in Riyadh, Saudi Arabia, has alarmingly worsened. Aggressive promotion of public awareness, continued screening and early intervention are pivotal to boosting a positive response.

**734: Kyithar MP, Bacon S, Pannu KK, Rizvi SR, Colclough K, Ellard S, Byrne MM.**

**Identification of HNF1A-MODY and HNF4A-MODY in Irish families: phenotypic characteristics and therapeutic implications. Diabetes Metab. 2011**

**Dec;37(6):512-9. doi: 10.1016/j.diabet.2011.04.002. Epub 2011 Jun 16. PubMed**

**PMID: 21683639.**

#### Abstract

##### AIM:

The prevalence of hepatocyte nuclear factor (HNF)-1A and HNF4A mutations, and the clinical implications following the genetic diagnosis of maturity-onset diabetes of the young (MODY) in the Irish population, remain unknown. The aim of this study was to establish the occurrence of HNF1A and HNF4A mutations in subjects classified clinically as MODY to identify novel mutations, and to determine the phenotypic features and response to therapy.

##### METHODS:

A total of 36 unrelated index cases with a clinical diagnosis of MODY were analyzed for HNF1A/HNF4A mutations. OGTT was performed to determine the degree of glucose tolerance and insulin secretory response. Also, 38 relatives underwent OGTT and were tested for the relevant known mutations. HNF1A-/HNF4A-MODY subjects were compared with nine HNF1A mutation-negative relatives and 20 type 2 diabetic (T2DM) patients.

##### RESULTS:

Seven different HNF1A mutations were identified in 11/36 (30.5%) index cases, two of which were novel (S352fsdelG and F426X), as well as two novel HNF4A mutations (M1? and R290C; 6%). Family screening revealed 20 subjects with HNF1A and seven with HNF4A mutations. Only 51.6% of HNF1A mutation carriers were diagnosed with diabetes by age 25 years; 11 of the mutation carriers were overweight and four were obese. Insulin secretory response to glucose was significantly lower in

HNF1A-MODY subjects than in T2DM patients and HNF1A mutation-negative relatives (P=0.01). Therapeutic changes occurred in 48% of mutation carriers following genetic diagnosis.

**CONCLUSION:**

There was an HNF1A-MODY pick-up rate of 30.5% and an HNF4A-MODY pick-up rate of 6% in Irish MODY families. Genetically confirmed MODY has significant therapeutic implications.

**735: Haby MM, Markwick A, Peeters A, Shaw J, Vos T. Future predictions of body mass index and overweight prevalence in Australia, 2005-2025. Health Promot Int. 2012 Jun;27(2):250-60. doi: 10.1093/heapro/dar036. Epub 2011 Jun 16. PubMed PMID: 21680599.**

**Abstract**

To predict current and future body mass index (BMI) and prevalence of overweight and obesity in Australian children and adults based on sex, age and year of birth (cohort). These predictions are needed for population health planning and evaluation. Data were drawn from 11 cross-sectional national or state population surveys conducted in Australia between 1969 and 2004. These included representative population samples of children (n= 27,635) and adults (n= 43,447) aged 5 years or older with measured height and weight data. Multiple linear regression analyses of measured log-transformed BMI data were conducted to determine the independent effects of age and year of birth (cohort) on ln(BMI) for males and females, respectively. Regression coefficients for cohort obtained from these analyses were applied to the National Nutrition Survey 1995 data set to predict mean BMI and prevalence of overweight (BMI 25-29.99 kg/m<sup>2</sup>) and obesity (BMI ≥ 30 kg/m<sup>2</sup>) in 2005, 2015 and 2025. Based on past trends, BMI is predicted to continue to increase for both males and females and across the age span. This would result in increases in the prevalence of overweight and obesity of between 0.4 and 0.8% per year, such that by 2025 around one-third of 5-19 year olds will be overweight or obese as will 83% of males and 75% of females aged 20 years and over. The increases in prevalence and mean BMI predicted in this study will have significant impacts on disease burden, healthcare costs and need for prevention and treatment programmes.

**736: Lambert-Messerlian G, Roberts MB, Urlacher SS, Ah-Ching J, Viali S, Urbanek M, McGarvey ST. First assessment of menstrual cycle function and reproductive endocrine status in Samoan women. Hum Reprod. 2011 Sep;26(9):2518-24. doi: 10.1093/humrep/der095. Epub 2011 Jun 15. PubMed PMID: 21677061; PubMed Central PMCID: PMC3157623.**

**Abstract**

**BACKGROUND:**

American Samoa and Samoa are now characterized by one of the world's highest levels of adult overweight and obesity. Our objective was to investigate patterns of menstrual cyclicity reported by Samoan women and examine the relationship to adiposity and select hormone levels.

**METHODS:**

A cross-sectional analysis was performed among Samoan women, aged 18-39 years (n = 322), using anthropometric and biomarker measures of adiposity and reproductive health, including insulin, adiponectin, testosterone, sex hormone-binding globulin, free androgen index (FAI) and mullerian-inhibiting substance (MIS). Menstrual regularity was assessed from self-reported responses.

Multivariable models were estimated to adjust for potential confounding of the associations between menstrual patterns and other measures.

**RESULTS:**

A high proportion of the women (13.7%) reported oligomenorrhea or amenorrhea (OM/AM). More than three-quarters, 80.7%, of women were either overweight or obese, using Polynesian-specific criteria, and OM/AM was significantly associated with higher BMI. Abdominal circumference and insulin levels were significantly higher, and adiponectin levels were lower, in those who reported OM/AM versus regular menstruation. The FAI was higher in women with increased BMI. MIS levels declined with age, more slowly in those reporting OM/AM.

**CONCLUSIONS:**

Self-reported OM/AM was associated with an elevated BMI, abdominal adiposity and serum insulin, and with reduced adiponectin levels. These findings support a high rate of metabolic syndrome, and perhaps PCOS and reproductive dysfunction, among Samoan women.

**737: Carwile JL, Michels KB. Urinary bisphenol A and obesity: NHANES 2003-2006. Environ Res. 2011 Aug;111(6):825-30. doi: 10.1016/j.envres.2011.05.014. Epub 2011 Jun 14. PubMed PMID: 21676388; PubMed Central PMCID: PMC3747781.**

**Abstract**

**BACKGROUND:**

Bisphenol A (BPA) is a chemical suspected of causing endocrine and metabolic disruption in animals and humans. In rodents, in utero exposure to low-dose BPA is associated with weight gain. Detectable levels of BPA are found in most Americans due to its widespread use in the manufacture of food and drink packaging. We hypothesized that urinary BPA concentrations would be positively associated with general and central obesity.

**METHODS:**

Cross-sectional analysis of urinary BPA concentrations, body mass index, and waist circumference in 2747 adults (aged 18-74), using pooled data from the 2003/04 and 2005/06 National Health and Nutrition Examination Surveys.

**RESULTS:**

The creatinine-adjusted geometric mean urinary BPA concentration was 2.05µg/g creatinine (25th percentile: 1.18, 75% percentile: 3.33). Relative to those in the lowest BPA quartile, participants in the upper BPA quartiles were more likely to be classified as obese (quartile 2 odds ratio (OR): 1.85, 95% confidence interval (CI): 1.22, 2.79; quartile 3 OR: 1.60, 95% CI: 1.05-2.44; quartile 4 OR: 1.76, 95% CI: 1.06-2.94). Higher BPA concentration was also associated with abdominal obesity (quartile 2 OR: 1.62, 95% CI: 1.11, 2.36; quartile 3 OR: 1.39, 95% CI: 1.02-1.90; quartile 4 OR: 1.58, 95% CI: 1.03-2.42).

**CONCLUSIONS:**

Higher BPA exposure is associated with general and central obesity in the general adult population of the United States. Reverse causation is of concern due to the cross-sectional nature of this study; longitudinal studies are needed to clarify the direction of the association.

**738: Volken T, Schaffert R, Rüesch P. Need for weight management in Switzerland: findings from National Blood Pressure Week 2009. BMC Public Health. 2011 Jun 15;11:473. doi: 10.1186/1471-2458-11-473. PubMed PMID: 21676250; PubMed Central PMCID: PMC3128030.**

Abstract

BACKGROUND:

The Swiss Health Survey (SHS) provides the only source of data for monitoring overweight and obesity in the general population in Switzerland. However, this survey reports body mass index (BMI) based on self-reported height and weight, and is therefore subject to measurement errors. Moreover, it is not possible to differentiate between overall and abdominal overweight. In this study, we aimed to gain a better understanding of the need for weight management in the general population of Switzerland by exploring and comparing prevalence rates of BMI and waist circumference (WC) based on physical measurements by trained observers, based on data from the 2009 National Blood Pressure Week (NBPW).

METHODS:

Sample selection was based on a one-stage cluster design. A total of 385 pharmacies representing 3,600 subjects were randomly selected from pharmacies participating in NBPW. BMI measures based on physical weight and height (NBPW) were compared with self-reported BMI measures from the SHS. BMI and WC measurements from NBPW were then used to produce population estimates of overweight and obesity.

RESULTS:

BMI-based overall prevalence of overweight and obesity was 43.6%, which was 4.7% higher than the value based on the respective SHS data. Overweight and obesity were more common in men (54.3%) than in women (33.5%). However, the overall prevalence of increased WC in the general population was estimated to be 64.4%, with more women (68.4%) than men (60.1%) exhibiting a WC above the threshold. The prevalence of subjects requiring weight management in the Swiss population remained high, even after adjusting WC for false positive and negative cases.

CONCLUSIONS:

Firstly, it may be more appropriate for health promotion programs to address the wider group identified by WC, which includes subjects who need to reduce their weight, or gain no further weight. Secondly, the gender differences are reversed depending on the use of WC or BMI to identify subjects suitable for health promotion programs; more women than men are identified by WC, and more men than women using BMI. These differences should be accounted for in gender-specific health promotion programs.

**739: Bischoff SC, Damms-Machado A, Betz C, Herpertz S, Legenbauer T, Löw T, Wechsler JG, Bischoff G, Austel A, Ellrott T. Multicenter evaluation of an interdisciplinary 52-week weight loss program for obesity with regard to body weight, comorbidities and quality of life--a prospective study. Int J Obes (Lond). 2012 Apr;36(4):614-24. doi: 10.1038/ijo.2011.107. Epub 2011 Jun 14. PubMed PMID: 21673653; PubMed Central PMCID: PMC3322430.**

Abstract

OBJECTIVES:

To determine the effectiveness of a structured multidisciplinary non-surgical obesity therapy program on the basis of a temporary low-calorie-diet for 12 weeks, and additional intervention modules to enhance nutritional education, to increase physical activity and to modify eating behavior.

DESIGN:

Prospective multicenter observational study in obese individuals undergoing a medically supervised outpatient-based 52-week treatment in 37 centers in Germany.

SUBJECTS:

A total of 8296 participants with a body mass index (BMI) of  $>30 \text{ kg m}^{-2}$  included within 8.5 years.

MEASUREMENTS:

Main outcome measures were body weight loss, waist circumference (WC), blood pressure, quality of life and adverse events.

RESULTS:

In females, initial body weight was reduced after the 1-year-intervention by 19.6 kg (95% confidence intervals 19.2-19.9 kg) and in males by 26.0 kg (25.2-26.8) according to per protocol analysis of 4850 individuals. Intention-to-treat (ITT) analysis revealed a weight reduction of 15.2 kg (14.9-15.6) in females and 19.4 kg (18.7-20.1) in males. Overall, the intervention resulted in mean reduction in WC of 11 cm; it reduced the prevalence of the metabolic syndrome by 50% and the frequency of hypertension from 47 to 29% of all participants (ITT, all  $P < 0.001$ ). The beneficial effects could be documented for up to 3 years and comprised significant improvement of health-related quality of life. The incidence of adverse effects was low; the only event repeatedly observed and possibly related to either the intervention or the underlying disease was biliary disorders.

CONCLUSION:

The present non-surgical intervention program is a highly effective treatment of obesity grades I-III and obesity-related diseases, and therefore, could be a valuable basis for future weight maintenance strategies required for sustained success.

**740: Cousins JM, Langer SM, Rhew LK, Thomas C. The role of state health departments in supporting community-based obesity prevention. Prev Chronic Dis. 2011 Jul;8(4):A87. Epub 2011 Jun 15. PubMed PMID: 21672411; PubMed Central PMCID: PMC3136974.**

Abstract

BACKGROUND:

Recent national attention to obesity prevention has highlighted the importance of community-based initiatives. State health departments are in a unique position to offer resources and support for local obesity prevention efforts.

COMMUNITY CONTEXT:



In North Carolina, one-third of children are overweight or obese. North Carolina's Division of Public Health supports community-based obesity prevention by awarding annual grants to local health departments, providing ongoing training and technical assistance, and engaging state-level partners and resources to support local efforts.

**METHODS:**

The North Carolina Division of Public Health administered grants to 5 counties to implement the Childhood Obesity Prevention Demonstration Project; counties simultaneously carried out interventions in the community, health care organizations, worksites, schools, child care centers, and faith communities.

**OUTCOME:**

The North Carolina Division of Public Health worked with 5 local health departments to implement community-wide policy and environmental changes that support healthful eating and physical activity. The state health department supported this effort by working with state partners to provide technical assistance, additional funding, and evaluation.

**INTERPRETATION:**

State health departments are well positioned to coordinate technical assistance and leverage additional support to increase the strength of community-based obesity prevention efforts.

**741: Cradock AL, McHugh A, Mont-Ferguson H, Grant L, Barrett JL, Wang YC, Gortmaker SL. Effect of school district policy change on consumption of sugar-sweetened beverages among high school students, Boston, Massachusetts, 2004-2006. *Prev Chronic Dis.* 2011 Jul;8(4):A74. Epub 2011 Jun 15. PubMed PMID: 21672398; PubMed Central PMCID: PMC3136975.**

**Abstract**

**INTRODUCTION:**

Consumption of sugar-sweetened beverages has increased among youth in recent decades, accounting for approximately 13% of total calories consumed. The Boston Public Schools passed a policy restricting sale of sugar-sweetened beverages in Boston schools in June 2004. The objective of this study was to determine whether high school students' consumption of sugar-sweetened beverages declined after this new policy was implemented.

**METHODS:**

We conducted a quasi-experimental evaluation by using data on consumption of sugar-sweetened beverages by public high school students who participated in the Boston Youth Survey during February through April 2004 and February through April 2006 (N = 2,033). We compared the observed change with national trends by using data from the 2003-2004 and 2005-2006 National Health and Nutrition Examination Survey (NHANES). Regression methods were adjusted for student demographics.

**RESULTS:**

On average, Boston's public high school students reported daily consumption of 1.71 servings of sugar-sweetened beverages in 2004 and 1.38 servings in 2006. Regression analyses showed significant declines in consumption of soda (-0.16 servings), other sugar-sweetened beverages (-0.14 servings), and total sugar-sweetened beverages (-0.30 servings) between 2004 and 2006 (P < .001 for all). NHANES indicated no significant nationwide change in adolescents' consumption of sugar-sweetened beverages between 2003-2004 and 2005-2006.

**DISCUSSION:**

Data from Boston youth indicated significant reductions in consumption of sugar-sweetened beverages, which coincided with a policy change restricting sale of sugar-sweetened beverages in schools. Nationally, no evidence was found for change in consumption of sugar-sweetened beverages among same-aged youth, indicating that implementing policies that restrict the sale of sugar-sweetened beverages in schools may be a promising strategy to reduce adolescents' intake of unnecessary calories.

**742: Rodríguez-Rodríguez E, López-Plaza B, López-Sobaler AM, Ortega RM. [Overweight and obesity among Spanish adults]. Nutr Hosp. 2011 Mar-Apr;26(2):355-63. doi: 10.1590/S0212-16112011000200017. Spanish. PubMed PMID: 21666974.**

Abstract

AIM:

to assess the prevalence of overweight and obesity in Spanish adults and to know the current situation and its evolution in the last years.

MATERIAL AND METHODS:

The study involved 418 subjects (196 men and 222 women) from 18 to 60 years, who were selected to constitute a representative sample of the Spanish population as a whole. Sanitary, socioeconomic and anthropometric (weight, height, waist circumference and percentage body fat by bioimpedance) data was collected. Body Mass Index and waist-height were ratio calculated.

RESULTS:

The prevalence of overweight was 34.2%, 43.9% in men and 25.7% in women, and the prevalence of obesity was 13.6% (it was similar in men and women). 47.8% of the population had excess of body weight and 70.2% excess of body fat, these parameters were higher in men than in women and they increased with age. 22.2% of the population had central obesity (taking waist circumference as reference) and 54.7% central obesity and high cardiovascular risk (because waist/height was > 0.5), both parameters were higher in men than in women.

CONCLUSION:

Overweight and obesity prevalence among the Spanish population is very high and more than the half of the population is in risk of suffering from cardiovascular disease. Furthermore, the situation is worse than a few years ago, so it is necessary to continue working to decrease the prevalence of overweight and obesity among the Spanish population.

**743: González-Solanellas M, Romagosa Pérez-Portabella A, Zabaleta-Del-Olmo E, Grau-Carod M, Casellas-Montagut C, Lancho-Lancho S, Moreno-Feliu R, Pérez-Portabella MC. [Prevalence of food habits and nutritional status in adult population served in primary care]. Nutr Hosp. 2011 Mar-Apr;26(2):337-44. doi: 10.1590/S0212-16112011000200015. Spanish. PubMed PMID: 21666972.**

Abstract

OBJECTIVE:

To identify dietary patterns and nutritional status of the population between 18-44 years visited at a health center (HC) and explore the associated factors.

METHODS:

Cross-sectional study conducted in an urban HC in a random sample of 201 people. Were analyzed socio-demographic data, anthropometric measurements, 24 hours latest reminder intake, weekly food frequency questionnaire.

**RESULTS:**

The mean age of participants was 32.81 years (standard deviation 6.72). 63.68% (128) were women and 62.69% (126) immigrants. 45.27% (91) expressed no exercise. About 60% of participants related a deficit in consumption milk, fruits, meat and farinaceous and 80% vegetables, 58% related excessive fat. 44.4% (56) of immigrants was 20.3% with respect to obese (15) of native (P = 0.001). The proportion of people with "waist-risk" was higher among immigrants as compared to the native (19.0% vs 6.8%, P = 0.017) and among those who did not exercise with respect to each other (17.6% vs 8.1%, P = 0.049). Immigrants perform less physical activity related to the native (42.1% vs 62.7%, P = 0.013). Being an immigrant was the variable explaining of distribution acceptable daily macronutrient intake (Odds Ratio 4.7, Confidence Interval 95% 2.02-11.03).

**DISCUSSION:**

The participants related excessive consumption of fats and deficient in the rest of food groups. Obesity and the "risk waist" were more common among immigrants and sedentary population. Immigrants talked of a better distribution of nutrients in your daily diet.

**744: Moudon AV, Cook AJ, Ulmer J, Hurvitz PM, Drewnowski A. A neighborhood wealth metric for use in health studies. Am J Prev Med. 2011 Jul;41(1):88-97. doi: 10.1016/j.amepre.2011.03.009. PubMed PMID: 21665069; PubMed Central PMCID: PMC3118096.**

**Abstract**

**BACKGROUND:**

Measures of neighborhood deprivation used in health research are typically based on conventional area-based SES.

**PURPOSE:**

The aim of this study is to examine new data and measures of SES for use in health research. Specifically, assessed property values are introduced as a new individual-level metric of wealth and tested for their ability to substitute for conventional area-based SES as measures of neighborhood deprivation.

**METHODS:**

The analysis was conducted in 2010 using data from 1922 participants in the 2008-2009 survey of the Seattle Obesity Study (SOS). It compared the relative strength of the association between the individual-level neighborhood wealth metric (assessed property values) and area-level SES measures (including education, income, and percentage above poverty as single variables, and as the composite Singh index) on the binary outcome fair/poor general health status. Analyses were adjusted for gender, categoric age, race, employment status, home ownership, and household income.

**RESULTS:**

The neighborhood wealth measure was more predictive of fair/poor health status than area-level SES measures, calculated either as single variables or as indices (lower DIC measures for all models). The odds of having a fair/poor health status decreased by 0.85 (95% CI=0.77, 0.93) per \$50,000 increase in neighborhood property values after adjusting for individual-level SES measures.

**CONCLUSIONS:**

The proposed individual-level metric of neighborhood wealth, if replicated in other areas, could replace area-based SES measures, thus simplifying analyses of contextual effects on health.

**745: Bovet P, Kizirian N, Madeleine G, Blössner M, Chiolero A. Prevalence of thinness in children and adolescents in the Seychelles: comparison of two international growth references. *Nutr J.* 2011 Jun 9;10:65. doi: 10.1186/1475-2891-10-65. PubMed PMID: 21658236; PubMed Central PMCID: PMC3121668.**

Abstract

BACKGROUND:

Thinness in children and adolescents is largely under studied, a contrast with abundant literature on under-nutrition in infants and on overweight in children and adolescents. The aim of this study is to compare the prevalence of thinness using two recently developed growth references, among children and adolescents living in the Seychelles, an economically rapidly developing country in the African region.

METHODS:

Weight and height were measured every year in all children of 4 grades (age range: 5 to 16 years) of all schools in the Seychelles as part of a routine school-based surveillance program. In this study we used data collected in 16,672 boys and 16,668 girls examined from 1998 to 2004. Thinness was estimated according to two growth references: i) an international survey (IS), defining three grades of thinness corresponding to a BMI of 18.5, 17.0 and 16.0 kg/m<sup>2</sup> at age 18 and ii) the WHO reference, defined here as three categories of thinness (-1, -2 and -3 SD of BMI for age) with the second and third named "thinness" and "severe thinness", respectively.

RESULTS:

The prevalence of thinness was 21.4%, 6.4% and 2.0% based on the three IS cut-offs and 27.7%, 6.7% and 1.2% based on the WHO cut-offs. The prevalence of thinness categories tended to decrease according to age for both sexes for the IS reference and among girls for the WHO reference.

CONCLUSION:

The prevalence of the first category of thinness was larger with the WHO cut-offs than with the IS cut-offs while the prevalence of thinness of "grade 2" and thinness of "grade 3" (IS cut-offs) was similar to the prevalence of "thinness" and "severe thinness" (WHO cut-offs), respectively.

**746: Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse Negl.* 2011 Jun;35(6):408-13. doi: 10.1016/j.chiabu.2011.02.006. Epub 2011 Jun 8. PubMed PMID: 21652073; PubMed Central PMCID: PMC3119733.**

Abstract

OBJECTIVE:

The goal of this study was to investigate the adverse childhood experiences (ACEs) in youth in a low-income, urban community.

STUDY DESIGN:

Data from a retrospective chart review of 701 subjects from the Bayview Child Health Center in San Francisco are presented. Medical chart documentation of ACEs as defined in previous studies were coded and each ACE criterion endorsed by a traumatic event received a score of 1 (range=0-9). This study reports on the prevalence of various ACE categories in this population, as well as the

association between ACE score and two pediatric problems: learning/behavior problems and body mass index (BMI)  $\geq$ 85% (i.e., overweight or obese).

**RESULTS:**

The majority of subjects (67.2%, N=471) had experienced 1 or more categories of adverse childhood experiences (ACE  $\geq$ 1) and 12.0% (N=84) had experienced 4 or more ACEs (ACE  $\geq$ 4). Increased ACE scores correlated with increased risk of learning/behavior problems and obesity.

**CONCLUSIONS:**

There was a significant prevalence of endorsed ACE categories in this urban population. Exposure to 4 or greater ACE categories was associated with increased risk for learning/behavior problems, as well as obesity.

**PRACTICE IMPLICATIONS:**

Results from this study demonstrate the need both for screening of ACEs among youth in urban areas and for developing effective primary prevention and intervention models.

**747: Peng S, Zhu Y, Xu F, Ren X, Li X, Lai M. FTO gene polymorphisms and obesity risk: a meta-analysis. BMC Med. 2011 Jun 8;9:71. doi: 10.1186/1741-7015-9-71. PubMed PMID: 21651756; PubMed Central PMCID: PMC3118373.**

**Abstract**

**BACKGROUND:**

The pathogenesis of obesity is reportedly related to variations in the fat mass and an obesity-associated gene (FTO); however, as the number of reports increases, particularly with respect to varying ethnicities, there is a need to determine more precisely the effect sizes in each ethnic group. In addition, some reports have claimed ethnic-specific associations with alternative SNPs, and to that end there has been a degree of confusion.

**METHODS:**

We searched PubMed, MEDLINE, Web of Science, EMBASE, and BIOSIS Preview to identify studies investigating the associations between the five polymorphisms and obesity risk. Individual study odds ratios (OR) and their 95% confidence intervals (CI) were estimated using per-allele comparison. Summary ORs were estimated using a random effects model.

**RESULTS:**

We identified 59 eligible case-control studies in 27 articles, investigating 41,734 obesity cases and 69,837 healthy controls. Significant associations were detected between obesity risk and the five polymorphisms: rs9939609 (OR: 1.31, 95% CI: 1.26 to 1.36), rs1421085 (OR: 1.43, 95% CI: 1.33 to 1.53), rs8050136 (OR: 1.25, 95% CI: 1.13 to 1.38), rs17817449 (OR: 1.54, 95% CI: 1.41 to 1.68), and rs1121980 (OR: 1.34, 95% CI: 1.10 to 1.62). Begg's and Egger's tests provided no evidence of publication bias for the polymorphisms except rs1121980. There is evidence of higher heterogeneity, with I<sup>2</sup> test values ranging from 38.1% to 84.5%.

**CONCLUSIONS:**

This meta-analysis suggests that FTO may represent a low-penetrance susceptible gene for obesity risk. Individual studies with large sample size are needed to further evaluate the associations between the polymorphisms and obesity risk in various ethnic populations.

**748: Bundy V, Johnson M, Gutin B, Zhu H, Stallmann-Jorgensen I, Dong Y. Adiponectin moderates the relationship between adiposity and leptin in adolescents regardless of gender or race. J Pediatr Endocrinol Metab. 2011;24(3-4):119-24. PubMed PMID: 21648277; PubMed Central PMCID: PMC3909950.**

Abstract

OBJECTIVES:

To determine gender or race differences in associations between adiposity and leptin, and whether adiponectin moderates these relationships.

METHODS:

Subjects were 441 adolescents, 14-18 years old (44% black, 56% white; 50% female, 50% male). Percent body fat (%BF) was measured with dual-energy X-ray absorptiometry. Leptin and adiponectin were measured using immunoassays.

RESULTS:

Among the four groups (white boys, white girls, black boys and black girls), white girls had the highest adiponectin ( $p = 0.0017$ ) and black girls had the highest leptin ( $p = 0.0164$ ). Percent BF and leptin were positively correlated ( $p = 0.0164$ ). The %BF-leptin relationship was stronger in boys than girls ( $p < 0.0001$ ). Those with lower adiponectin had a stronger %BF-leptin relationship than those with high adiponectin in the entire sample ( $p = 0.0220$ ). Statistical models were adjusted for age, race, gender and the interaction between race and gender.

CONCLUSION:

Our data suggest a protective metabolic interaction for adiponectin and lend additional support for obesity prevention strategies in adolescents.

**749: Gharib N, Rasheed P. Energy and macronutrient intake and dietary pattern among school children in Bahrain: a cross-sectional study. Nutr J. 2011 Jun 5;10:62. doi: 10.1186/1475-2891-10-62. PubMed PMID: 21645325; PubMed Central PMCID: PMC3123629.**

Abstract

BACKGROUND:

Obesity is increasing in Bahrain and there is lack of information on the energy and macronutrient intake of children. The objective of this research was to study the energy and macronutrient intake as well as food frequency pattern of Bahraini school children.

METHODS:

This is a cross-sectional descriptive study conducted on Bahraini school boys and girls aged 6-18 years from all the 11 populated regions of the country. Data on food intake consisted of a 24-hour dietary recall and was obtained by interviewing a sub-sample of the study population. Information was also obtained through a self-administered questionnaire for the entire sample on the weekly frequency of food items that were grouped into 7 categories based on similarity of nutrient profiles. Dietary analysis was performed using the Nutritionist 5 (First Data Bank Version 1.6 1998).

RESULTS:

While the average energy intake of students was close to the Estimated Average Requirements of the UK Reference standards, protein intake substantially exceeded the Reference Nutrient Intake values as did daily sugar consumption. Dietary fiber fell short of the Dietary Recommended Values (UK) and 36%-50% students exceeded the Energy % limits for total fat, saturated fat and cholesterol. The

Polyunsaturated: Saturated fat ratio remained at an unacceptable level of 0.6 for girls and boys. While sweets, snacks and regular soda drinks were popular, milk, fruits and vegetables were not commonly consumed.

**CONCLUSIONS:**

High sugar consumption, low intake of dietary fiber and high energy % of saturated fat and dietary cholesterol by many Bahraini children, is likely to increase their risk of obesity and cardiovascular diseases in later life. Nutrition education programs in schools should emphasize the importance of healthy balanced diets for growth and health maintenance of children as well as dietary prevention of diseases.

**750: Gearhardt AN, Grilo CM, DiLeone RJ, Brownell KD, Potenza MN. Can food be addictive? Public health and policy implications. *Addiction*. 2011 Jul;106(7):1208-12. doi: 10.1111/j.1360-0443.2010.03301.x. Epub 2011 Feb 14. PubMed PMID: 21635588; PubMed Central PMCID: PMC3171738.**

**Abstract**

**AIMS:**

Data suggest that hyperpalatable foods may be capable of triggering an addictive process. Although the addictive potential of foods continues to be debated, important lessons learned in reducing the health and economic consequences of drug addiction may be especially useful in combating food-related problems.

**METHODS:**

In the current paper, we review the potential application of policy and public health approaches that have been effective in reducing the impact of addictive substances to food-related problems.

**RESULTS:**

Corporate responsibility, public health approaches, environmental change and global efforts all warrant strong consideration in reducing obesity and diet-related disease.

**CONCLUSIONS:**

Although there exist important differences between foods and addictive drugs, ignoring analogous neural and behavioral effects of foods and drugs of abuse may result in increased food-related disease and associated social and economic burdens. Public health interventions that have been effective in reducing the impact of addictive drugs may have a role in targeting obesity and related diseases.

**751: Stovitz SD, Demerath EW, Hannan PJ, Lytle LA, Himes JH. Growing into obesity: patterns of height growth in those who become normal weight, overweight, or obese as young adults. *Am J Hum Biol*. 2011 Sep-Oct;23(5):635-41. doi: 10.1002/ajhb.21191. Epub 2011 May 31. PubMed PMID: 21630370; PubMed Central PMCID: PMC3152584.**

**Abstract**

**OBJECTIVES:**

To study whether patterns of height growth differ by adult obesity status, and determine the contribution of subcutaneous fatness as an explanatory variable for any differences.

**STUDY DESIGN:**

A multicenter, prospective longitudinal cohort assessed in 3rd grade (8.8 years), 5th grade (11.1 years), 8th grade (14.1 years), and 12th grade (18.3 years). Exposures were young adult obesity status classified by CDC adult BMI categories at 12th grade. Skinfolts were measured in third, fifth, and eighth grades. Outcome was mean height (cm) at the four measurements using repeated-measures ANCOVA for young adult obesity status, and height increments between grades by adult obesity status in sequential models including initial height and, secondarily, initial skinfolts.

**RESULTS:**

Adjusted for age, and race/ethnicity, young adult obesity status explained a small, but statistically significant amount of height growth among both females and males within each of the three intervals. Compared with normal weight young adults, overweight or obese young adults stood taller in childhood, but had relatively less growth in height throughout the teenage years. There was no association between adult height and weight status. Skinfolts explained only a small amount of the height patterns in the three weight groups.

**CONCLUSION:**

Childhood and adolescent height growth patterns differ between those who become young adults who are normal weight and those who become overweight or obese. Since differences in fatness explain only a small amount of these height growth patterns, research is needed to identify other determinants.

**752: FriedenberG FK, Tang DM, Vanar V, Mendonca T. Predictive value of body mass index at age 18 on adulthood obesity: results of a prospective survey of an urban population. Am J Med Sci. 2011 Nov;342(5):371-82. doi: 10.1097/MAJ.0b013e318212127c. PubMed PMID: 21629040; PubMed Central PMCID: PMC3166399.**

**Abstract**

**INTRODUCTION:**

Overweight children often become obese adults. The main purpose of this study was to define the risk of teenage obesity as a predictor of adulthood obesity in an under-studied and urban population. A secondary aim was to determine whether gender had an effect on the predictive value of teenage obesity. The final goal was to examine the influence of dietary habits on obesity.

**METHODS:**

This cross-sectional survey was conducted using convenience sampling of an urban, primarily African American, community. Demographic questions were supplemented by a dietary history and measurement of body anthropometrics.

**RESULTS:**

Five hundred three subjects were interviewed; 86% were African American, and the mean age was 43 years. Body mass index (BMI) at age 18 was the strongest factor associated with current obesity status in univariate and multivariate analyses. Sixty-nine (13.7%) subjects were overweight at age 18, and 28 (5.6%) were obese. Of the 28 obese teenagers, 22 (78.6%) went on to become obese as adults. Only 2.1% of nonobese adults were obese as teenagers. For women, BMI at age 18 was more predictive of adult BMI than for men. Gain of  $\geq 5$  BMI units after age 18 was linked to a higher prevalence of diabetes and hypertension. No dietary differences were found between obese and nonobese adults.

**CONCLUSIONS:**



The results of this study provide evidence that high BMI at age 18 is strongly correlated with adulthood obesity, much more so with women than men. Eating habits did not have an impact, suggesting that obesity may be the result of a combination of factors yet to be clearly defined.

**753: Dijkshoorn H, Ujcic-Voortman JK, Viet L, Verhoeff AP, Uitenbroek DG. Ethnic variation in validity of the estimated obesity prevalence using self-reported weight and height measurements. BMC Public Health. 2011 May 30;11:408. doi: 10.1186/1471-2458-11-408. PubMed PMID: 21624122; PubMed Central PMCID: PMC3125373.**

Abstract

BACKGROUND:

We examined ethnic differences between levels of body mass index (BMI) based on self-reported and measured body height and weight and the validity of self-reports used to estimate the prevalence of obesity ( $BMI \geq 30$  kg/m<sup>2</sup>) in Turkish, Moroccan, and Dutch people in the Netherlands. Furthermore, we investigated whether BMI levels and the prevalence of obesity in Turkish and Moroccan people with incomplete self-reports (missing height or weight) differ from those with complete self-reports.

METHODS:

Data on self-reported and measured height and weight were collected in a population-based survey among 441 Dutch, 414 Turks and 344 Moroccans aged 18 to 69 years in Amsterdam, the Netherlands in 2004. BMI and obesity were calculated from self-reported and measured height and weight.

RESULTS:

The difference between measured and estimated BMI was larger in Turkish and Moroccan women than in Dutch women, which was explained by the higher BMI of the Turkish and Moroccan women. In men we found no ethnic differences between measured and estimated BMI. Sensitivity to detect obesity was low and specificity was high. In participants with available self-reported and measured height and weight, self-reports produced a similar underestimation of the obesity prevalence in all ethnic groups. However, many obese Turkish and Moroccan women had incomplete self-reports, missing height or weight, resulting in an additional underestimation of the prevalence of obesity. Among men (all ethnicities) and Dutch women, the availability of height or weight by self-report did not differ between obese and non obese participants.

CONCLUSIONS:

BMI based on self-reports is underestimated more by Turkish and Moroccan women than Dutch women, which is explained by the higher BMI of Turkish and Moroccan women. Further, in women, ethnic differences in the estimation of obesity prevalence based on self-reports do exist and are due to incomplete self-reports in obese Turkish and Moroccan women. In men, ethnicity is not associated with discrepancies between levels of BMI and obesity prevalence based on measurements and self-reports. Hence, our results indicate that using measurements to accurately determine levels of BMI and obesity prevalence in public health research seems even more important in Turkish and Moroccan migrant women than in other populations.

**754: Harper LM, Chang JJ, Macones GA. Adolescent pregnancy and gestational weight gain: do the Institute of Medicine recommendations apply? Am J Obstet Gynecol. 2011 Aug;205(2):140.e1-8. doi: 10.1016/j.ajog.2011.03.053. Epub 2011 Apr 7. PubMed PMID: 21620365; PubMed Central PMCID: PMC3164947.**

Abstract

OBJECTIVE:

The purpose of this study was to examine the Institute of Medicine (IOM) guidelines for gestational weight gain in adolescents.

STUDY DESIGN:

We studied a retrospective cohort using the Missouri Birth Certificate Registry and included subjects who were primiparous, who had singleton gestations, who were <20 years old, and who delivered at 24-44 weeks gestation. The exposure was defined as weight gain less than, within, or greater than IOM recommendations. Outcomes that were examined were small-for-gestational-age (SGA) infants, large-for-gestational age (LGA) infants, preterm delivery, infant death, preeclampsia, cesarean delivery, and operative vaginal delivery. The analysis was stratified by body mass index category.

RESULTS:

In any body mass index category, inadequate weight gain was associated with increased odds of SGA infants, preterm delivery, and infant death. When subjects gained more than the IOM recommendations, the number of SGA infants decreased, with slight increases in the number of LGA infants, preeclampsia, and cesarean delivery.

CONCLUSION:

Adolescents should be counseled regarding adequate weight gain in pregnancy. Further research is necessary to determine whether the IOM recommendations recommend enough weight gain in adolescents to optimize pregnancy outcomes.

**755: Gustafsson PE, Persson M, Hammarström A. Socio-economic disadvantage and body mass over the life course in women and men: results from the Northern Swedish Cohort. Eur J Public Health. 2012 Jun;22(3):322-7. doi: 10.1093/eurpub/ckr061. Epub 2011 May 26. PubMed PMID: 21616991.**

Abstract

BACKGROUND:

Obesity and body mass in adulthood relate both to current and to childhood socio-economic status, particularly in women, but the underlying life course processes are not known. This study aims at examining whether the life course socio-economic status-body mass association in women and men is explained by the cumulative risk or adolescent sensitive period models whether associations are similar at different life course stages; and whether health behaviours explain the associations.

METHODS:

A total of 476 women and 517 men participated in this 27-year prospective cohort study (participation rate 93%). Body mass index was assessed at the age of 16 and 43 years and self-reported at the age of 21 and 30 years. Information on socio-economic status by own or parental (age 16 years) occupation, smoking, snuff, alcohol, physical activity and diet was collected at each age.

RESULTS:

In women, cumulative socio-economic status and socio-economic status in adolescence were related to body mass index at the age of 16, 21, 30 and 43 years and to the 27-year change in body mass, independently of health behaviours and for adolescent socio-economic status also of later socio-economic attainment. Associations were generally stronger for body mass at older age. In men, associations were mostly non-significant, although health behaviours contributed strongly to body mass.

**CONCLUSIONS:**

In women, both the sensitive period (in adolescence) and cumulative risk models explain the socio-economic-body mass link. Efforts to reduce the social inequality in body mass in women should be directed at the early life course, but focusing on unhealthy behaviours might not be a sufficient approach.

**756: Nollen NL, Kimminau KS, Nazir N. Demographic and financial characteristics of school districts with low and high à la Carte sales in rural Kansas Public Schools. J Am Diet Assoc. 2011 Jun;111(6):879-83. doi: 10.1016/j.jada.2011.03.017. PubMed PMID: 21616201; PubMed Central PMCID: PMC3860170.**

**Abstract**

Reducing à la carte items in schools—foods and beverages sold outside the reimbursable meals program—can have important implications for childhood obesity. However, schools are reluctant to reduce à la carte offerings because of the impact these changes could have on revenue. Some foodservice programs operate with limited à la carte sales, but little is known about these programs. This secondary data analysis compared rural and urban/suburban school districts with low and high à la carte sales. Foodservice financial records (2007-2008) were obtained from the Kansas State Department of Education for all public K-12 school districts (n=302).  $\chi^2$  and t tests were used to examine the independent association of variables to à la carte sales. A multivariate model was then constructed of the factors most strongly associated with low à la carte sales. In rural districts with low à la carte sales, lunch prices and participation were higher, lunch costs and à la carte quality were lower, and fewer free/reduced price lunches were served compared to rural districts with high à la carte sales. Lunch price (odds ratio=1.2; 95% confidence interval, 1.1 to 1.4) and free/reduced price lunch participation (odds ratio=3.0; 95% confidence interval, 1.0 to 9.8) remained in the multivariate model predicting low à la carte sales. No differences were found between urban/suburban districts with low and high à la carte sales. Findings highlight important factors to maintaining low à la carte sales. Schools should consider raising lunch prices and increasing meal participation rates as two potential strategies for reducing the sale of à la carte items without compromising foodservice revenue.

**757: Elliott SA, Truby H, Lee A, Harper C, Abbott RA, Davies PS. Associations of body mass index and waist circumference with: energy intake and percentage energy from macronutrients, in a cohort of Australian children. Nutr J. 2011 May 26;10:58. doi: 10.1186/1475-2891-10-58. PubMed PMID: 21615883; PubMed Central PMCID: PMC3127997.**

Abstract

BACKGROUND:

It is evident from previous research that the role of dietary composition in relation to the development of childhood obesity remains inconclusive. Several studies investigating the relationship between body mass index (BMI), waist circumference (WC) and/or skin fold measurements with energy intake have suggested that the macronutrient composition of the diet (protein, carbohydrate, fat) may play an important contributing role to obesity in childhood as it does in adults. This study investigated the possible relationship between BMI and WC with energy intake and percentage energy intake from macronutrients in Australian children and adolescents.

METHODS:

Height, weight and WC measurements, along with 24 h food and drink records (FDR) intake data were collected from 2460 boys and girls aged 5-17 years living in the state of Queensland, Australia.

RESULTS:

Statistically significant, yet weak correlations between BMI z-score and WC with total energy intake were observed in grades 1, 5 and 10, with only 55% of subjects having a physiologically plausible 24 hr FDR. Using Pearson correlations to examine the relationship between BMI and WC with energy intake and percentage macronutrient intake, no significant correlations were observed between BMI z-score or WC and percentage energy intake from protein, carbohydrate or fat. One way ANOVAs showed that although those with a higher BMI z-score or WC consumed significantly more energy than their lean counterparts.

CONCLUSION:

No evidence of an association between percentage macronutrient intake and BMI or WC was found. Evidently, more robust longitudinal studies are needed to elucidate the relationship linking obesity and dietary intake.

**758: Hansson J, Galanti MR, Magnusson C, Hergens MP. Weight gain and incident obesity among male snus users. BMC Public Health. 2011 May 23;11:371. doi: 10.1186/1471-2458-11-371. PubMed PMID: 21605406; PubMed Central PMCID: PMC3118245.**

Abstract

BACKGROUND:

Snus is a moist smokeless tobacco product which has recently reached beyond its original market of Scandinavia. Snus is now being increasingly used in both the United States and South Africa. The effect of snus use on weight is unknown. This study has therefore investigated the relationship between the use of snus, weight gain ( $\geq 5\%$ ) and the incidence of obesity (body mass index  $\geq 30$  kg/m<sup>2</sup>).

METHODS:

The study participants (n = 9,954 males living in Stockholm County, Sweden) were recruited in 2002 and reassessed in 2007. Tobacco use was categorized according to information obtained in both the

baseline and follow-up surveys. Outcomes were assessed by comparing self-reported weight and body mass index between the baseline and follow-up surveys.

**RESULTS:**

Stable current snus use (according to both surveys), compared to never having used any kind of tobacco, seemed to be associated with both weight gain (odds ratio = 1.31, 95% confidence interval: 1.04-1.65) and incident obesity (odds ratio = 1.93, 95% confidence interval: 1.13-3.30) after adjustment for age, baseline weight, alcohol consumption, physical activity, education, consumption of fruit and berries, and the frequency of having breakfast. No associations with incident obesity or weight gain were seen for stable former users of snus (according to both surveys) or among men who quit or began using snus during follow-up.

**CONCLUSIONS:**

These data suggest that the use of snus is moderately associated with weight gain and incident obesity among men.

**759: Shayo GA, Mugusi FM. Prevalence of obesity and associated risk factors among adults in Kinondoni municipal district, Dar es Salaam Tanzania. BMC Public Health. 2011 May 23;11:365. doi: 10.1186/1471-2458-11-365. PubMed PMID: 21605360; PubMed Central PMCID: PMC3118244.**

**Abstract**

**BACKGROUND:**

Obesity is on the rise worldwide, not sparing developing countries. Both demographic and socio-economic factors play parts in obesity causation. Few surveys have been conducted in Tanzania to determine the magnitude of obesity and its association with these risk factors. This study aimed at determining the prevalence of obesity and its associated risk factors among adults aged 18 - 65 years in Kinondoni municipality, Dar es Salaam, Tanzania from April 2007 to April 2008.

**METHODS:**

Random sampling of households was performed. Interviews and anthropometric measurement were carried out to eligible and consenting members of the selected households. Obesity was defined using Body Mass Index (BMI).

**RESULTS:**

Out of 1249 subjects recruited, 814 (65.2%) were females. The overall prevalence of obesity was 19.2% (240/1249). However, obesity was significantly more prevalent in women (24.7%) than men (9%),  $p < 0.001$ , among respondents with high socio-economic status (29.2%) as compared to those with medium (14.3%) and low socio-economic status (11.3%),  $p$  value for trend  $< 0.001$ , and among respondents with light intensity activities (26.0%),  $p$  value for trend  $< 0.001$ .

**CONCLUSION:**

This study revealed a higher prevalence of obesity among Kinondoni residents than previously reported in other parts of the country. Independent predictors of obesity in the population studied were increasing age, marriage and cohabitation, high SES, female sex and less vigorous physical activities.

**760: Lino MZ, Muniz PT, Siqueira KS. [Prevalence of overweight and associated factors in adults: a population survey in Rio Branco, Acre State, Brazil, 2007-2008]. Cad Saude Publica. 2011 Apr;27(4):797-810. Portuguese. PubMed PMID: 21603763.**

Abstract

Population studies in Brazil have shown an increased prevalence of overweight and obesity in adult populations in all regions of the country. The objective was to estimate prevalence and identify risk factors associated with overweight among adults in Rio Branco, Acre State, Brazil. The study included a cross-sectional population-based sample of 1,469 adults. Multivariate analysis was performed using Poisson regression, taking overweight (BMI > 25kg/m<sup>2</sup>) as the dependent variable. Prevalence of overweight was 46.9%, higher among women. Overweight tended to increase with age in both men and women. Overweight was associated with socioeconomic, demographic, and morbidity variables such as hypertension and dyslipidemia. The high prevalence of overweight in adults of both sexes suggests a public health problem. Control measures and prevention of health risks associated with excess weight are necessary.

**761: Hart CN, Cairns A, Jelalian E. Sleep and obesity in children and adolescents. Pediatr Clin North Am. 2011 Jun;58(3):715-33. doi: 10.1016/j.pcl.2011.03.007. Epub 2011 Apr 13. Review. PubMed PMID: 21600351; PubMed Central PMCID: PMC3107702.**

Abstract

The purpose of this review is to provide a comprehensive update of epidemiologic studies that have assessed the association between sleep and obesity risk. Data suggest that short sleep is associated with an increased risk for being or becoming overweight/obese or having increased body fat. Late bedtimes are also a risk factor for overweight/obesity. Findings also suggest that changes in eating pathways may lead to increased body fat. Future experimental studies are needed to enhance our understanding of the underlying mechanisms through which sleep may play a role in the development and maintenance of childhood obesity.

**762: Brumby S, Chandrasekara A, McCoombe S, Torres S, Kremer P, Lewandowski P. Reducing psychological distress and obesity in Australian farmers by promoting physical activity. BMC Public Health. 2011 May 23;11:362. doi: 10.1186/1471-2458-11-362. PubMed PMID: 21600058; PubMed Central PMCID: PMC3118243.**

Abstract

BACKGROUND:

Studies have confirmed that the rate of mental illness is no higher in rural Australians than that of urban Australians. However, the rate of poor mental health outcomes, and in particular suicide, is significantly raised in rural populations. This is thought to be due to lack of early diagnosis, health service access, the distance-decay effect, poor physical health determinants and access to firearms. Research conducted by the National Centre for Farmer Health between 2004 and 2009 reveals that there is a correlation between obesity and psychological distress among the farming community where suicide rates are recognised as high. Chronic stress overstimulates the regulation of the

hypothalamic-pituitary-adrenal (HPA) axis that is associated with abdominal obesity. Increasing physical activity may block negative thoughts, increase social contact, positively influence brain chemistry and improve both physical and mental health. This paper describes the design of the Farming Fit study that aims to identify the effect of physical activity on psychological distress, obesity and health behaviours such as diet patterns and smoking in farm men and women.

**METHODS/DESIGN:**

For this quasi-experimental (convenience sample) control-intervention study, overweight (Body Mass Index  $\geq 25$  kg/m<sup>2</sup>) farm men and women will be recruited from Sustainable Farm Families™ (SFF) programs held across Victoria, Australia. Baseline demographic data, health data, depression anxiety stress scale (DASS) scores, dietary information, physical activity data, anthropometric data, blood pressure and biochemical analysis of plasma and salivary cortisol levels will be collected. The intervention group will receive an exercise program and regular phone coaching in order to increase their physical activity. Analysis will evaluate the impact of the intervention by longitudinal data (baseline and post intervention) comparison of intervention and control groups.

**DISCUSSION:**

This study is designed to examine the effect of physical activity on psychological health and other co-morbidities such as obesity, impaired glucose tolerance, hypertension and dyslipidaemia within a high-risk cohort. The outcomes of this research will be relevant to further research and service delivery programs, in particular those tailored to rural communities.

**763: Centers for Disease Control and Prevention (CDC). Arthritis as a potential barrier to physical activity among adults with obesity--United States, 2007 and 2009. MMWR Morb Mortal Wkly Rep. 2011 May 20;60(19):614-8. PubMed PMID: 21597454.**

**Abstract**

Adults with obesity are less likely than adults without obesity to follow physical activity recommendations, despite the known benefits of physical activity for weight loss and weight maintenance). Arthritis is a common comorbidity of adults with obesity, and arthritis-related joint pain and functional limitation might contribute substantially to low rates of physical activity among adults with obesity. CDC analyzed combined 2007 and 2009 Behavioral Risk Factor Surveillance System (BRFSS) data for adults aged  $\geq 18$  years to estimate overall and state-specific prevalence of 1) self-reported doctor-diagnosed arthritis among adults with self-reported obesity, and 2) prevalence of self-reported physical inactivity among adults with obesity by arthritis status. This report describes the results of that analysis, which indicated that, overall, arthritis affected 35.6% of adults with obesity. After adjusting for age, sex, race/ethnicity, and education level, adults with obesity and arthritis were 44% more likely to be physically inactive compared with persons with obesity but without arthritis. Among states, the median prevalence of arthritis among adults with obesity was 35.6%. In every state/area except Guam, the prevalence of physical inactivity among adults with obesity was at least 5 percentage points higher (range: 5.4--15.9 percentage points) among persons with arthritis than those without arthritis. Arthritis might be a special barrier to increasing physical activity among many adults with obesity. Safe and effective self-management education and physical activity programs for adults with arthritis exist to address this barrier, are offered in many communities, and can help adults with obesity and arthritis become more physically active.

**764: Salazar MR, Carbajal HA, Espeche WG, Dulbecco CA, Aizpurúa M, Marillet AG, Echeverría RF, Reaven GM. Relationships among insulin resistance, obesity, diagnosis of the metabolic syndrome and cardio-metabolic risk. *Diab Vasc Dis Res.* 2011 Apr;8(2):109-16. doi: 10.1177/1479164111403170. PubMed PMID: 21562062.**

Abstract

The aim of this study is to test the hypotheses that: 1) diagnosing the metabolic syndrome does not effectively identify insulin-resistant (IR) individuals; and 2) waist circumference (WC) is no better than body mass index (BMI) in predicting insulin resistance or the components of the metabolic syndrome (MetS). Measurements of BMI, WC, blood pressure, and fasting plasma glucose, insulin (FPI), triglycerides (TG), and HDL-cholesterol (HDL-C) concentrations were made in 1,300 adults, without known cardiovascular disease (CVD) or drug treatment of hypertension or diabetes. Receiver operating characteristic curves were used to determine the ability of the MetS, and its components, to identify IR individuals. In addition, comparisons were made of CVD risk factors following division of the population into quartiles of FPI concentrations, and univariate and multiple regression analysis used to compare the ability of WC, BMI, and FPI as predictors of MetS components. The MetS was no more effective in identifying IR individuals than several individual components (sensitivity~40%), and IR individuals not identified were at significantly increased CVD risk. FPI concentration was the best predictor of an abnormal glucose, TG, and HDL-C, whereas the adiposity indices were better predictors of abnormal blood pressure. The relationship between BMI and WC with the MetS and its components seemed comparable.

**765: Sigmundová D, El Ansari W, Sigmund E. Neighbourhood environment correlates of physical activity: a study of eight Czech regional towns. *Int J Environ Res Public Health.* 2011 Feb;8(2):341-57. doi: 10.3390/ijerph8020341. Epub 2011 Jan 28. PubMed PMID: 21556190; PubMed Central PMCID: PMC3084465.**

Abstract

An adequate amount of physical activity (PA) is a key factor that is associated with good health. This study assessed socio-environmental factors associated with meeting the health recommendations for PA (achieving 10,000 steps per day). In total, 1,653 respondents randomly selected from across eight regional towns (each >90,000 inhabitants) in the Czech Republic participated in the study. The ANEWS questionnaire assessed the environment in neighbourhoods, and participants' weekly PA was objectively monitored (Yamax Digiwalker SW-700 pedometer). About 24% of participants were sufficiently active, 27% were highly active; 28% participants were overweight and 5% were obese. Although BMI was significantly inversely associated with the daily step counts achieved only in females, for both genders, BMI was generally not significantly associated with the criterion of achieving 10,000 steps per day during the week. Increased BMI in both genders was accompanied with a decline in participation in organized PA and with increasing age. As regards to the demographic/lifestyle factors, for females, more participation in organized PA was significantly positively correlated with the achieved daily step counts. In contrast, older age and higher BMI (for females) and smoking (for males) were significantly negatively correlated with the achieved daily step counts. In terms of the environmental aspects, pleasant environments were significantly positively correlated to daily step counts for both genders. Additionally, for males, better residences (more family homes rather than apartment blocks) in the neighbourhood were significantly positively correlated with their daily step counts. For females, less accessibility of shops and non-sport facilities



(depending on walking distance in minutes) were significantly negatively correlated to the achieved daily step counts. Individuals who lived in pleasant neighbourhoods, with better access to shops and who participated in organized PA ( $\geq 2$  times a week) tended to meet the recommendations for health-enhancing PA levels. The creation of physical activity-friendly environments could be associated with enhancing people's achieved daily step counts and meeting the health criteria for PA.

**KEYWORDS:**

ANEWS; BMI; Czech population; Yamax pedometer; environment; neighbourhood; number of steps; physical activity.

**766: Hruschka DJ, Brewis AA, Wutich A, Morin B. Shared norms and their explanation for the social clustering of obesity. Am J Public Health. 2011 Dec;101 Suppl 1:S295-300. doi: 10.2105/AJPH.2010.300053. Epub 2011 May 9. PubMed PMID: 21555656; PubMed Central PMCID: PMC3222514.**

**Abstract**

**OBJECTIVES:**

We aimed to test the hypothesized role of shared body size norms in the social contagion of body size and obesity.

**METHODS:**

Using data collected in 2009 from 101 women and 812 of their social ties in Phoenix, Arizona, we assessed the indirect effect of social norms on shared body mass index (BMI) measured in 3 different ways.

**RESULTS:**

We confirmed Christakis and Fowler's basic finding that BMI and obesity do indeed cluster socially, but we found that body size norms accounted for only a small portion of this effect (at most 20%) and only via 1 of the 3 pathways.

**CONCLUSIONS:**

If shared social norms play only a minor role in the social contagion of obesity, interventions targeted at changing ideas about appropriate BMIs or body sizes may be less useful than those working more directly with behaviors, for example, by changing eating habits or transforming opportunities for and constraints on dietary intake.

**767: Niville E, Dams A, Reremoser S, Verhelst H. A mid-term experience with the Cousin Bioring--adjustable gastric band. Obes Surg. 2012 Jan;22(1):152-7. doi: 10.1007/s11695-011-0427-9. PubMed PMID: 21544698; PubMed Central PMCID: PMC3257430.**

**Abstract**

**BACKGROUND:**

Since March 2003, we have used the Cousin Bioring in our laparoscopic gastroplasty procedures for morbid obesity. The Bioring belongs to the new generation of adjustable gastric bands. The aim of this study is to review our experience with this particular type of band.

**METHODS:**

Between March 2003 and March 2010, 316 patients had a laparoscopic implantation of the Cousin Bioring in our department. As many as 169 patients had the operation at least 5 years ago, of which

161 had a complete follow-up. Short- and long-term results were prospectively collected and analysed.

**RESULTS:**

There were no intra-operative and only two mild early post-operative complications. Mortality was zero. The mean percent of excess weight loss (%EWL) was 56% at 5 years, 55% at 6 years and 56% at 7 years. Of the 169 patients, four had a band removal for intolerance and/or insufficient weight loss and 11 (6.5%) developed late complications requiring surgery. We managed to solve all complications by minimally invasive procedures without loss of the device. Fifteen of the 169 patients suffered preoperatively from diabetes mellitus type 2. Ten of these had a remission after 5 years. The quality-of-life was assessed 3 years post-operatively for 164 patients and showed an improvement in 83.5% of them.

**CONCLUSION:**

Laparoscopic implantation of the Cousin Bioring is a straightforward and safe operation. Complications occur, but they are rather benign and easy to remediate. The mean weight loss is considered successful (%EWL > 50) and persists 5 to 7 years after the operation.

**769: Martins-Filho ED, Katz L, Amorim M, Ferraz AA, Ferraz EM. Prediction of severe complications and death in superobese patients undergoing open gastric bypass with the Recife Score. Arq Gastroenterol. 2011 Jan-Mar;48(1):8-14. PubMed PMID: 21537535.**

**Abstract**

**CONTEXT:**

Superobese patients who undergo gastric bypass have a greater incidence of complications. The greater incidence of comorbidity in this group leads to a higher surgical risk, and a need for special care. By analyzing the risk factors identified in the preoperative period, scoring them, constructing a score and assessing the occurrence of serious complications and death, we will have elements to identify which patients are at greater risk.

**OBJECTIVE:**

To determine the accuracy of the Recife Score for predicting serious postoperative complications and death in superobese patients who undergo Roux-en-Y gastric bypass surgery by the conventional method.

**METHODS:**

An ambidirectional study was conducted to validate the diagnostic test on 203 severely obese patients submitted to Roux-en-Y gastric bypass at the Hospital das Clínicas of the Federal University of Pernambuco, Recife, PE, Brazil, from September 1997 to May 2007. The dependent variables were major postoperative complications and death. The independent variable was the Recife Score. The data were analyzed using the Epi-Info 3.5.1 program. The accuracy of the Recife Score was analyzed considering the following parameters: sensitivity, specificity, positive predictive value, negative predictive value, positive verisimilitude ratio and negative verisimilitude ratio.

**RESULTS:**

The accuracy of the Recife Score with cut-off points higher than 3 and higher than 5 to predict serious postoperative complications was, respectively, a frequency of complications of 12.3%, with a risk ratio of 2.83, sensitivity of 57.1% and specificity of 69.8%, and 12.5%, with a risk ratio of 1.88, sensitivity of 7.1% and specificity of 96.3%. The accuracy of the Recife Score with cut-off points higher than 3 and higher than 5 to predict death was, respectively, a frequency of death of 7.7%, with a risk

ratio of 10.62, sensitivity of 83.3% and specificity of 69.5%, and 12.5%, with a risk ratio of 4.88, sensitivity of 16.7% and specificity of 96.5%.

**CONCLUSION:**

A Recife Score >3 prior to conventional gastric bypass presents a high level of accuracy in the prediction of serious postoperative complications and death.

**770: Christofaro DG, Ritti-Dias RM, Fernandes RA, Polito MD, Andrade SM, Cardoso JR, Oliveira AR. High blood pressure detection in adolescents by clustering overall and abdominal adiposity markers. Arq Bras Cardiol. 2011 Jun;96(6):465-70. Epub 2011 Apr 29. English, Portuguese. PubMed PMID: 21537530.**

**Abstract**

**BACKGROUND:**

Obesity is linked to high blood pressure (HBP) in childhood. However, the role of fat as a predictor of HBP in adolescents remains unknown.

**OBJECTIVE:**

To investigate the association between general and abdominal obesity with HBP and to identify the sensitivity and specificity of these indicators to detect HBP in adolescents.

**METHODS:**

The sample was composed of 1,021 adolescents aged 10-17 years. Subjects were classified as normal, overweight/obese, according to BMI measurements, and as non-obese and with abdominal obesity, according to waist circumference (WC) measurements. Systolic (SBP) and diastolic (DBP) blood pressure were assessed using an oscillometric device. Logistic regression and ROC curves were used in the statistical analysis.

**RESULTS:**

The overall prevalence of HBP was 11.8% (13.4% in boys and 10.2% in girls). The prevalence of HBP among general overweight/obese boys and girls was 10% and 11.1%, respectively. The prevalence of HBP among boys with abdominal obesity was 28.6%. For both genders, the odds ratio (OR) for HBP was higher in abdominal obesity than in general overweight/obesity (4.09 [OR(95%CI) = 2.57-6.51]) versus 1.83 [OR(95%CI) = 1.83-4.30]). The OR for HBP was higher when general overweight/obesity and abdominal obesity were clustered (OR = 4.35 [OR(95%CI) = 2.68-7.05]), than when identified by either general overweight/obesity or abdominal obesity alone (OR = 1.32 [OR(95%CI) = 0.65-2.68]). However, both types of obesity had low predictive power in HBP detection.

**CONCLUSION:**

General and abdominal obesity were associated to HBP, however, the sensitivity and specificity of these variables to detect HBP are low in Brazilian adolescents.

**771: Oh IH, Cho Y, Park SY, Oh C, Choe BK, Choi JM, Yoon TY. Relationship between socioeconomic variables and obesity in Korean adolescents. J Epidemiol. 2011;21(4):263-70. Epub 2011 Apr 30. PubMed PMID: 21532240; PubMed Central PMCID: PMC3899418.**

**Abstract**

**BACKGROUND:**

Despite the importance of obesity and its association with socioeconomic status, little is known about this condition in Korean adolescents. We examined the relationship between obesity in Korean

adolescents and several socioeconomic variables and compared the association of obesity with conventional and subjective indicators of socioeconomic status.

**METHODS:**

The study comprised 60 643 Korean adolescents aged 12 to 18 years who participated in the 2007 Korea Youth Risk Behavior Web-Based Survey. The dependent variable, obesity, and the independent variables of parental education levels, family affluence scale, subjective family economic status, and subjective school achievement were collected by using a self-administered anonymous questionnaire. Data on behavioral and psychological characteristics were also collected and used as confounding factors. Multivariate logistic regression was conducted to identify associations between socioeconomic status and obesity.

**RESULTS:**

In the descriptive analysis, adolescents with low parental education, low family affluence level, low subjective family economic status, and low subjective school achievement were more likely to be obese. However, after controlling for other risk factors in multivariate analysis, only the associations with subjective family economic status and subjective school achievement remained statistically significant.

**CONCLUSIONS:**

Our results provide further evidence that the prevalent pattern of obesity in Korean adolescents-i.e., the inverse relationship between obesity and socioeconomic status-is similar to that in developed countries. In addition, these findings support the hypothesis that, as compared with objective socioeconomic status, subjective social status is more closely related to obesity.

**773: Ostojic SM, Stojanovic MD, Stojanovic V, Maric J, Njaradi N. Correlation between fitness and fatness in 6-14-year old Serbian school children. J Health Popul Nutr. 2011 Feb;29(1):53-60. PubMed PMID: 21528790; PubMed Central PMCID: PMC3075053.**

**Abstract**

Lack of physical activity and/or physical fitness are some reasons epidemiologists suggest for increase in childhood obesity in the last 20 years, with clear correlation between body composition and physical activity and/or physical fitness yet to be determined. The objectives of the study were to (a) investigate the prevalence of overweight and obesity among Serbian school children and (b) determine the relationship between indicators of physical activity and body fatness in Serbian school children aged 6-14 years. The study subjects included a representative sample of Serbian elementary school children (n = 1,121-754 boys and 367 girls-aged 6.2-14.1 years), all of whom were recruited in the OLIMP (Obesity and Physical Activity among Serbian School Children) study. Anthropometric and physical fitness values, including body mass index (BMI), waist-circumference, body-fat, and aerobic capacity, were measured in all the children. Significant differences were found between male and female children regarding the prevalence of obesity (6.8% vs 8.2%, p < 0.05, boys and girls respectively). Boys had significantly lower body mass, BMI, waist-circumference, sum of six skinfolds, and body-fat compared to their female counterparts (p < 0.05). The highest level of weight, BMI, body-fat, and waist-circumference observed in a 14-year old girl (96.3 kg, 40.5 kg/m<sup>2</sup>, 54.5%, 91.4 cm respectively) implies the existence of extreme obesity in Serbian school children. The negative relationship between body-fat and maximal oxygen (VO<sub>2</sub>max) uptake was moderately high (r = -0.76; p < 0.05). The study has shown a high prevalence of adiposity among Serbian school children, with a strong negative relationship between aerobic fitness and body fatness. Data of the study emphasize

the necessity to identify children with weight problems and to develop early interventions to improve physical activity in children and prevent the increase of childhood obesity.

**774: Centers for Disease Control and Prevention (CDC). Prevalence of obesity among adults with arthritis --- United States, 2003--2009. MMWR Morb Mortal Wkly Rep. 2011 Apr 29;60(16):509-13. PubMed PMID: 21527888.**

Abstract

Obesity and arthritis are critical public health problems with high prevalences and medical costs. In the United States, an estimated 72.5 million adults aged  $\geq 20$  years are obese, and 50 million adults have arthritis. Medical costs are estimated at \$147 billion for obesity and \$128 billion for arthritis each year (1-3). Obesity is common among persons with arthritis (2) and is a modifiable risk factor associated with progression of arthritis, activity limitation, disability, reduced quality-of-life, total joint replacement, and poor clinical outcomes after joint replacement (4,5). To assess obesity prevalence among adults with doctor-diagnosed arthritis, CDC analyzed data from the Behavioral Risk Factor Surveillance System (BRFSS) for the period 2003-2009. This report summarizes the results of that analysis, which determined that, among adults with arthritis, 1) obesity prevalence, on average, was 54% higher, compared with adults without arthritis, 2) obesity prevalence varied widely by state (2009 range: 26.9% in Colorado to 43.5% in Louisiana), 3) obesity prevalence increased significantly from 2003 to 2009 in 14 states and Puerto Rico and decreased in the District of Columbia (DC), and 4) the number of U.S. states with age-adjusted obesity prevalence  $\geq 30.0\%$  increased from 38 (including DC) in 2003 to 48 in 2009. Through efforts to prevent, screen, and treat obesity in adults, clinicians and public health practitioners can collaborate to reduce the impact of obesity on U.S. adults with arthritis.

**775: Rodrigues PA, Marques MH, Chaves Md, de Souza CF, de Carvalho MF. [Prevalence and factors associated to overweight and obesity in public schools]. Cien Saude Colet. 2011;16 Suppl 1:1581-8. Portuguese. PubMed PMID: 21503510.**

Abstract

This study assessed the association between environmental factors and the prevalence of overweight and obesity in public schools. It was studied 480 students, by means of anthropometric measurements evaluation, weight and height--BMI by sex and age and in accordance with the parameters of WHO and IOTF. Environmental information was obtained using a questionnaire applied to students. The Epi Info Program, version 3.3.2, was used to data collection and analysis. Prevalence rates of obesity varied according to the criteria it was used. According to the IOTF, prevalence of obesity was 7.1%, while, according parameters of the WHO, the prevalence was 18%. The significant risk factor for obesity was the father obesity (PR = 1.08; CI: 0.57-2.04). We concluded that the nutritional profile of the school serves as a subsidy for tracking trends of overweight in this group. This study could instruct the rationalization of the use of the time and public financial resources, proving the need to invest in the school feeding and in the health students.

**776: Lazorick S, Peaker B, Perrin EM, Schmid D, Pennington T, Yow A, DuBard CA. Prevention and treatment of childhood obesity: care received by a state medicaid population. Clin Pediatr (Phila). 2011 Sep;50(9):816-26. doi: 10.1177/0009922811406259. Epub 2011 Apr 27. PubMed PMID: 21525083; PubMed Central PMCID: PMC3368220.**

Abstract

Based on chart review for a representative cluster sample of North Carolina Medicaid enrollees aged 3 to 5 years (n = 1951) and 13 to 16 years (n = 1922) years, this study describes prevalence, practice patterns, and comorbidities related to overweight/obese immediately prior to 2007 Expert Recommendations. In total, 16% of children in both age groups were overweight, and 20% (ages 3-5 years) and 25% (ages 13-16 years) were obese. For 3- to 5-year-olds, body mass index percentile was infrequently recorded (22%) or plotted on growth charts (24%), and weight status category was rarely documented (10%). Results were similar for adolescents (21%, 20%, and 12%, respectively). In both groups, documentation of counseling in nutrition or physical activity was rare (16% for ages 3-5 years; 7% for ages 13-16 years). In adolescents, approximately 20% received recommended laboratory screening and overweight/ obesity was significantly associated with chart-documented asthma, back pain, prediabetes, gastroesophageal reflux disease, hypertension, and sleep apnea. Whether improvements in documentation of care followed these new guidelines deserves further research.

**777: Koebnick C, Black MH, Smith N, Der-Sarkissian JK, Porter AH, Jacobsen SJ, Wu JJ. The association of psoriasis and elevated blood lipids in overweight and obese children. J Pediatr. 2011 Oct;159(4):577-83. doi: 10.1016/j.jpeds.2011.03.006. Epub 2011 Apr 27. PubMed PMID: 21524758; PubMed Central PMCID: PMC3168116.**

Abstract

OBJECTIVE:

To investigate whether obesity and cardiovascular risk factors are associated with psoriasis in children and adolescents.

STUDY DESIGN:

For this population-based, cross-sectional study, measured weight and height, laboratory data, and psoriasis diagnoses were extracted from electronic medical records of 710,949 patients age 2 to 19 years enrolled in an integrated health plan. Weight class was assigned on the basis of body mass index-for-age.

RESULTS:

The OR for psoriasis was 0.68, 1.00, 1.31, 1.39, and 1.78 (95% CI, 1.49 to 2.14) for underweight, normal-weight, overweight, moderately obese, and extremely obese children, respectively (P for trend < .001). The OR for psoriasis treated with systemic therapy or phototherapy as an indicator of severe or widespread psoriasis was 0.00, 1.00, 2.78, 2.93, and 4.19 (95% CI, 1.81 to 9.68) for underweight, normal-weight, overweight, moderately obese, and extremely obese children, respectively (P for trend < .003). In adolescents, mean total cholesterol, low-density lipoprotein cholesterol, triglycerides, and alanine aminotransferase were significantly higher in children with psoriasis compared with children without psoriasis after adjustment for body mass index.

CONCLUSION:

Overweight and obesity are associated with higher odds of psoriasis in youths. Independent of body weight, adolescent patients with psoriasis have higher blood lipids. These data suggest that pediatricians and dermatologists should screen youths with psoriasis for cardiovascular disease risk factors.

**778: Chateau-Degat ML, Dewailly E, Charbonneau G, Laouan-Sidi EA, Tremblay A, Egeland GM. Obesity risks: towards an emerging Inuit pattern. Int J Circumpolar Health. 2011 Apr;70(2):166-77. Epub 2011 Apr 28. PubMed PMID: 21524362.**

Abstract

OBJECTIVES:

The aim of this study was to provide analytical overviews of anthropometric measurements and their relationships with type 2 diabetes and cardiovascular disease (CVD) risk factors within the Inuit population, given that few studies have focused on this issue. Study design. Cross-sectional study.

METHODS:

Anthropometric and biological data were obtained from 867 Inuit participants from Nunavik ( $\geq 18$  years).

RESULTS:

Obesity prevalence for men and women, respectively, was 25.1% and 31.3% according to body mass index (BMI:  $>30$  kg/m<sup>2</sup>); 20.2% and 55.3% according to waist circumference (WC:  $>102$  cm for men and  $>88$  cm for women); 22.4% and 22.5% according to body fat percentage (%BF:  $\geq 30$  in men and  $\geq 40$  in women). There was substantial agreement between anthropometric obesity measurements, except for the waist-to-hip ratio (WHR) which showed the lowest agreement with the other measurements. All risk factors were significantly associated with anthropometry. The prevalence of abnormal values for risk factors increased across quartiles of BMI and WC. Among obese participants, as defined by the WC cutoff, 22% had metabolic syndrome based on the National Cholesterol Education Program in the Adult Treatment Panel III (NCEP-ATPIII) definition and 64.8% of them were also insulin resistant.

CONCLUSION:

Obesity rates among Inuit are high, especially among women. Inuit women display especially high rates of abdominal obesity. Further longitudinal work is needed to evaluate the effects of central and global obesity among Inuit.

**779: Horvatovich K, Bokor S, Polgar N, Kisfali P, Hadarits F, Jaromi L, Csongei V, Repasy J, Molnar D, Melegh B. Functional glucokinase regulator gene variants have inverse effects on triglyceride and glucose levels, and decrease the risk of obesity in children. Diabetes Metab. 2011 Nov;37(5):432-9. doi: 10.1016/j.diabet.2011.02.003. Epub 2011 Apr 20. PubMed PMID: 21511510.**

Abstract

OBJECTIVE:

Recently, the association of the natural variants rs1260326 and rs780094 of the glucokinase regulatory protein (GCKR) gene with increased fasting triglycerides and decreased fasting plasma glucose in diabetic adults was reported; the minor alleles were also found to reduce the risk of type 2 diabetes. The present study examined the possible associations of these variants with triglycerides and glucose levels, their allele distribution and their possible effects on childhood obesity.

#### METHODS AND RESULTS:

A total of 221 obese children and 115 healthy normal-weight children as controls were genotyped using PCR-RFLP methods. Both functional GCKR variants were found in association with elevated serum triglycerides and lower fasting plasma glucose levels. Results of logistic regression revealed that, despite higher triglyceride levels, the carriers of the GCKR variants were more protected against the development of obesity; the adjusted models confirmed the lower risk of obesity for both variants (rs1260326: OR, 0.46; 95% CI, 0.25-0.83; rs780094: OR, 0.41; 95% CI, 0.23-0.74).

#### CONCLUSION:

Our findings confirm the inverse modulating effect of functional GCKR variants on triglycerides and glucose levels in obese paediatric patients and healthy normal-weight controls. The results of our study strongly suggest that the minor alleles confer protection against the development of obesity in children. The findings also suggest that the minor alleles of functional GCKR may protect against diabetes and the metabolic syndrome in adults.

**780: Hassan F, Davis MM, Chervin RD. No independent association between insufficient sleep and childhood obesity in the National Survey of Children's Health. J Clin Sleep Med. 2011 Apr 15;7(2):153-7. PubMed PMID: 21509329; PubMed Central PMCID: PMC3077342.**

#### Abstract

##### BACKGROUND:

Prior studies have supported an association between insufficient sleep and childhood obesity, but most have not examined nationally representative samples or considered potential sociodemographic confounders.

##### OBJECTIVE:

The main objective of this study was to use a large, nationally representative dataset to examine the possibility that insufficient sleep is associated with obesity in children, independent of sociodemographic factors.

##### METHODS:

The National Survey of Children's Health is a national survey of U.S. households contacted by random digit dialing. In 2003, caregivers of 102,353 US children were surveyed. Age- and sex-specific body mass index (BMI) based on parental report of child height and weight, was available for 81,390 children aged 6-17 years. Caregivers were asked, "How many nights of sufficient sleep did your child have in the past week?" The odds of obesity (BMI  $\geq$  95th percentile) versus healthy weight (BMI 5th-84th percentile) was regressed on reported nights of sufficient sleep per week (categorized as 0-2, 3-5, or 6-7). Sociodemographic variables included gender, race, household education, and family income. Analyses incorporated sampling weights to derive nationally representative estimates for a 2003 population of 34 million youth.

##### RESULTS:

Unadjusted bivariate analyses indicated that children aged 6-11 years with 0-2 nights of sufficient sleep, in comparison to those with 6-7 nights, were more likely to be obese (OR = 1.7, 95% CI [1.2-2.3]). Among children aged 12-17 years, odds of obesity were lower among children with 3-5 nights of sufficient sleep in comparison to those with 6-7 nights (0.8, 95% CI: 0.7-0.9). However, in both age groups, adjustment for race/ethnicity, gender, family income, and household education left no remaining statistical significance for the association between sufficient nights of sleep and BMI.

##### CONCLUSION:



In this national sample, insufficient sleep, as judged by parents, is inconsistently associated with obesity in bivariate analyses, and not associated with obesity after adjustment for sociodemographic variables. These findings from a nationally representative sample are necessarily subject to parental perceptions, but nonetheless serve as an important reminder that the role of insufficient sleep in the childhood obesity epidemic remains unproven.

KEYWORDS:

Obesity; children; sleep; sleep deprivation; survey.

**781: Daboné C, Delisle HF, Receveur O. Poor nutritional status of schoolchildren in urban and peri-urban areas of Ouagadougou (Burkina Faso). *Nutr J.* 2011 Apr 19;10:34. doi: 10.1186/1475-2891-10-34. PubMed PMID: 21504619; PubMed Central PMCID: PMC3103411.**

Abstract

BACKGROUND:

Malnutrition is still highly prevalent in developing countries. Schoolchildren may also be at high nutritional risk, not only under-five children. However, their nutritional status is poorly documented, particularly in urban areas. The paucity of information hinders the development of relevant nutrition programs for schoolchildren. The aim of this study carried out in Ouagadougou was to assess the nutritional status of schoolchildren attending public and private schools.

METHODS:

The study was carried out to provide baseline data for the implementation and evaluation of the Nutrition Friendly School Initiative of WHO. Six intervention schools and six matched control schools were selected and a sample of 649 schoolchildren (48% boys) aged 7-14 years old from 8 public and 4 private schools were studied. Anthropometric and haemoglobin measurements, along with thyroid palpation, were performed. Serum retinol was measured in a random sub-sample of children (N = 173). WHO criteria were used to assess nutritional status. Chi square and independent t-test were used for proportions and mean comparisons between groups.

RESULTS:

Mean age of the children (48% boys) was  $11.5 \pm 1.2$  years. Micronutrient malnutrition was highly prevalent, with 38.7% low serum retinol and 40.4% anaemia. The prevalence of stunting was 8.8% and that of thinness, 13.7%. The prevalence of anaemia ( $p = 0.001$ ) and vitamin A deficiency ( $p < 0.001$ ) was significantly higher in public than private schools. Goitre was not detected. Overweight/obesity was low (2.3%) and affected significantly more children in private schools ( $p = 0.009$ ) and younger children (7-9 y) ( $p < 0.05$ ). Thinness and stunting were significantly higher in peri-urban compared to urban schools ( $p < 0.05$  and  $p = 0.004$  respectively). Almost 15% of the children presented at least two nutritional deficiencies.

CONCLUSION:

This study shows that malnutrition and micronutrient deficiencies are also widely prevalent in schoolchildren in cities, and it underlines the need for nutrition interventions to target them.

**782: Clemente AP, Santos CD, Martins VJ, Benedito-Silva AA, Albuquerque MP, Sawaya AL. Mild stunting is associated with higher body fat: study of a low-income population. J Pediatr (Rio J). 2011 Mar-Apr;87(2):138-44. doi: doi:10.2223/JPED.2071. English, Portuguese. PubMed PMID: 21503383.**

Abstract

OBJECTIVE:

To test if individuals having height-for-age z scores between -2 and -1 present higher body fat percentage and, therefore, should not be categorized as having normal nutritional status.

METHODS:

The study involved 96 individuals (52 boys and 44 girls); 57% of whom had already attained puberty. Body composition was analyzed by dual energy X-ray absorptiometry.

RESULTS:

The percentage of abdominal body fat in pre-pubertal stunted girls was higher (27.4%;  $p = 0.01$ ) in comparison with their non-stunted counterparts (20.6%). Similar differences in abdominal fat content (%) were observed for pubertal stunted and non-stunted girls and boys (37.6 and 29.8%, respectively,  $p = 0.01$ ; 24.6 and 15.7%,  $p = 0.01$ , respectively). The percentages of total body fat percent in pre-pubertal stunted girls and pubertal stunted boys (29.9 and 24.5%,  $p = 0.03$ ; 26.3 and 18.1%,  $p = 0.01$ , respectively) were higher than those of their non-stunted counterparts. Non-stunted groups showed lower waist circumferences.

CONCLUSION:

Adolescents with mild stunting exhibit alterations in body composition indicating increased risk of metabolic diseases.

**783: Duarte MA, Silva GA. Hepatic steatosis in obese children and adolescents. J Pediatr (Rio J). 2011 Mar-Apr;87(2):150-6. doi: doi:10.2223/JPED.2065. PubMed PMID: 21503382.**

Abstract

OBJECTIVE:

To assess the frequency of hepatic steatosis and metabolic syndrome among obese children and adolescents.

METHOD:

A descriptive case series was conducted with 77 patients, aged 2 to 13 years and 11 months, who were followed up from February to July 2007. Obesity was defined as body mass index  $\geq$  P95 adjusted for age and sex. Liver ultrasound was performed to diagnose hepatic steatosis. Metabolic syndrome was defined according to the modified criteria suggested by Cook et al.

RESULTS:

Hepatic steatosis was diagnosed in 33/77 patients (42.9%), 25/33 (75.8%) with mild steatosis and 8/33 (24.2%) with moderate steatosis. Those aged less than 10 years showed only mild steatosis, and the moderate degree of the disease was restricted to adolescents. Aminotransferase alterations were found in 9.1% (3/33) of patients with hepatic steatosis and in 4.9% (2/41) of those without the disorder. Mean waist circumference was  $84.74 \pm 2.84$  cm for patients with hepatic steatosis and  $78.24 \pm 1.60$  cm for those without the disease ( $p = 0.04$ ). Metabolic syndrome was diagnosed in 27.3% (21/77) of obese patients, 47.6% (10/21) of them having steatosis, 60% had mild steatosis and 40% had a moderate degree of the disorder.

#### CONCLUSIONS:

The frequency of hepatic steatosis and metabolic syndrome was high. The association of larger waist circumference with hepatic steatosis highlights the importance of taking this parameter into consideration when investigating obese patients.

**784: Huh D, Stice E, Shaw H, Boutelle K. Female overweight and obesity in adolescence: developmental trends and ethnic differences in prevalence, incidence, and remission. J Youth Adolesc. 2012 Jan;41(1):76-85. doi: 10.1007/s10964-011-9664-4. Epub 2011 Apr 17. PubMed PMID: 21499888; PubMed Central PMCID: PMC3413457.**

#### Abstract

Despite substantial increases in the prevalence of adolescent overweight and obesity documented in recent decades, few studies have prospectively tracked their development during the entire adolescent period. The aims of this study were to characterize developmental trends in prevalence, incidence, and remission of overweight and obesity using annual data collected from ages 12 to 19 for 496 adolescent females. Ethnic differences between African American (n = 37), Latina (n = 96), and European American (n = 348) adolescents were also compared. The prevalence of overweight decreased slightly across adolescence and remission rates exceeded incidence (onset). Obesity was more chronic, with increasing incidence accompanied by decreasing remission rates. Middle through late adolescence was the period of greatest risk for the transition from overweight to obesity. African American and Latina females had higher overweight and obesity prevalence than European American females throughout adolescence. Differences in prevalence were driven by higher onset rates for African American and Latina females, whereas remission rates were comparable across ethnic groups. Results suggest that adolescence is not a high-risk period for onset of obesity for European American adolescent females, but is for African American and Latina adolescent females.

**785: Gelfand JM, Mehta NN, Langan SM. Psoriasis and cardiovascular risk: strength in numbers, part II. J Invest Dermatol. 2011 May;131(5):1007-10. doi: 10.1038/jid.2011.32. PubMed PMID: 21494241; PubMed Central PMCID: PMC3426317.**

#### Abstract

The Psoralen plus Ultraviolet-A (PUVA) cohort study has been a tremendous success in determining how a novel treatment (i.e., PUVA) affects the long-term risk of keratinocyte carcinoma. The ability to follow patients from the initial multicenter clinical trial for more than three decades has been a remarkable achievement in dermatoeidemiology. In this issue, Stern and Huibregtse report results from the PUVA follow-up study and conclude that only patients with exceptionally severe psoriasis have an increased overall mortality risk and that there is no significant risk of cardiovascular mortality associated with psoriasis. The results are in contrast to a large and growing body of literature that suggests patients with more severe psoriasis have a clinically significant increased risk of mortality in general and cardiovascular disease in particular. In addition, the authors found no association between severe psoriasis and obesity or between obesity and cardiovascular mortality, despite extensive literature establishing these associations. Basic principles of epidemiological study design may explain these discrepancies. Ultimately, however, randomized clinical trials will be necessary to determine whether severe psoriasis is in fact a "visible killer," as four decades ago (after many years of controversy) hypertension was recognized to be a "silent killer."

**786: Zhang X, Fu L, Zhang Q, Yan L, Ma Y, Tu B, Liu N, Qiao J. Association of TRB3 Q84R polymorphism with polycystic ovary syndrome in Chinese women. *Reprod Biol Endocrinol.* 2011 Apr 14;9:46. doi: 10.1186/1477-7827-9-46. PubMed PMID: 21492415; PubMed Central PMCID: PMC3094280.**

Abstract

BACKGROUND:

Tribbles 3 (TRB3) affects insulin signalling by inhibiting insulin-stimulated Akt phosphorylation and subsequent activation. A single nucleotide polymorphism located in the second exon of the human TRB3 gene is thought to be associated with insulin resistance. The latter is a core abnormality in PCOS independent of obesity. The present study was designed to clarify the relationships of TRB3 Q84R polymorphism with PCOS in a Chinese women group.

METHODS:

A case-control study with two groups: PCOS group (n = 336) and control group of infertility women for tubal and/or male factor (n = 116) was performed. Genotyping of the TRB3 R84 variant was determined by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP).

RESULTS:

The frequency of genotype QQ in PCOS women was significantly lower, while genotype QR and RR were significantly higher than that in control group ( $p < 0.05$ ). However, the difference disappeared after adjustment for BMI. At glucose1h, glucose2h and insulin2h point, the difference between QQ individuals and R84 allele carriers in PCOS women reached statistical significance during OGTT ( $p < 0.05$ ).

CONCLUSIONS:

TRB3 Q84R polymorphism is associated with obesity and especially glucose metabolism and not associated with polycystic ovary syndrome because of compositional characteristics of phenotype in Chinese PCOS women.

**787: Scharoun-Lee M, Gordon-Larsen P, Adair LS, Popkin BM, Kaufman JS, Suchindran CM. Intergenerational profiles of socioeconomic (dis)advantage and obesity during the transition to adulthood. *Demography.* 2011 May;48(2):625-51. doi: 10.1007/s13524-011-0024-5. PubMed PMID: 21491185; PubMed Central PMCID: PMC3381949.**

Abstract

Investigations of socioeconomic status (SES) and health during the transition to adulthood in the United States are complicated by the later and more varied transitions in residence, employment, schooling, and social roles compared with previous generations. Parental SES is an important influence during adolescence but cannot sufficiently capture the SES of the independent young adult. Typical, single SES indicators based on income or education likely misclassify the SES of young adults who have not yet completed their education or other training, or who have entered the labor force early with ultimately lower status attainment. We use a latent class analysis (LCA) framework to characterize five intergenerational SES groups, combining multidimensional SES information from two time points—that is, adolescent (parental) and young adult (self) SES data. Associations of these groups with obesity, a high-risk health outcome in young adults, revealed nuanced relationships not seen using traditional intergenerational SES measures. In males, for example, a middle-class upbringing in adolescence and continued material advantage into adulthood was associated with

nearly as high obesity as a working poor upbringing and early, detrimental transitions. This intergenerational typology of early SES exposure facilitates understanding of SES and health during young adulthood.

**788: Zaki M, Robaayah Z, Chan SP, Vadivale M, Lim TO. Malaysia Shape of the Nation (MySoN): a primary care based study of abdominal obesity in Malaysia. Med J Malaysia. 2010 Jun;65 Suppl A:143-9. PubMed PMID: 21488476.**

Abstract

Abdominal obesity (AO), measured by waist circumference (WC), is a stronger predictor of subsequent development of cardiovascular disease (CVD) than generalised obesity, which is measured by body mass index (BMI). This study aimed to measure WC and prevalence of AO in Malaysians visiting primary care physicians. 1893 patients between the ages of 18 and 80 attending primary care clinics in Malaysia were recruited over two days for this multi-centre cross-sectional study. Pregnant women were excluded, their medical history, weight, height and WC were examined. The prevalence of co-morbidities were as follows: (1) CVD-4%, lipid disorder-17%, hypertension-26%, diabetes-14% and any of the clinical characteristics of CVD/lipid disorder/hypertension/diabetes-38%. The mean BMI for men and women was 25.62 +/- 4.73 kg/m<sup>2</sup> and 26.63 +/- 5.72 kg/m<sup>2</sup>, respectively. Based on WHO criteria for BMI (overweight, 25-29.9 kg/m<sup>2</sup>; obese, > 30 kg/m<sup>2</sup>), 34.2% were overweight and 20.4% were obese. The mean WC for men and women was 89.03 +/- 13.45 cm and 84.26 +/- 12.78 cm, respectively. Overall, 55.6% had AO and there was higher prevalence among women (based on International Diabetes Federation criteria: WC > or = 90 cm for men and > or = 80 cm for women). AO was present in approximately 71% patients with lipid disorder, in 76% with hypertension and in 75% with diabetes. Patients with AO were also at a higher risk of developing co-morbidities. Malaysia has a high prevalence of AO and associated cardiovascular risk factors. This needs to be addressed by public health programs, which should also include routine measurement of WC.

**789: Capizzi M, Leto G, Petrone A, Zampetti S, Papa RE, Osimani M, Spoletini M, Lenzi A, Osborn J, Mastantuono M, Vania A, Buzzetti R. Wrist circumference is a clinical marker of insulin resistance in overweight and obese children and adolescents. Circulation. 2011 Apr 26;123(16):1757-62. doi: 10.1161/CIRCULATIONAHA.110.012898. Epub 2011 Apr 11. PubMed PMID: 21482965.**

Abstract

BACKGROUND:

Excess fat is one of the main determinants of insulin resistance, representing the metabolic basis for developing future cardiovascular disease. The aim of the current study was to find an easy-to-detect clinical marker of insulin resistance which can be used to identify young subjects at increased risk of cardiovascular disease.

METHODS AND RESULTS:

Four-hundred and seventy-seven overweight/obese children and adolescents (mean age 10.31±2.80 years) were consecutively enrolled. Standard deviation score body mass index, fasting biochemical parameters, and homeostasis model assessment of insulin resistance were evaluated. Statistical differences were investigated using multiple linear regression analysis. Manual measure of wrist circumference was evaluated in all children and adolescents. Fifty-one subjects, randomly selected,

underwent nuclear magnetic resonance imaging of the wrist to evaluate transversal wrist area at the Lister tubercle level. A statistically significant association was found between manual measure of wrist circumference and insulin levels or homeostasis model assessment of insulin resistance ( $\beta=0.34$  and  $0.35$ , respectively;  $P<10^{-5}$  for both comparisons). These associations were more significant than those between SD score body mass index and insulin levels or homeostasis model assessment of insulin resistance ( $\beta=0.12$  and  $0.10$ , respectively;  $P\leq 0.02$  for both comparisons). Nuclear magnetic resonance imaging acquisition clarified that the association between wrist circumference and insulin levels or homeostasis model assessment of insulin resistance reflected the association with bone tissue-related areas ( $P\leq 0.01$  for both) but not with the adipose tissue ones ( $P>0.05$ ), explaining 20% and 17% of the variances of the 2 parameters.

#### CONCLUSIONS:

Our findings suggest a close relationship among wrist circumference, its bone component, and insulin resistance in overweight/obese children and adolescents, opening new perspectives in the prediction of cardiovascular disease.

**790: Bauer KW, Neumark-Sztainer D, Fulkerson JA, Story M. Adolescent girls' weight-related family environments, Minnesota. *Prev Chronic Dis.* 2011 May;8(3):A68. Epub 2011 Apr 15. PubMed PMID: 21477508; PubMed Central PMCID: PMC3103573.**

#### Abstract

Significant sociodemographic disparities exist in the prevalence of obesity among adolescent girls, and in girls' participation in physical activity, sedentary activity, and healthful dietary intake. However, little is known of how factors in the family environment associated with weight and behavior vary by sociodemographic groups. We examined differences and similarities in the weight-related family environments of adolescent girls by race/ethnicity, parental educational attainment, and US nativity. Data are from the baseline assessment of 253 parent/daughter dyads. Parents completed survey items on the family environment; parents and girls reported their sociodemographic characteristics. Hierarchical regression models were used to test relationships between the family environment and sociodemographic characteristics. Parents of Asian girls reported qualities supportive of physical activity and healthy eating. Higher parental education was associated with more parental modeling of and support for physical activity and greater frequency of family meals. Parents of foreign-born girls reported having fewer televisions in the home, more frequent family meals, and fewer fast-food family meals. Understanding sociodemographic differences in the family environments of adolescent girls can inform the development of obesity prevention programs and reduce disparities in adolescents' weight status, physical activity, sedentary behavior, and healthful dietary intake.

**791: Sharma S, Lustig RH, Fleming SE. Identifying metabolic syndrome in African American children using fasting HOMA-IR in place of glucose. Prev Chronic Dis. 2011 May;8(3):A64. Epub 2011 Apr 15. PubMed PMID: 21477504; PubMed Central PMCID: PMC3103569.**

Abstract

INTRODUCTION:

Metabolic syndrome (MetS) is increasing among young people. We compared the use of homeostasis model assessment of insulin resistance (HOMA-IR) with the use of fasting blood glucose to identify MetS in African American children.

METHODS:

We performed a cross-sectional analysis of data from a sample of 105 children (45 boys, 60 girls) aged 9 to 13 years with body mass indexes at or above the 85th percentile for age and sex. Waist circumference, blood pressure, and fasting levels of blood glucose, insulin, triglycerides, and high-density lipoprotein cholesterol were measured.

RESULTS:

We found that HOMA-IR is a stronger indicator of MetS in children than blood glucose. Using HOMA-IR as 1 of the 5 components, we found a 38% prevalence of MetS in this sample of African American children and the proportion of false negatives decreased from 94% with blood glucose alone to 13% with HOMA-IR. The prevalence of MetS was higher in obese than overweight children and higher among girls than boys.

CONCLUSION:

Using HOMA-IR was preferred to fasting blood glucose because insulin resistance was more significantly interrelated with the other 4 MetS components.

**792: Pérez A, Hoelscher DM, Springer AE, Brown HS, Barroso CS, Kelder SH, Castrucci BC. Physical activity, watching television, and the risk of obesity in students, Texas, 2004-2005. Prev Chronic Dis. 2011 May;8(3):A61. Epub 2011 Apr 15. PubMed PMID: 21477501; PubMed Central PMCID: PMC3103566.**

Abstract

INTRODUCTION:

The epidemic of childhood obesity has been well-documented. Prevalence of obesity among students in Texas is higher than the US prevalence. Our objective was to understand the combined influence of physical activity and television viewing on weight status of students in Texas.

METHODS:

Students in grades 4, 8, and 11 participated in the School Physical Activity and Nutrition survey during the 2004-2005 academic year. Multinomial logistic regression tested the associations between both being overweight and obese (vs underweight/normal weight) and the combined influence of physical activity and watching television, adjusting for age, grade, race/ethnicity, language spoken at home, and percentage of economically disadvantaged students in the school. We used 5 physical activity indicators to describe students' physical activity.

RESULTS:

Girls who participated in less than 3 days of exercise per week to strengthen or tone muscles and watched 2 hours or less per day of television had increased odds of being obese (adjusted odds ratio, 1.8; 95% confidence interval, 1.1-3.0) compared with girls who participated in 3 or more days per

week of exercise to strengthen or tone muscles and watched 2 hours or less per day of television. Boys in our study who watched 3 or more hours per day of television and did not meet physical activity recommendations had increased odds of being obese in all of our 5 physical activity indicators.

**CONCLUSION:**

Although results varied by physical activity indicator and sex, our findings provide further evidence for the combined effect of high television watching and low physical activity engagement on the risk for obesity in children and adolescents.

**793: Pickering RP, Goldstein RB, Hasin DS, Blanco C, Smith SM, Huang B, Pulay AJ, Ruan WJ, Saha TD, Stinson FS, Dawson DA, Chou SP, Grant BF. Temporal relationships between overweight and obesity and DSM-IV substance use, mood, and anxiety disorders: results from a prospective study, the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry. 2011 Nov;72(11):1494-502. doi: 10.4088/JCP.10m06077gry. Epub 2011 Mar 8. PubMed PMID: 21457678; PubMed Central PMCID: PMC3227748.**

**Abstract**

**OBJECTIVE:**

To present nationally representative findings on the prospective relationships between overweight and obesity and DSM-IV substance use, mood, and anxiety disorders.

**METHOD:**

A nationally representative sample of 34,653 US adults was interviewed in Wave 1 (2001-2002) and Wave 2 (2004-2005) of the National Epidemiologic Survey on Alcohol and Related Conditions. The target population was the civilian population residing in households and group quarters, with gathered data adjusted to be representative of the civilian population of the United States on the basis of the 2000 Decennial Census. The main outcome measures were the incidence of DSM-IV substance use, mood, and anxiety disorders and changes in body mass index status during the 3-year follow-up period.

**RESULTS:**

Regression analyses that controlled for a wide array of covariates showed that overweight and obese women were at increased risk ( $P < .05$ ) for incident major depressive disorder during the follow-up period (adjusted OR [AOR] = 1.3 [95% CI, 1.02-1.56] and AOR = 1.2 [95% CI, 1.02-1.51], respectively). Overweight men and obese men were at decreased risk ( $P < .05$ ) of incident drug abuse and alcohol dependence (AOR = 0.7 [95% CI, 0.44-0.96] and AOR = 0.7 [95% CI, 0.52-0.97]), respectively. Obese women had a decreased risk ( $P < .05$ ) of incident alcohol abuse and drug dependence (AOR = 0.6 [95% CI, 0.45-0.88] and AOR = 0.4 [95% CI, 0.21-0.91], respectively). Men with drug dependence and women with specific phobia had a decreased risk ( $P < .05$ ) of becoming overweight or obese during the follow-up period (AOR = 0.4 [95% CI, 0.19-0.99] and AOR = 0.8 [95% CI, 0.66-0.95], respectively).

**CONCLUSIONS:**

Increased risk of major depressive disorder among overweight and obese women could be attributed to stigma and greater body dissatisfaction among women in Western cultures. Overweight and obesity may serve as protective factors against developing incident substance use disorders, possibly due to shared neural functions in the brain underlying addictions to numerous substances. Results are discussed in terms of their clinical implications, including the need to update treatment guidelines for the management of overweight, obesity, and major depressive disorder.



**794: Hearst MO, N Laska M, Himes JH, Butterbrodt M, Sinaiko A, Iron Cloud R, Tobacco M, Story M. The co-occurrence of obesity, elevated blood pressure, and acanthosis nigricans among American Indian school children: identifying individual heritage and environment-level correlates. Am J Hum Biol. 2011 May-Jun;23(3):346-52. doi: 10.1002/ajhb.21140. Epub 2011 Mar 28. PubMed PMID: 21445934; PubMed Central PMCID: PMC3076896.**

Abstract

OBJECTIVE:

To estimate the prevalence and explore the social and cultural etiologic roots of weight status, blood pressure, and acanthosis nigricans among American Indian children on a reservation in South Dakota.

METHODS:

This observational study was conducted in 26 schools from 1998 to 2002 and included 5,422 observations representing 3,841 children, ages 3 to 19. Trained staff measured height, weight, blood pressure, and assessed the presence of acanthosis nigricans (AN). Percent Indian heritage (PIH) was abstracted from tribal records. Sociodemographic environment (SDE) was calculated using the 2000 Census at the city/town level. Descriptive analyses were conducted using one measurement time point, including tests for trend and co-occurrence of risk factors using the [kappa] statistic. Hierarchical, multivariate logistic regression estimated associations with overweight/obesity status, accounting for multiple measures on individuals and SDE.

RESULTS:

The overall prevalence of overweight/obesity was 46%, of hypertension 9%, and of AN 14%. The co-occurrence of risk factors was moderate to high. PIH and AN were positively associated in unadjusted analysis. Controlling for sex, age, and SDE, higher PIH was a significant correlate of overweight/obesity, although when hypertension (OR = 5.92, CI = 3.27-10.72), prehypertension (OR = 3.80, CI = 1.99-7.26), and AN (OR = 16.20, CI = 8.08-32.48) were included in the model PIH was no longer significant. SDE was not significantly associated with overweight/obesity.

CONCLUSION:

PIH appeared to be an important correlate of overweight and obesity, except when adjusted for the co-occurrence of high blood pressure and AN. Overall, the prevalence and co-occurrence of various risk factors in this population was high. Obesity prevention initiatives targeting families and communities are needed, as well as access to screening and treatment services.

**795: Slater ME, Sirard JR, Laska MN, Pereira MA, Lytle LA. Relationships between energy balance knowledge and the home environment. J Am Diet Assoc. 2011 Apr;111(4):556-60. doi: 10.1016/j.jada.2011.01.011. PubMed PMID: 21443988; PubMed Central PMCID: PMC3107531.**

Abstract

Certain aspects of the home environment as well as individuals' knowledge of energy balance are believed to be important correlates of various dietary and physical activity behaviors, but no known studies have examined potential relationships between these correlates. This study evaluated cross-sectional associations between characteristics of the home environment and energy balance knowledge among 349 youth/parent pairs recruited from the Minneapolis/St Paul, MN, metropolitan area from September 2006 to June 2007. Linear regression models adjusted for student grade and highest level of parental education were used to compare data from home food, physical activity, and

media inventories (parent-reported) with energy balance knowledge scores from youth and parent questionnaires. Paired energy balance knowledge (average of youth and parent knowledge scores) was associated with all home food availability variables. Paired knowledge was also significantly associated with a media equipment availability and accessibility summary score ( $\beta=-1.40$ ,  $P=0.005$ ), as well as an activity-to-media ratio score ( $\beta=0.72$ ,  $P=0.003$ ). Youth and/or parent knowledge alone was not significantly associated with most characteristics of the home environment, supporting the importance of developing intervention strategies that target the family as a whole.

**796: Tanjasiri SP, Wiersma L, Briand G, Faletau V, Lepule J, Nacpil L, Eichenauer J. Balancing community and university aims in community-based participatory research: a Pacific Islander youth study. Prog Community Health Partnersh. 2011 Spring;5(1):19-25. doi: 10.1353/cpr.2011.0001. PubMed PMID: 21441665; PubMed Central PMCID: PMC3691961.**

Abstract

BACKGROUND:

Community-based participatory research (CBPR) holds the promise of improving the planning, conduct, and long-term translation of research findings into community settings.

OBJECTIVES:

This 2-year, exploratory study applied CBPR structures and processes to the identification of individual, cultural and community factors associated with obesity among Pacific Islander (PI) youth in Southern California.

METHODS:

We describe the CBPR principles and strategies used by a community-university partnership to develop, implement, and report on the findings from assessments of obesity, physical activity, and nutritional intake among PI youth.

RESULTS:

Although CBPR planning processes led to successes in community-based youth recruitment and retention, we learned key lessons regarding implementation of tailored assessment protocols, often involving problems arising from the university side of the CBPR collaborative.

CONCLUSION:

CBPR has its strengths and limits; more studies are needed that report on processes to increase our understanding of how to balance research rigor with community sustainability.

**798: Li L, Pinot de Moira A, Power C. Predicting cardiovascular disease risk factors in midadulthood from childhood body mass index: utility of different cutoffs for childhood body mass index. Am J Clin Nutr. 2011 Jun;93(6):1204-11. doi: 10.3945/ajcn.110.001222. Epub 2011 Mar 23. PubMed PMID: 21430113; PubMed Central PMCID: PMC3308204.**

Abstract

BACKGROUND:

Identifying adults at increased risk of cardiovascular disease (CVD) on the basis of childhood body mass index (BMI) could be informative for disease prevention but depends on the utility of childhood BMI cutoffs.

OBJECTIVE:

We aimed to establish how well the International Obesity Task Force (IOTF) and population-specific cutoffs for childhood BMI predict CVD risk factors in midadulthood.

**DESIGN:**

We used the 1958 British birth cohort, whose BMI measures were collected at 7, 11, and 16 y and whose CVD risk factors (obesity, hypertension, adverse lipid concentrations, and type 2 diabetes risk) were collected at 45 y. The sensitivity and specificity of IOTF and population-specific cutoffs for childhood BMI were calculated for each CVD risk factor.

**RESULTS:**

The prevalence of overweight or obesity was low in childhood (<11%, IOTF cutoffs) compared with that in adulthood (75% men, 56% women). The IOTF cutoffs had high specificities (91.6-97.9%) but low sensitivities (7.1-31.5%) for predicting adult outcomes. In comparison, population-specific cutoffs identified large groups of children (eg, >38% for predicting adult obesity) who had improved sensitivities (17.3-67.3%) but lower specificities (52.9-84.6%) compared with IOTF cutoffs. Accelerated BMI gains in childhood predicted adult obesity and type 2 diabetes risk, but prediction was no greater than that for childhood BMI at one age (area under the curve: 0.55-0.65 compared with 0.59-0.75). Childhood BMI and BMI gain were weak predictors of adult hypertension and adverse lipid concentrations.

**CONCLUSION:**

Neither the IOTF cutoffs nor our population-specific cutoffs for childhood BMI are adequate diagnostic tools for adult CVD risk factors in a population experiencing rapid changes in obesity prevalence over their lifetime.

**799: Walley AJ, Jacobson P, Falchi M, Bottolo L, Andersson JC, Petretto E, Bonnefond A, Vaillant E, Lecoeur C, Vatin V, Jernas M, Balding D, Petteni M, Park YS, Aitman T, Richardson S, Sjostrom L, Carlsson LM, Froguel P. Differential coexpression analysis of obesity-associated networks in human subcutaneous adipose tissue. *Int J Obes (Lond)*. 2012 Jan;36(1):137-47. doi: 10.1038/ijo.2011.22. Epub 2011 Mar 22. PubMed PMID: 21427694; PubMed Central PMCID: PMC3160485.**

**Abstract**

**OBJECTIVE:**

To use a unique obesity-discordant sib-pair study design to combine differential expression analysis, expression quantitative trait loci (eQTLs) mapping and a coexpression regulatory network approach in subcutaneous human adipose tissue to identify genes relevant to the obese state.

**STUDY DESIGN:**

Genome-wide transcript expression in subcutaneous human adipose tissue was measured using Affymetrix U133 Plus 2.0 microarrays (Affymetrix, Santa Clara, CA, USA), and genome-wide genotyping data was obtained using an Applied Biosystems (Applied Biosystems; Life Technologies, Carlsbad, CA, USA) SNPlex linkage panel.

**SUBJECTS:**

A total of 154 Swedish families ascertained through an obese proband (body mass index (BMI) >30 kg m<sup>-2</sup>) with a discordant sibling (BMI >10 kg m<sup>-2</sup> less than proband).

**RESULTS:**

Approximately one-third of the transcripts were differentially expressed between lean and obese siblings. The cellular adhesion molecules (CAMs) KEGG grouping contained the largest number of

differentially expressed genes under cis-acting genetic control. By using a novel approach to contrast CAMs coexpression networks between lean and obese siblings, a subset of differentially regulated genes was identified, with the previously GWAS obesity-associated neuronal growth regulator 1 (NEGR1) as a central hub. Independent analysis using mouse data demonstrated that this finding of NEGR1 is conserved across species.

**CONCLUSION:**

Our data suggest that in addition to its reported role in the brain, NEGR1 is also expressed in subcutaneous adipose tissue and acts as a central 'hub' in an obesity-related transcript network.

**800: Baalwa J, Byarugaba BB, Kabagambe EK, Otim AM. Prevalence of overweight and obesity in young adults in Uganda. Afr Health Sci. 2010 Dec;10(4):367-73. Erratum in: Afr Health Sci.2011 Jun; 11(2):150. Kabagambe, KE [corrected to Kabagambe, EK]. PubMed PMID: 21416039; PubMed Central PMCID: PMC3052810.**

**Abstract**

**BACKGROUND:**

Obesity in young adults is rising and predicts diabetes and cardiovascular diseases later in life. Data on prevalence and determinants of obesity in developing countries are needed for primary prevention.

**OBJECTIVES:**

To determine the prevalence of overweight and obesity in young adults in urban (Kampala city) and rural areas (Kamuli District) of Uganda.

**METHODS:**

Cross-sectional survey of 683 randomly selected young adults aged 18-30 years. Obesity was defined as body mass index (BMI) > 30 kg/m<sup>2</sup> and overweight as BMI > 25 kg/m<sup>2</sup>. Distribution of BMI by socio-demographic characteristics was determined.

**RESULTS:**

Of the 683 participants, 50.5% were female and 53.2% were from Kampala. The overall prevalence of obesity and overweight was 2.3% and 10.4%, respectively. The prevalence of obesity was 4.4% in Kampala and 0% in Kamuli while the prevalence of overweight was 10.2% and 10.6% in Kampala and Kamuli, respectively. Compared to males, females were more likely to be obese (2.9% vs. 1.8%) or overweight (17.4% vs. 3.3%). Residing in the city, alcohol consumption, smoking, non-engagement in sports activities, commuting to school by taxi or private vehicle and being from a rich family were the main factors significantly associated (P<0.05) with obesity. Being female (p = 0.0001) and not engaging in any sports activities (P = 0.002) were two factors significantly associated with being overweight.

**CONCLUSION:**

We observed significant gender differences in the prevalence of obesity among young adults in Uganda. Contrary to expectation, we did not observe significant rural-urban differences in the prevalence of overweight.

**KEYWORDS:**

Obesity; Uganda; overweight; prevalence; young adults.

**801: Cepeda-Lopez AC, Osendarp SJ, Melse-Boonstra A, Aeberli I, Gonzalez-Salazar F, Feskens E, Villalpando S, Zimmermann MB. Sharply higher rates of iron deficiency in obese Mexican women and children are predicted by obesity-related inflammation rather than by differences in dietary iron intake. Am J Clin Nutr. 2011 May;93(5):975-83. doi: 10.3945/ajcn.110.005439. Epub 2011 Mar 16. PubMed PMID: 21411619.**

Abstract

BACKGROUND:

Obese individuals may be at increased risk of iron deficiency (ID), but it is unclear whether this is due to poor dietary iron intakes or to adiposity-related inflammation.

OBJECTIVE:

The aim of this study was to examine the relations between body mass index (BMI), dietary iron, and dietary factors affecting iron bioavailability, iron status, and inflammation [C-reactive protein (CRP)] in a transition country where obesity and ID are common.

DESIGN:

Data from the 1999 Mexican Nutrition Survey, which included 1174 children (aged 5-12 y) and 621 nonpregnant women (aged 18-50 y), were analyzed.

RESULTS:

The prevalence of obesity was 25.3% in women and 3.5% in children. The prevalence of ID was significantly ( $P < 0.05$ ) higher in obese women and children compared with normal-weight subjects [odds ratios (95% CIs): 1.92 (1.23, 3.01) and 3.96 (1.34, 11.67) for women and children, respectively]. Despite similar dietary iron intakes in the 2 groups, serum iron concentrations were lower in obese women than in normal-weight women ( $62.6 \pm 29.5$  compared with  $72.4 \pm 34.6$   $\mu\text{g}/\text{dL}$ ;  $P = 0.014$ ), and total-iron-binding capacity was higher in obese children than in normal-weight children ( $399 \pm 51$  compared with  $360 \pm 48$   $\mu\text{g}/\text{dL}$ ;  $P < 0.001$ ). CRP concentrations in obese women and children were 4 times those of their normal-weight counterparts ( $P < 0.05$ ). CRP but not iron intake was a strong negative predictor of iron status, independently of BMI ( $P < 0.05$ ).

CONCLUSIONS:

The risk of ID in obese Mexican women and children was 2-4 times that of normal-weight individuals at similar dietary iron intakes. This increased risk of ID may be due to the effects of obesity-related inflammation on dietary iron absorption. Thus, ID control efforts in Mexico may be hampered by increasing rates of adiposity in women and children.

**802: Basterra-Gortari FJ, Beunza JJ, Bes-Rastrollo M, Toledo E, García-López M, Martínez-González MA. [Increasing trend in the prevalence of morbid obesity in Spain: from 1.8 to 6.1 per thousand in 14 years]. Rev Esp Cardiol. 2011 May;64(5):424-6. doi: 10.1016/j.recesp.2010.06.010. Epub 2011 Mar 15. Spanish. PubMed PMID: 21411209.**

Abstract

Obesity, and especially morbid obesity, increases the risk of cardiovascular as well as non-cardiovascular diseases. Our objective was to ascertain the trends in morbid obesity in Spain from 1993 to 2006 using representative data from 106,048 participants in the National Health Surveys. An age-adjusted Poisson regression model stratified by sex was fitted using morbid obesity as the dependent variable. An increasing trend in prevalent morbid obesity from 1.8 to 6.1 per thousand

participants was found (increase>200%). Morbid obesity prevalence was higher in women. After adjusting for age, a monotonically increasing prevalence of morbid obesity was apparent for both men and women: the relative increase was 4% per year in women and 12% per year in men. These trends highlight the importance of preventive actions.

**804: Velásquez-Melendez G, Schlüssel MM, Brito AS, Silva AA, Lopes-Filho JD, Kac G. Mild but not light or severe food insecurity is associated with obesity among Brazilian women. J Nutr. 2011 May;141(5):898-902. doi: 10.3945/jn.110.135046. Epub 2011 Mar 9. PubMed PMID: 21389183.**

#### Abstract

Our aim was to determine whether food insecurity was associated with a higher prevalence of obesity in a large random sample of Brazilian women of reproductive age. The data were derived from the 3rd edition of the Children's and Women's National Demographic and Health Survey conducted in 2006-07. This was a nationally representative cross-sectional study. Obesity (BMI  $\geq$  30 kg/m<sup>2</sup>) was the outcome variable. Associations were measured using crude and adjusted prevalence ratios (PR) with 95% CI through Poisson regression models taking into account the complex sampling design. The sample included 10,226 women from 18 to 45 y of age. The prevalence of any level of food insecurity measured by the Brazilian Food Insecurity Scale was 40.9%, with 25.5% light, 10.1% mild, and 5.3% severe food insecurities. The prevalence of obesity was 17.4%. We found a borderline effect of light food insecurity and increased prevalence of obesity in Brazil (PR = 1.16; 95% CI = 0.98-1.38; P = 0.08). Women with mild food insecurity had a higher risk of being obese than their food-secure counterparts (PR = 1.49; 95% CI = 1.17-1.90; P = 0.010) after adjustment for skin color/ethnicity, years of schooling, geographical region, income, age, and marital status. In conclusion, this study suggests that mild but not light or severe food insecurity was associated with obesity as assessed by BMI, even after adjusting for various confounding factors in this large cross-sectional survey performed in a middle-income country undergoing the nutrition transition.

**805: Gupta DK, Shah P, Misra A, Bharadwaj S, Gulati S, Gupta N, Sharma R, Pandey RM, Goel K. Secular trends in prevalence of overweight and obesity from 2006 to 2009 in urban asian Indian adolescents aged 14-17 years. PLoS One. 2011 Feb 23;6(2):e17221. doi: 10.1371/journal.pone.0017221. PubMed PMID: 21383840; PubMed Central PMCID: PMC3044166.**

#### Abstract

The present study examines the secular trends in prevalence of overweight and obesity among urban Asian Indian adolescents in New Delhi (North India). The data were derived from cross-sectional sampling of children, 3493 in year 2006 and 4908 in year 2009, aged 14-17 years studying in privately-funded and government-funded schools. Age, gender and Asian Indian-specific cut offs of body mass index (BMI) were used to define overweight and obesity. The prevalence of obesity increased significantly from 9.8% in 2006 to 11.7% in 2009 (p<0.01), whereas underweight decreased from 11.3% to 3.9% (p<0.001). There was a significantly higher risk of being overweight (OR 1.28; 95% CI, 1.15-1.42) and obese (OR 1.44; 95% CI, 1.24-1.66) in year 2009 than 2006, after adjusting for age, gender and type of school. Males and privately-funded school children had significantly higher increase in prevalence and risk of being overweight and obese over the three years. In conclusion, this study showed an increasing trend in prevalence of overweight and obesity in urban Asian Indian

adolescents. More specifically, the study showed the association of this increasing trend of overweight and obesity prevalence with male gender and high socio-economic status, calling for an urgent need for immediate and targeted preventive measures.

**806: Mehta SH, Kruger M, Sokol RJ. Being too large for gestational age precedes childhood obesity in African Americans. Am J Obstet Gynecol. 2011 Mar;204(3):265.e1-5. doi: 10.1016/j.ajog.2010.12.009. PubMed PMID: 21376166; PubMed Central PMCID: PMC3055169.**

Abstract

OBJECTIVE:

The purpose of this study was to investigate the association between large-for-gestational-age (LGA) infants and the development of childhood obesity in an inner-city primarily African American population.

STUDY DESIGN:

Maternal, neonatal, socioeconomic, and nutritional histories were collected for mothers with children who were 2-5 years old. Associations between Alexander and customized birthweight percentiles and body mass index for the age of the child were examined.

RESULTS:

One hundred ninety-five mother-child pairs were enrolled; the childhood obesity rate was 18%. Increasing Alexander and customized birthweight percentiles were related to increasing obesity. LGA newborn infants were 2.5 times more likely to be obese in childhood than average size newborn infants. Maternal smoking was also associated with childhood obesity.

CONCLUSION:

LGA infants have the highest likelihood of childhood obesity in this inner-city predominantly African American population. Customized growth percentiles perform best in the identification of the highest risk population.

**807: Hughes AR, Sherriff A, Lawlor DA, Ness AR, Reilly JJ. Incidence of obesity during childhood and adolescence in a large contemporary cohort. Prev Med. 2011 May;52(5):300-4. doi: 10.1016/j.ypmed.2011.02.014. Epub 2011 Mar 1. PubMed PMID: 21371500; PubMed Central PMCID: PMC3919170.**

Abstract

BACKGROUND AND AIMS:

Timing of obesity development during childhood and adolescence is unclear, hindering preventive strategies. The primary aim of the present study was to quantify the incidence of overweight and obesity throughout childhood and adolescence in a large contemporary cohort of English children (the Avon Longitudinal Study of Parents and Children, ALSPAC; children born 1991-1992). A secondary aim was to examine the persistence of overweight and obesity.

METHODS:

Longitudinal data on weight and height were collected annually from age 7-15 years in the entire ALSPAC cohort (n=4283), and from 3 to 15 years in a randomly selected subsample of the cohort (n=549; 'Children in Focus' CiF). Incidence of overweight and obesity (BMI (Body mass index) at or above the 85th and 95th centiles relative to U.K. reference data) was calculated. Risk ratios (RR) for overweight and obesity at 15 years based on weight status at 3, 7, and 11 years were also calculated.

RESULTS:

In the entire cohort, four-year incidence of obesity was higher between ages 7 and 11 years than between 11 and 15 years (5.0% vs. 1.4% respectively). In the CiF sub-sample, four-year incidence of obesity was also highest during mid-childhood (age 7-11years, 6.7%), slightly lower during early childhood (3-7 years, 5.1%) and lowest during adolescence (11-15 years 1.6%). Overweight and obesity at all ages had a strong tendency to persist to age 15 years as indicated by risk ratios (95% CI (Confidence interval)) for overweight and obesity at 15 years from overweight and obesity (relative to healthy weight status) at 3 years (2.4, 1.8-3.1), 7 years (4.6, 3.6-5.8), and 11 years (9.3, 6.5-13.2).

CONCLUSION:

Mid-late childhood (around age 7-11 years) may merit greater attention in future obesity prevention interventions.

**808: O'Connor DP, Bray MS, McFarlin BK, Ellis KJ, Sailors MH, Jackson AS. Ethnic bias in anthropometric estimates of DXA abdominal fat: the TIGER study. Med Sci Sports Exerc. 2011 Sep;43(9):1785-90. doi: 10.1249/MSS.0b013e318216d90f. PubMed PMID: 21364481; PubMed Central PMCID: PMC3179798.**

Abstract

BACKGROUND/INTRODUCTION:

The purpose of this study was to examine the race/ethnicity bias of using waist circumference (WC) to estimate abdominal fat.

METHODS:

A total of 771 females and 484 males (17-35 yr) were tested one to three times during a prescribed 30-wk aerobic exercise program. The race/ethnicity distribution for women was non-Hispanic white, 29%; Hispanic, 25%; African American (AA), 35%; Asian Indian, 3%; and Asian, 8%. The distribution for men was non-Hispanic white, 37%; Hispanic, 26%; AA, 22%; Asian Indian, 5%; and Asian, 10%.

Abdominal fat (L1-L5) was estimated from whole-body scanning using dual-energy x-ray absorptiometry (DXA Abd-Fat).

RESULTS:

DXA Abd-Fat varied by race/ethnicity after accounting for WC and height in both women and men. The increase in DXA Abd-Fat per increase in WC was lower in the Asian and Asian-Indian women than that in the other women. The increase in DXA Abd-Fat per increase in WC was higher in the AA men and lower in the Asian-Indian men than that in the other men. These differential race/ethnicity effects were most notable when WC exceeded  $\approx 90$  cm in the women and  $\approx 100$  cm in the men, values which are consistent with current definitions of abdominal obesity in the United States.

CONCLUSIONS:

Prediction equations for abdominal fat using WC that do not account for race/ethnicity group provide biased estimates. These results may affect assessment of disease risk from abdominal obesity among racial/ethnic groups.



**809: Glueck CJ, Morrison JA, Daniels S, Wang P, Stroop D. Sex hormone-binding globulin, oligomenorrhea, polycystic ovary syndrome, and childhood insulin at age 14 years predict metabolic syndrome and class III obesity at age 24 years. J Pediatr. 2011 Aug;159(2):308-13.e2. doi: 10.1016/j.jpeds.2011.01.018. Epub 2011 Mar 1. PubMed PMID: 21362574; PubMed Central PMCID: PMC3418049.**

Abstract

OBJECTIVE:

We hypothesized that oligomenorrhea (menstrual cyclicity  $\geq 42$  days), hyperandrogenism, low levels of sex hormone-binding globulin (SHBG), childhood insulin, and metabolic syndrome (MetS) at age 14 years would predict MetS and class III obesity (body mass index  $\geq 40$  kg/m<sup>2</sup>) at age 24 years.

STUDY DESIGN:

In this prospective study of schoolgirls, at age 14 years, the girls were categorized as regularly cycling (n = 375), oligomenorrheic (n = 18), or oligomenorrhea plus biochemical hyperandrogenism (polycystic ovary syndrome [PCOS]; n = 12), together designated PCOS.

RESULTS:

Significant explanatory variables for MetS at age 24 years included childhood insulin, MetS, and PCOS category (all positive) and SHBG (negative) at age 14 years. Using categorical data, top decile of childhood insulin, MetS at age 14, bottom decile of SHBG, and PCOS category were significant positive predictors for MetS at age 24. SHBG (negative), black race (positive), and oligomenorrhea (positive) were significant explanatory variables for class III obesity at age 24. Using categorical data, black race, MetS at age 14, bottom decile of SHBG, PCOS category, and top decile of childhood insulin were positive explanatory variables for class III obesity at age 24 years.

CONCLUSIONS:

Oligomenorrhea, PCOS (a subcohort of oligomenorrhea), hyperandrogenism, low SHBG, MetS, and childhood insulin at age 14 years may represent a critical, reversible pathway for the development of MetS and class III obesity in young adulthood.

**810: Kimani-Murage EW, Kahn K, Pettifor JM, Tollman SM, Klipstein-Grobusch K, Norris SA. Predictors of adolescent weight status and central obesity in rural South Africa. Public Health Nutr. 2011 Jun;14(6):1114-22. doi: 10.1017/S1368980011000139. Epub 2011 Feb 28. PubMed PMID: 21356151; PubMed Central PMCID: PMC3370923.**

Abstract

OBJECTIVE:

To investigate predictors of adolescent obesity in rural South Africa.

DESIGN:

Cross-sectional study. Height, weight and waist circumference were measured using standard procedures. Overweight and obesity in adolescents aged 10-17 years were assessed using the International Obesity Taskforce cut-offs, while the WHO adult cut-offs were used for participants aged 18-20 years. Waist-to-height ratio of  $>0.5$  defined central obesity in those at Tanner stages 3-5. Linear and logistic regression analysis was used to evaluate risk factors.

SETTING:

Agincourt sub-district, rural South Africa.

SUBJECTS:

Participants (n 1848) were aged 10-20 years.

**RESULTS:**

Combined overweight and obesity was higher in girls (15 %) than boys (4 %), as was central obesity (15 % and 2 %, respectively). With regard to overweight/obesity, fourfold higher odds were observed for girls and twofold higher odds were observed for participants from households with the highest socio-economic status (SES). The odds for overweight/obesity were 40 % lower if the household head had not completed secondary level education. For central obesity, the odds increased 10 % for each unit increase in age; girls had sevenfold higher odds v. boys; post-pubertal participants had threefold higher odds v. pubertal participants; those with older mothers aged 50+ years had twofold higher odds v. those whose mothers were aged 35-49 years; those in highest SES households had twofold higher odds v. those in lowest SES households.

**CONCLUSIONS:**

In rural South Africa, adolescent females are most at risk of obesity which increases with age and appears to be associated with higher SES. To intervene effectively, it is essential to understand how household factors influence food choice, diet and exercise.

**811: Centers for Disease Control and Prevention (CDC). Maternal, pregnancy, and birth characteristics of Asians and Native Hawaiians/Pacific Islanders--King County, Washington, 2003-2008. MMWR Morb Mortal Wkly Rep. 2011 Feb 25;60(7):211-3. PubMed PMID: 21346708.**

**Abstract**

In 1997, the Office of Management and Budget issued revised standards for reporting race and ethnicity in federal datasets. In addition to permitting the reporting of two or more races for each record, the revised standards separated the "Asian or Pacific Islander" category into two categories: "Asian" and "Native Hawaiian or other Pacific Islander" (NHPI). To quantify the health status of NHPI mothers and infants in King County, Washington, 2003-2008 vital statistics for NHPI disaggregated from Asians were used to assess several key maternal and birth outcome indicators. This analysis determined that, compared with Asians in King County, NHPI mothers were significantly more likely to be adolescents, overweight or obese before pregnancy, or to have smoked during pregnancy, and their infants were more likely to be born preterm, weigh >4,500 g, or receive either third trimester only or no prenatal care. These results identify important differences and support routine presentation of health data separately for Asians and NHPis.

**812: Brennan RC, Helton KJ, Pei D, Cheng C, Inaba H, Metzger ML, Howard SC, Rubnitz JE, Ribeiro RC, Sandlund JT, Jeha S, Pui CH, Bhojwani D. Spinal epidural lipomatosis in children with hematologic malignancies. Ann Hematol. 2011 Sep;90(9):1067-74. doi: 10.1007/s00277-011-1183-6. Epub 2011 Feb 22. PubMed PMID: 21340722; PubMed Central PMCID: PMC3169011.**

**Abstract**

Abnormal fat deposition in the epidural space or spinal epidural lipomatosis (SEL) due to corticosteroid treatment or obesity may cause obstruction to cerebrospinal fluid flow. Little is known about SEL in patients with hematologic malignancies who require frequent lumbar punctures and corticosteroid treatment that places them at risk. Records and radiologic images of patients with SEL and leukemia or non-Hodgkin lymphoma (NHL) treated at a single institution from 1999-2009 were

reviewed. Risk factors were compared with 405 control patients with leukemia. Fourteen patients with leukemia or NHL were diagnosed with SEL. The majority of patients underwent diagnostic imaging after unsuccessful lumbar punctures within 1 month of their primary diagnosis. Prior to SEL diagnosis, all patients received systemic and/or intrathecal corticosteroids. SEL diagnosis led to modification of intrathecal administration in eight patients, including Ommaya reservoir placement in four patients. All patients completed protocol-specified chemotherapy without neurologic symptoms or surgical intervention. Risk factors for developing SEL include older age and high body mass index. Investigation for SEL in leukemia or lymphoma patients with difficult lumbar punctures is warranted. Placement of an Ommaya reservoir may facilitate safe CNS-directed therapy in severely affected patients.

**813: Hughes AR, Sherriff A, Lawlor DA, Ness AR, Reilly JJ. Timing of excess weight gain in the Avon Longitudinal Study of Parents and Children (ALSPAC). *Pediatrics*. 2011 Mar;127(3):e730-6. doi: 10.1542/peds.2010-0959. Epub 2011 Feb 21. PubMed PMID: 21339267.**

Abstract

OBJECTIVES:

To test the hypothesis that most excess weight gain occurs by school entry in a large sample of English children, and to determine when the greatest gain in excess weight occurred between birth and 15 years.

METHODS:

Longitudinal data were collected annually from birth to 15 years in 625 children. Weight and BMI at each time point were expressed relative to UK 1990 growth reference as z scores. Excess weight gain was calculated as the group increase in weight and BMI z scores between specific time periods.

RESULTS:

Weight z score did not increase from birth to 5 years (mean difference: 0.04 [95% confidence interval (CI): -0.03-0.12] P = .30) but increased from 5 to 9 years (mean difference: 0.19 [95% CI: 0.14-0.23] P < .001). BMI z score increased from 7 to 9 years (mean difference: 0.22 [95% CI: 0.18-0.26] P < .001), with no evidence of a large increase before 7 years and after 9 years.

CONCLUSIONS:

Our results do not support the hypothesis that most excess weight gain occurs in early childhood in contemporary English children. Excess weight gain was substantial in mid-childhood, with more gradual increases in early childhood and adolescence, which indicates that interventions to prevent excess weight should focus on school-aged children and adolescents as well as the preschool years.

**814: Vehof J, Risselada AJ, Al Hadithy AF, Burger H, Snieder H, Wilffert B, Arends J, Wunderink L, Knegtering H, Wiersma D, Cohen D, Mulder H, Bruggeman R. Association of genetic variants of the histamine H1 and muscarinic M3 receptors with BMI and HbA1c values in patients on antipsychotic medication. Psychopharmacology (Berl). 2011 Jul;216(2):257-65. doi: 10.1007/s00213-011-2211-x. Epub 2011 Feb 19. PubMed PMID: 21336576; PubMed Central PMCID: PMC3121946.**

Abstract

RATIONALE:

Antipsychotic affinity for the histamine H1 receptor and the muscarinic M3 receptor have been associated with the side effects weight gain, and development of diabetes, respectively.

OBJECTIVES:

We investigated polymorphisms of the histamine H1 (HRH1) and muscarinic acetylcholine receptor M3 (CHRM3) receptor genes for an association with body mass index (BMI) and glycated hemoglobin (HbA1c).

METHODS:

We included 430 Caucasian patients with a non-affective psychotic disorder using antipsychotics for at least 3 months. Primary endpoints of the study were cross-sectionally measured BMI and HbA1c; secondary endpoints were obesity and hyperglycaemia. Two single-nucleotide polymorphisms (SNPs) in the HRH1 gene, rs346074 and rs346070, and one SNP in the CHRM3 gene, rs3738435, were genotyped. Our primary hypothesis in this study was an interaction between genotype on BMI and antipsychotic affinity for the H1 and M3 receptor.

RESULTS:

A significant association of interaction between haplotype rs346074-rs346070 and BMI (p value 0.025) and obesity (p value 0.005) in patients using high-H1 affinity antipsychotics versus patients using low-H1 affinity antipsychotics was found. There was no association of CHRM3 gene variant rs3738435 with BMI, and we observed no association with HbA1c or hyperglycaemia in any of the variants.

CONCLUSIONS:

This study, for the first time, demonstrates a significant association between HRH1 variants and BMI in patients with a psychotic disorder using antipsychotics. In future, genotyping of HRH1 variants may help predicting weight gain in patients using antipsychotics.

**815: Escarda Fernández E, González Martínez E, González Sarmiento E, De Luis Román D, Muñoz Moreno MF, Rodríguez Gay C, Almaraz Gómez A, Zurro Hernández J. [Study of the anthropometric and nutritional characteristics of adolescents in the city of Valladolid]. Nutr Hosp. 2010 Sep-Oct;25(5):814-22. Spanish. PubMed PMID: 21336441.**

Abstract

OBJECTIVES:

A description of the anthropometric characteristics of a sample of adolescents from Valladolid and the analysis of dietary intake of the population.

MATERIALS AND METHODS:

Observational study of descriptive cross-field of a sample of 557 adolescents (14-18 years) by probabilistic sampling from 6 public and private, in different districts of Valladolid. We carried out a food frequency questionnaire with anthropometric measurements. The classification of individuals was by calculating the Z-score of body mass index (BMI), the Cole's cutoff points for BMI and criteria of the International Diabetes Federation (IDF). Nutritional analysis: probabilistic approach and the nutrient adequacy ratio.

**RESULTS:**

Excess weight is similar in both sexes (17%), but there is a 15.2% prevalence of underweight among the women studied, compared to 4.5% in males ( $p < 0.005$ ). 1.3% risk of having metabolic syndrome. Energy consumption is distributed: 30-32% fat, 45% carbohydrates and 16-17% protein. The nutritional deficiency likely reflects consumption in iodine, zinc, vitamins A and E.

**CONCLUSIONS:**

The prevalence of obesity is close to that of other series, but the prevalence of overweight is lower. It is very important percentage of women with a BMI below normal for their age and sex. There is an excess of protein intake of saturated fat and cholesterol, with a deficit in the consumption of carbohydrates, iodine, zinc and vitamins A and E.

**816: Lim S, Zoellner JM, Ajrouch KJ, Ismail AI. Overweight in childhood: the role of resilient parenting in African-American households. Am J Prev Med. 2011 Mar;40(3):329-33. doi: 10.1016/j.amepre.2010.11.006. PubMed PMID: 21335265; PubMed Central PMCID: PMC3056409.**

**Abstract**

**BACKGROUND:**

Some low-income minority children in the U.S. remain at normal weight throughout their childhood despite high risk of obesity.

**PURPOSE:**

This study examined whether resilient caregiving accounted for children's healthy weight maintenance and dietary compliance over a 4-year period among poverty-stricken African-American families.

**METHODS:**

A representative sample of 317 African-American caregiver-children (aged 3-5 years) pairs from low-income areas of Detroit MI was examined in 2002-2003 with a follow-up assessment in 2007. Capacity for resilience among caregivers was defined using five individual and environmental protective factors. A BMI score for the children was computed from recorded height and weight, and converted into one of three categories (normal weight, overweight, obese) using age- and gender-specific national references. Dietary information was collected using the Block Food Frequency Questionnaire (FFQ) and Block Kids FFQ. Data were analyzed in 2010 to test whether children's weight transition and dietary compliance varied according to their caregivers' capacity for resilience.

**RESULTS:**

In all, 95 caregivers (29%) were identified as having capacity for resilience. They were younger, had higher levels of educational attainment, and had lower levels of daily soda consumption. The children of these caregivers had a lower likelihood of remaining overweight or obese than being of normal weight (relative risk ratio=0.5, 95% CI=0.2, 0.9) and had persistently lower soda consumption over 4 years compared with other children.

**CONCLUSIONS:**

This finding demonstrates that some caregivers positively influence children's health weight management and dietary compliance despite material deprivation. Interventions to initiate and promote resilient caregiving could benefit the health and health-related behaviors of low-income African-American children.

**817: Stanziano DC, Butler-Ajibade P. Differences in health-related behaviors and body mass index risk categories in African American women in college. J Natl Med Assoc. 2011 Jan;103(1):4-8. PubMed PMID: 21329240; PubMed Central PMCID: PMC3135306.**

Abstract

OBJECTIVE:

To determine if differences in health-related behaviors (diet and physical activity) exist in African American college women based on body mass index (BMI) risk categories.

METHODS:

One hundred eighty-six African American women (age, 19.5 +/- 2.5 y) in college were surveyed using the modified National College Health Risk Behavior Survey. Data regarding demographics, weight loss history/methods, food choices, and physical activity frequency were compared for obese (BMI > or = 30, n = 30), overweight (25 < or = BMI < 30, n = 45), and normal-weight (BMI < 25, n = 111) groups. Data were analyzed using multiple 2-way analyses of variance.

RESULTS:

No differences in food choices were determined between the groups. The overweight and obese groups were more likely than the normal-weight group to have used healthy modalities such as diet and/or exercise to try to lose weight instead of unhealthy methods such as laxatives and diet pills. The overweight group reported more vigorous aerobic training and strength training workouts than the normal-weight group.

CONCLUSIONS:

Food selection and activity frequency are not enough to differentiate African American women in different BMI categories. Other factors may contribute to obesity such as food portion sizes, genetics, and/or intensity of physical activities.

**818: Elbel B, Gyamfi J, Kersh R. Child and adolescent fast-food choice and the influence of calorie labeling: a natural experiment. Int J Obes (Lond). 2011 Apr;35(4):493-500. doi: 10.1038/ijo.2011.4. Epub 2011 Feb 15. PubMed PMID: 21326209; PubMed Central PMCID: PMC3719868.**

Abstract

OBJECTIVE:

Obesity is an enormous public health problem and children have been particularly highlighted for intervention. Of notable concern is the fast-food consumption of children. However, we know very little about how children or their parents make fast-food choices, including how they respond to mandatory calorie labeling. We examined children's and adolescents' fast-food choice and the influence of calorie labels in low-income communities in New York City (NYC) and in a comparison city (Newark, NJ).

DESIGN:

Natural experiment: Survey and receipt data were collected from low-income areas in NYC, and Newark, NJ (as a comparison city), before and after mandatory labeling began in NYC. Study restaurants included four of the largest chains located in NYC and Newark: McDonald's, Burger King, Wendy's and Kentucky Fried Chicken.

**SUBJECTS:**

A total of 349 children and adolescents aged 1-17 years, who visited the restaurants with their parents (69%) or alone (31%) before or after labeling was introduced. In total, 90% were from racial or ethnic minority groups.

**RESULTS:**

We found no statistically significant differences in calories purchased before and after labeling; many adolescents reported noticing calorie labels after their introduction (57% in NYC) and a few considered the information when ordering (9%). Approximately 35% of adolescents ate fast food six or more times per week and 72% of adolescents reported that taste was the most important factor in their meal selection. Adolescents in our sample reported that parents have some influence on their meal selection.

**CONCLUSIONS:**

Adolescents in low-income communities notice calorie information at similar rates as adults, although they report being slightly less responsive to it than adults. We did not find evidence that labeling influenced adolescent food choice or parental food choices for children in this population.

**819: Drieling RL, Ma J, Stafford RS. Evaluating clinic and community-based lifestyle interventions for obesity reduction in a low-income Latino neighborhood: Vivamos Activos Fair Oaks Program. BMC Public Health. 2011 Feb 14;11:98. doi: 10.1186/1471-2458-11-98. PubMed PMID: 21320331; PubMed Central PMCID: PMC3042942.**

**Abstract**

**BACKGROUND:**

Obesity exerts an enormous health impact through its effect on coronary heart disease and its risk factors. Primary care-based and community-based intensive lifestyle counseling may effectively promote weight loss. There has been limited implementation and evaluation of these strategies, particularly the added benefit of community-based intervention, in low-income Latino populations.

**DESIGN:**

The Vivamos Activos Fair Oaks project is a randomized clinical trial designed to evaluate the clinical and cost-effectiveness of two obesity reduction lifestyle interventions: clinic-based intensive lifestyle counseling, either alone (n = 80) or combined with community health worker support (n = 80), in comparison to usual primary care (n = 40). Clinic-based counseling consists of 15 group and four individual lifestyle counseling sessions provided by health educators targeting behavior change in physical activity and dietary practices. Community health worker support includes seven home visits aimed at practical implementation of weight loss strategies within the person's home and neighborhood. The interventions use a framework based on Social Cognitive Theory, the Transtheoretical Model of behavior change, and techniques from previously tested lifestyle interventions. Application of the framework was culturally tailored based on past interventions in the same community and elsewhere, as well as a community needs and assets assessment. The interventions include a 12-month intensive phase followed by a 12-month maintenance phase. Participants are obese Spanish-speaking adults with at least one cardiovascular risk factor recruited

from a community health center in a low-income neighborhood of San Mateo County, California. Follow-up assessments occur at 6, 12, and 24 months for the primary outcome of percent change in body mass index at 24 months. Secondary outcomes include specific cardiovascular risk factors, particularly blood pressure and fasting glucose levels.

**DISCUSSION AND CONCLUSIONS:**

If successful, this study will provide evidence for broad implementation of obesity interventions in minority populations and guidance about the selection of strategies involving clinic-based case management and community-based community health worker support.

**CLINICAL TRIAL REGISTRATION:**

ClinicalTrials.gov: NCT01242683.

**820: Mirza NM, Klein CJ, Palmer MG, McCarter R, He J, Ebbeling CB, Ludwig DS, Yanovski JA. Effects of high and low glycemic load meals on energy intake, satiety and hunger in obese Hispanic-American youth. Int J Pediatr Obes. 2011 Jun;6(2-2):e523-31. doi: 10.3109/17477166.2010.544740. Epub 2011 Feb 10. PubMed PMID: 21309658; PubMed Central PMCID: PMC3128645.**

**Abstract**

Some short-term pediatric studies have suggested beneficial effects of low glycemic load (LGL) meals on feelings of hunger and on energy intake. However, the effects of LGL diets have not been systematically studied in obese Hispanic children, who stand to benefit from successful interventions.

**OBJECTIVE:**

To examine the effects of LGL and high-GL (HGL) meals on appetitive responses and ad libitum energy intake of obese Hispanic youth.

**METHODS:**

A total of 88 obese Hispanic youth aged 7-15 years were enrolled in a community-based obesity intervention program and randomly assigned to consume meals designed as either LGL (n = 45) or HGL (n = 43). After 12 weeks, participants were admitted for a 24-hour metabolic study. Following the morning test meal, subjects serially reported hunger, fullness, and satiety using a visual analog scale. Blood insulin and glucose were measured. After 5 hours, participants were fed another test meal and given a snack platter from which to eat ad libitum. All test food was weighed and the energy, macronutrients, and glycemic load (GL) of consumed foods were calculated.

**RESULTS:**

The HGL group had significantly higher insulin (p = 0.0005) and glucose (p = 0.0001) responses to the breakfast meal compared with the LGL group. There were no significant between-group differences in energy consumed from the snack platter (1303 vs. 1368 kcal, p = 0.5), or in the subjective feelings of hunger (p = 0.3), fullness (p = 0.5) or satiety (p = 0.3) between the two groups.

**CONCLUSIONS:**

Our study provides no evidence that, for obese Hispanic youth, changing the GL of the diet affects short-term hunger, fullness, satiety, or energy intake. ClinicalTrials.gov Identifier: NCT01068197.



**821: Jacobsson JA, Rask-Andersen M, Risérus U, Moschonis G, Koumpitski A, Chrousos GP, Lannfelt L, Marcus C, Gyllensten U, Schiöth HB, Fredriksson R. Genetic variants near the MGAT1 gene are associated with body weight, BMI and fatty acid metabolism among adults and children. *Int J Obes (Lond)*. 2012 Jan;36(1):119-29. doi: 10.1038/ijo.2011.11. Epub 2011 Feb 8. PubMed PMID: 21304485; PubMed Central PMCID: PMC3255099.**

Abstract

OBJECTIVE:

Recently a genome-wide association analysis from five European populations identified a polymorphism located downstream of the mannosyl-( $\alpha$ -1,3)-glycoprotein- $\beta$ -1,2-N-acetylglucosaminyltransferase (MGAT1) gene that was associated with body-weight. In the present study, associations between MGAT1 variants combined with obesity and insulin measurements were investigated in three cohorts. Levels of fatty acids and estimated measures of  $\Delta$  desaturases were also investigated among adult men.

DESIGN:

Six polymorphisms downstream of MGAT1 were genotyped in a cross-sectional cohort of 1152 Swedish men. Three polymorphisms were further analyzed in a case-control study of 1076 Swedish children and in a cross-sectional study of 2249 Greek children.

RESULTS:

Three polymorphisms, rs12186500 (odds ratio (OR): 1.892, 95% confidence interval (CI): 1.237-2.895,  $P=0.003$ ), rs1021001 (OR: 2.102, 95% CI: 1.280-3.455,  $P=0.003$ ) and rs4285184 (OR: 1.587, 95% CI: 1.024-2.459,  $P=0.038$ ) were associated with a higher prevalence of obesity among the adult men and a trend for obesity was observed for rs4285184 among the Swedish (OR: 1.205, 95% CI: 0.987-1.471,  $P=0.067$ ) and Greek children (OR: 1.192, 95%CI: 0.978-1.454,  $P=0.081$ ). Association with body weight was observed for rs12186500 ( $P=0.017$ ) and rs4285184 ( $P=0.024$ ) among the men. The rs1021001 and rs4285184 were also associated with body mass index (BMI) in the two Swedish cohorts and similar trends were observed among the Greek children. The combined effect size for rs1021001 and rs4285184 on BMI z-score from a meta-analysis was 0.233 (95% CI:0.093-0.373,  $P=0.001$ ) and 0.147 (95% CI:0.057-0.236,  $P=0.001$ ), respectively. We further observed associations between the genetic variants and fatty acids ( $P<0.039$ ) and estimated measures of  $\Delta$  desaturases ( $P<0.040$ ), as well as interactions for rs12186500 ( $P<0.019$ ) with an effect on BMI. No association was found with homeostatic model assessment-insulin resistance in any cohort but increased insulin levels, insulin response and decreased insulin sensitivity were observed among the children ( $P<0.038$ ).

CONCLUSION:

Genetic variants downstream MGAT1 seem to influence susceptibility to obesity. Moreover, these genetic variants affect the levels of serum unsaturated fatty acids and  $\Delta$  desaturase indices, variables previously shown to correlate with obesity.

**822: Jones-Smith JC, Gordon-Larsen P, Siddiqi A, Popkin BM. Cross-national comparisons of time trends in overweight inequality by socioeconomic status among women using repeated cross-sectional surveys from 37 developing countries, 1989-2007. Am J Epidemiol. 2011 Mar 15;173(6):667-75. doi: 10.1093/aje/kwq428. Epub 2011 Feb 7. PubMed PMID: 21300855; PubMed Central PMCID: PMC3105263.**

Abstract

Chronic diseases are now among the leading causes of morbidity and mortality in lower income countries. Although traditionally related to higher individual socioeconomic status (SES) in these contexts, the associations between SES and chronic disease may be actively changing. Furthermore, country-level contextual factors, such as economic development and income inequality, may influence the distribution of chronic disease by SES as well as how this distribution has changed over time. Using overweight status as a health indicator, the authors studied repeated cross-sectional data from women aged 18-49 years in 37 developing countries to assess within-country trends in overweight inequalities by SES between 1989 and 2007 (n=405,550). Meta-regression was used to examine the associations between gross domestic product and disproportionate increases in overweight prevalence by SES, with additional testing for modification by country-level income inequality. In 27 of 37 countries, higher SES (vs. lower) was associated with higher gains in overweight prevalence; in the remaining 10 countries, lower SES (vs. higher) was associated with higher gains in overweight prevalence. Gross domestic product was positively related to faster increase in overweight prevalence among the lower wealth groups. Among countries with a higher gross domestic product, lower income inequality was associated with faster overweight growth among the poor.

**823: Savoye M, Nowicka P, Shaw M, Yu S, Dziura J, Chavent G, O'Malley G, Serrecchia JB, Tamborlane WV, Caprio S. Long-term results of an obesity program in an ethnically diverse pediatric population. Pediatrics. 2011 Mar;127(3):402-10. doi: 10.1542/peds.2010-0697. Epub 2011 Feb 7. PubMed PMID: 21300674; PubMed Central PMCID: PMC3065145.**

Abstract

OBJECTIVE:

To determine if beneficial effects of a weight-management program could be sustained for up to 24 months in a randomized trial in an ethnically diverse obese population.

PATIENTS AND METHODS:

There were 209 obese children (BMI > 95th percentile), ages 8 to 16 of mixed ethnic backgrounds randomly assigned to the intensive lifestyle intervention or clinic control group. The control group received counseling every 6 months, and the intervention group received a family-based program, which included exercise, nutrition, and behavior modification. Lifestyle intervention sessions occurred twice weekly for the first 6 months, then twice monthly for the second 6 months; for the last 12 months there was no active intervention. There were 174 children who completed the 12 months of the randomized trial. Follow-up data were available for 76 of these children at 24 months. There were no statistical differences in dropout rates among ethnic groups or in any other aspects.

RESULTS:

Treatment effect was sustained at 24 months in the intervention versus control group for BMI z score (-0.16 [95% confidence interval: -0.23 to -0.09]), BMI (-2.8 kg/m<sup>2</sup>) [95% confidence interval: -4.0-1.6

kg/m<sup>2</sup>)), percent body fat (-4.2% [95% confidence interval: -6.4% to -2.0%]), total body fat mass (-5.8 kg [95% confidence interval: -9.1 kg to -2.6 kg]), total cholesterol (-13.0 mg/dL [95% confidence interval: -21.7 mg/dL to -4.2 mg/dL]), low-density lipoprotein cholesterol (-10.4 mg/dL [95% confidence interval: -18.3 mg/dL to -2.4 mg/dL]), and homeostasis model assessment of insulin resistance (-2.05 [95% confidence interval: -2.48 to -1.75]).

**CONCLUSIONS:**

This study, unprecedented because of the high degree of obesity and ethnically diverse backgrounds of children, reveals that benefits of an intensive lifestyle program can be sustained 12 months after completing the active intervention phase.

**824: Urbina EM, Dolan LM, McCoy CE, Khoury PR, Daniels SR, Kimball TR. Relationship between elevated arterial stiffness and increased left ventricular mass in adolescents and young adults. J Pediatr. 2011 May;158(5):715-21. doi: 10.1016/j.jpeds.2010.12.020. PubMed PMID: 21300369; PubMed Central PMCID: PMC3075322.**

**Abstract**

**OBJECTIVE:**

To determine whether arterial stiffness relates to left ventricular mass (LVM) in adolescents and young adults.

**STUDY DESIGN:**

Demographic, anthropometric, laboratory, echo, carotid ultrasound and arterial stiffness data were obtained in 670 subjects 10 to 24 years of age (35% male, 62% non-Caucasian). Global stiffness index (GSI) was calculated from five measures of carotid artery stiffness, augmentation index, brachial distensibility, and pulse wave velocity (1 point if  $\geq 95^{\text{th}}$  for subjects with body mass index  $< 85^{\text{th}}$ ). Stiff arteries (S = 73) were defined as GSI  $\geq 95^{\text{th}}$ . Differences between flexible (F = 597) and S groups were evaluated by t tests. Models were constructed to determine whether GSI was an independent determinant of LVM index or relative wall thickness (RWT).

**RESULTS:**

The S group had more adverse cardiovascular risk factors, higher LVM index and RWT ( $P \leq .05$ ) with a trend for abnormal cardiac geometry. Independent determinants of LVM index were higher GSI, age, body mass index, systolic blood pressure, heart rate, glycosylated hemoglobin A1c, male sex, and sex-by-heart rate interaction ( $r(2) = 0.52$ ;  $P \leq .05$ ). GSI was also an independent determinant of RWT.

**CONCLUSIONS:**

Increased arterial stiffness in adolescents and young adults is associated with LVM index independently of traditional cardiovascular risk factors. Screening for arterial stiffness may be useful to identify high risk adolescents and young adults.

**825: Belfort MB, Zupancic JA, Riera KM, Turner JH, Prosser LA. Health state preferences associated with weight status in children and adolescents. BMC Pediatr. 2011 Feb 7;11:12. doi: 10.1186/1471-2431-11-12. PubMed PMID: 21299875; PubMed Central PMCID: PMC3045341.**

Abstract

BACKGROUND:

Childhood obesity is a substantial public health problem. The extent to which health state preferences (utilities) are related to a child's weight status has not been reported. The aims of this study were (1) to use a generic health state classification system to measure health related quality of life and calculate health utilities in a convenience sample of children and adolescents and (2) to determine the extent to which these measures are associated with weight status and body mass index (BMI).

METHODS:

We enrolled 76 children 5-18 years of age from a primary care clinic and an obesity clinic in Boston MA. We administered the Health Utilities Index (HUI) and used the HUI Mark 3 single- and multi-attribute utility functions to calculate health utilities. We determined BMI percentile and weight status based on CDC references. We examined single-attribute and overall utilities in relation to weight status and BMI.

RESULTS:

Mean (range) age was 10.8 (5-18) years. Mean (SD) BMI percentile was 76 (26); 55% of children were overweight or obese. The mean (SD) overall utility was 0.79 (0.17) in the entire sample. For healthy-weight children, the mean overall utility was higher than for overweight or obese children (0.81 vs. 0.78), but the difference was not statistically significant (difference 0.04, 95% CI -0.04, 0.11).

CONCLUSIONS:

Our results provide a quantitative estimate of the health utility associated with overweight and obesity in children, and will be helpful to researchers performing cost effectiveness analyses of interventions to prevent and/or treat childhood obesity.

**826: Sysko R, Zakarin EB, Devlin MJ, Bush J, Walsh BT. A latent class analysis of psychiatric symptoms among 125 adolescents in a bariatric surgery program. Int J Pediatr Obes. 2011 Aug;6(3-4):289-97. doi: 10.3109/17477166.2010.545411. Epub 2011 Feb 8. PubMed PMID: 21299450; PubMed Central PMCID: PMC3489175.**

Abstract

OBJECTIVE:

The purpose of this study was to examine whether subgroups could be identified among a sample of adolescents presenting for bariatric surgery.

METHODS:

Participants were 125 severely obese adolescents enrolled in a bariatric surgery program referred for a psychiatric evaluation. A latent class analysis was conducted with self-report and clinician-rated measures of depressive symptoms, total problems by the Youth Self-Report Scale, anxiety severity, eating pathology, psychiatric diagnoses, quality of life, and family functioning.

RESULTS:

A 3-class model yielded the best overall fit to the data. Adolescents in the 'eating pathology' class demonstrated high levels of both eating disordered and other psychopathology. The second class, or

?low psychopathology? class exhibited the fewest psychosocial problems, whereas adolescents in the third class were intermediate on measures of psychopathology, which is consistent with ?non-specific psychopathology.?

**CONCLUSIONS:**

The latent class analysis identified homogeneous subgroups with different levels of psychopathology among a heterogeneous sample of severely obese adolescents. The identification of clinically relevant subgroups in this study offers an important initial means for examining psychopathology among adolescent bariatric surgery candidates and suggests a number of avenues for future research.

**CLINICAL TRIALS REGISTRY:**

Laparoscopic Adjustable Gastric Banding (LAGB) as a Treatment for Morbid Obesity in Adolescents, NCT01045499.

**827: Blomquist KK, Masheb RM, White MA, Grilo CM. Parental substance use history of overweight men and women with binge eating disorder is associated with distinct developmental trajectories and comorbid mood disorder. Compr Psychiatry. 2011 Nov-Dec;52(6):693-700. doi: 10.1016/j.comppsy.2010.12.007. Epub 2011 Feb 5. PubMed PMID: 21296344; PubMed Central PMCID: PMC3136611.**

**Abstract**

**OBJECTIVE:**

To examine the significance of parental histories of substance use disorders (SUDs) in the expression of binge eating disorder (BED) and associated functioning.

**METHOD:**

Participants were 127 overweight patients with BED assessed using diagnostic interviews. Participants were administered a structured psychiatric history interview about their parents (N = 250) and completed a battery of questionnaires assessing current and historical eating and weight variables and associated psychological functioning (depression and self-esteem).

**RESULTS:**

Patients with BED with a parental history of SUD were significantly more likely to start binge eating before dieting, had a significantly earlier age at BED onset, and reported less time between binge eating onset and meeting diagnostic criteria for BED than did patients without a parental history of SUD. For psychiatric comorbidity, patients with BED with a parental history of SUD were significantly more likely to meet the criteria for a mood disorder. A parental history of SUD was not significantly associated with variability in current levels of binge eating, eating disorder psychopathology, or psychological functioning.

**DISCUSSION:**

Our findings suggest that a parental history of SUD is associated with certain distinct trajectories in the development of binge eating (earlier binge onset predating dieting onset) and with elevated rates of comorbidity with mood disorders in patients with BED.

**828: Rees SD, Islam M, Hydrie MZ, Chaudhary B, Bellary S, Hashmi S, O'Hare JP, Kumar S, Sanghera DK, Chaturvedi N, Barnett AH, Shera AS, Weedon MN, Basit A, Frayling TM, Kelly MA, Jafar TH. An FTO variant is associated with Type 2 diabetes in South Asian populations after accounting for body mass index and waist circumference. Diabet Med. 2011 Jun;28(6):673-80. doi: 10.1111/j.1464-5491.2011.03257.x. PubMed PMID: 21294771; PubMed Central PMCID: PMC3095685.**

Abstract

AIMS:

A common variant, rs9939609, in the FTO (fat mass and obesity) gene is associated with adiposity in Europeans, explaining its relationship with diabetes. However, data are inconsistent in South Asians. Our aim was to investigate the association of the FTO rs9939609 variant with obesity, obesity-related traits and Type 2 diabetes in South Asian individuals, and to use meta-analyses to attempt to clarify to what extent BMI influences the association of FTO variants with diabetes in South Asians.

METHODS:

We analysed rs9939609 in two studies of Pakistani individuals: 1666 adults aged  $\geq 40$  years from the Karachi population-based Control of Blood Pressure and Risk Attenuation (COBRA) study and 2745 individuals of Punjabi ancestry who were part of a Type 2 diabetes case-control study (UK Asian Diabetes Study/Diabetes Genetics in Pakistan; UKADS/DGP). The main outcomes were BMI, waist circumference and diabetes. Regression analyses were performed to determine associations between FTO alleles and outcomes. Summary estimates were combined in a meta-analysis of 8091 South Asian individuals (3919 patients with Type 2 diabetes and 4172 control subjects), including those from two previous studies.

RESULTS:

In the 4411 Pakistani individuals from this study, the age-, sex- and diabetes-adjusted association of FTO variant rs9939609 with BMI was 0.45 (95%CI 0.24-0.67) kg/m<sup>2</sup> per A-allele ( $P=3.0 \times 10^{-5}$ ) and with waist circumference was 0.88 (95% CI 0.36-1.41) cm per A-allele ( $P=0.001$ ). The A-allele (30% frequency) was also significantly associated with Type 2 diabetes [per A-allele odds ratio (95%CI) 1.18 (1.07-1.30);  $P=0.0009$ ]. A meta-analysis of four South Asian studies with 8091 subjects showed that the FTO A-allele predisposes to Type 2 diabetes [1.22 (95%CI 1.14-1.31);  $P=1.07 \times 10^{-8}$ ] even after adjusting for BMI [1.18 (95%CI 1.10-1.27);  $P=1.02 \times 10^{-5}$ ] or waist circumference [1.18 (95%CI 1.10-1.27);  $P=3.97 \times 10^{-5}$ ].

CONCLUSIONS:

The strong association between FTO genotype and BMI and waist circumference in South Asians is similar to that observed in Europeans. In contrast, the strong association of FTO genotype with diabetes is only partly accounted for by BMI.

**829: Hasson RE, Adam TC, Davis JN, Kelly LA, Ventura EE, Byrd-Williams CE, Toledo-Corral CM, Roberts CK, Lane CJ, Azen SP, Chou CP, Spruijt-Metz D, Weigensberg MJ, Berhane K, Goran MI. Randomized controlled trial to improve adiposity, inflammation, and insulin resistance in obese African-American and Latino youth. *Obesity (Silver Spring)*. 2012 Apr;20(4):811-8. doi: 10.1038/oby.2010.343. Epub 2011 Feb 3. PubMed PMID: 21293446; PubMed Central PMCID: PMC3106142.**

Abstract

The purpose of this study was to examine ethnic differences in the metabolic responses to a 16-week intervention designed to improve insulin sensitivity (SI), adiposity, and inflammation in obese African-American and Latino adolescents. A total of 100 participants (African Americans: n = 48, Latino: n = 52; age:  $15.4 \pm 1.1$  years, BMI percentile:  $97.3 \pm 3.3$ ) were randomly assigned to interventions: control (C; n = 30), nutrition (N; n = 39, 1x/week focused on decreasing sugar and increasing fiber intake), or nutrition + strength training (N+ST; n = 31, 2x/week). The following were measured at pre- and postintervention: strength, dietary intake, body composition (dual-energy X-ray absorptiometry/magnetic resonance imaging) and glucose/insulin indexes (oral glucose tolerance test (OGTT)/intravenous glucose tolerance test (IVGTT)) and inflammatory markers. Overall, N compared to C and N+ST reported significant improvements in SI (+16.5% vs. -32.3% vs. -6.9% respectively,  $P < 0.01$ ) and disposition index (DI: +15.5% vs. -14.2% vs. -13.7% respectively,  $P < 0.01$ ). N+ST compared to C and N reported significant reductions in hepatic fat fraction (HFF: -27.3% vs. -4.3% vs. 0% respectively,  $P < 0.01$ ). Compared to N, N+ST reported reductions in plasminogen activator inhibitor-1 (PAI-1) (-38.3% vs. +1.0%,  $P < 0.01$ ) and resistin (-18.7% vs. +11.3%,  $P = 0.02$ ). There were no intervention effects for all other measures of adiposity or inflammation. Significant intervention by ethnicity interactions were found for African Americans in the N group who reported increases in total fat mass, 2-h glucose and glucose incremental areas under the curve (IAUC) compared to Latinos ( $P$ 's  $< 0.05$ ). These interventions yielded differential effects with N reporting favorable improvements in SI and DI and N+ST reporting marked reductions in HFF and inflammation. Both ethnic groups had significant improvements in metabolic health; however some improvements were not seen in African Americans.

**830: Beyerlein A, Toschke AM, Schaffrath Rosario A, von Kries R. Risk factors for obesity: further evidence for stronger effects on overweight children and adolescents compared to normal-weight subjects. *PLoS One*. 2011 Jan 20;6(1):e15739. doi: 10.1371/journal.pone.0015739. PubMed PMID: 21283747; PubMed Central PMCID: PMC3024393.**

Abstract

BACKGROUND:

We recently showed that in preschoolers risk factors for overweight show stronger associations with BMI in children with high BMI values. However, it is unclear whether these findings might also pertain to adolescents.

METHODS:

We extracted data on 3-10 year-old (n = 7,237) and 11-17 year-old (n = 5,986) children from a representative cross-sectional German health survey (KiGGS) conducted between 2003 and 2006 and calculated quantile regression models for each age group. We used z-scores of children's body mass

index (BMI) as outcome variable and maternal BMI, maternal smoking in pregnancy, low parental socioeconomic status, exclusive formula-feeding and high TV viewing time as explanatory variables.

**RESULTS:**

In both age groups, the estimated effects of all risk factors except formula-feeding on BMI z-score were greatest for children with the highest BMI z-score. The median BMI z-score of 11-17 year-old children with high TV viewing time, for example, was 0.11 [95% CI: 0.03, 0.19] units higher than the median BMI z-score of teenage children with low TV viewing time. This risk factor was associated with an average difference of 0.18 [0.06, 0.30] units at the 90(th) percentile of BMI z-score and of 0.20 [0.07, 0.33] units at the 97(th) percentile.

**CONCLUSIONS:**

We confirmed that risk factors for childhood overweight are associated with greater shifts in the upper parts of the children's BMI distribution than in the middle and lower parts. These findings pertain also to teenagers and might possibly help to explain the secular shift in the upper BMI percentiles in children and adolescents.

**831: Burger CD, Foreman AJ, Miller DP, Safford RE, McGoon MD, Badesch DB. Comparison of body habitus in patients with pulmonary arterial hypertension enrolled in the Registry to Evaluate Early and Long-term PAH Disease Management with normative values from the National Health and Nutrition Examination Survey. Mayo Clin Proc. 2011 Feb;86(2):105-12. doi: 10.4065/mcp.2010.0394. PubMed PMID: 21282484; PubMed Central PMCID: PMC3031434.**

**Abstract**

**OBJECTIVE:**

To investigate the correlation between body mass index (BMI) and pulmonary artery systolic pressure in a large population of patients with pulmonary arterial hypertension (PAH).

**PATIENTS AND METHODS:**

The BMI of patients with group 1 PAH enrolled in the Registry to Evaluate Early and Long-term PAH Disease Management (REVEAL) was compared with that of age- and sex-matched controls in the National Health and Nutrition Examination Survey (NHANES) to clarify whether obesity is linked with PAH. The diagnosis of PAH was defined in REVEAL by right-sided heart catheterization. Differences in BMI and the percentage of patients considered obese (BMI  $\geq 30$ ) and underweight (BMI  $< 18.5$ ) in various subgroups of patients enrolled in REVEAL from March 30, 2006, through September 11, 2007, were determined.

**RESULTS:**

Mean BMI was no different for patients with PAH (n=2141) than for the NHANES normal comparison group; however, the proportion of obese and underweight patients was increased in patients with PAH. Subgroup analysis demonstrated that subgroups with idiopathic PAH and those with PAH associated with drugs and toxins had both higher BMI and percentage of obese patients, whereas 3 other subgroups (those with PAH associated with congenital heart disease, connective tissue disease, and human immunodeficiency virus) had lower mean BMI.

**CONCLUSION:**

Mean BMI of the REVEAL patients was the same as that of the NHANES normal comparison group; however, there were higher percentages of obese and underweight patients in REVEAL. This discrepancy can be explained by the balancing effect of more overweight and underweight patients



in different PAH subgroups. The reason for the increased frequency of obesity in idiopathic PAH is unknown, and additional study is needed.

**832: Ulloa N, Sapunar J, Bustos P, Sáez K, Asenjo S, Taibo M, Cornejo A. [Frequency of obesity and overweight among school age children living in southern Chile]. Rev Med Chil. 2010 Nov;138(11):1365-72. doi: /S0034-98872010001200004. Epub 2011 Jan 27. Spanish. PubMed PMID: 21279248.**

Abstract

BACKGROUND:

The frequency of obesity is increasing steadily in Chile.

AIM:

To assess the prevalence of obesity and overweight in children and teenagers living in three southern Chilean cities.

MATERIAL AND METHODS:

The database of an evaluation performed in 2006 in schools, was used to obtain weight and height of 32514 subjects aged  $12 \pm 4$  years (48% males). Criteria proposed by the International Obesity Task Force (IOTF) and the Centers for Disease Control (CDC) were used to define obesity and overweight.

RESULTS:

According to CDC criteria the prevalence of overweight and obesity was 11.2% and 6.5%, respectively. According to IOTF criteria, the figures were 13.2 and 4%, respectively. The higher frequency of overweight and obesity was observed among children aged less than eight years.

CONCLUSIONS:

There is a high frequency of obesity and overweight in the studied sample.

**833: Benmohammed K, Nguyen MT, Khensal S, Valensi P, Lezzar A. Arterial hypertension in overweight and obese Algerian adolescents: role of abdominal adiposity. Diabetes Metab. 2011 Sep;37(4):291-7. doi: 10.1016/j.diabet.2010.10.010. Epub 2011 Jan 28. PubMed PMID: 21277245.**

Abstract

OBJECTIVE:

This study aimed to estimate the prevalence of hypertension in Algerian overweight and obese adolescents to assess the risk factors associated with hypertension and an increase in arterial stiffness.

SUBJECTS AND METHODS:

This cross-sectional study included 305 adolescents (133 boys and 172 girls) aged 12-19 years, who were either overweight or obese (IOTF criteria). Their body weight, height, BMI, waist circumference (WC), WC-to-height ratio and blood pressure were also measured.

RESULTS:

Hypertension and prehypertension were found in 19.7 and 16.1%, respectively, of the study population, with significantly more hypertensives among the obese than among the overweight adolescents. The prevalence of hypertension was also twice as high in boys as in girls (27.1% vs 14%;  $P=0.004$ ), and WC and WC-to-height ratios were significantly higher in hypertensives than in normotensives. The risk of hypertension was also significantly higher in boys and associated with WC, independent of age and severity of weight excess (whether overweight or obese). Mean pulse

pressure (PP) was significantly higher in boys versus girls, in obese versus overweight adolescents and in hypertensives versus normotensives, and was correlated with WC and WC-to-height ratio. PP >45 mmHg was associated with WC and hypertension only in boys, independent of age.

**CONCLUSION:**

The prevalence of hypertension is high in overweight and obese adolescents, and higher in boys than in girls. Hypertension and arterial stiffness, as determined by high PP levels, were associated with abdominal adiposity. It is recommended that prehypertension be identified in overweight adolescents and that lifestyle changes be made to avoid its evolution towards obesity and hypertension.

**834: Creighton MJ, Goldman N, Teruel G, Rubalcava L. Migrant networks and pathways to child obesity in Mexico. Soc Sci Med. 2011 Mar;72(5):685-93. doi: 10.1016/j.socscimed.2010.12.006. Epub 2010 Dec 16. PubMed PMID: 21277058; PubMed Central PMCID: PMC3057383.**

**Abstract**

The purpose of this paper is twofold: 1) to assess the link between migrant networks and becoming overweight or obese and 2) to explore the pathways by which migrant networks may contribute to the increasing overweight and obese population of children in Mexico. Using two waves of the Mexican Family Life Survey (MxFLS), we find that children and adolescents (ages 3 to 15) living in households with migrant networks are at an increased risk of becoming overweight or obese over the period of observation, relative to their peers with no migrant networks. Sedentary behavior and household-level measures of economic wellbeing explain some of the association between networks and changes in weight status, but the role of extended networks remains significant. Community-level characteristics related to migration do not account for any of the observed relationship between household-level networks and becoming overweight or obese.

**835: Ozgüven I, Ersoy B, Ozgüven AA, Erbay PD. Evaluation of nutritional status in Turkish adolescents as related to gender and socioeconomic status. J Clin Res Pediatr Endocrinol. 2010;2(3):111-6. doi: 10.4274/jcrpe.v2i3.111. Epub 2010 Aug 4. PubMed PMID: 21274324; PubMed Central PMCID: PMC3005679.**

**Abstract**

**OBJECTIVE:**

To evaluate the nutritional status of Turkish high school adolescents using anthropometric indicators and to determine the relationship of nutritional status with gender and socioeconomic status (SES) in adolescents.

**METHODS:**

Six hundred eighty adolescent students (n=284 males, 396 females) aged 14-18 years were selected from 6 high schools of different regions. Nutritional status was evaluated according to the anthropometric indicators, which were based on the WHO criteria. Adolescents were grouped into three SES categories.

**RESULTS:**

The rates of being stunted, underweight, and overweight/obesity were 4.4%, 5.0% and 16.8%, respectively. Height and weight standard deviation scores (SDS) were significantly lower in adolescents with low SES (p<0.05). The frequency of stunting was significantly higher in adolescents

with low SES ( $p=0.012$ ). Frequency of underweight, overweight and obesity did not differ significantly between socioeconomic groups and genders ( $p>0.05$ ).

**CONCLUSION:**

Adolescents of low SES were shorter and thinner than those of other SES categories. Undernutrition needs to be addressed in low SES. Among all Turkish adolescents, the major nutritional problems were overweight and obesity. There were no SES and gender differences in prevalence of overweight and obesity among the Turkish school adolescents living in urban areas. Prevalence of obesity is rising, regardless of differences in SES and gender, in developing countries too.

**KEYWORDS:**

adolescents; nutritional anthropometry; obesity; socioeconomic status.

**836: Yuca SA, Yılmaz C, Cesur Y, Doğan M, Kaya A, Başaranoğlu M. Prevalence of overweight and obesity in children and adolescents in eastern Turkey. J Clin Res Pediatr Endocrinol. 2010;2(4):159-63. doi: 10.4274/jcrpe.v2i4.159. Epub 2010 Nov 5. PubMed PMID: 21274316; PubMed Central PMCID: PMC3005692.**

**Abstract**

**OBJECTIVE:**

The aim of this study was to estimate the prevalence of overweight and obesity in school children in Eastern Turkey.

**METHODS:**

This study included 9048 school children aged 6-18 years. The subjects were classified as overweight and obese, according to the International Obesity Task Force.

**RESULTS:**

We found prevalence of overweight of 11.1% in the studied population. It was detected that 2.2% of the population in the study was obese; 2.1% of males and 2.3% of females. While the prevalence of obesity was extremely low before 9 ages and after 15, it reached to high values at puberty and just before pubertal period in boys. The prevalence of overweight was higher in girls and reached to peak point at pubertal ages. Generally, the prevalence of obesity and overweight was slightly higher in girls than in boys, although the boys were more obese in prepubertal ages.

**CONCLUSION:**

Overweight and obesity are concerns for children and adolescents in low socio-economic status regions as well.

**KEYWORDS:**

adolescent; child; obesity.

**837: Lê KA, Ventura EE, Fisher JQ, Davis JN, Weigensberg MJ, Punyanitya M, Hu HH, Nayak KS, Goran MI. Ethnic differences in pancreatic fat accumulation and its relationship with other fat depots and inflammatory markers. Diabetes Care. 2011 Feb;34(2):485-90. doi: 10.2337/dc10-0760. PubMed PMID: 21270204; PubMed Central PMCID: PMC3024373.**

**Abstract**

**OBJECTIVE:**

Visceral adipose tissue (VAT) and hepatic fat are associated with insulin resistance and vary by sex and ethnicity. Recently, pancreatic fat fraction (PFF) has also been linked with increasing obesity. Our

aim was to assess ethnic and sex differences in PFF and its relationship to other fat depots, circulating free fatty acids (FFA), insulin secretion and sensitivity, and inflammation in obese adolescents and young adults.

**RESEARCH DESIGN AND METHODS:**

We examined 138 (40 males, 98 females) obese Hispanics and African Americans (13-25 years). Subcutaneous adipose tissue and VAT volumes, hepatic fat fraction (HFF), and PFF were determined by magnetic resonance imaging. Insulin sensitivity and  $\beta$ -cell function were assessed during an intravenous glucose tolerance test.

**RESULTS:**

Hispanics had higher PFF than African Americans ( $7.3 \pm 3.8$  vs.  $6.2 \pm 2.6\%$ ,  $P = 0.03$ ); this ethnic difference was higher in young adults compared with children and adolescents (ethnicity  $\times$  age:  $P = 0.01$ ). Males had higher PFF than females ( $P < 0.0001$ ). PFF was positively correlated with VAT ( $r = 0.45$ ,  $P < 0.0001$ ), HFF ( $r = 0.29$ ,  $P < 0.0001$ ), and FFA ( $r = 0.32$ ,  $P = 0.001$ ). PFF positively correlated with inflammatory markers but lost significance when adjusted for VAT. In multiple stepwise regression analysis, VAT and FFA were the best predictors of PFF (adjusted  $R^2 = 0.40$ ). There were no significant correlations between PFF and markers of insulin sensitivity or  $\beta$ -cell function.

**CONCLUSIONS:**

PFF is higher in Hispanics than African Americans, and this difference increases with age. In young obese individuals, PFF is related to VAT, HFF, and circulating FFA, thus possibly contributing to their increased risk for type 2 diabetes and related metabolic disorders.

**839: Lee S, Cowan PA, Velasquez-Mieyer P. A pilot study of QT interval analysis in overweight and obese youth. *Appl Nurs Res.* 2012 Aug;25(3):218-21. doi: 10.1016/j.apnr.2010.11.003. Epub 2011 Jan 20. PubMed PMID: 21255976; PubMed Central PMCID: PMC3096698.**

**Abstract**

This descriptive pilot study examined if manual corrected QT (QTc) interval measures obtained from a standard 12-lead electrocardiogram (ECG) correlated with automated 24-hour ambulatory Holter QTc measures in 30 overweight and obese youth aged 12-17 years. In addition, we sought to determine if a significant difference existed between the means of manual 12-lead ECG versus automated 24-hour ambulatory Holter measures. Spearman's rho correlation coefficient revealed there was little if any correlation between manual 12-lead ECG and automated 24-hour ambulatory Holter QTc measures ( $r = .179$ ,  $p = .345$ ). In addition, a significant difference existed between QTc measures obtained from the manual 12-lead ECG in comparison to the automated 24-hour ambulatory Holter measures ( $p = .01$ ). The manual 12-lead ECG and automated 24-hour ambulatory Holter analysis methods should not be used for comparison of QTc measures in overweight and obese youth.

**840: Jain S, Pant B, Chopra H, Tiwari R. Obesity among adolescents of affluent public schools in Meerut. *Indian J Public Health.* 2010 Jul-Sep;54(3):158-60. doi: 10.4103/0019-557X.75740. PubMed PMID: 21245587.**

**Abstract**

The prevalence of obesity has increased worldwide in all segments of the population due to increased industrialization, urbanization, mechanization, and associated changes in diet and lifestyles. Change in diet habit of consuming more high energy fast foods and shifting to sedentary lifestyle has affected

our children and also increased the risk of chronic diseases among adolescents. Childhood obesity has association with increased risk of coronary heart disease, stroke, and cancer in later life. Therefore, its control and prevention is one of the major concerns for all developing nations. The present school-based cross-sectional study was carried out among 2785 affluent adolescents of six public schools in Meerut during the period October 2003 to March 2004. The objective is to assess the magnitude of overweight and obesity in adolescents and associated risk factors, with the help of the ELIZ health pathway based on body mass index criteria. Prevalence of overweight and obesity was found to be 19.7% and 5.3% in girls and 18.36% and 10.82% in boys. Obesity was found to be significantly associated with high intake of junk foods ( $P < 0.05$ ), binge eating, high calorie intake ( $P < 0.05$ ), lower physical activity ( $P < 0.05$ ), and prolonged TV watching ( $P < 0.05$ ).

**841: Viganò L, Kluger MD, Laurent A, Tayar C, Merle JC, Lauzet JY, Andreoletti M, Cherqui D. Liver resection in obese patients: results of a case-control study. HPB (Oxford). 2011 Feb;13(2):103-11. doi: 10.1111/j.1477-2574.2010.00252.x. Epub 2010 Dec 22. PubMed PMID: 21241427; PubMed Central PMCID: PMC3044344.**

#### Abstract

##### OBJECTIVES:

Obesity has been associated with worse postoperative outcomes. No data are available regarding short-term results after liver resection (LR). The aim of this study was to analyse outcomes in obese patients (body mass index [BMI]  $> 30 \text{ kg/m}^2$ ) undergoing LR.

##### METHODS:

85 consecutive obese patients undergoing LR between 1998 and 2008 were matched on a ratio of 1:2 with 170 non-obese patients. Matching criteria were diagnosis, ASA score, METAVIR fibrosis score, extent of LR, and Child-Pugh score in patients with cirrhosis.

##### RESULTS:

Operative time, blood loss and blood transfusions were similar in the two groups. Mortality was 2.4% in both groups. Morbidity was significantly higher in the obese group (32.9% vs. 21.2%;  $P = 0.041$ ). However, only grade II morbidity was increased in obese patients (14.1% vs. 1.8%;  $P < 0.001$ ) and this was mainly related to abdominal wall complications (8.2% vs. 2.4%;  $P = 0.046$ ). No differences were encountered in terms of grade III or IV morbidity. The same results were observed in major LR and cirrhotic patients. When patients were stratified by BMI ( $<20$ , 20-25, 25-30 and  $>30 \text{ kg/m}^2$ ), progressive increases in overall and infectious morbidity were observed (5.6%, 22.4%, 23.7%, 32.9%, and 5.6%, 11.8%, 14.5%, 18.8%, respectively). Rates of grade III and IV morbidity did not change.

##### DISCUSSION:

Obese patients have increased postoperative morbidity after LR in comparison with non-obese patients, but this is mainly related to minor abdominal wall complications. Severe morbidity rates and mortality are similar to those in non-obese patients, even in cirrhosis or after major LR.

**842: Brouwer CA, Gietema JA, Vonk JM, Tissing WJ, Boezen HM, Zwart N, Postma A. Body mass index and annual increase of body mass index in long-term childhood cancer survivors; relationship to treatment. Support Care Cancer. 2012 Feb;20(2):311-8. doi: 10.1007/s00520-010-1080-x. Epub 2011 Jan 15. PubMed PMID: 21240615; PubMed Central PMCID: PMC3244605.**

Abstract

PURPOSE:

Evaluation of body mass index (BMI) at final height (FH) and annual BMI increase in adult childhood cancer survivors (CCS) after treatment with anthracyclines, platinum, and/or radiotherapy.

METHODS:

BMI (weight/height<sup>2</sup>) was calculated retrospectively from diagnosis until FH. The prevalence of underweight (BMI < 18.5 kg/m<sup>2</sup>) and overweight (BMI ≥ 25 kg/m<sup>2</sup>)/obesity (BMI ≥ 30 kg/m<sup>2</sup>) at FH was compared with age-matched controls. The association between underweight/overweight at FH and treatment was assessed by multivariate logistic regression. Annual BMI increase after treatment was assessed by multilevel analysis. Analyses were adjusted for age and underweight/overweight at diagnosis, and age at FH.

RESULTS:

At FH the prevalence of overweight had not increased, while CCS experienced more underweight as compared to controls (14% vs. 4%, P < 0.001). Overweight at FH was associated with cranial/craniospinal radiotherapy (CRT; OR, 2.23; 95% CI, 1.17-4.26) and underweight at FH with anthracyclines > 300 mg/m<sup>2</sup> (OR, 2.84; 95% CI, 1.33-6.06). Annual BMI increase was +0.47 (0.34-0.60) kg/m<sup>2</sup>/year. In CCS, the annual BMI increase was greater in those with CRT ≥ 30 Gy as compared with those with less or no CRT (+0.15 kg/m<sup>2</sup>/year [0.04-0.25 kg/m<sup>2</sup>/year], P = 0.008) and smaller in those with a higher cumulative anthracycline dose (-0.03 kg/m<sup>2</sup>/year [-0.05 to -0.0005 kg/m<sup>2</sup>/year] per 100 mg/m<sup>2</sup>, P = 0.046).

CONCLUSIONS:

After treatment with anthracyclines, platinum, and/or radiotherapy, CRT-treated survivors have more overweight at FH, and a greater annual BMI increase, while anthracycline-treated survivors have more underweight at FH and a lower annual BMI increase.

**843: Pollock NK, Bernard PJ, Gutin B, Davis CL, Zhu H, Dong Y. Adolescent obesity, bone mass, and cardiometabolic risk factors. J Pediatr. 2011 May;158(5):727-34. doi: 10.1016/j.jpeds.2010.11.052. Epub 2011 Jan 13. PubMed PMID: 21232765; PubMed Central PMCID: PMC3383822.**

Abstract

OBJECTIVE:

To compare bone mass between overweight adolescents with and without cardiometabolic risk factors (CMR). Associations of bone mass with CMR and adiposity were also determined.

STUDY DESIGN:

Adolescents (aged 14 to 18 years) who were overweight were classified as healthy (n = 55), having one CMR (1CMR; n = 46), or having two or more CMR (≥2CMR; n = 42). CMRs were measured with standard methods and defined according to pediatric definitions of metabolic syndrome. Total body bone mass, fat mass, and fat-free soft tissue mass were measured with dual-energy X-ray

absorptiometry. Visceral adipose tissue and subcutaneous abdominal adipose tissue were assessed with magnetic resonance imaging.

**RESULTS:**

After controlling for age, sex, race, height, and fat-free soft tissue mass, the healthy group had 5.4% and 6.3% greater bone mass than the 1CMR and  $\geq$ 2CMR groups, respectively (both P values  $<.04$ ). With multiple linear regression, adjusting for the same co-variables, visceral adipose tissue ( $\beta = -0.22$ ), waist circumference ( $\beta = -0.23$ ), homeostasis model assessment of insulin resistance ( $\beta = -0.23$ ), and high-density lipoprotein cholesterol level ( $\beta = 0.22$ ) were revealed to be associated with bone mass (all P values  $<.04$ ). There was a trend toward a significant inverse association between bone mass and fasting glucose level (P = .056). No relations were found between bone mass and fat mass, subcutaneous abdominal adipose tissue, blood pressure, or triglyceride level.

**CONCLUSION:**

Being overweight with metabolic abnormalities, particularly insulin resistance, low high-density lipoprotein cholesterol level, and visceral adiposity, may adversely influence adolescent bone mass.

**844: Davis AM, Bennett KJ, Befort C, Nollen N. Obesity and related health behaviors among urban and rural children in the United States: data from the National Health And Nutrition Examination Survey 2003-2004 and 2005-2006. J Pediatr Psychol. 2011 Jul;36(6):669-76. doi: 10.1093/jpepsy/jsq117. Epub 2011 Jan 11. PubMed PMID: 21227910; PubMed Central PMCID: PMC3131698.**

**Abstract**

**OBJECTIVE:**

To assess rates of overweight/obesity and related health behaviors among rural and urban children using data from the National Health and Nutrition Examination Survey (NHANES).

**METHODS:**

Data were drawn from the 2003-2004 and 2005-2006 NHANES surveys regarding demographic characteristics, weight status, dietary behaviors and physical activity behaviors.

**RESULTS:**

Significantly more rural children were found to be obese than urban children. Health behavior differences to explain this differential obesity rate were primarily not significant, but multivariate analyses indicate that for rural children meeting physical activity recommendations is protective and engaging in more than 2 hr/day of electronic entertainment promotes obesity.

**CONCLUSIONS:**

There are modifiable health behavior differences between rural and urban children which may account for the significantly higher obesity rates among rural children.

**845: Vermeer WM, Steenhuis IH, Leeuwis FH, Heymans MW, Seidell JC. Small portion sizes in worksite cafeterias: do they help consumers to reduce their food intake? Int J Obes (Lond). 2011 Sep;35(9):1200-7. doi: 10.1038/ijo.2010.271. Epub 2011 Jan 11. PubMed PMID: 21224829; PubMed Central PMCID: PMC3172584.**

**Abstract**

**BACKGROUND:**

Environmental interventions directed at portion size might help consumers to reduce their food intake.

**OBJECTIVE:**

To assess whether offering a smaller hot meal, in addition to the existing size, stimulates people to replace their large meal with a smaller meal.

**DESIGN:**

Longitudinal randomized controlled trial assessing the impact of introducing small portion sizes and pricing strategies on consumer choices.

**SETTING/PARTICIPANTS:**

In all, 25 worksite cafeterias and a panel consisting of 308 consumers (mean age=39.18 years, 50% women).

**INTERVENTION:**

A small portion size of hot meals was offered in addition to the existing size. The meals were either proportionally priced (that is, the price per gram was comparable regardless of the size) or value size pricing was employed.

**MAIN OUTCOME MEASURES:**

Daily sales of small and the total number of meals, consumers' self-reported compensation behavior and frequency of purchasing small meals.

**RESULTS:**

The ratio of small meals sales in relation to large meals sales was 10.2%. No effect of proportional pricing was found  $B=-0.11$  (0.33),  $P=0.74$ , confidence interval (CI): -0.76 to 0.54). The consumer data indicated that 19.5% of the participants who had selected a small meal often-to-always purchased more products than usual in the worksite cafeteria. Small meal purchases were negatively related to being male ( $B=-0.85$  (0.20),  $P=0.00$ , CI: -1.24 to -0.46,  $n=178$ ).

**CONCLUSION:**

When offering a small meal in addition to the existing size, a percentage of consumers that is considered reasonable were inclined to replace the large meal with the small meal. Proportional prices did not have an additional effect. The possible occurrence of compensation behavior is an issue that merits further attention.

**846: Akintunde AA, Akinwusi PO, Adebayo RA, Ogunyemi S, Opadijo OG. Burden of obesity in essential hypertension: pattern and prevalence. Niger J Clin Pract. 2010 Dec;13(4):399-402. PubMed PMID: 21220853.**

**Abstract**

Obesity continues to be an epidemic worldwide. There also continues to be a relationship between obesity and hypertension both causal and consequentially. The study aims at determining the prevalence and pattern of overweight and obesity among our patients being managed for essential hypertension.

**MATERIAL AND METHODS:**

The study was a cross sectional study. Consecutive patients diagnosed with essential hypertension were recruited from two university teaching hospitals in the South West of Nigeria. Demographic data such as age, gender, weight and height were obtained from patients at recruitment. Patients with congestive heart failure, secondary hypertension, chronic kidney disease, and other chronic diseases were excluded. Pregnant women were also excluded. Obesity was defined according to WHO classification. Statistical analysis was done by the Statistical Package for Social Sciences version 11.0.

**RESULTS:**



One thousand one hundred and two (1102) consecutive hypertensive patients were recruited. Two hundred and eighty six (286) were dropped due to evidence of overt heart failure (98) and chronic kidney disease and others (188). There were (420) males (51.5%) and 396 females (48.5%), mean age 54.97 ( $\pm$ 13.14) years. (Range 10-91). 7.6% (62) were underweight (36 males, 26 Females): 260 (31.9%) were overweight, consisting of 148 males and 112 females: 135 (16.5%) had mild obesity consisting of 48 males and 87 females: 43(5.3%) had moderate obesity with 15 males and 28 females while 30(3.7%) had severe obesity (consisting of 22 females).

**CONCLUSION:**

About two thirds of the hypertensive patients seen in two teaching hospitals in the South West of Nigeria in this study were either overweight or obese. Therefore lifestyle modification geared toward weight reduction should be emphasized in these patients.

**847: Lawlor DA, Lichtenstein P, Långström N. Association of maternal diabetes mellitus in pregnancy with offspring adiposity into early adulthood: sibling study in a prospective cohort of 280,866 men from 248,293 families. Circulation. 2011 Jan 25;123(3):258-65. doi: 10.1161/CIRCULATIONAHA.110.980169. Epub 2011 Jan 10. PubMed PMID: 21220735.**

**Abstract**

**BACKGROUND:**

Maternal diabetes mellitus in pregnancy results in greater offspring adiposity at birth. It is unclear whether it is associated with greater adiposity into adulthood, and if so, whether this is via intrauterine mechanisms or shared familial characteristics.

**METHODS AND RESULTS:**

A record-linkage prospective cohort study of 280,866 singleton-born Swedish men from 248,293 families was used to explore the intrauterine effect of maternal diabetes mellitus on offspring body mass index (BMI) in early adulthood. Maternal diabetes mellitus during pregnancy was associated with greater mean BMI at age 18 in their sons. The difference in BMI was similar within brothers and between nonsiblings. BMI of men whose mothers had diabetes mellitus during their pregnancy was on average 0.94 kg/m<sup>2</sup> greater (95% confidence interval [CI], 0.35 to 1.52) than in their brothers born before their mother was diagnosed with diabetes, after adjustment for birth year, maternal age, parity and education, birth weight, gestational age, and age at assessment of BMI. Early-pregnancy BMI was positively associated with son's BMI between nonsiblings, but there was no association within brothers. Adjustment of the maternal diabetes-offspring BMI association for maternal BMI did not alter the association either within brothers or between nonsiblings. Results were also robust to sensitivity analyses restricting the within-sibling analyses to siblings born within 3 years of each other.

**CONCLUSION:**

Maternal diabetes mellitus has long-term consequences for greater BMI in offspring; this association is likely to be via intrauterine mechanisms, and is independent of maternal BMI in early pregnancy.

**848: Sunwoo YK, Bae JN, Hahm BJ, Lee DW, Park JI, Cho SJ, Lee JY, Kim JY, Chang SM, Jeon HJ, Cho MJ. Relationships of mental disorders and weight status in the Korean adult population. J Korean Med Sci. 2011 Jan;26(1):108-15. doi: 10.3346/jkms.2011.26.1.108. Epub 2010 Dec 22. PubMed PMID: 21218038; PubMed Central PMCID: PMC3012833.**

Abstract

The purpose of this study was to evaluate the associations between weight status and mental disorders, including depressive disorder, anxiety disorder and alcohol use disorder. A total of nationally representative 6,510 subjects aged 18-64 yr was interviewed in face-to-face household survey. Response rate was 81.7%. Mental disorders were diagnosed using the Korean version of the Composite International Diagnostic Interview (K-CIDI). The subjects reported their heights and weights. After adjusting for age and gender, the lifetime diagnosis of depressive disorder had a significant association with only the underweight group (odds ratio [OR], 1.68, 95% confidence interval [CI], 1.19-2.38). The association between underweight and depressive disorder was the strongest for subjects with a high education level (OR, 1.75, 95% CI, 1.2-2.56), subjects with a married/cohabiting status (OR, 1.94, 95% CI, 1.17-3.22) and smokers (OR, 2.58, 95% CI, 1.33-4.98). There was no significant association between obesity and depressive disorder in Korea. But there was a significant association between the underweight group and depressive disorder. The relationship between obesity and mental disorder in a Korean population was different from that in a Western population. These results suggest that the differences of traditional cultures and races might have an important effect on the associations between the weight status and mental disorders.

KEYWORDS:

Body Mass Index; Mental Disorders; Obesity; Under Weight; Weight Status.

**849: Silva DA, Pelegrini A, Silva JM, Petroski EL. Epidemiology of abdominal obesity among adolescents from a Brazilian State Capital. J Korean Med Sci. 2011 Jan;26(1):78-84. doi: 10.3346/jkms.2011.26.1.78. Epub 2010 Dec 22. PubMed PMID: 21218034; PubMed Central PMCID: PMC3012854.**

Abstract

The objective of this study was to investigate the effects of socioeconomic, demographic and lifestyle factors on abdominal obesity in adolescents from a Brazilian state capital. In this cross-sectional study, 656 high school students (423 girls and 233 boys) from public schools, ranging in age from 14 to 19 yr, were evaluated. Abdominal obesity was identified based on waist circumference.

Socioeconomic data (socioeconomic status, household head's education, and school grade), demographic data (gender and age), and information regarding lifestyle (physical activity, eating habits, aerobic fitness, and nutritional status) were collected. Logistic regression was used for multivariate analysis. The prevalence of abdominal obesity was 6.6% (95% confidence interval [CI]: 4.6-8.4). Being in the second (odds ratio [OR] = 0.41; 95% CI: 0.19-0.88) or third year (OR = 0.18; 95% CI: 0.06-0.59) of high school was a protective factor against abdominal obesity. In addition, students presenting low aerobic fitness (OR = 4.10; 95% CI: 1.62-10.4) and those with excess weight (OR = 208.6; 95% CI: 47.7-911.7) had a higher probability of abdominal obesity. In conclusion, demographic factors such as school grade, lifestyle habits, low aerobic fitness and excess weight are associated with central obesity.

KEYWORDS:

Abdominal Adiposity; Adolescent; Brazil; Cross-Sectional Studies; Risk Factors; Waist Circumference.

**851: Mirkopoulou D, Grammatikopoulou MG, Gerothanasi K, Tagka A, Stylianos C, Hassapidou M. Metabolic indices, energy and macronutrient intake according to weight status in a rural sample of 17-year-old adolescents. Rural Remote Health. 2010 Oct-Dec;10(4):1513. Epub 2010 Dec 15. PubMed PMID: 21214302.**

Abstract

INTRODUCTION:

With adolescent health a priority on the WHO agenda, research into the diet, weight status and metabolic profile of adolescents is indicated. The present study aimed to assess the diet and metabolic parameters of a rural sample of adolescents.

METHODS:

One hundred adolescents (17 years of age) were recruited from schools in Nea Madytos, Thessaloniki, Greece. Two previous-day food recalls were collected for each participant, and weight, height, waist circumference, serum lipids and fasting glucose levels were measured. The prevalence of underweight/overweight, central obesity, dyslipidemia and impaired fasting glucose (IFG) were calculated.

RESULTS:

Overweight was present in half the boys (51.2%) and one-fifth of the girls (21.3%). In the total sample 7.1% were underweight and another 7.1% were diagnosed with central obesity. Boys had an increased risk of abdominal obesity (OR:1.405, CI:0.7-2.8), IFG (OR:1.200, CI:0.3-4.9) and elevated triglycerides (OR:1.514, CI:1.0-2.4) and serum cholesterol levels (OR:1.806, CI:1.1-3.1). Central obesity increased the chances of IFG (OR:8.000, CI:1.6-39.1) and doubled the prevalence of dyslipidemia (OR:2.190, CI:0.5-9.1). Under-reporting of energy was found among overweight participants and was further verified by an inverse relationship between BMI and the ratio of energy intake to energy expenditure. Adolescents identified a dietary pattern high in fats in lieu of protein.

CONCLUSIONS:

Irrespectively of their weight status, teenagers consume a high fat diet; therefore, dietary counseling, as a means of preventive medicine, should be applied to all weight categories. In addition, the prevalence of obesity in a rural sample of adolescents appears to be higher compared with the whole of Greece.

**852: Bessonova L, Marshall SF, Ziogas A, Largent J, Bernstein L, Henderson KD, Ma H, West DW, Anton-Culver H. The association of body mass index with mortality in the California Teachers Study. Int J Cancer. 2011 Nov 15;129(10):2492-501. doi: 10.1002/ijc.25905. Epub 2011 Apr 8. PubMed PMID: 21207419; PubMed Central PMCID: PMC3246901.**

Abstract

Although underweight and obesity have been associated with increased risk of mortality, it remains unclear whether the associations differ by hormone therapy (HT) use and smoking. The authors examined the relationship between body mass index (BMI) and mortality within the California Teachers Study (CTS), specifically considering the impact of HT and smoking. The authors examined the associations of underweight and obesity with risks of all-cause and cause-specific mortality, among 115,433 women participating in the CTS, and specifically examined whether HT use or

smoking modifies the effects of obesity. Multivariable Cox proportional hazards regression provided estimates of relative risks (RRs) and 95% confidence intervals (CIs). During follow up, 10,574 deaths occurred. All-cause mortality was increased for underweight (BMI <18.5; adjusted RR = 1.33, 95% CI = 1.20-1.47) and obese participants (BMI ≥ 30: RR = 1.27, 95% CI = 1.19-1.37) relative to BMI of 18.5-24.9). Respiratory disease mortality was increased for underweight and obese participants. Death from any cancer, and breast cancer specifically, and cardiovascular disease was observed only for obese participants. The obesity and mortality association remained after stratification on HT and smoking. Obese participants remained at greater risk for mortality after stratification on menopausal HT and smoking. Obesity was associated with increased all-cause mortality, as well as death from any cancer (including breast), and cardiovascular and respiratory diseases. These findings help to identify groups at risk for BMI-related poor health outcomes.

**853: Ashok P, Kharche JS, Joshi AR. Evaluation of risk for type 2 diabetes mellitus in medical students using Indian Diabetes Risk Score. Indian J Med Sci. 2011 Jan;65(1):1-6. doi: 10.4103/0019-5359.103159. PubMed PMID: 23134940.**

#### Abstract

##### BACKGROUND:

According to World Health Organisation, type 2 diabetes mellitus [type 2 D. M] has recently escalated in all age groups and is now being identified in younger age groups. This underscores the need for mass awareness and screening programs to detect diabetes at an early stage. For this purpose we have used a simplified Indian Diabetes Risk Score (IDRS) for prediction of diabetes in undergraduate medical students.

##### OBJECTIVES:

To screen and to identify 1st MBBS students at risk for developing type 2 D. M using IDRS.

##### MATERIALS AND METHODS:

261 undergraduates (1st MBBS students) were scored using IDRS which includes age, family history of diabetes, exercise status, and waist circumference. After scoring them, we assessed random capillary blood glucose (RCBG) in students with high IDRS score. Students with RCBG ≥ 113 mg/dl are followed for definitive tests for diagnosis of prediabetes and diabetes.

##### RESULTS AND CONCLUSION:

We have assessed 261 students till now. It was observed that 5%, 55%, and 38% students in High, Moderate, and Low risk group, respectively, for developing type 2 D. M. The mean abdominal obesity in high risk students was  $101.95 \pm 5.76$  as compared to  $79.17 \pm 11.08$  in moderate and low risk students ( $P < 0.0001$ ). 63% students were having sedentary lifestyle. Family history of diabetes in either or both parents was present in 25% students. Mean RCBG in students having score more than 50 was  $97.33 \pm 9.68$  mg/dl. Also, two students were having RCBG > 113 mg/dl in which one student found to have prediabetic.

##### CONCLUSION:

This underscores the need for further investigations to detect diabetes at an early stage and to overcome the disease burden of diabetes in future. Prevention of obesity and promotion of physical activity have to be the future plan of action which can be suggested in the form of regular exercise and diet planning for the students as part of an integrated approach.

**854: Farhangi MA, Ostadrahimi A, Mahboob S. Serum calcium, magnesium, phosphorous and lipid profile in healthy Iranian premenopausal women. Biochem Med (Zagreb). 2011;21(3):312-20. PubMed PMID: 22420246.**

Abstract

**INTRODUCTION:**

Recent epidemiological evidence suggests that alteration in calcium, phosphorous or magnesium metabolism may have direct cardiovascular consequences. However, it is unknown whether variations in serum values of these minerals are in relationship with lipid profile and adiposity as metabolic risk factors of cardiovascular events in premenopausal women independent of confounders. The aim of this study was to investigate the relationship between serum calcium, magnesium and phosphorous with lipid profile in healthy premenopausal women.

**MATERIALS AND METHODS:**

This study was performed on 82 reproductive age women aged 17-50 who were randomly selected from general population of Tabriz, Iran. They were assigned into obese and non-obese groups. Weight and height for BMI calculation were measured using a calibrated Seca scale and cotton ruler which was attached to the wall. Body composition was analyzed by bioelectrical impedance analysis (BIA). Serum magnesium, calcium and phosphorous were measured colorimetrically; fasting blood glucose (FBG) and serum lipids were assessed by enzymatic methods.

**RESULTS:**

Obese woman had significantly lower serum magnesium ( $P = 0.035$ ) and significantly higher fasting blood glucose ( $P = 0.028$ ), total cholesterol ( $P = 0.035$ ), triglyceride ( $P = 0.019$ ), low density lipoprotein ( $P = 0.003$ ) and parathyroid hormone concentrations ( $P = 0.031$ ) compared to non obese women. In correlation coefficient analysis, serum calcium concentrations had a positive weak relationship with total cholesterol ( $r = 0.267$ ,  $P = 0.013$ ) and triglyceride ( $r = 0.301$ ,  $P = 0.005$ ) concentrations in all participants; whereas in separate analysis of subjects as obese and non obese groups, these relationships lost their significance. Serum phosphorous had a weak positive relationship with total cholesterol ( $r = 0.31$ ,  $P = 0.002$ ) and an inverse weak relationship with parathyroid hormone ( $r = -0.32$ ,  $P = 0.002$ ). After adjusting for confounding variables by multiple regression analysis, the positive relationship between serum calcium, triglyceride, high density lipoprotein and low density lipoprotein cholesterol were significant.

**CONCLUSION:**

Our results indicate that abnormality in serum calcium and phosphorous is significantly correlated with serum lipids. Further studies are warranted for interpretation of these associations and understanding the underlying mechanisms.

**855: Escribano García S, Vega Alonso AT, Lozano Alonso J, Alamo Sanz R, Lleras Muñoz S, Castrodeza Sanz J, Gil Costa M; Study of Cardiovascular Risk in Castile and Leon, Spain. Obesity in Castile and Leon, Spain: epidemiology and association with other cardiovascular risk factors. Rev Esp Cardiol. 2011 Jan;64(1):63-6. doi: 10.1016/j.recesp.2010.01.001. Epub 2010 Dec 16. English, Spanish. PubMed PMID: 21190779.**

Abstract

A cross-sectional study of obesity in a random sample of 4012 individuals aged  $\geq 15$  years in Castile and Leon, Spain, was carried out. The prevalence of obesity (i.e. a body mass index  $\geq 30$  kg/m<sup>2</sup>) and

abdominal obesity (i.e. a waist circumference > 102 cm in males or > 88 cm in females) was determined and associations between both types of obesity and other cardiovascular risk factors were investigated. The overall prevalence of obesity was 21.7% (95% confidence interval [CI], 20.3%-23.2%); it was higher in women, at 23.2% (95% CI, 20.9%-25.5%), than in men, at 20.4% (95% CI, 18.0%-22.7%). The prevalence of abdominal obesity was 36.7% (95% CI, 34.6%-38.9%); again it was higher in women, at 50.1% (95% CI, 47%-53.1%) than in men, at 22.8% (95% CI, 20.3%-25.2%). Associations were found between obesity and all classic cardiovascular risk factors, except smoking. The 10-year Systematic Coronary Risk Evaluation (SCORE) and Framingham risk scores were higher in obese individuals.

**856: Austin SB, Spadano-Gasbarro J, Greaney ML, Richmond TK, Feldman HA, Osganian SK, Hunt AT, Mezgebu S, Peterson KE. Disordered weight control behaviors in early adolescent boys and girls of color: an under-recognized factor in the epidemic of childhood overweight. J Adolesc Health. 2011 Jan;48(1):109-12. doi: 10.1016/j.jadohealth.2010.05.017. Epub 2010 Aug 21. Erratum in: J Adolesc Health. 2011 Mar;48(3):319. PubMed PMID: 21185534; PubMed Central PMCID: PMC3139467.**

Abstract

OBJECTIVES:

Ethnic disparities in childhood overweight are well-documented. In addition, disordered weight control behaviors (DWCB) have been linked to overweight and weight gain in multiple ways, but little is known about DWCB in youth of color, especially boys. We examined the distribution and determinants of ethnic and gender disparities in DWCB in early adolescents.

METHODS:

In fall 2005, 47 Massachusetts middle schools participating in the Healthy Choices overweight prevention study administered a self-report baseline survey assessing student sociodemographics, height, weight, and DWCB (vomiting or use of laxatives or diet pills in the past month to control weight). Data from 16,978 girls and boys were used in multivariate logistic regression models to estimate the odds of DWCB in youth of color compared with their white peers, controlling for individual- and school-level factors.

RESULTS:

Among white youth, 2.7% of girls and 2.3% of boys reported DWCB. The odds of DWCB were elevated 2-10 times in most ethnic groups relative to whites. Disparities were attenuated but persisted after controlling for multiple individual- and school-level factors.

CONCLUSIONS:

Ethnic disparities in DWCB must be considered in efforts to address the epidemic of childhood overweight.

**857: Rosen-Reynoso M, Alegría M, Chen CN, Laderman M, Roberts R. The relationship between obesity and psychiatric disorders across ethnic and racial minority groups in the United States. *Eat Behav.* 2011 Jan;12(1):1-8. doi: 10.1016/j.eatbeh.2010.08.008. Epub 2010 Sep 21. PubMed PMID: 21184966; PubMed Central PMCID: PMC3052947.**

Abstract

CONTEXT:

Epidemiologic studies of obesity have not examined the prevalence and relationship of mental health conditions with obesity for diverse ethnic and racial populations in the United States.

OBJECTIVE:

(1) To assess whether obesity was associated with diverse psychiatric diagnoses across a representative sample of non-Latino whites, Latinos, Asians, African-Americans, and Afro-Caribbeans; and (2) to test whether physical health status, smoking, sociodemographic characteristics, and psychiatric comorbidities mediate any of the observed associations.

DESIGN:

Our analyses used pooled data from the NIMH Collaborative Psychiatric Epidemiology Surveys (CPES). Analyses tested the association between obesity and psychiatric disorders in a diverse sample of Americans (N=13,837), while adjusting for factors such as other disorders, age, gender, socioeconomic status, smoking and physical health status (as measured by chronic conditions and WHO-DAS scores) in different models.

RESULTS:

The relationship between obesity and last-year psychiatric disorders varied by ethnicity/race. The likelihood of having mood or anxiety disorder was positively associated with obesity for certain racial/ethnic groups, but was moderated by differences in physical health status. Substance-use disorders were associated with decreased odds for obesity in African-Americans.

CONCLUSIONS:

The role of physical health status (as measured by chronic conditions and WHO-DAS scores) dramatically changes the pattern of associations between obesity and psychiatric disorders, suggesting the important role it plays in explaining differential patterns of association across racial and ethnic groups.

**858: Davenport MH, Campbell MK, Mottola MF. Increased incidence of glucose disorders during pregnancy is not explained by pre-pregnancy obesity in London, Canada. *BMC Pregnancy Childbirth.* 2010 Dec 24;10:85. doi: 10.1186/1471-2393-10-85. PubMed PMID: 21184681; PubMed Central PMCID: PMC3022738.**

Abstract

BACKGROUND:

The increasing incidence of impaired glucose tolerance (IGT), gestational diabetes (GDM) and type 2 diabetes (T2D) during pregnancy was hypothesized to be associated with increases in pre-pregnancy body mass index (BMI). The aims were to 1) determine the prevalence of IGT/GDM/T2 D over a 10 year period; 2) examine the relationship between maternal overweight/obesity and IGT/GDM/T2D; and 3) examine the extent to which maternal metabolic complications impact maternal and fetal pregnancy outcomes.

METHODS:

Data arose from a perinatal database which contains maternal characteristics and perinatal outcome for all singleton infants born in London, Canada between January 1, 2000 and December 31, 2009. Univariable and multivariable odds ratios (OR) were estimated using logistic regression with IGT/GDM/T2 D being the outcome of interest.

**RESULTS:**

A total of 36,597 women were included in the analyses. Population incidence of IGT, GDM and T2 D rose from 0.7%, 2.9% and 0.5% in 2000 to 1.2%, 4.2% and 0.9% in 2009. The univariable OR for IGT, GDM and T2 D were 1.65, 1.52 and 2.06, respectively, over the ten year period. After controlling for maternal age, parity and pre-pregnancy BMI the OR did not decrease. Although there was a positive relationship between pre-pregnancy BMI and prevalence of IGT/GDM/T2 D, this did not explain the time trends in the latter. Diagnosis of IGT/GDM/T2 D increased the risk of having an Apgar score <7 at 5 minutes, which was partially explained by gestational hypertension, high placental ratio, gestational age and large for gestational age babies.

**CONCLUSIONS:**

We found a significant increase in the incidence of IGT/GDM/T2 D for the decade between 2000-2009 which was not explained by rising prevalence of maternal overweight/obesity.

**859: Del Gobbo LC, Song Y, Dannenbaum DA, Dewailly E, Egeland GM. Serum 25-hydroxyvitamin D is not associated with insulin resistance or beta cell function in Canadian Cree. J Nutr. 2011 Feb;141(2):290-5. doi: 10.3945/jn.110.129619. Epub 2010 Dec 22. PubMed PMID: 21178079.**

**Abstract**

Epidemiological studies report inverse associations between blood vitamin D, as measured by 25-hydroxyvitamin D [25(OH)D] concentrations, and insulin resistance (IR) among predominantly overweight individuals. In a cross-sectional survey of 5 Cree communities in Quebec, Canada, we determined if 25(OH)D is associated with IR and  $\beta$ -cell function in a largely obese, ethnic minority at high risk of developing type 2 diabetes. A total of 510 participants ( $\geq 18$  y) without type 1 or type 2 diabetes, assessed for serum 25(OH)D, fasting plasma glucose and insulin, and anthropometric and lifestyle variables, were included in the analyses. Multivariable linear regressions adjusted for covariates were performed for homeostasis model assessment of IR (HOMA-IR) and  $\beta$ -cell function (HOMA-B) in relation to serum 25(OH)D. Serum 25(OH)D (per 10 nmol/L increment) was inversely associated with HOMA-IR ( $\beta = -0.005$ ; SE = 0.002; P = 0.004) and HOMA-B ( $\beta = -0.004$ ; SE = 0.002; P = 0.006) in models adjusted for age, sex, physical activity, education, alcohol consumption, and smoking. When further adjusted for BMI, associations were no longer significant for either HOMA-IR ( $\beta = 0.001$ , SE = 0.002, P = 0.572) or HOMA-B ( $\beta = 0.001$ , SE = 0.001, P = 0.498). The modest inverse associations between 25(OH)D and IR reported previously were not observed in this population after adjusting for adiposity. Future longitudinal studies investigating the interrelationship among 25(OH)D, adiposity, and the risk of developing metabolic syndrome and type 2 diabetes are warranted.

**860: Liu W, Lin R, Liu A, Du L, Chen Q. Prevalence and association between obesity and metabolic syndrome among Chinese elementary school children: a school-based survey. BMC Public Health. 2010 Dec 22;10:780. doi: 10.1186/1471-2458-10-780. PubMed PMID: 21176200; PubMed Central PMCID: PMC3022853.**



## Abstract

### BACKGROUND:

China has experienced an increase in the prevalence of childhood overweight/obesity over the last decades. The purpose of this study was to examine the prevalence of obesity and metabolic syndrome among Chinese school children and determine if there is a significant association between childhood obesity and metabolic syndrome.

### METHODS:

A cross-sectional study was conducted among 1844 children (938 males and 906 females) in six elementary schools at Guangzhou city from April to June 2009. The body mass index (BMI), waist circumference, blood pressure, Tanner stage, lipids, insulin and glucose levels were determined. Criteria analogous to ATPIII were used for diagnosis of metabolic syndrome in children.

### RESULTS:

Among 1844 children aged 7-14 years, 205 (11.1%) were overweight, and 133 (7.2%) were obese. The prevalence of metabolic syndrome was 6.6% overall, 33.1% in obese, 20.5% in overweight and 2.3% in normal weight children. Multiple logistic regression analysis showed that BMI (3rd quartile)(OR 3.28; 95%CI 0.35-30.56), BMI (4th quartile)(OR 17.98; 95%CI 1.75-184.34), homeostasis model assessment (HOMA-IR) (2nd quartile) (OR2.36; 95% CI 0.46-12.09), HOMA-IR (3rd quartile) (OR 2.46; 95% CI 0.48-12.66), HOMA-IR (4th quartile) (OR3.87; 95% CI 0.72-20.71) were significantly associated with metabolic syndrome.

### CONCLUSIONS:

The current epidemic of obesity with subsequent increasing cardiovascular risk factors has constituted a threat to the health of school children in China. HOMA-IR and BMI were strong predictors of metabolic syndrome in children. Therefore, rigorous obesity prevention programs should be implemented among them.

**861: Gilsanz V, Chung SA, Jackson H, Dorey FJ, Hu HH. Functional brown adipose tissue is related to muscle volume in children and adolescents. J Pediatr. 2011 May;158(5):722-6. doi: 10.1016/j.jpeds.2010.11.020. Epub 2010 Dec 18. PubMed PMID: 21168855; PubMed Central PMCID: PMC3319332.**

## Abstract

### OBJECTIVE:

We examined whether the depiction of brown adipose tissue (BAT) with positron emission tomography/computed tomography (PET/CT) in pediatric patients is associated with anthropometric measures.

### STUDY DESIGN:

We determined measures of body mass, adiposity, and musculature in 71 children and adolescents who underwent PET/CT examinations and compared patients with and without BAT. We used regression analyses to assess the relation between BAT and anthropometric measures.

### RESULTS:

A total of 30 patients (42%) had BAT depicted on PET/CT, 10 of 26 girls (38%) and 20 of 45 boys (44%). Compared with patients without functional BAT, patients with BAT had significantly greater neck musculature ( $1880 \pm 908$  cm<sup>3</sup>) versus  $1299 \pm 806$  cm<sup>3</sup>;  $P = .028$  for boys and  $1295 \pm 586$  cm<sup>3</sup>) versus  $854 \pm 392$  cm<sup>3</sup>;  $P = .030$  for girls) and gluteus musculature ( $1359 \pm 373$  cm<sup>3</sup>) versus  $1061 \pm 500$  cm<sup>3</sup>;  $P = .032$  for boys and  $1138 \pm 425$  cm<sup>3</sup>) versus  $827 \pm 297$  cm<sup>3</sup>;  $P = .038$  for girls), but no

differences in age, body mass index, or measures of subcutaneous fat. With logistic regression analyses, neck and pelvic musculature predicted the presence of BAT independently of age, sex, body size, and season of scan ( $P = .018$  and  $.009$ , respectively).

**CONCLUSION:**

Pediatric patients with visualized BAT on PET/CT examinations had significantly greater muscle volume than patients with no visualized BAT.

**862: Isasi CR, Whiffen A, Campbell E, Florez Y, Freeman K, Wylie-Rosett J. High prevalence of obesity among inner-city adolescent boys in the Bronx, New York: forgetting our boys. *Prev Chronic Dis.* 2011 Jan;8(1):A23. Epub 2010 Dec 15. PubMed PMID: 21159235; PubMed Central PMCID: PMC3044034.**

**Abstract**

We examined sex differences in overweight and obesity in a sample of 1,619 inner-city adolescents. Participants were enrolled from 11 public schools in the Bronx, New York. The prevalence of overweight and obesity was 21.7% and 22.5%, respectively; prevalence of obesity was significantly higher among adolescent boys than adolescent girls (24.9 vs 20.1%). Childhood obesity is a public health concern in the United States, and the higher prevalence of obesity in adolescent boys requires additional attention.

**863: Bruce SG, Riediger ND, Zacharias JM, Young TK. Obesity and obesity-related comorbidities in a Canadian First Nation population. *Prev Chronic Dis.* 2011 Jan;8(1):A03. Epub 2010 Dec 15. English, Spanish. PubMed PMID: 21159215; PubMed Central PMCID: PMC3044014.**

**Abstract**

**INTRODUCTION:**

Rates of obesity are higher among Canada's Aboriginal First Nations populations than among non-First Nations populations. We studied obesity and obesity-related illness in a Manitoba First Nation community.

**METHODS:**

We conducted a screening study of diabetes and diabetes complications in 2003, from which we drew a representative sample of Manitoba First Nations adults ( $N = 483$ ). We assessed chronic disease and chronic disease risk factors.

**RESULTS:**

Prevalence of obesity and associated comorbidities was higher among women than men. By using multivariate analysis, we found that factors significantly associated with obesity among women were diastolic blood pressure, insulin resistance, and employment status. Among men, factors were age, apolipoprotein A1 level, apolipoprotein B level, and insulin resistance. Seventy-five percent of study participants had at least 1 of the following conditions: obesity, dyslipidemia, hypertension, or diabetes. Comorbidity was high even among the youngest age groups; 22% of men and 43% of women aged 18 to 29 had 2 or more chronic conditions. Twenty-two percent of participants had undiagnosed hypertension. Participants with undiagnosed hypertension had significantly more chronic conditions and were more likely to have microalbuminuria than were those without hypertension. The number of chronic conditions was not significantly different for participants with newly diagnosed hypertension than for those with previously diagnosed hypertension.

#### CONCLUSION:

The prevalence of obesity and other chronic conditions in the study community is high, especially considering the number of young people. Community-based interventions are being undertaken to reduce the excessive rate of illness.

**864: Raj M, Kumar RK. Obesity in children & adolescents. Indian J Med Res. 2010 Nov;132:598-607. Review. PubMed PMID: 21150012; PubMed Central PMCID: PMC3028965.**

#### Abstract

Worldwide, obesity trends are causing serious public health concern and in many countries threatening the viability of basic health care delivery. It is an independent risk factor for cardiovascular diseases and significantly increases the risk of morbidity and mortality. The last two decades have witnessed an increase in health care costs due to obesity and related issues among children and adolescents. Childhood obesity is a global phenomenon affecting all socio-economic groups, irrespective of age, sex or ethnicity. Aetiopathogenesis of childhood obesity is multi-factorial and includes genetic, neuroendocrine, metabolic, psychological, environmental and socio-cultural factors. Many co-morbid conditions like metabolic, cardiovascular, psychological, orthopaedic, neurological, hepatic, pulmonary and renal disorders are seen in association with childhood obesity. The treatment of overweight and obesity in children and adolescents requires a multidisciplinary, multi-phase approach, which includes dietary management, physical activity enhancement, restriction of sedentary behaviour, pharmacotherapy and bariatric surgery. A holistic approach to tackle the childhood obesity epidemic needs a collection of activities including influencing policy makers and legislation, mobilizing communities, restructuring organizational practices, establishing coalitions and networks, empowering providers, imparting community education as well as enriching and reinforcing individual awareness and skills. The implications of this global phenomenon on future generations will be serious unless appropriate action is taken.

**865: Tybor DJ, Lichtenstein AH, Dallal GE, Daniels SR, Must A. Independent effects of age-related changes in waist circumference and BMI z scores in predicting cardiovascular disease risk factors in a prospective cohort of adolescent females. Am J Clin Nutr. 2011 Feb;93(2):392-401. doi: 10.3945/ajcn.110.001719. Epub 2010 Dec 8. PubMed PMID: 21147855; PubMed Central PMCID: PMC3021431.**

#### Abstract

##### BACKGROUND:

Cross-sectional data indicate that central adiposity is associated with cardiovascular disease risk, independent of total adiposity. The use of longitudinal data to investigate the relation between changes in fat distribution and the emergence of risk factors is limited.

##### OBJECTIVE:

We tested the hypothesis that age-related change in waist circumference (to reflect central adiposity) during adolescence is a significant predictor of longitudinal change in cardiovascular disease risk, after adjustment for change in body mass index (BMI) z score (to reflect total adiposity) in a cohort of postmenarcheal adolescent females. We also tested whether race modified this relation.

##### DESIGN:

We analyzed publicly available data from the National Heart, Lung, and Blood Institute Growth and Health Study. Longitudinal regression models were fitted to investigate the independent effects of changes in waist circumference on cardiovascular disease risk factors.

**RESULTS:**

Steeper age-related increases in waist circumference over time were associated with a greater increase in LDL-cholesterol concentrations, systolic blood pressure, diastolic blood pressure, and homeostasis model assessment of insulin resistance, after adjustment for BMI z score, in white but not in black females. Change in waist circumference was not a statistically significant predictor of age-related changes in HDL-cholesterol, triglyceride, insulin, and glucose concentrations, after adjustment for changes in BMI z score, in either white or black females.

**CONCLUSIONS:**

Our research suggests that monitoring waist circumference in addition to BMI z score has the potential to identify adolescents at risk of the emergence of cardiovascular disease risk factors, at least in white females. The data also suggest that race may modify the relation between fat distribution pattern and cardiovascular disease risk factors.

**866: Javaheri S, Storfer-Isser A, Rosen CL, Redline S. Association of short and long sleep durations with insulin sensitivity in adolescents. *J Pediatr.* 2011 Apr;158(4):617-23. doi: 10.1016/j.jpeds.2010.09.080. Epub 2010 Dec 10. PubMed PMID: 21146189; PubMed Central PMCID: PMC3076647.**

**Abstract**

**OBJECTIVE:**

To characterize the relationship between insulin sensitivity, assessed with the homeostasis model of insulin (HOMA), and objective measurements of sleep duration in adolescents.

**STUDY DESIGN:**

We conducted a cross-sectional analysis from two examinations conducted in the Cleveland Children's Sleep and Health Cohort (n = 387; 43% minorities). Biochemical and anthropometry measurements were made in a clinical research unit. Sleep duration was measured with actigraphy.

**RESULTS:**

Decreased sleep duration was associated with increased adiposity and minority race. Sleep duration had a quadratic "u-shape" association with HOMA. When adjusted for age, sex, race, preterm status, and activity, adolescents who slept 7.75 hours had the lowest predicted HOMA (1.96, 95% confidence interval [CI], 1.82-2.10), and adolescents who slept 5.0 hours or 10.5 hours had HOMA indices that were approximately 20% higher (2.36; 95% CI, 1.94-2.86; and 2.41; 95% CI, 1.93-3.01, respectively). After adjusting for adiposity, the association between shorter sleep and HOMA was appreciably attenuated, but the association with longer sleep persisted.

**CONCLUSIONS:**

Shorter and longer sleep durations are associated with decreased insulin sensitivity in adolescents. Although the association between shorter sleep duration with insulin sensitivity likely is explained by the association between short sleep duration and obesity, the association between longer sleep and insulin sensitivity is independent of obesity.

**867: Pimenta GP, Saruwatari RT, Corrêa MR, Genaro PL, Aguilar-Nascimento JE.**

**Mortality, weight loss and quality of life of patients with morbid obesity: evaluation of the surgical and medical treatment after 2 years. Arq Gastroenterol. 2010 Jul-Sep;47(3):263-9. PubMed PMID: 21140087.**

Abstract

CONTEXT:

The surgical treatment for morbid obesity is becoming common in this country. Only a few papers reported the long-term results of the surgical approach for morbid obesity, mainly in terms of quality of life.

OBJECTIVE:

To compare mortality rate, weight loss, improvement of both diabetes and hypertension, and quality of life of patients from the public healthcare in Cuiabá, MT, Brazil, who underwent either medical or surgical interventions after a minimum of 2 years.

METHODS:

The population of this study was constituted by morbidly obese patients who initiated treatment between June 2002 and December 2006. The casuistic consisted of 89 patients submitted to medical therapy and 76 patients who underwent surgical procedures. The main variables were weight loss, improvement of hypertension and diabetes, quality of life, and mortality.

RESULTS:

The overall results showed that weight loss was significant in the two groups ( $P < 0.001$ ); however surgical patients showed a greater loss than the medical group ( $P = 0.05$ ). The improvement of diabetes and hypertension was significantly greater in the surgical group ( $P < 0.001$ ), in which no cases of diabetes persisted. There was an increase in cases of hypertension among patients receiving medical attention. Mortality occurred in six cases (6.7%) of the medical group and in five cases (6.6%) of the surgical group ( $P = 0.97$ ). The median grade of the quality of life score obtained by surgical patients (2.37 [range: -2.50 to 3.00]) was significantly greater ( $P < 0.001$ ) when compared to the medical group (1.25 [range: -1.50 to 3.00]).

CONCLUSION:

The surgical group presented better results regarding the weight loss, quality of life and improvement of hypertension and diabetes. There was no significant difference in mortality rate between the two groups after a minimum of 2 years.

**868: Harmse B, Kruger HS. Significant differences between serum CRP levels in children in different categories of physical activity: the PLAY study. Cardiovasc J Afr. 2010 Nov-Dec;21(6):316-22. PubMed PMID: 21135979; PubMed Central PMCID: PMC3721782.**

Abstract

Low-grade systemic inflammation is emerging as a component of the metabolic syndrome. The purpose of this study was to assess the association between serum C-reactive protein (CRP), physical activity and body composition in 193 black children aged 13 to 18 years from a South African township. Demographic information and anthropometric measurements were taken, and fasting blood samples were analysed for high-sensitivity serum CRP. Body fat was measured by air displacement plethysmography. There was a trend towards higher serum CRP in the boys with a higher percentage body fat. After multiple regression analyses, waist circumference in the girls was

significantly associated with serum CRP. In the boys, there was an inverse correlation between percentage body fat and fitness, and between fitness and serum CRP. Significant differences were found between serum CRP in the different physical activity categories, with lower serum CRP in the girls in the higher physical activity group. Obesity should be prevented in South African children by encouraging physical activity.

**870: Lai Y, Wang J, Jiang F, Wang B, Chen Y, Li M, Liu H, Li C, Xue H, Li N, Yu J, Shi L, Bai X, Hou X, Zhu L, Lu L, Wang S, Xing Q, Teng X, Teng W, Shan Z. The relationship between serum thyrotropin and components of metabolic syndrome. *Endocr J.* 2011;58(1):23-30. Epub 2010 Nov 30. PubMed PMID: 21135510.**

Abstract

To explore the relationship between serum thyrotropin and components of metabolic syndrome in a Chinese cohort. A total of 1534 adult inhabitants in DaDong district of Shenyang were asked to fulfill the questionnaire, complete physical examination and OGTT. Blood samples were collected to test thyrotropin (TSH), fasting plasma glucose (FPG), OGTT 2h PG, fasting insulin (FINS), triglyceride (TG) and high density lipoprotein cholesterol (HDL-C). Serum TSH in metabolic syndrome group was higher than that in the non-metabolic syndrome group (2.54 mIU/L vs. 2.22 mIU/L,  $p < 0.05$ ). TG level increased significantly in subclinical hypothyroid group compared with euthyroid subjects ( $1.73 \pm 0.12$  mmol/L vs.  $1.47 \pm 0.03$  mmol/L,  $p < 0.05$ ), and HDL-C decreased significantly in patients with subclinical hypothyroidism compared with euthyroid subjects ( $1.26 \pm 0.27$  mmol/L vs.  $1.33 \pm 0.27$  mmol/L,  $p < 0.05$ ). The prevalence of hypertension was higher in the subclinical hypothyroid group than that in euthyroid group (42.86% vs. 33.2%,  $p < 0.05$ ). The serum TSH within the reference range was positively related with the prevalence of overweight/obesity. Slight increase in serum TSH maybe a risk factor for metabolic syndrome.

**871: Neovius K, Neovius M, Kark M, Rasmussen F. Association between obesity status and sick-leave in Swedish men: nationwide cohort study. *Eur J Public Health.* 2012 Feb;22(1):112-6. doi: 10.1093/eurpub/ckq183. Epub 2010 Dec 1. PubMed PMID: 21126979.**

Abstract

BACKGROUND:

Sick-leave is an important source of productivity losses to society. The objective of this study was to investigate the association between body mass index (BMI) status in young adulthood and future sick-leave.

METHODS:

A nation-wide cohort of 43,989 Swedish men ( $18.7 \pm 0.5$  years) performing military conscription tests in 1969-70 were followed between 1986 and 2005 regarding sick-leave. BMI was used to define underweight ( $< 18.5$ ), normal weight (18.5-24.9), overweight (25.0-29.9) and obesity ( $\geq 30.0$ ). Relative risks of sick-leave were estimated with Cox proportional hazards models adjusted for smoking, socio-economic index and muscular strength, using normal weight as the reference.

RESULTS:

During 803,684 person-years of follow-up, 488,570 sick-leave episodes were recorded. On average, one short-term ( $\leq 7$  days) episode occurred every eight person-months, one intermediate-term (8-30 days) every five person-years and one long-term ( $> 30$  days) episode every 15 person-years.

Overweight was associated with 20% and obesity with >30% risk elevation for episodes ranging from 8 to 30 days [hazard ratio (HR) 1.20; 95% CI 1.15-1.24 and HR 1.35; 95% CI 1.24-1.47, respectively] as well as for episodes >30 days (HR 1.19; 95% CI 1.15-1.23 and HR 1.34; 95% CI 1.24-1.47, respectively) compared to normal weight. Obesity was also associated with an increased risk of sick-leave episodes  $\leq 7$  days (HR 1.13; 95% CI 1.09-1.16), but the corresponding risk increase for overweight was very small (HR 1.02; 95% CI 1.00-1.03). Underweight showed increased risk only for short-term episodes (HR 1.05; 95% CI 1.04-1.07).

#### DISCUSSION:

Overweight and obesity are associated with increased risk for sick-leave compared to normal weight, especially for sick-leave episodes of longer duration.

**872: Kropp RY, Bogaert LE, Barber R, Tremblay FW, Ennis R, Tepper M, Pless R, Bastien N, Li Y, Beaudoin C, Anderson J, Pelletier L, Rodin R. Pandemic (H1N1) 2009 outbreak at Canadian Forces cadet camp. *Emerg Infect Dis.* 2010 Dec;16(12):1986-9. doi: 10.3201/eid1612.100451. PubMed PMID: 21122239; PubMed Central PMCID: PMC3294566.**

#### Abstract

We conducted a case-control study to describe the clinical and epidemiologic characteristics of an outbreak of pandemic (H1N1) 2009 at a Canadian military cadet training center. We found that asthma and obesity confer greater risk for infection. Viral shedding was detected by PCR up to 18 days after symptom onset.

873: Ledoux T, Watson K, Baranowski J, Tepper BJ, Baranowski T. Overeating styles and adiposity among multiethnic youth. *Appetite.* 2011 Feb;56(1):71-7. doi: 10.1016/j.appet.2010.11.145. Epub 2010 Nov 27. PubMed PMID: 21115080; PubMed Central PMCID: PMC3030641.

#### Abstract

Reasons for inconsistent associations between overeating styles and adiposity among youth may include differences in effects by age, gender, or ethnicity; failure to control for social desirability of response; or adiposity measurement limitations. This study examined the relationship between overeating styles and multiple measures of adiposity, after controlling for social desirability and testing for moderation by ethnicity, age, and gender. Data from 304 9-10 year old children and 264 17-18 year old adolescents equally representing African American, Hispanic, and White ethnic groups were extracted from a larger cross-sectional study. Measures included the Dutch Eating Behavior Questionnaire (restrained, external, and emotional overeating subscales), the "Lie Scale" from the Revised Children's Manifest Anxiety Scale, and measured weight, height, waist circumference, and triceps skinfold. BMI z-score and a global adiposity index were calculated. Mixed model linear regression showed restraint was positively and external eating was negatively related to measures of adiposity. African American youth had a stronger inverse association between emotional eating and adiposity than White or Hispanic youth. Relationships were not influenced by social desirability nor moderated by age or gender. Overeating styles are related to adiposity in nearly all youth but the nature of these associations are moderated by ethnicity.

**874: Kral TV, Moore RH, Stunkard AJ, Berkowitz RI, Stettler N, Stallings VA, Tanaka LM, Kabay AC, Faith MS. Adolescent eating in the absence of hunger and relation to discretionary calorie allowance. J Am Diet Assoc. 2010 Dec;110(12):1896-900. doi: 10.1016/j.jada.2010.09.009. PubMed PMID: 21111097; PubMed Central PMCID: PMC3005329.**

Abstract

Eating in the absence of hunger is a risk factor for overeating during childhood. The objective of this study was to examine eating in the absence of hunger in adolescents based on their familial predisposition to obesity and current weight status. Thirty-one subjects (16 male, 15 female), who were 13 years of age and born at low risk or high risk for obesity, consumed lunch to fullness. After lunch, subjects had access to different snacks for 15 minutes. Eating in the absence of hunger referred to energy intake from the snacks. Low-risk females consumed two and a half times more calories from snacks than high-risk females and twice as many calories as low-risk and high-risk males when expressed as an individualized percentage of daily allowance for discretionary calories. Normal-weight females consumed two and a half times more calories from snacks than obese females and normal-weight males. The association between eating in the absence of hunger and weight and obesity risk status depended on adolescents' sex and could reflect emerging developmental differences, such as dieting or social desirability.

**875: Marcus MD, Baranowski T, DeBar LL, Edelstein S, Kaufman FR, Schneider M, Siega-Riz AM, Staten MA, Virus A, Yin Z. Severe obesity and selected risk factors in a sixth grade multiracial cohort: the HEALTHY study. J Adolesc Health. 2010 Dec;47(6):604-7. doi: 10.1016/j.jadohealth.2010.04.017. Epub 2010 Jun 29. PubMed PMID: 21094439; PubMed Central PMCID: PMC2993008.**

Abstract

The purpose of this study was to document the prevalence of severe obesity and associated risk in the HEALTHY cohort. A total of 6,365 students were assessed at school-based screenings. Results showed that 6.9% of students were severely obese. Severe obesity was associated with elevated cardiometabolic risk and race/ethnicity. Severe obesity is common and requires preventive intervention.

**876: Costa EC, Sá JC, Soares EM, Lemos TM, Maranhão TM, Azevedo GD. [Evaluation of cardiovascular risk by the LAP index in non-obese patients with polycystic ovary syndrome]. Arq Bras Endocrinol Metabol. 2010 Oct;54(7):630-5. Portuguese. PubMed PMID: 21085768.**

Abstract

OBJECTIVE:

To analyze the cardiovascular risk of non-obese women with polycystic ovary syndrome (PCOS) by the LAP index (lipid accumulation product).

SUBJECTS AND METHODS:

283 patients (18-34 years) assigned at the University Hospital of the Federal University of Rio Grande do Norte, Natal-RN, were divided into four groups: 1) lean PCOS (n = 35); 2) healthy lean (n = 162); 3) overweight PCOS (n = 28); 4) healthy overweight (n = 58).



RESULTS:

Patients with PCOS showed higher values of the LAP index than healthy controls: lean (22.26 vs. 15.87 cm.mmol/L;  $p = 0.007$ ); overweight (40.83 vs. 26.32 cm.mmol/L;  $p = 0.001$ ). The percentage of women above the 75th percentile of the LAP index was also higher in the subgroups with PCOS: lean (17.1 vs. 6.8%;  $p = 0.04$ ); overweight (37.5 vs. 13.8%;  $p = 0.01$ ).

CONCLUSIONS:

In our sample, patients with PCOS showed higher cardiovascular risk assessed by the LAP index in relation to healthy women, even in the absence of obesity.

**877: Griz LH, Viégas M, Barros M, Griz AL, Freese E, Bandeira F. Prevalence of central obesity in a large sample of adolescents from public schools in Recife, Brazil. Arq Bras Endocrinol Metabol. 2010 Oct;54(7):607-11. PubMed PMID: 21085765.**

Abstract

OBJECTIVE:

To determine the prevalence and association of central obesity (CO) and hypertension and its associations with alcohol intake, smoking and physical activity in adolescents.

SUBJECTS AND METHODS:

Cross sectional study in 1,824 students from 29 public schools in Recife.

RESULTS:

89.6% were normal weight, 6.7% overweight and 3.7% obese; 77.2% were normotensive, 5.9% prehypertensive and 16.9% hypertensive; CO was 10.2% when the 90th percentile was used as cutoff and 25.2% when the 75th percentile was used. There was a higher likelihood of central obesity among students aged 18 to 20 years, smoking and alcohol intake. The probability of hypertension increases if the subject is male, has a waist circumference (WC)  $\geq 90$ ,  $WC \geq 75$  and does not practice physical activity.

CONCLUSIONS:

A high prevalence of CO and hypertension was found in adolescents. CO was more frequent in students aged 18 to 20 years, smokers and with alcohol intake and hypertension was associated with male, CO and no physical activity.

**878: Amer NM, Marcon SS, Santana RG. Body mass index and hypertension in adult subjects in Brazil's Midwest. Arq Bras Cardiol. 2011 Jan;96(1):47-53. Epub 2010 Nov 19. English, Portuguese, Spanish. PubMed PMID: 21085761.**

Abstract

BACKGROUND:

Overweight and obesity are an important public health problem in society, due to the growth in all age groups and their association with various chronic diseases, especially hypertension

OBJECTIVE:

To investigate possible factors associated with changes in body mass index (BMI).

METHODS:

Study developed in the city of Nova Andradina, State of Mato Grosso do Sul, with 369 subjects registered in the Family Health Strategy Program in 2007. Data were collected at the subjects' homes, by using a semi-structured interview and by an anthropometric assessment. In the analysis of data,

we used the Chi-square and Mantel Haenszel tests, for categorical responses, and ANOVA and Tukey tests, for continuous responses.

**RESULTS:**

The prevalence of overweight and obesity was 33.3% and 23.0%, respectively. Most of the individuals had the following characteristics: they were female (85.4%), physically inactive (89.7%), their waist-hip ratio (WHR) was inadequate (83.7%) and they had some chronic health problem (31.9%), especially hypertension. Risk factors for overweight and obesity may be linked to variables such as widowed status, inadequate WHR, lower income and health problems. On the other hand, high blood pressure may be linked only to obesity.

**CONCLUSION:**

The percentage of people that were overweight and those who did not do exercises in Nova Andradina indicates that these issues are also an important challenge for the health sector in smaller cities. Therefore, it is urgent that multidisciplinary intervention programs be implemented in primary health care.

**879: Wang H, Wu M, Zhu W, Shen J, Shi X, Yang J, Zhao Q, Ni C, Xu Y, Shen H, Shen C, Gu HF. Evaluation of the association between the AC3 genetic polymorphisms and obesity in a Chinese Han population. PLoS One. 2010 Nov 4;5(11):e13851. doi: 10.1371/journal.pone.0013851. PubMed PMID: 21079816; PubMed Central PMCID: PMC2973974.**

**Abstract**

**BACKGROUND:**

AC3 is one of adenylyl cyclase isoforms involved in cAMP and insulin signaling pathway. Recent reports have demonstrated that the AC3 genetic polymorphisms are associated with obesity in a Swedish population. AC3 knock out mice exhibit obese when they age. These findings suggest that AC3 plays an important role in the regulation of body weight.

**METHODOLOGY/PRINCIPAL FINDINGS:**

In the present study, we evaluated the association between the AC3 genetic polymorphisms and obesity in a Han Chinese population. A total of 2580 adults, including 1490 lean (BMI = 18.5-23.9), 677 overweight (BMI 24.0-27.9) and 413 obese (BMI  $\geq$ 28.0) subjects were genotyped for 5 TagSNPs in the AC3 gene. Single maker association analyses indicated that SNP rs753529 was significantly associated with BMI in obese subjects ( $P=0.022$ , OR = 0.775 95%CI = 0.623-0.963), but not in overweight subjects ( $P=0.818$ ). Multiple maker association analyses showed that the haplotype (G-G-G) constructed with SNPs rs1127568, rs7604576 and rs753529 was significantly associated with obesity ( $P=0.029$ ).

Further genotyping of SNP rs753529 in 816 children, including 361 overweight subjects (BMI $>$ P(80)) and 455 controls (BMI = P(20-50)) were performed, and no significant association with BMI was found. All tests were adjusted for age, sex, physical activity index, household income and/or diet expenses.

**CONCLUSIONS:**

The present study provides replication evidence that the AC3 genetic polymorphisms are associated with decreased risk of obesity among adults but not in children in a Chinese Han population. The data also suggest that the AC3 genetic effects on BMI may have interaction with the factors related to ageing and environment.

**880: Zhu YB, Wang Q, Wu CY, Pang GM, Zhao JX, Shen SL, Xia ZY, Yan X. [Logistic regression analysis on relationships between traditional Chinese medicine constitutional types and overweight or obesity]. Zhong Xi Yi Jie He Xue Bao. 2010 Nov;8(11):1023-8. Chinese. PubMed PMID: 21078265.**

Abstract

OBJECTIVE:

To explore the relationships between traditional Chinese medicine (TCM) constitutional types and overweight or obesity so as to provide evidence for adjusting constitutional bias and preventing and treating obesity.

METHODS:

The data comes from a cross-sectional survey on TCM constitution of 18 805 samples aged above 18 in Beijing and 8 provinces (Jiangsu, Anhui, Gansu, Qinghai, Fujian, Jilin, Jiangxi and Henan) in China. The survey of TCM constitution was performed by standardized constitution in Chinese medicine questionnaire (CCMQ). Discriminatory analysis method was used to judge the individual's constitutional type (gentleness type, qi-deficiency type, yang-deficiency type, yin-deficiency type, phlegm-dampness type, dampness-heat type, blood-stasis type, qi-depression type and special diathesis type). The relationships between TCM constitution types and overweight or obesity was investigated by logistic regression analysis.

RESULTS:

Compared with gentleness type, the risk of overweight (OR, 2.05; 95% CI, 1.79-2.35) and obesity (OR, 4.34; 95% CI, 3.52-5.36) in phlegm-dampness type is significantly increased; the risk of obesity (OR, 1.60; 95% CI, 1.30-1.98) in qi-deficiency type is significantly higher; the risk of overweight and obesity in yang-deficiency type, blood-stasis type, and qi-depression type is significantly lower.

CONCLUSION:

Phlegm-dampness type and qi-deficiency type are the main constitutional risk factors of overweight or obesity.

**881: Riazi A, Shakoor S, Dundas I, Eiser C, McKenzie SA. Health-related quality of life in a clinical sample of obese children and adolescents. Health Qual Life Outcomes. 2010 Nov 15;8:134. doi: 10.1186/1477-7525-8-134. PubMed PMID: 21078146; PubMed Central PMCID: PMC2998471.**

Abstract

BACKGROUND:

Obesity affects ethnic minority groups disproportionately, especially in the pediatric population. However, little is known about the impact of obesity on health-related quality of life (HRQoL) in children and adolescents from mixed-ethnic samples. The purpose of this study was to: 1) measure HRQoL in a mixed-ethnic clinical sample of obese children and adolescents, 2) compare HRQoL assessments in obese participants and healthy controls, and 3) compare HRQoL in obese children and adolescents according to their pubertal status.

METHODS:

A clinical sample of children and adolescents with obesity (n = 96) and healthy children and adolescents attending local schools (n = 444) completed the Pediatric Quality of Life Inventory (PedsQL; UK version 4). Age-appropriate versions were self-administered by children and adolescents aged 8-18 years, and interview administered to children aged 5-7 years. Multiple regression analyses

controlling for age, gender, pubertal status, and ethnicity were used to compare the PedsQL scores of the two samples.

**RESULTS:**

The clinical sample of obese children and adolescents had poorer HRQoL scores on all dimensions of the PedsQL compared to the healthy controls ( $p < 0.005$ ). Subsequent analyses also demonstrated that in this sample of mixed-ethnic children and adolescents, prepubescent obese children achieved the poorest scores in the emotional functioning dimension.

**CONCLUSIONS:**

Obesity significantly impacts on physical, emotional, social and school functioning of mixed-ethnic children and adolescents. Clinicians need to be aware of the significant impact of obesity on all aspects of functioning. More effort is required to target interventions to improve the quality of life of children with obesity.

**882: Andreasi V, Michelin E, Rinaldi AE, Burini RC. Physical fitness and associations with anthropometric measurements in 7 to 15-year-old school children. J Pediatr (Rio J). 2010 Nov-Dec;86(6):497-502. doi: doi:10.2223/JPED.2041. Epub 2010 Nov 12. PubMed PMID: 21076797.**

**Abstract**

**OBJECTIVE:**

To analyze associations between health-related physical fitness and the anthropometric and demographic indicators of children at three elementary schools in Botucatu, SP, Brazil.

**METHODS:**

The sample for this cross-sectional study was 988 elementary school students, recruited from the second to ninth grades (an age range of 7 to 15 years). The children underwent anthropometric assessment (weight, height, waist circumference and tricipital and subscapular skin folds) and were tested for health-related physical fitness (flexibility: sit and reach test; abdominal strength/stamina: 1-minute abdominal test; and aerobic stamina: 9-minute running/walking test). Data were analyzed using descriptive statistics plus Student's t test, the chi-square test or Fisher's exact test and logistic regression with a significance level of 5%.

**RESULTS:**

The physical fitness levels observed were significantly influenced by age (all levels), sex (abdominal strength/stamina), obesity (all levels), body adiposity (flexibility, abdominal strength/stamina) and abdominal adiposity (abdominal strength/stamina and aerobic stamina). Females were more prone to be unfit in abdominal strength/stamina. Both obesity and excessive abdominal adiposity predisposed children to be unfit in abdominal strength/stamina and aerobic stamina. Excess body adiposity increased the likelihood of poor trunk flexibility.

**CONCLUSIONS:**

Unhealthy physical fitness levels were related to female sex, obesity and excessive abdominal adiposity. Implementing programs designed to effect lifestyle changes to achieve physical fitness and healthy nutrition in these schools would meet the objectives of promoting healthy body weight and increased physical fitness among these schoolchildren.

**883: Subramanian SV, Perkins JM, Özaltın E, Davey Smith G. Weight of nations: a socioeconomic analysis of women in low- to middle-income countries. Am J Clin Nutr. 2011 Feb;93(2):413-21. doi: 10.3945/ajcn.110.004820. Epub 2010 Nov 10. PubMed PMID: 21068343; PubMed Central PMCID: PMC3021433.**

Abstract

BACKGROUND:

The increasing trend in body mass index (BMI) and overweight in rapidly developing economies is well recognized.

OBJECTIVE:

We assessed the association between socioeconomic status and BMI and overweight in low- to middle-income countries.

DESIGN:

We conducted a cross-sectional analysis of nationally representative samples of 538,140 women aged 15-49 y drawn from 54 Demographic and Health Surveys conducted between 1994 and 2008. BMI, calculated as weight in kilograms divided by height squared in meters, was specified as the outcome, and a BMI (in kg/m<sup>2</sup>) of  $\geq 25$  was additionally specified to model the likelihood of being overweight. Household wealth and education were included as markers of individual socioeconomic status, and per capita Gross Domestic Product (pcGDP) was included as a marker of country-level economic development.

RESULTS:

Globally, a one-quartile increase in wealth was associated with a 0.54 increase in BMI (95% CI: 0.50, 0.64) and a 33% increase in overweight (95% CI: 26%, 41%) in adjusted models. Although the strength of this association varied across countries, the association between wealth and BMI and overweight was positive in 96% (52 of 54) of the countries. Similar patterns were observed in urban and rural areas, although SES gradients tended to be greater in urban areas. There was a positive association between pcGDP and BMI or overweight, with only weak evidence of an interaction between pcGDP and wealth.

CONCLUSION:

Higher BMI and overweight remain concentrated in higher socioeconomic groups, even though increasing BMI and overweight prevalence are important global public concerns.

**884: The NS, Suchindran C, North KE, Popkin BM, Gordon-Larsen P. Association of adolescent obesity with risk of severe obesity in adulthood. JAMA. 2010 Nov 10;304(18):2042-7. doi: 10.1001/jama.2010.1635. PubMed PMID: 21063014; PubMed Central PMCID: PMC3076068.**

Abstract

CONTEXT:

Although the prevalence of obesity has increased in recent years, individuals who are obese early in life have not been studied over time to determine whether they develop severe obesity in adulthood, thus limiting effective interventions to reduce severe obesity incidence and its potentially life-threatening associated conditions.

OBJECTIVE:

To determine incidence and risk of severe obesity in adulthood by adolescent weight status.

DESIGN, SETTING, AND PARTICIPANTS:

A cohort of 8834 individuals aged 12 to 21 years enrolled in 1996 in wave II of the US National Longitudinal Study of Adolescent Health, followed up into adulthood (ages 18-27 years during wave III [2001-2002] and ages 24-33 years during wave IV [2007-2009]). Height and weight were obtained via anthropometry and surveys administered in study participants' homes using standardized procedures.

**MAIN OUTCOME MEASURES:**

New cases of adult-onset severe obesity were calculated by sex, race/ethnicity, and adolescent weight status. Sex-stratified, discrete time hazard models estimated the net effect of adolescent obesity (aged <20 years; body mass index [BMI]  $\geq$ 95th percentile of the sex-specific BMI-for-age growth chart or BMI  $\geq$ 30.0) on risk of severe obesity incidence in adulthood (aged  $\geq$ 20 years; BMI  $\geq$ 40.0), adjusting for race/ethnicity and age and weighted for national representation.

**RESULTS:**

In 1996, 79 (1.0%; 95% confidence interval [CI], 0.7%-1.4%) adolescents were severely obese; 60 (70.5%; 95% CI, 57.2%-83.9%) remained severely obese in adulthood. By 2009, 703 (7.9%; 95% CI, 7.4%-8.5%) non-severely obese adolescents had become severely obese in adulthood, with the highest rates for non-Hispanic black women. Obese adolescents were significantly more likely to develop severe obesity in young adulthood than normal-weight or overweight adolescents (hazard ratio, 16.0; 95% CI, 12.4-20.5).

**CONCLUSION:**

In this cohort, obesity in adolescence was significantly associated with increased risk of incident severe obesity in adulthood, with variations by sex and race/ethnicity.

**885: Shurtleff DB, Walker WO, Duguay S, Peterson D, Cardenas D. Obesity and myelomeningocele: anthropometric measures. J Spinal Cord Med. 2010;33(4):410-9. PubMed PMID: 21061901; PubMed Central PMCID: PMC2964030.**

**Abstract**

**OBJECTIVE:**

To evaluate the appropriate use of arm span measurements as a substitute for height/linear length to evaluate obesity in people with myelomeningocele by comparing calculated body mass indices (BMIs) with recently published BMI graphs by the Centers for Disease Control and Prevention (CDC) and National Center for Health Statistics standards (NCHS) published in 2000.

**STUDY DESIGN:**

Retrospective analysis of collected data on patients seen in the University of Washington Birth Defects Clinic from July 1, 1965, through June 1, 2008. Observations included degree of paralysis, presence of scoliosis, height (linear length), weight, and arm span. We compared published CDC/NCHS BMIs with our data using both height and arm span in place of height/linear length. There were 14,701 measures collected during 4968 visits from 709 patients. Mean values were calculated using age, gender, and lesion level as independent variables.

**RESULTS:**

Comparison of BMI means of patients with myelomeningocele suggests that our observations using arm span and height are comparable with the CDC/NCHS BMI means using height for the 2 least paralyzed groups but not for those groups with paralysis from high-level lesions that are more likely to exhibit lower extremity deformities or scoliosis.

**CONCLUSIONS:**

Published CDC/NCHS graphs, with their percentiles, are appropriate for estimating normal growth by BMI for children born with myelomeningocele when arm span is substituted for length if severe body differences due to high-level paralysis are taken into consideration.

**886: Sales-Peres SH, Goya S, Sant'Anna RM, Silva HM, Sales-Peres Ade C, Silva RP, Lauris JR, Bastos JR. [Prevalence of overweight and obesity, and associated factors in adolescents, at the central west area of the state São Paulo (SP, Brazil)]. Cien Saude Colet. 2010 Oct;15 Suppl 2:3175-84. Portuguese. PubMed PMID: 21049158.**

Abstract

The aim of the study was to evaluate the relationship between the Body Mass Index (BMI) and the DMFT index, in 207 adolescents aged 12 years old, from 8 public and private schools of the central west area of São Paulo State. From a sample of 380 12 year-old adolescents, both genders, 207 were examined. We used the index DMFT, CBI for weight, measured of stature and applied a questionnaire about alimentary habits, characteristic anthropometrics and physical activity. Regarding body weight, 55.93% was normal, 35.59% had low weight, and 8.47% were pre-obese in private schools. In the public schools, 52.03% had normal weight, 41.22% had low weight, 4.73% were pre-obese and 2.03% were obese, without significant difference ( $p=0.45$ ). The DMFT of public schools was 2.16, compared to 0.23 in private schools ( $p<0.05$ ), with 39.2% of caries-free individuals in public schools and 88.1% in private schools. There was no correlation between the increase in BMI and the increase in DMFT. There was negative correlation between socioeconomic conditions and dental caries. It was concluded that, even though the pre-obese and obese groups presented a higher frequency of food ingestion, obesity was not correlated with the increase in dental caries. However, the socioeconomic conditions were determinant for this occurrence.

**888: Hoyos Cillero I, Jago R. Sociodemographic and home environment predictors of screen viewing among Spanish school children. J Public Health (Oxf). 2011 Sep;33(3):392-402. doi: 10.1093/pubmed/fdq087. Epub 2010 Nov 3. PubMed PMID: 21047871; PubMed Central PMCID: PMC3307230.**

Abstract

BACKGROUND:

Higher screen-viewing levels increase the risk of obesity. Understanding the correlates of screen viewing is an important first step in designing interventions but there is lack of information on the correlates among Spanish children. This study examined associations among environmental, sociocultural, age variables and screen viewing among Spanish children.

METHODS:

Children completed a questionnaire about time spent in screen viewing. BMI was assessed and children were classified into obesity groups using International Obesity Task Force cut-off points. Parents completed a questionnaire about sociodemographic, environmental and sociocultural variables.

RESULTS:

Participants were 247 primary and 256 secondary school-aged children and their parents. Time spent in screen viewing increased with age. Males spent more time than females in screen viewing. Greater access to bedroom media sources was associated with higher screen viewing. Younger children from

single-parent households and older children having a younger parent, siblings and a father who was not working were higher screen-viewers on weekends and weekdays, respectively. For older children parental TV viewing time appeared to be a significant correlate, while parental rules was a determinant predictor for younger children on weekdays.

**CONCLUSIONS:**

Environmental and sociocultural factors influence the time children spend in screen viewing. Parents play a central role in child's screen viewing; therefore, interventions that target environmental and family TV viewing practices are likely to be effective.

**889: Dick AA, Perkins JD, Spitzer AL, Lao OB, Healey PJ, Reyes JD. Impact of obesity on children undergoing liver transplantation. Liver Transpl. 2010 Nov;16(11):1296-302. doi: 10.1002/lt.22162. PubMed PMID: 21031545.**

**Abstract**

Controversies exist with respect to the mortality of patients undergoing liver transplantation at the extremes of the body mass index (BMI). For pediatric liver transplantation, weight is usually the only factor considered in survival analysis. A review of the United Network for Organ Sharing database (1987-2007) revealed 9701 pediatric patients (<18 years old) who underwent primary liver transplantation. Patients were stratified into 5 BMI categories established by the World Health Organization according to their Z score, which was based on age, gender, and BMI: -3, -2, 0, +2, and +3. The survival rates in these 5 categories were compared with Kaplan-Meier survival curves and log-rank testing. Patients with thinness (Z score = -2) and severe thinness (Z score = -3) had significantly ( $P < 0.0001$ ) lower survival at 1 year (84.4%) versus the survival (88.7%) of the normal and overweight groups (Z score = 0 and Z score = +2, respectively). For patients with obesity (Z score = +3), there was no significant difference in survival early after transplantation, but their mortality gradually increased in the later years after transplantation. By 12 years after liver transplantation, the obese group had significantly ( $P = 0.04$ ) lower survival (72%) than the normal and overweight groups (77%). In conclusion, liver transplantation holds increased risk for obese pediatric patients. Thin pediatric patients experience early mortality after liver transplantation, and obese pediatric patients experience late mortality after liver transplantation. Transplant management can be modified to optimize the care of these patients.

**890: Trujillo-Hernández B, Vásquez C, Almanza-Silva JR, Jaramillo-Virgen ME, Mellin-Landa TE, Valle-Figueroa OB, Pérez-Ayala R, Millán-Guerrero RO, Prieto-Díaz-Chávez E, Newton-Sánchez O. [The frequency of risk factors associated with obesity and being overweight in university students from Colima, Mexico]. Rev Salud Publica (Bogota). 2010 Apr;12(2):197-207. Spanish. PubMed PMID: 21031230.**

**Abstract**

**OBJECTIVE:**

Determining risk factor frequency regarding obesity and being overweight in university students.

**METHODS:**

A cross-sectional analytic study was carried out on 821 students from the University of Colima. Some variables analysed were age, gender, alcoholism, smoking and weight-control drug use.

**RESULTS:**



821 students were included (380 male, 441 female), 20.9 $\pm$ 2.5 average age. 27.8 % of males were overweight and 14.7 % suffered from obesity; this was 17 % and 5.2 % in females, respectively. Smoking (2.1 OR; 1.4-3.8 95 % CI; p=0.01) and alcoholism (2.1 OR; 1.2-3.6 95 % CI; p=0.003) were associated with being overweight and being obese. Weight-control drug use was a protective factor in both genders (0.4 OR; 0.2-0.8 95 % CI; p=0.01); diet control was only a protective factor in women (2.2. OR; 1.1-3.4 95 % CI; p=0.01).

**CONCLUSIONS:**

31.6 % of university students were overweight and suffered from obesity. Smoking and alcoholism in males were associated with being overweight and suffering from obesity. Weight-control and diet-control drug use were protective factors.

**891: Freedman DS, Fulton JE, Dietz WH, Pan L, Nihiser AJ, Srinivasan SR, Berenson GS. The identification of children with adverse risk factor levels by body mass index cutoffs from 2 classification systems: the Bogalusa Heart Study. Am J Clin Nutr. 2010 Dec;92(6):1298-305. doi: 10.3945/ajcn.2010.29758. Epub 2010 Oct 27. Erratum in: Am J Clin Nutr. 2011 Mar;93(3):676-7. PubMed PMID: 20980492; PubMed Central PMCID: PMC2980956.**

**Abstract**

**BACKGROUND:**

The cutoffs from the Centers for Disease Control and Prevention (CDC) growth charts and from the Cooper Institute (FitnessGram) are widely used to identify children who have a high body mass index (BMI).

**OBJECTIVE:**

We compared the abilities of these 2 systems to identify children who have adverse lipid concentrations and blood pressure measurements and the reliability (consistency) of each classification system over time (mean follow-up: 7 y).

**DESIGN:**

A cross-sectional analysis based on data from 22,896 examinations of 5- to 17-y-olds was conducted. Principal components analyses were used to summarize levels of the 5 risk factors, and likelihood ratios and the  $\kappa$  statistic were used to compare the screening abilities of the 2 systems. Of these children, 3972 were included in longitudinal analyses.

**RESULTS:**

There were marked differences in the prevalence of a high FitnessGram BMI by age, with the prevalence among boys increasing from 2.5% to 21% between the ages of 5 and 11 y. The identification of adverse risk factors by the 2 systems was only fair ( $\kappa = 0.25$ ), but there was little difference in the abilities of the CDC and FitnessGram cutoffs to identify high-risk children. Longitudinal analyses, however, indicated that the agreement between initial and follow-up FitnessGram classifications was substantially lower than that based on CDC cutoffs ( $\kappa = 0.28$  compared with 0.49).

**CONCLUSIONS:**

The FitnessGram and CDC cutoffs have similar abilities to identify high-risk children. However, a high FitnessGram BMI is difficult to interpret because the reliability over time is low, and the prevalence increases markedly with age.

**892: Fuemmeler BF, Østbye T, Yang C, McClernon FJ, Kollins SH. Association between attention-deficit/hyperactivity disorder symptoms and obesity and hypertension in early adulthood: a population-based study. *Int J Obes (Lond)*. 2011 Jun;35(6):852-62. doi: 10.1038/ijo.2010.214. Epub 2010 Oct 26. PubMed PMID: 20975727; PubMed Central PMCID: PMC3391591.**

Abstract

OBJECTIVE:

To examine the associations between attention-deficit/hyperactivity disorder (ADHD) symptoms, obesity and hypertension in young adults in a large population-based cohort.

DESIGN, SETTING AND PARTICIPANTS:

The study population consisted of 15,197 respondents from the National Longitudinal Study of Adolescent Health, a nationally representative sample of adolescents followed from 1995 to 2009 in the United States. Multinomial logistic and logistic models examined the odds of overweight, obesity and hypertension in adulthood in relation to retrospectively reported ADHD symptoms. Latent curve modeling was used to assess the association between symptoms and naturally occurring changes in body mass index (BMI) from adolescence to adulthood.

RESULTS:

Linear association was identified between the number of inattentive (IN) and hyperactive/impulsive (HI) symptoms and waist circumference, BMI, diastolic blood pressure and systolic blood pressure (all P-values for trend <0.05). Controlling for demographic variables, physical activity, alcohol use, smoking and depressive symptoms, those with three or more HI or IN symptoms had the highest odds of obesity (HI 3+, odds ratio (OR)=1.50, 95% confidence interval (CI) = 1.22-2.83; IN 3+, OR = 1.21, 95% CI = 1.02-1.44) compared with those with no HI or IN symptoms. HI symptoms at the 3+ level were significantly associated with a higher OR of hypertension (HI 3+, OR = 1.24, 95% CI = 1.01-1.51; HI continuous, OR = 1.04, 95% CI = 1.00-1.09), but associations were nonsignificant when models were adjusted for BMI. Latent growth modeling results indicated that compared with those reporting no HI or IN symptoms, those reporting 3 or more symptoms had higher initial levels of BMI during adolescence. Only HI symptoms were associated with change in BMI.

CONCLUSION:

Self-reported ADHD symptoms were associated with adult BMI and change in BMI from adolescence to adulthood, providing further evidence of a link between ADHD symptoms and obesity.

**893: Gould Rothberg BE, Magriples U, Kershaw TS, Rising SS, Ickovics JR. Gestational weight gain and subsequent postpartum weight loss among young, low-income, ethnic minority women. *Am J Obstet Gynecol*. 2011 Jan;204(1):52.e1-11. doi: 10.1016/j.ajog.2010.08.028. Epub 2010 Oct 25. PubMed PMID: 20974459; PubMed Central PMCID: PMC3011029.**

Abstract

OBJECTIVE:

Document weight change trajectories that lead to gestational weight gain or postpartum weight loss outside clinical recommendations established by the Institute of Medicine.

STUDY DESIGN:

Women aged 14-25 receiving prenatal care and delivering singleton infants at term (n = 427). Medical record review and 4 structured interviews conducted: second and third trimester, 6- and 12-months postpartum. Longitudinal mixed modeling to evaluate weight change trajectories.

**RESULTS:**

Only 22% of participants gained gestational weight within Institute of Medicine guidelines. There were 62% that exceeded maximum recommendations-more common among those overweight/obese (body mass index  $\geq 25.0$ ;  $P < .0001$ ). 52% retained  $\geq 10$  lb 1-year postpartum. Increased weight gain and retention documented among smokers and women with pregnancy-induced hypertension; breastfeeding promoted postpartum weight loss (all  $P < .02$ ). Body mass index by race interaction suggested healthier outcomes for Latinas ( $P = .02$ ).

**CONCLUSION:**

Excessive pregnancy weight gain and inadequate postpartum weight loss are highly prevalent among young low-income ethnic minority women. Pregnancy and postpartum are critical junctures for weight management interventions.

**894: Kułaga Z, Litwin M, Tkaczyk M, Palczewska I, Zajączkowska M, Zwolińska D, Krynicki T, Wasilewska A, Moczulska A, Morawiec-Knysak A, Barwicka K, Grajda A, Gurdzowska B, Napieralska E, Pan H. Polish 2010 growth references for school-aged children and adolescents. Eur J Pediatr. 2011 May;170(5):599-609. doi: 10.1007/s00431-010-1329-x. Epub 2010 Oct 23. PubMed PMID: 20972688; PubMed Central PMCID: PMC3078309.**

**Abstract**

Growth references are useful in monitoring a child's growth, which is an essential part of child care. The aim of this paper was to provide updated growth references for Polish school-aged children and adolescents and show the prevalence of overweight and obesity among them. Growth references for height, weight, and body mass index (BMI) were constructed with the lambda, mu, sigma (LMS) method using data from a recent, large, population-representative sample of school-aged children and adolescents in Poland (n = 17,573). The prevalence of overweight and obesity according to the International Obesity Taskforce definition was determined with the use of LMSGrowth software. Updated growth references for Polish school-aged children and adolescents were compared with Polish growth references from the 1980s, the Warsaw 1996-1999 reference, German, and 2000 CDC references. A positive secular trend in height was observed in children and adolescents from 7 to 15 years of age. A significant shift of the upper tail of the BMI distribution occurred, especially in Polish boys at younger ages. The prevalence of overweight or obesity was 18.7% and 14.1% in school-aged boys and girls, respectively. The presented height, weight, and BMI references are based on a current, nationally representative sample of Polish children and adolescents without known disorders affecting growth. Changes in the body size of children and adolescents over the last three decades suggest an influence of the changing economical situation on anthropometric indices.

**895: Morrison JA, Glueck CJ, Daniels S, Wang P, Horn P, Stroop D. Paradoxically high adiponectin and the healthy obese phenotype in obese black and white 16-year-old girls. *Transl Res.* 2010 Nov;156(5):302-8. doi: 10.1016/j.trsl.2010.08.003. Epub 2010 Sep 8. PubMed PMID: 20970753; PubMed Central PMCID: PMC2978533.**

Abstract

Although adiponectin is correlated inversely with obesity, some obese adults without metabolic complications of obesity have paradoxically high adiponectin. Therefore, we assessed adiponectin risk factor relations in 133 obese 16-year-old school girls from a cohort of 448, focusing on paradoxically high adiponectin-risk in obesity and the healthy obese phenotype. Median adiponectin (11.9 mg/L) in nonobese girls (body mass index [BMI] < 24.6 kg/m<sup>2</sup>) was selected as a cutpoint to identify high adiponectin in obese girls. Of 90 black and 43 white obese girls (BMI ≥ 24.6), 25 black (28%) and 13 white (30%) girls had paradoxically high adiponectin (>11.9). The 38 obese girls with adiponectin >11.9 versus the 95 obese girls with adiponectin ≤11.9 had higher median high-density lipoprotein (HDL) cholesterol (54 vs 46 mg/dL, P = 0.0007) and apolipoprotein A1 (ApoA1) (181 vs 164 mg/dL, P = 0.011) and had lower insulin (14 vs 20 uU/mL, P = 0.0006). In the 133 obese girls, through stepwise regression, the adiponectin category (>11.9, ≤ 11.9 mg/L) was a significant independent positive determinant of HDL cholesterol (partial r<sup>2</sup> = 8.4%, P = 0.001), ApoA1 (partial r<sup>2</sup> = 4.1%, P = 0.025), and it was associated inversely with fasting serum insulin (partial r<sup>2</sup> = 5.4%, P = 0.0074). By stepwise logistic regression in the 133 obese girls, the adiponectin category (high vs low) was a significant inverse explanatory variable for metabolic syndrome (odds ratio 0.20, 95% confidence intervals 0.04-0.95, P = 0.043). We conclude that paradoxically high adiponectin is associated with the healthy obese phenotype in obese adolescent black and white girls.

**896: Wells NM, Evans GW, Beavis A, Ong AD. Early childhood poverty, cumulative risk exposure, and body mass index trajectories through young adulthood. *Am J Public Health.* 2010 Dec;100(12):2507-12. doi: 10.2105/AJPH.2009.184291. Epub 2010 Oct 21. PubMed PMID: 20966374; PubMed Central PMCID: PMC2978160.**

Abstract

OBJECTIVES:

We assessed whether cumulative risk exposure underlies the relation between early childhood poverty and body mass index (BMI) trajectories.

METHODS:

We interviewed youths and their mothers in rural upstate New York (168 boys and 158 girls) from 1995 to 2006 when the youths were aged 9, 13, and 17 years. At each interview, we calculated their BMI-for-age percentile.

RESULTS:

Early childhood poverty predicted BMI growth trajectories from ages 9 to 17 years (b = 3.64; SE = 1.39; P < .01). Early childhood poverty also predicted changes in cumulative risk (b = 0.31; SE = 0.08; P < .001). Cumulative risk, in turn, predicted BMI trajectories (b = 2.41; SE = 0.75; P < .01). Finally, after we controlled for cumulative risk, the effect of early childhood poverty on BMI trajectories was no longer significant, indicating that cumulative risk exposure mediated the relation between early childhood poverty and BMI trajectories (b = 2.01; SE = 0.94).

CONCLUSIONS:

We show for the first time that early childhood poverty leads to accelerated weight gain over the course of childhood into early adulthood. Cumulative risk exposure during childhood accounts for much of this accelerated weight gain.

**898: Copeland KC, Zeitler P, Geffner M, Guandalini C, Higgins J, Hirst K, Kaufman FR, Linder B, Marcovina S, McGuigan P, Pyle L, Tamborlane W, Willi S; TODAY Study Group. Characteristics of adolescents and youth with recent-onset type 2 diabetes: the TODAY cohort at baseline. J Clin Endocrinol Metab. 2011 Jan;96(1):159-67. doi: 10.1210/jc.2010-1642. Epub 2010 Oct 20. PubMed PMID: 20962021; PubMed Central PMCID: PMC3038479.**

Abstract

CONTEXT:

The Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY) cohort represents the largest and best-characterized national sample of American youth with recent-onset type 2 diabetes.

OBJECTIVE:

The objective of the study was to describe the baseline characteristics of participants in the TODAY randomized clinical trial.

DESIGN:

Participants were recruited over 4 yr at 15 clinical centers in the United States (n = 704) and enrolled, randomized, treated, and followed up 2-6 yr.

SETTING:

The study was conducted at pediatric diabetes care clinics and practices.

PARTICIPANTS:

Eligible participants were aged 10-17 yr inclusive, diagnosed with type 2 diabetes for less than 2 yr and had a body mass index at the 85th percentile or greater.

INTERVENTIONS:

After baseline data collection, participants were randomized to one of the following groups: 1) metformin alone, 2) metformin plus rosiglitazone, or 3) metformin plus a lifestyle program of weight management.

MAIN OUTCOME MEASURES:

Baseline data presented include demographics, clinical/medical history, biochemical measurements, and clinical and biochemical abnormalities.

RESULTS:

At baseline the cohort included the following: 64.9% were female; mean age was 14.0 yr; mean diabetes duration was 7.8 months; mean body mass index Z-score was 2.15; 89.4% had a family history of diabetes; 41.1% were Hispanic, 31.5% were non-Hispanic black; 38.8% were living with both biological parents; 41.5% had a household annual income of less than \$25,000; 26.3% had a highest education level of parent/guardian less than a high school degree; 26.3% had a blood pressure at the 90th percentile or greater; 13.6% had a blood pressure at the 95th percentile or greater; 13.0% had microalbuminuria; 79.8% had a low high-density lipoprotein level; and 10.2% had high triglycerides.

CONCLUSIONS:

The TODAY cohort is predominantly from racial/ethnic minority groups, with low socioeconomic status and a family history of diabetes. Clinical and biochemical abnormalities and comorbidities are

prevalent within 2 yr of diagnosis. These findings contribute greatly to our understanding of American youth with type 2 diabetes.

**899: Sloboda DM, Hickey M, Hart R. Reproduction in females: the role of the early life environment. Hum Reprod Update. 2011 Mar-Apr;17(2):210-27. doi: 10.1093/humupd/dmq048. Epub 2010 Oct 20. Review. PubMed PMID: 20961922.**

Abstract

BACKGROUND:

There is now compelling evidence that long-term health and physiological function are modified by events that occur early in life and involve interactions between the genome and the developmental environment. That reproductive function may similarly be influenced by early life events has been established in selected human populations, and investigations into underlying mechanisms are the subject of current animal studies.

METHODS:

No systematic literature search was conducted. This review highlights early life influences on reproduction with a particular focus on nutritional impacts, and provides a brief overview with reference to some key studies in both the human and animal literature. We highlight the controversies, current unanswered questions and mechanisms underlying the association between the early life environment and long-term reproductive function.

RESULTS AND CONCLUSIONS:

Currently, the impact of early life events on reproductive health and disease risk is poorly understood. It is clear, however, that nutrition spanning the entire developmental lifespan plays an integral role. Improved insight into the underlying mechanisms is likely to have significant implications for our current understanding of reproductive disorders, and therefore for the health and reproductive potential of future generations.

**900: van Vliet M, Gazendam RP, von Rosenstiel IA, van Zanten AP, Brandjes DP, Beijnen JH, Rotteveel J, Diamant M. Differential impact of impaired fasting glucose versus impaired glucose tolerance on cardiometabolic risk factors in multi-ethnic overweight/obese children. Eur J Pediatr. 2011 May;170(5):589-97. doi: 10.1007/s00431-010-1323-3. Epub 2010 Oct 20. PubMed PMID: 20960007; PubMed Central PMCID: PMC3078320.**

Abstract

We aimed to investigate the prevalence of impaired fasting glucose (IFG) and impaired glucose tolerance (IGT), and their associations with cardiometabolic risk factors, according to ethnicity in a large obese paediatric cohort. A 75-g oral glucose tolerance test was performed in 1,007 overweight/obese Dutch children of multi-ethnic origin, referred to the obesity outpatient clinics of two Dutch hospitals in Amsterdam (mean age, 11.4 ± 3.2 years; 50.7% boys). Anthropometric parameters and blood samples were collected, and cardiometabolic risk factors were assessed. The cohort consisted of Dutch native (26.0%), Turkish (23.7%), Moroccan (18.8%) and children of 'other' (31.5%) ethnicity. The prevalence of IFG was significantly higher in Moroccan and Turkish children as compared to Dutch native children (25.4% and 19.7% vs. 11.8%, respectively,  $P < 0.05$ ). IGT was most frequently present in Turkish and Dutch native children, relative to Moroccan children (6.3% and 5.3% vs. 1.6%,  $P < 0.05$ ). Besides pubertal status and ethnicity, components of 'metabolic syndrome'

(MetS) which were associated with IGT, independent of hyperinsulinaemia, were hypertension [odds ratio (OR), 2.3; 95% CI, 1.1-4.9] while a trend was seen for high triglycerides (OR, 2.0; 95% CI, 0.9-4.3). When analyzing components of MetS which were associated with IFG, only low high-density lipoprotein cholesterol was significantly associated (OR, 1.7; 95% CI, 1.2-2.5) independent of hyperinsulinaemia. In conclusion, in a Dutch multi-ethnic cohort of overweight/obese children, a high prevalence of IFG was found against a low prevalence of IGT, which differed in their associations with cardiometabolic risk factors.

**901: Bae J, Joung H, Kim JY, Kwon KN, Kim Y, Park SW. Validity of self-reported height, weight, and body mass index of the Korea Youth Risk Behavior Web-based Survey questionnaire. J Prev Med Public Health. 2010 Sep;43(5):396-402. doi: 10.3961/jpmph.2010.43.5.396. PubMed PMID: 20959710.**

#### Abstract

##### OBJECTIVES:

Self-reported anthropometric values, such as height and weight, are used to calculate body mass index (BMI) and assess the prevalence of obesity among adolescents. The aim of this study was to evaluate the validity of self-reported height, weight, and BMI of the Korea Youth Risk Behavior Web-based Survey questionnaire.

##### METHODS:

A convenience sample of 137 middle school students and 242 high school students completed a self-administered questionnaire in 2008. Body height and weight were directly measured after self-reported values were obtained from the questionnaire survey. Sensitivity, specificity, and kappa statistics were computed in order to evaluate the validity of the prevalence of obesity (BMI  $\geq$  95th percentile or  $\geq$  25 kg/m<sup>2</sup>) based on self-reported data.

##### RESULTS:

Self-reported weight and BMI tended to be underestimated. Self-reported height tended to be overestimated among middle school females and high school males. Obese adolescents tended to underestimate their weight and BMI and overestimate their height more than non-obese adolescents. The prevalence estimate of obesity based on self-reported data (10.6%) was lower than that based on directly measured data (15.3%). The estimated sensitivity of obesity based on self-reported data was 69.0% and the specificity was 100.0%. The value of kappa was 0.79 (95% confidence interval, 0.70-0.88).

##### CONCLUSIONS:

This study demonstrated that self-reported height and weight may lead to the underestimation of BMI and consequently the prevalence of obesity. These biases should be taken into account when self-reported data are used for monitoring the prevalence and trends of obesity among adolescents nationwide.

**903: Brady TM, Fivush B, Parekh RS, Flynn JT. Racial differences among children with primary hypertension. *Pediatrics*. 2010 Nov;126(5):931-7. doi: 10.1542/peds.2009-2972. Epub 2010 Oct 18. PubMed PMID: 20956429.**

Abstract

OBJECTIVE:

Race is a known risk factor for hypertension and cardiovascular disease in adults and influences blood pressure (BP) in children. We sought to determine if there are differences in clinical, laboratory, or echocardiographic characteristics among children with primary hypertension from different racial groups.

PATIENTS AND METHODS:

Study participants were 184 children aged 3 to 20 years with a diagnosis of primary hypertension who were examined at 1 of 3 participating centers at the time of initial evaluation of elevated BP. Black children were categorized as African American (AA) and nonblack children as non-AA. Comparisons were made for the entire group and after stratification according to age (<13 or ≥ 13 years).

RESULTS:

Overall, children categorized as AA had a higher prevalence of overweight/obesity and left ventricular hypertrophy and had higher plasma renin activity than children who were categorized as non-AA. After age stratification, these differences remained only in the children younger than 13 years old; there were no differences in these findings among children aged 13 years or older. AA children who were aged 13 years or older, however, had higher BPs for both casual and ambulatory measurements. Specifically, they had higher casual diastolic BP, higher 24-hour diastolic BP, higher daytime systolic and diastolic BP, and higher BP loads at night and over a 24-hour period compared with non-AA children who were aged 13 years or older.

CONCLUSIONS:

These data indicate that black children with primary hypertension may be at increased cardiovascular risk compared with nonblack children with primary hypertension. However, the high prevalence of overweight/obesity and left ventricular hypertrophy in all youth with primary hypertension demonstrates the need for greater preventive and therapeutic efforts aimed at reducing cardiovascular risk in this vulnerable population.

**904: Crume TL, Ogden L, West NA, Vehik KS, Scherzinger A, Daniels S, McDuffie R, Bischoff K, Hamman RF, Norris JM, Dabelea D. Association of exposure to diabetes in utero with adiposity and fat distribution in a multiethnic population of youth: the Exploring Perinatal Outcomes among Children (EPOCH) Study. *Diabetologia*. 2011 Jan;54(1):87-92. doi: 10.1007/s00125-010-1925-3. Epub 2010 Oct 17. PubMed PMID: 20953862; PubMed Central PMCID: PMC3027214.**

Abstract

AIMS/HYPOTHESIS:

To evaluate whether exposure to maternal gestational diabetes (GDM) is associated with adiposity and fat distribution in a multiethnic population of children.

METHODS:



Retrospective cohort study of 82 children exposed to maternal GDM and 379 unexposed youths 6-13 years of age with measured BMI, waist circumference, skinfold thickness, and visceral and subcutaneous abdominal fat.

**RESULTS:**

Exposure to maternal GDM was associated with higher BMI ( $p = 0.02$ ), larger waist circumference ( $p = 0.004$ ), more subcutaneous abdominal fat ( $p = 0.01$ ) and increased subscapular to triceps skinfold thickness ratio ( $p = 0.01$ ) in models adjusted for age, sex, race/ethnicity and Tanner stage.

Adjustment for socioeconomic factors, birthweight and gestational age, maternal smoking during pregnancy and current diet and physical activity did not influence associations; however, adjustment for maternal pre-pregnancy BMI attenuated all associations.

**CONCLUSIONS/INTERPRETATION:**

Exposure to maternal GDM is associated with increased overall and abdominal adiposity, and a more central fat distribution pattern in 6- to 13-year-old youths from a multi-ethnic population, providing further support for the fetal overnutrition hypothesis.

**905: Padilla MA, Elobeid M, Ruden DM, Allison DB. An examination of the association of selected toxic metals with total and central obesity indices: NHANES 99-02. Int J Environ Res Public Health. 2010 Sep;7(9):3332-47. doi: 10.3390/ijerph7093332. Epub 2010 Aug 26. PubMed PMID: 20948927; PubMed Central PMCID: PMC2954548.**

**Abstract**

It is conceivable that toxic metals contribute to obesity by influencing various aspects of metabolism, such as by substituting for essential micronutrients and vital metals, or by inducing oxidative stress. Deficiency of the essential metal zinc decreases adiposity in humans and rodent models, whereas deficiencies of chromium, copper, iron, and magnesium increases adiposity. This study utilized the NHANES 99-02 data to explore the association between waist circumference and body mass index with the body burdens of selected toxic metals (barium, cadmium, cobalt, cesium, molybdenum, lead, antimony, thallium, and tungsten). Some of the associations were significant direct relationships (barium and thallium), and some of the associations were significant inverse relationships (cadmium, cobalt, cesium, and lead). Molybdenum, antimony, and tungsten had mostly insignificant associations with waist circumference and body mass index. This is novel result for most of the toxic metals studied, and a surprising result for lead because high stored lead levels have been shown to correlate with higher rates of diabetes, and obesity may be a key risk factor for developing diabetes. These associations suggest the possibility that environmental exposure to metals may contribute to variations in human weight gain/loss. Future research, such as prospective studies rather than the cross-sectional studies presented here, is warranted to confirm these findings.

**KEYWORDS:**

endocrine disruptors; obesity; public health; toxic metals; waist circumference.

**906: Lytle LA, Pasch KE, Farbaksh K. The relationship between sleep and weight in a sample of adolescents. *Obesity (Silver Spring)*. 2011 Feb;19(2):324-31. doi: 10.1038/oby.2010.242. Epub 2010 Oct 14. PubMed PMID: 20948522; PubMed Central PMCID: PMC3099473.**

Abstract

Research to date in young children and adults shows a strong, inverse relationship between sleep duration and risk for overweight and obesity. Fewer studies examining this relationship have been conducted in adolescents. The purpose of the article is to describe the relationship between sleep and weight in a population of adolescents, controlling for demographics, energy intake, energy expenditure, and depression. This is a cross-sectional study of 723 adolescents participating in population-based studies of the etiologic factors related to obesity. We examined the relationship between three weight-related dependent variables obtained through a clinical assessment and three sleep variables obtained through self-report. Average caloric intake from dietary recalls, average activity counts based on accelerometers, and depression were included as covariates and the analysis was stratified by gender and grade level. Our results show that the relationship between sleep duration and BMI is evident in middle-school boys ( $\beta = -0.32$ , s.e. = 0.06:  $P < 0.001$ ) and girls ( $\beta = -0.18$ , s.e. = 0.08:  $P = 0.02$ ) but largely absent in high-school students. Differences in sleep patterns have little association with weight in males, but in high-school girls, waking up late on weekends as compared to weekdays is associated with lower body fat ( $\beta = -0.80$ , s.e. = 0.40:  $P = 0.05$ ) and a healthy weight status ( $\beta = -0.28$ , s.e. = 0.14:  $P = 0.05$ ). This study adds to the evidence that, particularly for middle-school boys and girls, inadequate sleep is a risk factor for early adolescent obesity. Future research needs to examine the relationship longitudinally and to study potential mediators of the relationship.

**907: Camhi SM, Bray GA, Bouchard C, Greenway FL, Johnson WD, Newton RL, Ravussin E, Ryan DH, Smith SR, Katzmarzyk PT. The relationship of waist circumference and BMI to visceral, subcutaneous, and total body fat: sex and race differences. *Obesity (Silver Spring)*. 2011 Feb;19(2):402-8. doi: 10.1038/oby.2010.248. Epub 2010 Oct 14. PubMed PMID: 20948514; PubMed Central PMCID: PMC3960785.**

Abstract

The purpose of this study was to examine sex and race differences in the relationship between anthropometric measurements and adiposity in white and African-American (AA) adults. Visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) areas were measured with computed tomography (CT). Fat mass (FM) was measured with dual-energy-X-ray absorptiometry (DXA). Correlation coefficients were used to assess the relationship of waist circumference (WC) and BMI to VAT, SAT, and FM within sex-by-race groups. General linear models were used to compare relationships between WC or BMI, and adiposity across sex and race, within age groups (18-39 and 40-64 years). The sample included 1,667 adults (men: 489 white; 120 AA; women: 666 white, 392 AA). WC and BMI correlations were highest for FM and SAT compared to VAT. Women had higher FM levels than men regardless of WC, but the sex difference in FM was attenuated in younger AA adults with a high BMI. For a given level of WC or BMI, women had higher levels of SAT than men; however, significant interactions indicated that the relationship was not consistent across all levels of BMI and WC. Sex and race differences in VAT varied significantly with WC and BMI. In general, white adults had higher levels of VAT than AA adults at higher levels of BMI and WC. Sex differences, and in some

instances race differences, in the relationships between anthropometry and fat-specific depots demonstrate that these characteristics need to be considered when predicting adiposity from WC or BMI.

**908: Bishop-Gilyard CT, Berkowitz RI, Wadden TA, Gehrman CA, Cronquist JL, Moore RH. Weight reduction in obese adolescents with and without binge eating. Obesity (Silver Spring). 2011 May;19(5):982-7. doi: 10.1038/oby.2010.249. Epub 2010 Oct 14. PubMed PMID: 20948512; PubMed Central PMCID: PMC3082597.**

#### Abstract

Little is known about binge eating (BE) in adolescents. The primary aim of the present study was to examine the relationship between BE and weight loss in adolescents (BMI  $\geq$ 95th percentile) enrolled in a randomized controlled trial of behavioral and pharmacologic treatment of obesity. Participants were 82 treatment-seeking adolescents (BMI =  $37.9 \pm 3.8$  kg/m<sup>2</sup>; age =  $14.1 \pm 1.2$  years; 67% females; 42% African American, 55% white). Participants completed the Children's Depression Inventory (CDI), the Piers Harris Self-Esteem Questionnaire, and the Eating Inventory (including cognitive restraint, disinhibition, and hunger scales). BE was assessed by a questionnaire and a confirmatory interview. At baseline, 24% of participants met criteria for BE (N = 13 met full BE disorder (BED) criteria; N = 7 met subthreshold BE). There were no significant differences in percentage reduction in initial BMI between participants with or without BE at month 6 ( $-7.0 \pm 1.6$  vs.  $-6.9 \pm 0.9\%$ ) or month 12 ( $-8.8 \pm 2.4$  vs.  $-8.3 \pm 1.3\%$ ) (omnibus main effect BE P = 0.89, interaction BE  $\times$  time P = 0.84, interaction BE  $\times$  drug P = 0.61). The rate of BE declined significantly over time from 24% (n = 20) at baseline to 8% (n = 6) at month 6 and 3% (n = 2) at month 12 (P = 0.003). There were significant decreases in hunger and disinhibition as well as an increase in cognitive restraint over time (all P  $\leq$  0.0001). Findings suggest a combination of behavioral and pharmacologic therapy may produce both weight loss and improvement in BE.

**909: Shi Z, Taylor AW, Gill TK, Tuckerman J, Adams R, Martin J. Short sleep duration and obesity among Australian children. BMC Public Health. 2010 Oct 15;10:609. doi: 10.1186/1471-2458-10-609. PubMed PMID: 20946684; PubMed Central PMCID: PMC2964630.**

#### Abstract

##### BACKGROUND:

There is limited information on sleep duration and obesity among Australian children. The objective of the study is to cross-sectionally examine the relationship between sleep duration and obesity in Australian children aged 5 to 15 years.

##### METHODS:

Data were collected using the South Australian Monitoring and Surveillance System between January 2004 and December 2008. Each month a representative random sample of South Australians are selected from the Electronic White Pages with interviews conducted using Computer Assisted Telephone Interviewing (CATI). Within each household, the person who was last to have a birthday was selected for interview. Parents reported the number of hours their children slept each day. Obesity was defined according to the International Obesity Task Force (IOTF) definition based on BMI calculated from reported body weight and height.

##### RESULTS:

Overall, parents of 3495 children aged 5-15 years (mean 10.7 years, 50.3% boys) were interviewed. The prevalence of obesity was 7.7% (8.9% in boys, 6.6% in girls). In multivariate analysis after adjusting for sociodemographic variables, intake of fruit and vegetables, physical activity and inactivity, the odds ratio (OR) for obesity comparing sleeping <9 hours with ≥10 hours was 2.23 (95% CI 1.04-4.76) among boys, 1.70(0.78-3.73) among girls, and 1.97(1.15-3.38) in both genders. The association between short sleep (<9 hours) and obesity was stronger in the younger age group. No significant association between short sleep and obesity was found among children aged 13-15. There was also an additive interaction between short sleep and low level of physical activity.

**CONCLUSION:**

Short sleep duration is associated with increased obesity in children especially among younger age groups and boys.

**910: Pereira PB, Arruda IK, Cavalcanti AM, Diniz Ada S. Lipid profile of schoolchildren from Recife, PE. Arq Bras Cardiol. 2010 Oct;95(5):606-13. Epub 2010 Oct 8. English, Portuguese. PubMed PMID: 20944894.**

**Abstract**

**BACKGROUND:**

The occurrence of dyslipidemia is increasing in pediatric populations. Altered lipid profiles are related to a higher incidence of hypertension and atherosclerotic disease.

**OBJECTIVE:**

To evaluate the extent of dyslipidemia and investigate its association with overweight and abdominal obesity in adolescent students from Recife, Brazil.

**METHODS:**

Personal data, socioeconomic level, anthropometric measurements and lipid profile of 470 adolescents, aged 10 to 14 years, of both sexes, students at the Public School system in the city of Recife, state of Pernambuco, Brazil, were obtained. The statistical analysis was carried out using the Epi-info 6.04 and SPSS 13.0 software. The level of significance was set at 5%.

**RESULTS:**

The majority of the population was dyslipidemic (63.8%; 95%CI: 59.3 - 68.2), with hypoalphalipoproteinemia being the most prevalent dyslipidemia (56%; 95%CI: 51.3 - 60.5). Adolescents who were overweight or who had abdominal obesity presented higher levels of triglycerides and lower levels of HDL-cholesterol ( $p < 0.05$ ). Levels of total cholesterol and fractions were not different between sexes.

**CONCLUSION:**

A high incidence of unfavorable lipid profile was shown in this series, demonstrating the necessity to measure the lipid profile as early as this age range. Healthy lifestyle measures should be encouraged in this population.

**911: Henkel DS, Remington PL, Athens JK, Gould JC. Trends in bariatric surgery for morbid obesity in Wisconsin: a 6-year follow-up. WMJ. 2010 Feb;109(1):21-7. PubMed PMID: 20942296.**

Abstract

**BACKGROUND:**

The prevalence of morbid obesity is increasing throughout Wisconsin and the United States. In 2004, we published a study, "Trends in Bariatric Surgery for Morbid Obesity in Wisconsin." We determined that surgery rates were increasing but felt the demand exceeded the capacity of the surgeons. This is a 6-year follow-up.

**METHODS:**

Data was gathered from 3 sources: the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System, the Wisconsin Hospital Association, and a survey administered to Wisconsin bariatric surgeons.

**RESULTS:**

From 2003-2008, an average of 2.8% of Wisconsin adults were morbidly obese. Although the number of bariatric surgeries performed in Wisconsin remained steady (1311 surgeries in 2003 and 1343 in 2008), the types of procedures shifted from open gastric bypass (73% in 2003) to laparoscopic gastric bypass (80% in 2008). The rate of surgery was 1 for every 100 morbidly obese adults. The majority of surgeons surveyed (70%) report that a lack of insurance benefits is the biggest barrier to performing bariatric surgery.

**CONCLUSION:**

The prevalence of morbid obesity continues to increase in Wisconsin compared to our previously published data. Bariatric surgery volumes have remained stable but the type of procedure has changed. Approximately 1% of bariatric surgery candidates have surgery each year.

**912: Mokha JS, Srinivasan SR, Dasmahapatra P, Fernandez C, Chen W, Xu J, Berenson GS. Utility of waist-to-height ratio in assessing the status of central obesity and related cardiometabolic risk profile among normal weight and overweight/obese children: the Bogalusa Heart Study. BMC Pediatr. 2010 Oct 11;10:73. doi: 10.1186/1471-2431-10-73. PubMed PMID: 20937123; PubMed Central PMCID: PMC2964659.**

Abstract

**BACKGROUND:**

Body Mass Index (BMI) is widely used to assess the impact of obesity on cardiometabolic risk in children but it does not always relate to central obesity and varies with growth and maturation. Waist-to-Height Ratio (WHtR) is a relatively constant anthropometric index of abdominal obesity across different age, sex or racial groups. However, information is scant on the utility of WHtR in assessing the status of abdominal obesity and related cardiometabolic risk profile among normal weight and overweight/obese children, categorized according to the accepted BMI threshold values.

**METHODS:**

Cross-sectional cardiometabolic risk factor variables on 3091 black and white children (56% white, 50% male), 4-18 years of age were used. Based on the age-, race- and sex-specific percentiles of BMI, the children were classified as normal weight (5th - 85th percentiles) and overweight/obese ( $\geq$  85th percentile). The risk profiles of each group based on the WHtR ( $<0.5$ , no central obesity versus  $\geq 0.5$ , central obesity) were compared.

#### RESULTS:

9.2% of the children in the normal weight group were centrally obese (WHtR  $\geq 0.5$ ) and 19.8% among the overweight/obese were not (WHtR  $< 0.5$ ). On multivariate analysis the normal weight centrally obese children were 1.66, 2.01, 1.47 and 2.05 times more likely to have significant adverse levels of LDL cholesterol, HDL cholesterol, triglycerides and insulin, respectively. In addition to having a higher prevalence of parental history of type 2 diabetes mellitus, the normal weight central obesity group showed a significantly higher prevalence of metabolic syndrome ( $p < 0.0001$ ). In the overweight/obese group, those without central obesity were 0.53 and 0.27 times less likely to have significant adverse levels of HDL cholesterol and HOMA-IR, respectively ( $p < 0.05$ ), as compared to those with central obesity. These overweight/obese children without central obesity also showed significantly lower prevalence of parental history of hypertension ( $p = 0.002$ ), type 2 diabetes mellitus ( $p = 0.03$ ) and metabolic syndrome ( $p < 0.0001$ ).

#### CONCLUSION:

WHtR not only detects central obesity and related adverse cardiometabolic risk among normal weight children, but also identifies those without such conditions among the overweight/obese children, which has implications for pediatric primary care practice.

**913: Michimi A, Wimberly MC. Associations of supermarket accessibility with obesity and fruit and vegetable consumption in the conterminous United States. Int J Health Geogr. 2010 Oct 8;9:49. doi: 10.1186/1476-072X-9-49. PubMed PMID: 20932312; PubMed Central PMCID: PMC2959055.**

#### Abstract

##### BACKGROUND:

Limited access to supermarkets may reduce consumption of healthy foods, resulting in poor nutrition and increased prevalence of obesity. Most studies have focused on accessibility of supermarkets in specific urban settings or localized rural communities. Less is known, however, about how supermarket accessibility is associated with obesity and healthy diet at the national level and how these associations differ in urban versus rural settings. We analyzed data on obesity and fruit and vegetable (F/V) consumption from the Behavioral Risk Factor Surveillance System for 2000-2006 at the county level. We used 2006 Census Zip Code Business Patterns data to compute population-weighted mean distance to supermarket at the county level for different sizes of supermarket. Multilevel logistic regression models were developed to test whether population-weighted mean distance to supermarket was associated with both obesity and F/V consumption and to determine whether these relationships varied for urban (metropolitan) versus rural (nonmetropolitan) areas.

##### RESULTS:

Distance to supermarket was greater in nonmetropolitan than in metropolitan areas. The odds of obesity increased and odds of consuming F/V five times or more per day decreased as distance to supermarket increased in metropolitan areas for most store size categories. In nonmetropolitan areas, however, distance to supermarket had no associations with obesity or F/V consumption for all supermarket size categories.

##### CONCLUSIONS:

Obesity prevalence increased and F/V consumption decreased with increasing distance to supermarket in metropolitan areas, but not in nonmetropolitan areas. These results suggest that there may be a threshold distance in nonmetropolitan areas beyond which distance to supermarket no longer impacts obesity and F/V consumption. In addition, obesity and food environments in

nonmetropolitan areas are likely driven by a more complex set of social, cultural, and physical factors than a single measure of supermarket accessibility. Future research should attempt to more precisely quantify the availability and affordability of foods in nonmetropolitan areas and consider alternative sources of healthy foods besides supermarkets.

**914: Salinas J, McCormick JB, Rentfro A, Hanis C, Hossain MM, Fisher-Hoch SP. The missing men: high risk of disease in men of Mexican origin. Am J Mens Health. 2011 Jul;5(4):332-40. doi: 10.1177/1557988310379390. Epub 2010 Oct 7. PubMed PMID: 20930218; PubMed Central PMCID: PMC3092011.**

Abstract

The present study sought to determine gender- and age-specific prevalences of chronic diseases in an urban Mexican American border community. The Cameron County Hispanic Cohort (CCHC; n = 2,000) was selected using a multistaged cluster design. Sociodemographics, anthropometric measures, and blood samples were collected on each participant. More women were obese (55.1%) than men (44.8%). Men had significantly higher rates of diabetes (20.4% for men vs. 15.8% for women,  $p < .05$ ) and undiagnosed diabetes (6.2% for men vs. 2.4% for women,  $p < .01$ ); the prevalence of diabetes rose steeply between the ages of 40 and 49 years. Men were significantly more likely to have serum cholesterol levels of 200 mg/dL and elevated low-density lipoprotein levels (22.6% vs. 26.1%,  $p < .01$ ). Mexican American males in the U.S./Mexico border region have a high prevalence of obesity in younger men and higher overall rates of diabetes, including undiagnosed diabetes, and significantly higher serum cholesterol levels than women.

**915: Hotchkiss JW, Leyland AH. The relationship between body size and mortality in the linked Scottish Health Surveys: cross-sectional surveys with follow-up. Int J Obes (Lond). 2011 Jun;35(6):838-51. doi: 10.1038/ijo.2010.207. Epub 2010 Oct 5. PubMed PMID: 20921963; PubMed Central PMCID: PMC3117149.**

Abstract

OBJECTIVE:

To investigate the relationship between body mass index (BMI), waist circumference (WC) or waist-hip ratio (WHR) and all-cause mortality or cause-specific mortality.

DESIGN:

Cross-sectional surveys linked to hospital admissions and death records.

SUBJECTS:

In total, 20,117 adults (aged 18-86 years) from a nationally representative sample of the Scottish population.

MEASUREMENTS:

Cox proportional hazards models were used to estimate hazard ratios (HRs) for all-cause, or cause-specific, mortality. The three anthropometric measurements BMI, WC and WHR were the main variables of interest. The following were adjustment variables: age, gender, smoking status, alcohol consumption, survey year, social class and area of deprivation.

RESULTS:

BMI-defined obesity ( $\geq 30 \text{ kg m}^{-2}$ ) was not associated with increased risk of mortality (HR = 0.93; 95% confidence interval = 0.80-1.08), whereas the overweight category ( $25 < 30 \text{ kg m}^{-2}$ ) was associated with a decreased risk (0.80; 0.70-0.91). In contrast, the HR for a high WC (men  $\geq 102 \text{ cm}$ ,

women  $\geq 88$  cm) was 1.17 (1.02-1.34) and a high WHR (men  $\geq 1$ , women  $\geq 0.85$ ) was 1.34 (1.16-1.55). There was an increased risk of cardiovascular disease (CVD) mortality associated with BMI-defined obesity, a high WC and a high WHR categories; the HR estimates for these were 1.36 (1.05-1.77), 1.41 (1.11-1.79) and 1.44 (1.12-1.85), respectively. A low BMI ( $<18.5$  kg m<sup>-2</sup>) was associated with elevated HR for all-cause mortality (2.66; 1.97-3.60), for chronic respiratory disease mortality (3.17; 1.39-7.21) and for acute respiratory disease mortality (11.68; 5.01-27.21). This pattern was repeated for WC but not for WHR.

#### CONCLUSIONS:

It might be prudent not to use BMI as the sole measure to summarize body size. The alternatives WC and WHR may more clearly define the health risks associated with excess body fat accumulation. The lack of association between elevated BMI and mortality may reflect the secular decline in CVD mortality.

**916: Sonya J, Ranjani H, Pradeepa R, Mohan V. Obesity Reduction and Awareness and Screening of Noncommunicable Diseases through Group Education in children and adolescents (ORANGE): methodology paper (ORANGE-1). J Diabetes Sci Technol. 2010 Sep 1;4(5):1256-64. PubMed PMID: 20920448; PubMed Central PMCID: PMC2956817.**

#### Abstract

##### AIM:

Our goal is to estimate the prevalence of obesity, glucose intolerance, hypertension, dyslipidemia, and metabolic syndrome among urban children and adolescents aged 6-19 years and to raise awareness about noncommunicable diseases (NCDs) among school children in Chennai, South India.

##### METHODS:

The Obesity Reduction and Awareness and Screening of Noncommunicable Diseases through Group Education project plans to reach out to children and adolescents using two approaches: the school and the community approach. The school approach aims to reach out to a representative sample of approximately 20,000 urban school children and adolescents, aged 6-19 years, covering 50 schools from all parts of Chennai. Anthropometric measures will include height, weight, waist, body fat, and blood pressure. Data on demographics, family profile, behavioral aspects, physical activity, and food pattern will be obtained by using a validated questionnaire. Awareness about metabolic NCDs like obesity and diabetes will be increased by educating the children and adolescents about healthy lifestyles. Through the community approach, 2000 children and adolescents from randomly selected residential colonies in Chennai will be screened for obesity, glucose intolerance, hypertension, dyslipidemia, and metabolic syndrome.

##### EXPECTED OUTCOMES:

Awareness about NCDs will be increased among children and their parents in Chennai. This study will also provide valuable epidemiological data on obesity, glucose intolerance, dyslipidemia, hypertension and metabolic syndrome in children and adolescents in urban India.



**917: Williamson DA, Han H, Johnson WD, Stewart TM, Harsha DW. Longitudinal study of body weight changes in children: who is gaining and who is losing weight. Obesity (Silver Spring). 2011 Mar;19(3):667-70. doi: 10.1038/oby.2010.221. Epub 2010 Sep 30. PubMed PMID: 20885393; PubMed Central PMCID: PMC3026913.**

Abstract

Cross-sectional studies have reported significant temporal increases in prevalence of childhood obesity in both genders and various racial groups, but recently the rise has subsided. Childhood obesity prevention trials suggest that, on average, overweight/obese children lose body weight and nonoverweight children gain weight. This investigation tested the hypothesis that overweight children lose body weight/fat and nonoverweight children gain body weight/fat using a longitudinal research design that did not include an obesity prevention program. The participants were 451 children in 4th to 6th grades at baseline. Height, weight, and body fat were measured at month 0 and month 28. Each child's BMI percentile score was calculated specific for their age, gender and height. Higher BMI percentile scores and percent body fat at baseline were associated with larger decreases in BMI and percent body fat after 28 months. The BMI percentile mean for African-American girls increased whereas BMI percentile means for white boys and girls and African-American boys were stable over the 28-month study period. Estimates of obesity and overweight prevalence were stable because incidence and remission were similar. These findings support the hypothesis that overweight children tend to lose body weight and nonoverweight children tend to gain body weight.

**918: Alderete TL, Byrd-Williams CE, Toledo-Corral CM, Conti DV, Weigensberg MJ, Goran MI. Relationships between IGF-1 and IGFBP-1 and adiposity in obese African-American and Latino adolescents. Obesity (Silver Spring). 2011 May;19(5):933-8. doi: 10.1038/oby.2010.211. Epub 2010 Sep 30. PubMed PMID: 20885383; PubMed Central PMCID: PMC3081365.**

Abstract

The purpose of this study was to examine interrelationships between insulin-like growth factor 1 (IGF-1), IGF binding proteins (IGFBPs), and adiposity in 49 African-American and 77 Latino obese adolescents ( $15.3 \pm 0.1$  and  $15.4 \pm 0.2$  years; BMI:  $33.0 \pm 0.7$  and  $35.0 \pm 1.0$  kg/m<sup>2</sup>), respectively). Immunoradiometric assays were used to measure IGF-1, IGFBP-1, and IGFBP-3. Total fat and soft lean tissue were measured by dual-energy X-ray absorptiometry and visceral adipose tissue (VAT), subcutaneous abdominal adipose tissue (SAAT), and hepatic fat fraction (HFF) were measured by magnetic resonance imaging. IGF-1 levels were 23.1% higher and IGFBP-1 were 40.4% higher in African Americans compared to Latinos after adjustment for total lean and total fat mass. IGF-1 and IGFBP-1 were inversely correlated with BMI, total fat mass, VAT, and HFF ( $r = -0.20$  to  $-0.33$ ,  $P < 0.05$ ) while IGFBP-1 was inversely correlated with SAAT ( $r = -0.22$ ,  $P < 0.05$ ). These relationships did not differ by ethnicity, however, the relationship between IGF-1 and SAAT, as well as IGFBP-1 and HFF, differed by ethnicity. Predicted mean IGF-1 levels were 30.7% higher for African Americans at the 75th compared to 25th percentile of SAAT and only 11.7% higher for Latinos. Predicted mean IGFBP-1 levels were 158% higher for African Americans at the 25th compared to the 75th percentile of HFF while IGFBP-1 levels were 1.7% higher for Latinos at the 75th compared to the 25th percentile. These results demonstrate that the relationship between IGF-1 and SAAT as well as IGFBP-1 and HFF are different in African-American and Latino adolescents and may contribute to the higher IGF-1 levels in African-Americans.

**919: Heidi Ullmann S, Buttenheim AM, Goldman N, Pebley AR, Wong R. Socioeconomic differences in obesity among Mexican adolescents. *Int J Pediatr Obes.* 2011 Jun;6(2-2):e373-80. doi: 10.3109/17477166.2010.498520. Epub 2010 Oct 1. PubMed PMID: 20883181; PubMed Central PMCID: PMC3424265.**

Abstract

OBJECTIVE:

We investigate socioeconomic disparities in adolescent obesity in Mexico. Three questions are addressed. First, what is the social patterning of obesity among Mexican adolescents? Second, what are the separate and joint associations of maternal and paternal education with adolescent obesity net of household wealth? Third, are there differences in socioeconomic status (SES) gradients among Mexican boys and girls, rural residents and non-rural residents?

METHODS:

Using data from the Mexican National Health Survey 2000 we examined the slope and direction of the association between SES and adolescent obesity. We also estimated models for sub-populations to examine differences in the social gradients in obesity by sex and non-rural residence.

RESULTS:

We find that household economic status (asset ownership and housing quality) is positively associated with adolescent obesity. High paternal education is related to lower obesity risk, whereas the association between maternal education and obesity is positive, but not always significant.

CONCLUSION:

The household wealth components of SES appear to predispose Mexican adolescents to higher obesity risk. The effects of parental education are more complex. These findings have important policy implications in Mexico and the United States.

**920: Pinto IC, Arruda IK, Diniz Ada S, Cavalcanti AM. [Prevalence of overweight and abdominal obesity according to anthropometric parameters and the association with sexual maturation in adolescent schoolchildren]. *Cad Saude Publica.* 2010 Sep;26(9):1727-37. Portuguese. PubMed PMID: 20877933.**

Abstract

The objective of the present study was to estimate the prevalence of overweight and abdominal obesity in schoolchildren according to anthropometric parameters and sexual maturation. A cross-sectional study was performed in 1,405 children of both genders aged 10-14 years, living in Recife, Pernambuco State, Brazil, in 2007. Body mass index (BMI), waist circumference (WC), and waist-to-height ratio (WHtR) were assessed. Sexual maturation was self-assessed. Early sexual maturation was defined as the chronological age below the median age for the referred stage. Prevalence of overweight was 20.4% (95%CI: 18.3-22.6), and abdominal obesity was 14.9% (95%CI: 13.1-16.9) and 12.6% (95%CI: 10.9-14.4) according to WC and WHtR, respectively. There was a strong positive correlation among BMI, WC, and WHtR ( $\rho \cong 0.8$ ;  $p < 0.001$ ). In both genders, the prevalence of overweight and abdominal obesity was higher in the final stages of sexual maturation ( $p < 0.05$ ). The high prevalence of overweight requires urgent preventive measures and control. Therefore, the inclusion of sexual maturation for the assessment of nutritional status is recommended.

**921: Strasburger VC; Council on Communications and Media American Academy of Pediatrics. Media education. Pediatrics. 2010 Nov;126(5):1012-7. doi: 10.1542/peds.2010-1636. Epub 2010 Sep 27. PubMed PMID: 20876180.**

Abstract

The American Academy of Pediatrics recognizes that exposure to mass media (eg, television, movies, video and computer games, the Internet, music lyrics and videos, newspapers, magazines, books, advertising) presents health risks for children and adolescents but can provide benefits as well. Media education has the potential to reduce the harmful effects of media and accentuate the positive effects. By understanding and supporting media education, pediatricians can play an important role in reducing harmful effects of media on children and adolescents.

**922: Morrison JA, Glueck CJ, Daniels S, Wang P, Stroop D. Paradoxically high adiponectin in obese 16-year-old girls protects against appearance of the metabolic syndrome and its components seven years later. J Pediatr. 2011 Feb;158(2):208-14.e1. doi: 10.1016/j.jpeds.2010.08.012. Epub 2010 Sep 25. PubMed PMID: 20869727; PubMed Central PMCID: PMC3022119.**

Abstract

OBJECTIVE:

To evaluate the relationships of adiponectin levels at age 16 years in obese schoolgirls to metabolic syndrome and its components at age 23 years.

STUDY DESIGN:

Seven-year prospective study of 381 females.

RESULTS:

In 144 white and 129 black non-obese 16-year old girls (body mass index < 24.6 kg/m<sup>2</sup>), race-specific median adiponectin levels (white 12 mg/L, black 11) was used to identify paradoxically high adiponectin levels in obese girls. Of 34 white and 74 black obese girls, 12 (35%) and 19 (26%) had paradoxically high adiponectin levels. In these 108 obese girls, adiponectin levels at age 16 years independently predicted high-density lipoprotein cholesterol (positive) and waist (negative), insulin (negative), and glucose (negative) at age 23 years; paradoxically high adiponectin levels at age 16 years was a negative independent predictor for waist, homeostatic model assessment-insulin resistance, and for the number of abnormal components of the metabolic syndrome at age 23 years. In 31 pairs of obese girls with and without paradoxically high adiponectin levels, matched by race and age 16 body mass index, adiponectin levels at age 16 years was a negative predictor for the number of abnormal metabolic syndrome components at age 23 years.

CONCLUSION:

Paradoxically high adiponectin levels in obese 16 year old girls protects against metabolic syndrome and its components at age 23 years.

**923: Bruening M, Kubik MY, Kenyon D, Davey C, Story M. Perceived barriers mediate the association between self-efficacy and fruit and vegetable consumption among students attending alternative high schools. J Am Diet Assoc. 2010 Oct;110(10):1542-6. doi: 10.1016/j.jada.2010.07.001. PubMed PMID: 20869495; PubMed Central PMCID: PMC2976479.**

Abstract

Compared to students attending regular high schools, alternative high school students are more likely to be racial/ethnic minorities, have higher levels of poverty, and higher rates of risky and poor health behaviors, including weight-related behaviors like limited fruit and vegetable intake. However, little is known about fruit/vegetable intake among alternative high school students. This study examined whether perceived barriers to healthy eating mediated the association between self-efficacy to eat healthy foods and fruit/vegetable consumption among alternative high school students. The cross-sectional study population consisted of students (N=145) attending six alternative high schools in the St Paul-Minneapolis, MN, area who were participants in an obesity prevention pilot study and completed a baseline survey during fall 2006. Mixed model linear regression, adjusting for sociodemographic characteristics, was used to test a series of regression models performed according to mediation analysis procedures. Students' mean age was 17.3 years; 52% were male, 63% were low-income, and 61% were from racial/ethnic minorities. Students reported a mean fruit/vegetable intake of 3.6 servings per day, mean self-efficacy to eat healthy score of 22.2 (range 3 to 35), and mean barriers to eating healthy score of 6.9 (range 3 to 13). Perceived barriers to healthy eating fully mediated the relationship between self-efficacy and fruit/vegetable consumption (Sobel test statistic 2.7, P=0.007). Interventions targeting the dietary practices of alternative high school students should include components to decrease perceived barriers as a way to increase self-efficacy and ultimately fruit/vegetable intake.

**924: Reedy J, Krebs-Smith SM. Dietary sources of energy, solid fats, and added sugars among children and adolescents in the United States. J Am Diet Assoc. 2010 Oct;110(10):1477-84. doi: 10.1016/j.jada.2010.07.010. PubMed PMID: 20869486; PubMed Central PMCID: PMC3428130.**

Abstract

OBJECTIVE:

The objective of this research was to identify top dietary sources of energy, solid fats, and added sugars among 2- to 18-year-olds in the United States.

METHODS:

Data from the National Health and Nutrition Examination Survey, a cross-sectional study, were used to examine food sources (percentage contribution and mean intake with standard errors) of total energy (data from 2005-2006) and energy from solid fats and added sugars (data from 2003-2004). Differences were investigated by age, sex, race/ethnicity, and family income, and the consumption of empty calories—defined as the sum of energy from solid fats and added sugars—was compared with the corresponding discretionary calorie allowance.

RESULTS:

The top sources of energy for 2- to 18-year-olds were grain desserts (138 kcal/day), pizza (136 kcal/day), and soda (118 kcal/day). Sugar-sweetened beverages (soda and fruit drinks combined) provided 173 kcal/day. Major contributors varied by age, sex, race/ethnicity, and income. Nearly 40%

of total energy consumed (798 of 2,027 kcal/day) by 2- to 18-year-olds were in the form of empty calories (433 kcal from solid fat and 365 kcal from added sugars). Consumption of empty calories far exceeded the corresponding discretionary calorie allowance for all sex-age groups (which range from 8% to 20%). Half of empty calories came from six foods: soda, fruit drinks, dairy desserts, grain desserts, pizza, and whole milk.

**CONCLUSIONS:**

There is an overlap between the major sources of energy and empty calories: soda, grain desserts, pizza, and whole milk. The landscape of choices available to children and adolescents must change to provide fewer unhealthy foods and more healthy foods with less energy. Identifying top sources of energy and empty calories can provide targets for changes in the marketplace and food environment. However, product reformulation alone is not sufficient-the flow of empty calories into the food supply must be reduced.

**925: Fredriksen-Goldsen KI, Kim HJ, Barkan SE, Balsam KF, Mincer SL. Disparities in health-related quality of life: a comparison of lesbians and bisexual women. Am J Public Health. 2010 Nov;100(11):2255-61. doi: 10.2105/AJPH.2009.177329. Epub 2010 Sep 23. PubMed PMID: 20864722; PubMed Central PMCID: PMC2951966.**

**Abstract**

**OBJECTIVES:**

We investigated the association of health-related quality of life (HRQOL) with sexual orientation among lesbians and bisexual women and compared the predictors of HRQOL between the 2 groups.

**METHODS:**

We used multivariate logistic regression to analyze Washington State Behavioral Risk Factor Surveillance System population-based data (2003 to 2007) in a sample of 1496 lesbians and bisexual women and examined determinants of HRQOL among lesbians and bisexual women.

**RESULTS:**

For lesbians and bisexual women, frequent mental distress and poor general health were associated with poverty and lack of exercise; poor general health was associated with obesity and mental distress. Bisexual women showed a higher likelihood of frequent mental distress and poor general health than did lesbians. The odds of mental distress were higher for bisexual women living in urban areas as compared with nonurban areas. Lesbians had an elevated risk of poor general health and mental distress during midlife.

**CONCLUSIONS:**

Despite the standard practice of collapsing sexual minority women into a single group, lesbian and bisexual women in this study emerge as distinct groups that merit specific attention. Bisexual women are at elevated risk for poor HRQOL.

**926: Craig RL, Felix HC, Walker JF, Phillips MM. Public health professionals as policy entrepreneurs: Arkansas's childhood obesity policy experience. Am J Public Health. 2010 Nov;100(11):2047-52. doi: 10.2105/AJPH.2009.183939. Epub 2010 Sep 23. PubMed PMID: 20864715; PubMed Central PMCID: PMC2951957.**

**Abstract**

In response to a nationwide rise in obesity, several states have passed legislation to improve school health environments. Among these was Arkansas's Act 1220 of 2003, the most comprehensive

school-based childhood obesity legislation at that time. We used the Multiple Streams Framework to analyze factors that brought childhood obesity to the forefront of the Arkansas legislative agenda and resulted in the passage of Act 1220. When 3 streams (problem, policy, and political) are combined, a policy window is opened and policy entrepreneurs may advance their goals. We documented factors that produced a policy window and allowed entrepreneurs to enact comprehensive legislation. This historical analysis and the Multiple Streams Framework may serve as a roadmap for leaders seeking to influence health policy.

**927: Babey SH, Hastert TA, Wolstein J, Diamant AL. Income disparities in obesity trends among California adolescents. Am J Public Health. 2010 Nov;100(11):2149-55. doi: 10.2105/AJPH.2010.192641. Epub 2010 Sep 23. PubMed PMID: 20864702; PubMed Central PMCID: PMC2951974.**

Abstract

OBJECTIVES:

We assessed income-specific trends in obesity rates among a diverse population of California adolescents.

METHODS:

We used data from 17,535 adolescents who responded to the California Health Interview Survey between 2001 and 2007 to examine disparities in obesity prevalence by family income and gender.

RESULTS:

Between 2001 and 2007, obesity prevalence significantly increased among lower-income adolescents but showed no statistically significant differences among higher-income adolescents after adjustment for age, gender, and race/ethnicity. Although the overall disparity in obesity by family income doubled in this time period, trends were more consistent among male adolescents than among female adolescents.

CONCLUSIONS:

The magnitude of the income disparity in obesity prevalence among California adolescents more than doubled between 2001-2007. The overall leveling off of adolescent obesity prevalence rates could indicate that efforts to decrease childhood obesity are having an impact; however, our results suggest that efforts to prevent childhood obesity may be failing to help adolescents from lower-income families, particularly male adolescents.

**928: Samuels SE, Craypo L, Boyle M, Crawford PB, Yancey A, Flores G. The California Endowment's Healthy Eating, Active Communities program: a midpoint review. Am J Public Health. 2010 Nov;100(11):2114-23. doi: 10.2105/AJPH.2010.192781. Epub 2010 Sep 23. PubMed PMID: 20864700; PubMed Central PMCID: PMC2951940.**

Abstract

OBJECTIVES:

We conducted a midpoint review of The California Endowment's Healthy Eating, Active Communities (HEAC) program, which works in 6 low-income California communities to prevent childhood obesity by changing children's environments. The HEAC program conducts interventions in 5 key childhood environments: schools, after-school programs, neighborhoods, health care, and marketing and advertising.

**METHODS:**

We measured changes in foods and beverages sold at schools and in neighborhoods in HEAC sites; changes in school and after-school physical activity programming and equipment; individual-level changes in children's attitudes and behaviors related to food and physical activity; and HEAC-related awareness and engagement on the part of community members, stakeholders, and policymakers.

**RESULTS:**

Children's environments changed to promote healthier lifestyles across a wide range of domains in all 5 key childhood environments for all 6 HEAC communities. Children in HEAC communities are also engaging in more healthy behaviors than they were before the program's implementation.

**CONCLUSIONS:**

HEAC sites successfully changed children's food and physical activity environments, making a healthy lifestyle a more viable option for low-income children and their families.

**929: Araújo MS, Costa TH, Schmitz BA, Machado LM, Santos WR. Factors associated with overweight and central adiposity in urban workers covered by the Workers Food Program of the Brazilian Amazon Region. Rev Bras Epidemiol. 2010 Sep;13(3):425-33. PubMed PMID: 20857029.**

**Abstract**

**OBJECTIVE:**

To investigate factors associated with overweight and abdominal obesity in male and female workers.

**METHODS:**

This is a cross-sectional population-based study. A representative sample of 1,054 workers ranging from 18 to 74 years of age, selected among individuals covered by the Workers' Food Program living in the Metropolitan region of Belém, Northern Brazil. Health-related behavior and anthropometry were assessed. Fasting blood samples were collected.

**RESULTS:**

Overweight prevalence was 38.0% among women and 50.4% among men. Among overweight subjects, there were 6.1% obese women and 10.7% obese men. Multivariate analysis was used to identify social behavior and clinical-biochemical factors associated with increased body adiposity (BMI > 25 kg/m<sup>2</sup> and increased waist circumference: > 80 cm for women and > 94 cm for men). Variables positively and significantly associated with overweight and abdominal obesity in men according to prevalence ratio (PR) values were: age (1.02), high family income (1.05), smoking (1.36), hypertension (systolic blood pressure, 1.41; diastolic blood pressure, 1.85) and hypertriglyceridemia (2.29). In women, the PR of increased body adiposity was associated with: age (1.02), alcohol intake (1.42), hypertriglyceridemia (1.44), diastolic blood pressure (1.65) and hyperglycemia (1.71).

**CONCLUSIONS:**

The association of overweight and abdominal obesity with social behavior variables should be corrected with preventive and educational measures. Furthermore, association of overweight and abdominal obesity with clinical and biochemical variables places the urban workers from the Amazon region assisted by the Workers' Food Program at a possible risk for morbidity and mortality from increased body adiposity.

**930: Dumith SC, Farias Júnior JC. [Overweight and obesity in children and adolescents: comparison of three classification criteria based on body mass index]. Rev Panam Salud Publica. 2010 Jul;28(1):30-5. Portuguese. PubMed PMID: 20857018.**

Abstract

OBJECTIVE:

To describe and compare the nutritional status of children and adolescents using three body mass index (BMI)-based criteria; to analyze the agreement between these criteria in terms of frequency of excess weight; and to investigate if the factors associated with excess weight were similar for the three criteria.

METHODS:

The following criteria were investigated: 2000 International Obesity Task Force (IOTF), 2006 Conde and Monteiro, and 2007 World Health Organization (WHO). Weight, height, and physical fitness were measured in 525 students from urban and rural schools, with ages between 7 and 15 years (mean =  $11.0 \pm 2.1$ ). The McNemar test, kappa statistics, and Poisson regression were used to evaluate each objective, respectively.

RESULTS:

The overall prevalence of excess weight (overweight + obesity) was 28.4% with the IOTF, 35.1% with the WHO, and 35.8% with Conde and Monteiro. There were no differences between criteria concerning overall prevalence of excess weight in males and females. However, within each sex, different results were observed for specific age groups, especially between 7 and 9 years. Nevertheless, the agreement (kappa) between the criteria was satisfactory: 0.71 to 0.98, depending on sex and age. The factors associated with excess weight and the strength of associations were similar for the three criteria.

CONCLUSIONS:

The prevalence of excess weight obtained with the IOTF was 20% lower than that calculated with the other criteria. Despite the differences between sexes observed for some age groups, the agreement between the three criteria was relatively high, and the factors associated with excess weight were similar. Further studies employing similar methods are required to confirm the present results in different populations of children and adolescents.

**931: Svensson V, Jacobsson JA, Fredriksson R, Danielsson P, Sobko T, Schiöth HB, Marcus C. Associations between severity of obesity in childhood and adolescence, obesity onset and parental BMI: a longitudinal cohort study. Int J Obes (Lond). 2011 Jan;35(1):46-52. doi: 10.1038/ijo.2010.189. Epub 2010 Sep 21. PubMed PMID: 20856258; PubMed Central PMCID: PMC3035977.**

Abstract

OBJECTIVE:

To explore the relationship between severity of obesity at age 7 and age 15, age at onset of obesity, and parental body mass index (BMI) in obese children and adolescents.

DESIGN:

Longitudinal cohort study.

SUBJECTS:



Obese children (n = 231) and their parents (n = 462) from the Swedish National Childhood Obesity Centre.

**METHODS:**

Multivariate regression analyses were applied with severity of obesity (BMI standard deviation score (BMI SDS)) and onset of obesity as dependent variables. The effect of parental BMI was evaluated and in the final models adjusted for gender, parental education, age at onset of obesity, severity of obesity at age 7 and obesity treatment.

**RESULTS:**

For severity of obesity at age 7, a positive correlation with maternal BMI was indicated (P = 0.05). Severity of obesity at this age also showed a strong negative correlation with the age at onset of obesity. Severity of obesity at age 15 was significantly correlated with both maternal and paternal BMI (P < 0.01). In addition, BMI SDS at age 15 differed by gender (higher for boys) and was positively correlated with severity of obesity at age 7 and negatively correlated with treatment. Also, a negative correlation was indicated at this age for parental education. No correlation with age at onset was found at age 15. For age at onset of obesity there was no relevant correlation with parental BMI. Children within the highest tertile of the BMI SDS range were more likely to have two obese parents.

**CONCLUSION:**

The impact of parental BMI on the severity of obesity in children is strengthened as the child grows into adolescence, whereas the age at onset is probably of less importance than previously thought. The influence of parental relative weight primarily affects the severity of childhood obesity and not the timing.

**932: Jen HC, Rickard DG, Shew SB, Maggard MA, Slusser WM, Dutson EP, DeUgarte DA.**

**Trends and outcomes of adolescent bariatric surgery in California, 2005-2007.**

**Pediatrics. 2010 Oct;126(4):e746-53. doi: 10.1542/peds.2010-0412. Epub 2010 Sep**

**20. PubMed PMID: 20855388.**

**Abstract**

**OBJECTIVE:**

The goal of this study was to evaluate trends, and outcomes of adolescents who undergo bariatric surgery.

**PATIENTS AND METHODS:**

Patients younger than 21 years who underwent elective bariatric surgery between 2005 and 2007 were identified from the California Office of Statewide Health Planning and Development database. Multivariate logistic regression was used to identify factors associated with the type of surgery.

**RESULTS:**

Overall, 590 adolescents (aged 13-20 years) underwent bariatric surgery in 86 hospitals. White adolescents represented 28% of those who were overweight but accounted for 65% of the procedures. Rates of laparoscopic adjustable gastric banding (LAGB) increased 6.9-fold from 0.3 to 1.5 per 100,000 population (P<.01), whereas laparoscopic Roux-en-Y gastric bypass (LRYGB) rates decreased from 3.8 to 2.7 per 100 000 population (P<.01). Self-payers were more likely to undergo LAGB (relative risk [RR]: 3.51 [95% confidence interval: 2.11-5.32]) and less likely to undergo LRYGB (RR: 0.45 [95% confidence interval: 0.33-0.58]) compared with privately insured adolescents. The rate of major in-hospital complication was 1%, and no deaths were reported. Of the patients who received LAGB, 4.7% had band revision/removal. In contrast, 2.9% of those who received LRYGB required reoperations.

#### CONCLUSIONS:

White adolescent girls disproportionately underwent bariatric surgery. Although LAGB has not been approved by the US Food and Drug Administration for use in children, its use has increased dramatically. There was a complication rate and no deaths. Long-term studies are needed to fully assess the efficacy, safety, and health care costs of these procedures in adolescents.

**933: Zhu H, Wang X, Gutin B, Davis CL, Keeton D, Thomas J, Stallmann-Jorgensen I, Mookken G, Bundy V, Snieder H, van der Harst P, Dong Y. Leukocyte telomere length in healthy Caucasian and African-American adolescents: relationships with race, sex, adiposity, adipokines, and physical activity. J Pediatr. 2011 Feb;158(2):215-20. doi: 10.1016/j.jpeds.2010.08.007. Epub 2010 Sep 19. PubMed PMID: 20855079; PubMed Central PMCID: PMC3010324.**

#### Abstract

##### OBJECTIVE:

To examine the relationships of race, sex, adiposity, adipokines, and physical activity to telomere length in adolescents.

##### STUDY DESIGN:

Leukocyte telomere length (T/S ratio) was assessed cross-sectionally in 667 adolescents (aged 14-18 years; 48% African-Americans; 51% girls) using a quantitative polymerase chain reaction method. Generalized estimating equations analyses were performed.

##### RESULTS:

Telomere length was greater in the African-American adolescents than in the Caucasian adolescents (age- and sex-adjusted T/S ratio  $\pm$  SE,  $1.32 \pm 0.01$  vs  $1.27 \pm 0.01$ ;  $P = .014$ ) and greater in girls than in boys (age- and race-adjusted T/S ratio  $\pm$  SE,  $1.31 \pm 0.01$  vs  $1.27 \pm 0.01$ ;  $P = .007$ ). None of the adiposity or adipokine measures explained a significant proportion of the variance in telomere length. Vigorous physical activity was positively associated with telomere length (adjusted  $R(2) = 0.019$ ;  $P = .009$ ) and accounted for 1.9% of the total variance only in girls.

##### CONCLUSIONS:

This study, conducted in a biracial adolescent cohort, demonstrated that (1) race and sex differences in telomere length have already emerged during adolescence; (2) adiposity and adipokines are not associated with telomere length at this age; and (3) the antiaging effect of vigorous physical activity may begin in youth, especially in girls.

**934: Fall CH, Borja JB, Osmond C, Richter L, Bhargava SK, Martorell R, Stein AD, Barros FC, Victora CG; COHORTS group. Infant-feeding patterns and cardiovascular risk factors in young adulthood: data from five cohorts in low- and middle-income countries. Int J Epidemiol. 2011 Feb;40(1):47-62. doi: 10.1093/ije/dyq155. Epub 2010 Sep 17. PubMed PMID: 20852257; PubMed Central PMCID: PMC3043278.**

#### Abstract

##### BACKGROUND:

Infant-feeding patterns may influence lifelong health. This study tested the hypothesis that longer duration of breastfeeding and later introduction of complementary foods in infancy are associated with reduced adult cardiovascular risk.

##### METHODS:

Data were pooled from 10 912 subjects in the age range of 15-41 years from five prospective birth-cohort studies in low-/middle-income countries (Brazil, Guatemala, India, Philippines and South Africa). Associations were examined between infant feeding (duration of breastfeeding and age at introduction of complementary foods) and adult blood pressure (BP), plasma glucose concentration and adiposity (skinfolds, waist circumference, percentage body fat and overweight/obesity). Analyses were adjusted for maternal socio-economic status, education, age, smoking, race and urban/rural residence and infant birth weight.

**RESULTS:**

There were no differences in outcomes between adults who were ever breastfed compared with those who were never breastfed. Duration of breastfeeding was not associated with adult diabetes prevalence or adiposity. There were U-shaped associations between duration of breastfeeding and systolic BP and hypertension; however, these were weak and inconsistent among the cohorts. Later introduction of complementary foods was associated with lower adult adiposity. Body mass index changed by  $-0.19 \text{ kg/m}^2$  [95% confidence interval (CI)  $-0.37$  to  $-0.01$ ] and waist circumference by  $-0.45 \text{ cm}$  (95% CI  $-0.88$  to  $-0.02$ ) per 3-month increase in age at introduction of complementary foods.

**CONCLUSIONS:**

There was no evidence that longer duration of breastfeeding is protective against adult hypertension, diabetes or overweight/adiposity in these low-/middle-income populations. Further research is required to determine whether 'exclusive' breastfeeding may be protective. Delaying complementary foods until 6 months, as recommended by the World Health Organization, may reduce the risk of adult overweight/adiposity, but the effect is likely to be small.

**935: Al-Rethaiaa AS, Fahmy AE, Al-Shwaiyat NM. Obesity and eating habits among college students in Saudi Arabia: a cross sectional study. Nutr J. 2010 Sep 19;9:39. doi: 10.1186/1475-2891-9-39. PubMed PMID: 20849655; PubMed Central PMCID: PMC2949783.**

**Abstract**

**BACKGROUND:**

During the last few decades, the Kingdom of Saudi Arabia (KSA) experienced rapid socio-cultural changes caused by the accelerating economy in the Arabian Gulf region. That was associated with major changes in the food choices and eating habits which, progressively, became more and more "Westernized". Such "a nutritional transition" has been claimed for the rising rates of overweight and obesity which were recently observed among Saudi population. Therefore, the objectives of the current work were to 1) determine the prevalence of overweight and obesity in a sample of male college students in KSA and 2) determine the relationship between the students' body weight status and composition and their eating habits.

**METHODS:**

A total of 357 male students aged 18-24 years were randomly chosen from College of Health Sciences at Rass, Qassim University, KSA for the present study. A Self-reported questionnaire about the students' eating habits was conducted, and their body mass index (BMI), body fat percent (BF%), and visceral fat level (VFL) were measured. Data were analyzed using SPSS statistical software, and the Chi-square test was conducted for variables.

**RESULTS:**

The current data indicated that 21.8% of the students were overweight and 15.7% were obese. The total body fat exceeded its normal limits in 55.2% of the participants and VFL was high in 21.8% of

them. The most common eating habits encountered were eating with family, having two meals per day including breakfast, together with frequent snacks and fried food consumption. Vegetables and fruits, except dates, were not frequently consumed by most students. Statistically, significant direct correlations were found among BMI, BF% and VFL ( $P < 0.001$ ). Both BMI and VFL had significant inverse correlation with the frequency of eating with family ( $P = 0.005$  and  $0.007$  respectively). Similar correlations were also found between BMI and snacks consumption rate ( $P = 0.018$ ), as well as, between VFL and the frequency of eating dates ( $P = 0.013$ ).

**CONCLUSIONS:**

Our findings suggest the need for strategies and coordinated efforts at all levels to reduce the tendency of overweight, obesity and elevated body fat, and to promote healthy eating habits in our youth.

**936: Shiely F, Perry IJ, Lutomski J, Harrington J, Kelleher CC, McGee H, Hayes K.**

**Temporal trends in misclassification patterns of measured and self-report based body mass index categories--findings from three population surveys in Ireland.**

**BMC Public Health. 2010 Sep 17;10:560. doi: 10.1186/1471-2458-10-560. PubMed**

**PMID: 20849632; PubMed Central PMCID: PMC2965717.**

**Abstract**

**BACKGROUND:**

As the use of self-reported data to classify obesity continues, the temporal change in the accuracy of self-report measurement when compared to clinical measurement remains unclear. The objective of this study was to examine temporal trends in misclassification patterns, as well as sensitivity and specificity, of clinically measured versus self-report based body mass index (BMI) from three national lifestyle surveys over a 10-year period.

**METHODS:**

The Surveys of Lifestyle Attitudes and Nutrition (SLÁN) were interview based cross-sectional survey/measurements involving nationally representative samples in 1998, 2002 and 2007. Data from a subsample of both self-reported and measured height and weight were available from 66 men and 142 women in 1998, 147 men and 184 women in 2002 and 909 men and 1128 women in 2007. Respondents were classified into the BMI categories normal ( $< 25 \text{ kg m}^{-2}$ ), overweight ( $25 - < 30 \text{ kg m}^{-2}$ ) and obese ( $\geq 30 \text{ kg m}^{-2}$ ).

**RESULTS:**

Underreporting of BMI increased across the three surveys ( $14\% \rightarrow 21\% \rightarrow 24\%$ ;  $p = 0.002$ ). Sensitivity scores for the normal category exceeded 94% in all three surveys but decreased for the overweight ( $75\% \rightarrow 68\% \rightarrow 66\%$ ) and obese categories ( $80\% \rightarrow 64\% \rightarrow 53\%$ ). Simultaneously, specificity levels remained high.

**CONCLUSIONS:**

BMI values based on self-reported determinations of height and weight in population samples are underestimating the true prevalence of the obesity epidemic and this underestimation is increasing with time. The decreased sensitivity and consistently high specificity scores in the obese category across time, highlights the limitation of self-report based BMI classifications and the need for simple, readily comprehensible indicators of obesity.

**937: Sumner AE, Micklesfield LK, Ricks M, Tambay AV, Avila NA, Thomas F, Lambert EV, Levitt NS, Evans J, Rotimi CN, Tulloch-Reid MK, Goedecke JH. Waist circumference, BMI, and visceral adipose tissue in white women and women of African descent. *Obesity (Silver Spring)*. 2011 Mar;19(3):671-4. doi: 10.1038/oby.2010.201. Epub 2010 Sep 16. PubMed PMID: 20847732; PubMed Central PMCID: PMC3474331.**

Abstract

Although waist circumference (WC) is a marker of visceral adipose tissue (VAT), WC cut-points are based on BMI category. We compared WC-BMI and WC-VAT relationships in blacks and whites. Combining data from five studies, BMI and WC were measured in 1,409 premenopausal women (148 white South Africans, 607 African-Americans, 186 black South Africans, 445 West Africans, 23 black Africans living in United States). In three of five studies, participants had VAT measured by computerized tomography (n = 456). Compared to whites, blacks had higher BMI ( $29.6 \pm 7.6$  (mean  $\pm$  s.d.) vs.  $27.6 \pm 6.6$  kg/m<sup>2</sup>, P = 0.001), similar WC ( $92 \pm 16$  vs.  $90 \pm 15$  cm, P = 0.27) and lower VAT ( $64 \pm 42$  vs.  $101 \pm 59$  cm<sup>2</sup>, P < 0.001). The WC-BMI relationship did not differ by race (blacks:  $\beta$  (s.e.) WC = 0.42 (.01), whites:  $\beta$  (s.e.) WC = 0.40 (0.01), P = 0.73). The WC-VAT relationship was different in blacks and whites (blacks:  $\beta$  (s.e.) WC = 1.38 (0.11), whites:  $\beta$  (s.e.) WC = 3.18 (0.21), P < 0.001). Whites had a greater increase in VAT per unit increase in WC. WC-BMI and WC-VAT relationships did not differ among black populations. As WC-BMI relationship did not differ by race, the same BMI-based WC guidelines may be appropriate for black and white women. However, if WC is defined by VAT, race-specific WC thresholds are required.

**938: Wu L, Xi B, Zhang M, Shen Y, Zhao X, Cheng H, Hou D, Sun D, Ott J, Wang X, Mi J. Associations of six single nucleotide polymorphisms in obesity-related genes with BMI and risk of obesity in Chinese children. *Diabetes*. 2010 Dec;59(12):3085-9. doi: 10.2337/db10-0273. Epub 2010 Sep 15. PubMed PMID: 20843981; PubMed Central PMCID: PMC2992769.**

Abstract

OBJECTIVE:

Childhood obesity strongly predisposes to some adult diseases. Recently, genome-wide association (GWA) studies in Caucasians identified multiple single nucleotide polymorphisms (SNPs) associated with BMI and obesity. The associations of those SNPs with BMI and obesity among other ethnicities are not fully described, especially in children. Among those previously identified SNPs, we selected six (rs7138803, rs1805081, rs6499640, rs17782313, rs6265, and rs10938397, in or near obesity-related genes FAIM2, NPC1, FTO, MC4R, BDNF, and GNPDA2, respectively) because of the relatively high minor allele frequencies in Chinese individuals and tested the associations of the SNPs with BMI and obesity in Chinese children.

RESEARCH DESIGN AND METHODS:

We investigated the associations of these SNPs with BMI and obesity in school-aged children. A total of 3,503 children participated in the study, including 1,229 obese, 655 overweight, and 1,619 normal-weight children (diagnosed by the Chinese age- and sex-specific BMI cutoffs).

RESULTS:

After age and sex adjustment and correction for multiple testing, the SNPs rs17782313, rs6265, and rs10938397 were associated with BMI (P =  $1.0 \times 10^{-5}$ , 0.038, and 0.00093, respectively) and also

obesity ( $P = 5.0 \times 10^{-6}$ , 0.043, and 0.00085, respectively) in the Chinese children. The SNPs rs17782313 and rs10938397 were also significantly associated with waist circumference, waist-to-height ratio, and fat mass percentage.

**CONCLUSIONS:**

Results of this study support obesity-related genes in adults as important genes for BMI variation in children and suggest that some SNPs identified by GWA studies in Caucasians also confer risk for obesity in Chinese children.

**939: Karmali S, Johnson Stoklossa C, Sharma A, Stadnyk J, Christiansen S, Cottreau D, Birch DW. Bariatric surgery: a primer. Can Fam Physician. 2010 Sep;56(9):873-9. Review. PubMed PMID: 20841586; PubMed Central PMCID: PMC2939109.**

**Abstract**

**OBJECTIVE:**

To review the management of bariatric surgical patients.

**QUALITY OF EVIDENCE:**

MEDLINE, EMBASE, and Cochrane Library databases were searched, as well as PubMed US National Library, from January 1950 to December 2009. Evidence was levels I, II, and III.

**MAIN MESSAGE:**

Bariatric surgery should be considered for obese patients at high risk of morbidity and mortality who have not achieved adequate weight loss with lifestyle and medical management and who are suffering from the complications of obesity. Bariatric surgery can result in substantial weight loss, resolution of comorbid conditions, and improved quality of life. The patient's weight-loss history; his or her personal accountability, responsibility, and comprehension; and the acceptable level of risk must be taken into account. Complications include technical failure, bleeding, abdominal pain, nausea or vomiting, excess loose skin, bowel obstruction, ulcers, and anastomotic stricture. Lifelong monitoring by a multidisciplinary team is essential.

**CONCLUSION:**

Limited long-term success of behavioural and pharmacologic therapies in severe obesity has led to renewed interest in bariatric surgery. Success with bariatric surgery is more likely when multidisciplinary care providers, in conjunction with primary care providers, assess, treat, monitor, and evaluate patients before and after surgery. Family physicians will play a critical role in counseling patients about bariatric surgery and will need to develop skills in managing these patients in the long-term.

**940: Leventhal AM, Mickens L, Dunton GF, Sussman S, Riggs NR, Pentz MA. Tobacco use moderates the association between major depression and obesity. Health Psychol. 2010 Sep;29(5):521-8. doi: 10.1037/a0020854. PubMed PMID: 20836607; PubMed Central PMCID: PMC3204861.**

**Abstract**

**OBJECTIVE:**

Based on a maladaptive coping explanation, the relationship between major depression (MD) and obesity could be strong among nonsmokers, who may engage in unhealthy eating and sedentary behavior to cope with depression. By contrast, the MD-obesity association could be weak among

smokers, who can use tobacco (instead of food or sedentary behavior) to cope with mood symptoms. This study examined smoking status and tobacco dependence as moderators of the MD-obesity link.

**DESIGN:**

Correlational, cross-sectional population-based survey of 41,654 U.S. adults.

**MAIN OUTCOME MEASURES:**

Obesity (body mass index [BMI]  $\geq 30$  kg/m<sup>2</sup>) and quantitative BMI value.

**RESULTS:**

Current smoking status moderated the association between past-year MD and current obesity, as well as the link between MD and BMI value ( $p \leq .0001$ ). MD predicted obesity and BMI among nonsmokers ( $p < .0001$ ) but did not do so in smokers ( $p \geq .10$ ). Similar findings emerged with tobacco dependence as the moderator. Each finding persisted after accounting for demographics, psychiatric variables, and potential confounds.

**CONCLUSION:**

Tobacco use characteristics appear to moderate the MD-obesity association in the U.S. population. These findings may shed light on the mechanisms linking MD and obesity and have implications for identifying which individuals may benefit most from obesity interventions that target depressive symptoms. (PsycINFO Database Record (c) 2010 APA, all rights reserved).

**941: Le YC, Rahman M, Berenson AB. Perceived weight gain as a correlate of physical activity and energy intake among white, black, and Hispanic reproductive-aged women. J Womens Health (Larchmt). 2010 Nov;19(11):1987-93. doi: 10.1089/jwh.2009.1776. Epub 2010 Sep 11. PubMed PMID: 20831440; PubMed Central PMCID: PMC2971651.**

**Abstract**

**OBJECTIVE:**

To estimate the effects of perception of weight gain on women's physical activity and eating behaviors over time.

**METHODS:**

A total of 608 women self-reported their experience regarding perceived weight gain and physical activity at baseline and every 6 months thereafter for 36 months. Data about dietary habits were obtained every 12 months. Longitudinal relationships of perceived weight gain with physical activity and total energy intake were assessed using mixed model regression analysis after adjusting for age, race/ethnicity, obesity, and lifestyle variables. Effect of body esteem scores on physical activity and energy intake was also examined.

**RESULTS:**

At baseline, of 608 reproductive-aged women, 129 (21.2%) reported perceived weight gain, whereas 479 (78.8%) did not. Perceived weight gain was not associated with changes in physical activity over the period of 36 months (-8.04 min/week, 95% confidence interval [CI] -20.80-4.72 min/week,  $p = 0.22$ ). A separate mixed model based on annual follow-up data over 36 months showed that those who perceived weight gain were more likely to have higher energy intake over time (112 Kcal/day higher, 95% CI 23-200 Kcal/day,  $p = 0.01$ ). Body esteem was not associated with changes in physical activity over time (-0.13 min, 95% CI -0.44-0.18 min,  $p = 0.41$ ) or energy intake over time (< 1 Kcal/day, 95% CI -2-2 Kcal/day,  $p = 0.82$ ).

**CONCLUSIONS:**

Neither perceived weight gain nor body esteem was associated with increased physical activity or decreased total energy intake. Rather, increased energy intake was observed among women who perceived weight gain. Future research should look at additional potential cues to action for behavior changes related to physical activity or energy intake.

**942: Levy-Marchal C, Arslanian S, Cutfield W, Sinaiko A, Druet C, Marcovecchio ML, Chiarelli F; ESPE-LWPES-ISPAD-APPES-APEG-SLEP-JSPE; Insulin Resistance in Children Consensus Conference Group. Insulin resistance in children: consensus, perspective, and future directions. J Clin Endocrinol Metab. 2010 Dec;95(12):5189-98. doi: 10.1210/jc.2010-1047. Epub 2010 Sep 8. PubMed PMID: 20829185; PubMed Central PMCID: PMC3206517.**

Abstract

OBJECTIVE:

Emerging data indicate that insulin resistance is common among children and adolescents and is related to cardiometabolic risk, therefore requiring consideration early in life. However, there is still confusion on how to define insulin resistance, how to measure it, what its risk factors are, and whether there are effective strategies to prevent and treat it. A consensus conference was organized in order to clarify these points.

PARTICIPANTS:

The consensus was internationally supported by all the major scientific societies in pediatric endocrinology and 37 participants.

EVIDENCE:

An independent and systematic search of the literature was conducted to identify key articles relating to insulin resistance in children.

CONSENSUS PROCESS:

The conference was divided into five themes and working groups: background and definition; methods of measurement and screening; risk factors and consequences; prevention; and treatment. Each group selected key issues, searched the literature, and developed a draft document. During a 3-d meeting, these papers were debated and finalized by each group before presenting them to the full forum for further discussion and agreement.

CONCLUSIONS:

Given the current childhood obesity epidemic, insulin resistance in children is an important issue confronting health care professionals. There are no clear criteria to define insulin resistance in children, and surrogate markers such as fasting insulin are poor measures of insulin sensitivity. Based on current screening criteria and methodology, there is no justification for screening children for insulin resistance. Lifestyle interventions including diet and exercise can improve insulin sensitivity, whereas drugs should be implemented only in selected cases.



**943: Ostbye T, Malhotra R, Landerman LR. Body mass trajectories through adulthood: results from the National Longitudinal Survey of Youth 1979 Cohort (1981-2006). Int J Epidemiol. 2011 Feb;40(1):240-50. doi: 10.1093/ije/dyq142. Epub 2010 Sep 5. PubMed PMID: 20819785.**

Abstract

BACKGROUND:

Most studies describing change in body mass through adulthood model an 'average' trajectory bearing the same functional form in the underlying population. Latent-class growth modelling has revealed the presence of several underlying body mass/obesity trajectory groups among children and adolescents, but has not been applied to capture adult body mass trajectories. We apply the technique to identify adult body mass trajectory groups, risk factors for group membership and (time-varying) modifiers of trajectory level within each group, and assess association between group membership and important health outcomes in midlife.

METHODS:

Body mass trajectory groups, from age 18 to 49 years, were identified using latent-class growth modelling based on the National Longitudinal Survey of Youth 1979 (n = 9681). Role of gender, race/ethnicity and age cohort as risk factors for group membership, and of highest grade of education completed, years of urban living, years in employment, years in poverty and years married as modifiers of trajectory level was evaluated.

RESULTS:

Four trajectory groups, 'normal weight', 'overweight', 'late adulthood obesity' and 'early adulthood obesity' were identified. Males, Blacks and those born later had higher odds of being in the three latter groups. More education and years married lowered the trajectory within each group. The prevalence of most health outcomes was lowest in the 'normal weight' group, somewhat greater in the 'overweight' group, greater again in the 'late adult obesity group' and highest in the 'early adulthood obesity' group.

CONCLUSION:

Regular body mass index screening and monitoring in early adult life may identify a person as belonging to one of these four groups early, and allow the individual and health-care providers opportunities to initiate behavioural or other interventions better tailored to the specific group.

**944: Barker CC, Agovi MA, Logan B, Lazarus HM, Ballen KK, Gupta V, Hale GA, Frangoul H, Ho V, Rizzo JD, Pasquini MC; Regimen-Related Toxicity Writing Committee, Center for International Blood and Marrow Transplant Research. Childhood obesity and outcomes after bone marrow transplantation for patients with severe aplastic anemia. Biol Blood Marrow Transplant. 2011 May;17(5):737-44. doi: 10.1016/j.bbmt.2010.08.019. Epub 2010 Oct 14. PubMed PMID: 20817111; PubMed Central PMCID: PMC3035737.**

Abstract

The prevalence of obesity in the pediatric population has increased in the last 2 decades and represents a serious health concern, with potential impact on outcomes of hematopoietic cell transplantation (HCT). We studied the effect of weight by age-adjusted body mass index (BMI) percentile in 1,281 pediatric patients (age 2-19 years) with severe aplastic anemia who underwent HCT between 1990 and 2005. The study population was divided into 5 weight groups-underweight,

risk of underweight, normal BMI range, risk of overweight, and overweight-according to age-adjusted BMI percentiles. Cox proportional hazards regression models for survival and acute graft-versus-host disease (aGVHD), performed using weight groups as the main effect and the normal BMI range (26th-75th percentile) as the baseline comparison, found higher mortality among overweight children (>95th percentile adjusted for age). Weight at transplantation did not increase the adjusted risk of grade III-IV aGVHD. The 1-year and 2-year overall survival rates were 60% and 59% for overweight children, compared with >70% in children with lower BMI at both time points ( $P < .001$ ). Other significant factors associated with survival included race and region, donor type, conditioning regimens in related donor transplants, performance score, and year of transplantation. In conclusion, overweight children with aplastic anemia have worse outcomes after HCT. The impact of obesity on survival outcomes in children should be discussed during pretransplantation counseling.

**945: Hasselbalch AL. Genetics of dietary habits and obesity - a twin study. Dan Med Bull. 2010 Sep;57(9):B4182. PubMed PMID: 20816022.**

#### Abstract

Obesity has become a major health concern due to the increased risk of co-morbidities, resulting in decreased quality of life, stigmatization, reduced working ability and early death. This causes a great challenge for the health care systems and results in increased direct costs related to treatment of obesity and co-morbidities, as well as increased indirect costs related to reduced function and withdrawal from the labour market. Both between and within societies, large variation in the prevalence of overweight and obesity exists. This variation is caused by differences in environmental exposures as well as genetic differences between individuals, resulting in differentiated susceptibility to environmental exposures. The evidence for genetic influence on anthropometry has previously been established and has been estimated to be 60-70% based on twin studies. These inter-individual differences can, however, not explain the increase in obesity prevalence during the past 70 years. Environmental factors must therefore play an important role in the obesity epidemic. Habitual diet is one of many environmental factors that potentially contribute to the inter-individual differences in body fat mass, but only limited evidence for associations between habitual dietary intake and anthropometry exists. Differences in habitual dietary intake are also partly determined by differences in genes influencing smell and taste preferences. But, so far, only few studies have investigated genetic influences on dietary intake in adults and the interplay between diet, genes and obesity. The focus of the thesis was to investigate the genetic and environmental influence on habitual diet and obesity as well as the association between habitual diet and anthropometry. The thesis is based on structural equation modelling of twin data from the Danish Twin Registry with special focus on the GEMINAKAR twin study that was performed in 1997-2000. In this study, anthropometric traits of the twin pairs were measured and habitual dietary intake was assessed through a food frequency questionnaire (FFQ). When studying body fat mass in population-based studies, the phenotype used is often the body mass index (BMI). This measure does, however, not specify whether excess body mass is due to excess fat mass and how the body fat is distributed. Studying the genetic and environmental correlations between the anthropometry measures in the GEMINAKAR sample showed that the genetic correlations between BMI, fat mass index (FMI) and waist circumference were high in men and that the genetic correlations between BMI, FMI, waist and hip circumference were high in women. For all anthropometric phenotypes, significant residual genetic influence existed. Based on information about habitual diet from the FFQ the genetic influence on total energy intake, macronutrient intake, as well as intake of energy from 20 food groups, was estimated. The

proportion of variation in dietary intake explained by variation in genes differed between the dietary traits under study but for the majority of dietary variables the genetic influence was 20-50%. Accordingly, both diet and anthropometry is influenced by genetic variation. In order to control for potential confounding by genetic variation and shared environment on the association between habitual diet and body fat, the monozygotic twin pairs were selected and the associations between intrapair differences in dietary intake and intrapair differences in anthropometry were studied. For the majority of dietary traits, no associations or only weak associations were found. The study showed, however, consistent positive associations between intake of sugar-sweetened soft drink and BMI, FMI and waist circumference in men. Gene-environment interaction models showed that while high physical activity is associated with a down-regulation of genes predisposing to obesity, such effects were not found for protein intake. In conclusion, the studies included in this thesis contribute to the relatively limited existing literature, with insight into genetic determinants of habitual dietary intake, pleiotropic influences on anthropometry, and the interplay between diet, genes and obesity.

**946: Bryld LE, Sørensen TI, Andersen KK, Jemec GB, Baker JL. High body mass index in adolescent girls precedes psoriasis hospitalization. *Acta Derm Venereol.* 2010 Sep;90(5):488-93. doi: 10.2340/00015555-0931. PubMed PMID: 20814624.**

#### Abstract

Psoriasis is associated with being overweight, but the temporal relationship is not known. This historical cohort study tested whether severe psoriasis resulting in hospitalization in adulthood was preceded by excess increase in age-adjusted body mass index, a known risk factor in childhood for being overweight in adulthood. The study cohort was based on the Copenhagen School Health Records Register, birth years 1930 to 1984 (309,152 schoolchildren). Cases were found through the Danish National Patient Register for the period 1977 to 2001. A total of 1074 (0.36%) of the schoolchildren were identified as having psoriasis, with at least one hospital admission. Multivariate analysis demonstrated an association between excess increase in body mass index and psoriasis in females only. Being overweight in adolescence was the main factor behind this observation. The female group showed a significant association between psoriasis and body mass index at ages 12 ( $p = 0.028$ ) and 13 years ( $p = 0.010$ ). This was not the case for males or for body mass index measured at ages 11 years and below.

**947: Luczyński W, Szypowska A, Bossowski A, Ramotowska A, Rećko P, Rembińska M, Tercjak M, Bleharczyk B, Lachowska U, Suchoń P, Wiśniewska K, Bernatowicz P, Głowińska-Olszewska B. [Overweight, obesity and metabolic syndrome in children with type 1 diabetes mellitus]. *Pediatr Endocrinol Diabetes Metab.* 2010;16(2):83-8. Polish. PubMed PMID: 20813084.**

#### Abstract

##### INTRODUCTION:

Obesity can be an additional risk factor for developing cardiovascular diseases in patients with diabetes. Aim of the study was the assessment of overweight, obesity and other elements of the metabolic syndrome in children with type 1 diabetes mellitus.

##### MATERIAL AND METHODS:

300 children treated with insulin at least one year were enrolled in the study. In the examined group anthropometric data, data concerned with diabetes and additional laboratory tests including risk factors for cardiovascular diseases were assessed.

**RESULTS:**

The median age of the examined group was 13.7 years. The body mass deficiency was noted in 0.66%, normal body mass in 71.6%, overweight in 15.3% and obesity in 12.3%. The abdominal obesity was noted in 16.0% of children. The rise in the body weight between 3-6 months from the beginning of the insulin therapy and the present assessment was statistically significant. Children with normal weight had a better metabolic control in comparison to children with overweight/obesity. Girls had a higher rise in body mass index values between the time of diagnosis and the present investigation compared to boys. Higher values of blood pressure or hypertension were noted in 16.6% of children. Altogether in 25.3% of children some dyslipidemia was observed. The metabolic syndrome criteria were noted in: 28.0% - one criterion, 13.0% - two criteria, and 0.3% - three criteria.

**CONCLUSIONS:**

The population of children with type 1 diabetes is characterized by high frequency of overweight/obesity, abdominal obesity, dyslipidemia and hypertension. The features of metabolic syndrome are less frequent. It is worthwhile to monitor the risk for development of cardiovascular diseases in this group of children.

**948: Freudenberg N, Libman K, O'Keefe E. A tale of two obesCities: the role of municipal governance in reducing childhood obesity in New York City and London. J Urban Health. 2010 Sep;87(5):755-70. doi: 10.1007/s11524-010-9493-x. PubMed PMID: 20811951; PubMed Central PMCID: PMC2937123.**

**Abstract**

As rates of childhood obesity and overweight rise around the world, researchers and policy makers seek new ways to reverse these trends. Given the concentration of the world's population, income inequalities, unhealthy diets, and patterns of physical activity in cities, urban areas bear a disproportionate burden of obesity. To address these issues, in 2008, researchers from the City University of New York and London Metropolitan University created the Municipal Responses to Childhood Obesity Collaborative. The Collaborative examined three questions: What role has city government played in responding to childhood obesity in each jurisdiction? How have municipal governance structures in each city influenced its capacity to respond effectively? How can policy and programmatic interventions to reduce childhood obesity also reduce the growing socioeconomic and racial/ethnic inequities in its prevalence? Based on a review of existing initiatives in London and New York City, the Collaborative recommended 11 broad strategies by which each city could reduce childhood obesity. These recommendations were selected because they can be enacted at the municipal level; will reduce socioeconomic and racial/ethnic inequalities in obesity; are either well supported by research or are already being implemented in one city, demonstrating their feasibility; build on existing city assets; and are both green and healthy.

**949: Adeyemo WL, Bamgbose BO, Ogunlewe MO, Ladeinde AL, Taiwo OA. Overweight and obesity among patients attending a Nigerian oral surgery clinic: implications for oral surgical practice in Nigeria. Afr Health Sci. 2010 Mar;10(1):40-5. PubMed PMID: 20811523; PubMed Central PMCID: PMC2895787.**

## Abstract

### AIM:

To determine the prevalence of overweight and obesity among patients attending oral and maxillofacial outpatient clinic of the Lagos University Teaching Hospital, Nigeria; and discuss the clinical and surgical implications that obesity has on the delivery of oral and maxillofacial surgical and anaesthetic care.

### METHODS:

Consecutive patients presenting to the oral and maxillofacial surgery outpatient clinic at the Lagos University Teaching Hospital, Nigeria over a 4-month period (May-August 2004) were screened for age, sex, height and weight. All of the patients were treated for dentoalveolar surgical procedures (routine and surgical extractions), incisional and excisional biopsies, and enucleation under local anaesthesia.

### RESULTS:

The BMIs of the studied patients ranged from 16.7 to 39.8 kg/m<sup>2</sup>, with a mean of 24.6 +/- 4.5 kg/m<sup>2</sup>. Prevalence of excess weight was 39.1%. Thirty-one (11.4%) patients were obese and 75 (27.7%) patients were overweight. A significant difference was observed in the BMIs of male and female patients (P=0.000). The age groups < 30 years had mean BMIs that were considered normal; whereas other age groups above 30 years had mean BMIs that were considered overweight. Prevalence of obesity increases with increasing age. Obese individuals were seen in all the age groups except those < 20 years.

### CONCLUSIONS:

The prevalence of excess weight (overweight and obesity) in patients presenting in the studied oral and maxillofacial outpatient setting was 39.1%. Oral and maxillofacial surgeon needs to be aware of obesity-/overweight-related medical and surgical issues and take them into consideration when treating these patients.

**950: Nunes MA, Ferri CP, Manzolli P, Soares RM, Drehmer M, Buss C, Giacomello A, Hoffmann JF, Ozcariz S, Melere C, Manenti CN, Camey S, Duncan BB, Schmidt MI. Nutrition, mental health and violence: from pregnancy to postpartum Cohort of women attending primary care units in Southern Brazil--ECCAGE study. BMC Psychiatry. 2010 Aug 31;10:66. doi: 10.1186/1471-244X-10-66. PubMed PMID: 20807429; PubMed Central PMCID: PMC2939583.**

## Abstract

### BACKGROUND:

Woman's nutritional status, before and during pregnancy, is a strong determinant of health outcomes in the mother and newborn. Gestational weight gain and postpartum weight retention increases risk of overweight or obesity in the future and they depend on the pregestational nutritional status and on food consumption and eating behavior during pregnancy. Eating behavior during pregnancy may be the cause or consequence of mood changes during pregnancy, especially depression, which increases likelihood of postpartum depression. In Brazil, a study carried out in the immediate postpartum period found that one in three women experienced some type of violence during pregnancy. Violence and depression are strongly associated and both exposures during pregnancy are associated with increased maternal stress and subsequent harm to the infant. The main objectives of this study are: to identify food intake and eating behaviors patterns; to estimate the prevalence of common mental disorders and the experience of violence during and after

pregnancy; and to estimate the association between these exposures and infant's health and development.

**METHODS/DESIGN:**

This is a cohort study of 780 pregnant women receiving care in 18 primary care units in two cities in Southern Brazil. Pregnant women were first evaluated between the 16th and 36th week of pregnancy at a prenatal visit. Follow-up included immediate postpartum assessment and around the fifth month postpartum. Information was obtained on sociodemographic characteristics, living circumstances, food intake, eating behaviors, mental health and exposure to violence, and on infant's development and anthropometrics measurements.

**DISCUSSION:**

This project will bring relevant information for a better understanding of the relationship between exposures during pregnancy and how they might affect child development, which can be useful for a better planning of health actions aiming to enhance available resources in primary health care.

**951: Thompson-McCormick JJ, Thomas JJ, Bainivualiku A, Khan AN, Becker AE. Breakfast skipping as a risk correlate of overweight and obesity in school-going ethnic Fijian adolescent girls. Asia Pac J Clin Nutr. 2010;19(3):372-82. PubMed PMID: 20805082.**

**Abstract**

The prevalence of overweight and obesity has increased globally, and population data suggest that it is also increasing among ethnic Fijian youth. Among numerous behavioural changes contributing to overweight in youth residing in nations undergoing rapid economic and social change, meal skipping has not been examined as a potential risk factor. The study objectives were to assess the prevalence of overweight, obesity, and breakfast skipping and examine their cross-sectional association in a community sample of school-going ethnic Fijian adolescent girls (N=523). We measured height and weight, and assessed dietary patterns, eating pathology, dimensions of acculturation, and other socio-demographic and cultural data by self-report. We observed a high prevalence of both overweight (41%, including 15% who were obese) and breakfast skipping (68%). In addition, in multivariable analyses unadjusted for eating pathology, we found that more frequent breakfast skipping was associated with greater odds of overweight (odds ratio (OR)=1.15, confidence interval (CI)=1.06, 1.26, p<0.01) and obesity (OR=1.18, CI=1.05, 1.33, p<0.01). Regression models adjusting for eating pathology attenuated this relation so that it was non-significant, but demonstrated that greater eating pathology was associated with greater odds of both overweight and obesity. Future research is necessary to clarify the relation among breakfast skipping, eating pathology, and overweight in ethnic Fijian girls, and to identify whether breakfast skipping may be a modifiable risk factor for overweight in this population.

**952: Tylavsky FA, Cowan PA, Terrell S, Hutson M, Velasquez-Mieyer P. Calcium intake and body composition in African-American children and adolescents at risk for overweight and obesity. *Nutrients*. 2010 Sep;2(9):950-64. doi: 10.3390/nu2090950. Epub 2010 Sep 10. PubMed PMID: 22254064; PubMed Central PMCID: PMC3257713.**

Abstract

This study examined the role of calcium intake on body composition in 186 African-American adolescents at risk for overweight and obesity. The average weight of 89.8 kg  $\pm$  23.6 (SD) had a mean BMI z score of 2.2. Females with a calcium intake of <314 mg/day had higher percent fat mass compared to those with the highest calcium intakes that were  $\geq$ 634 mg/day. Compared to those with a low calcium intake (<365 mg/day), those with the highest calcium intake of >701 mg/day had higher intake of thiamin, folate, cobalamin, vitamin D, phosphorus, iron, zinc.

KEYWORDS:

adolescents; dietary calcium; dyslipidemia; glucose metabolism ; hypertension; overweight.

**953: Nascente FM, Jardim PC, Peixoto Mdo R, Monego ET, Moreira HG, Vitorino PV, Souza WK, Scala LN. [Arterial hypertension and its correlation with some risk factors in a small brazilian town]. *Arq Bras Cardiol*. 2010 Oct;95(4):502-8. Epub 2010 Aug 27. Multiple languages. PubMed PMID: 20802968.**

Abstract

BACKGROUND:

arterial hypertension (AH) is a health problem that affects a large number of undiagnosed or inadequately treated hypertensive individuals and presents a high rate of treatment nonadherence.

OBJECTIVE:

to estimate the prevalence of AH and its correlation with some cardiovascular risk factors among the adult population of the town of Firminópolis, state of Goiás, Brazil.

METHODS:

descriptive, observational and cross-sectional population-based study of a simple random sample (age > 18 years): standardized questionnaires with blood pressure (BP) measurements (AH criterion: BP > 140 x 90 mmHg), weight, height, Body Mass Index (BMI) and waist circumference (WC). Data were stored (Microsoft Access) and analyzed using Epi-info software.

RESULTS:

we evaluated 1,168 individuals, with a predominance of the female sex - 63.2% and a mean age of 43.2  $\pm$  14.9 years. There was a prevalence of overweight in 33.7% of the individuals and obesity in 16.0% of the individuals. There was a prevalence of altered WC in 51.8% demand of smoking in 23.2%. A sedentary life style at work and leisure activities was present in 67.6% and 64.8% of the individuals, respectively, with a higher proportion seen among the women. Alcohol consumption was observed in 33.3% of the sample. The prevalence of AH was 32.7%, higher among the men (35.8%) than among the women (30.9%). A positive correlation with AH was identified with BMI, WC and age range. A negative correlation was observed between AH and level of schooling, with 18.2% of hypertensive individuals with 9 or more years of schooling.

#### CONCLUSION:

a high prevalence of AH, overweight and WC alteration was identified. The female sex represented a protective factor for the risk of AH. A positive correlation was found between AH and BMI, WC and age range; a negative correlation was identified between AH and level of schooling.

**954: Wang Y, Jahns L, Tussing-Humphreys L, Xie B, Rockett H, Liang H, Johnson L. Dietary intake patterns of low-income urban african-american adolescents. J Am Diet Assoc. 2010 Sep;110(9):1340-5. doi: 10.1016/j.jada.2010.06.005. PubMed PMID: 20800126; PubMed Central PMCID: PMC2929676.**

#### Abstract

Unhealthy eating increases risks for chronic disease. Few studies have examined the multifaceted aspects of dietary intake of low-income, urban African-American adolescents. This study aimed to describe dietary patterns including energy, nutrients, food groups, and diet quality and to identify areas to guide future interventions. Baseline data for a school-based obesity prevention study were collected from 382 African-American adolescents (10- to 14-year-olds) from four Chicago, IL, public schools in 2003. Diet was assessed using a 152-item food frequency questionnaire. Diet quality was measured using a modified version of the US Department of Agriculture Healthy Eating Index (HEI) and compared to published estimates for a nationwide sample. Participants reported high energy intakes and several unhealthy eating patterns: 58.6% consumed one or more servings of sweetened beverages per day and 15.7% consumed three or more servings per day; average fried food consumption was high (1.4 servings/day), 58.4% consumed one or more serving per day; and 75% consumed three or more three snacks per day. Only 49% of participants met the recommended three servings of dairy foods per day. Compared to a national, mostly white sample, participants had lower HEI scores ( $P < 0.05$ ); mean score was  $66.0 \pm 12.8$  ( $100 = \text{maximum HEI score}$ ) vs  $70.3 \pm 13.0$  in boys vs girls, one third had scores  $< 60$  ("needs improvement") and only 15% scored  $> 80$  ("good"). This study reveals key areas of problematic dietary patterns for future interventions targeting low-income African-American adolescents, including frequent intakes of calorie-dense, low nutrient-rich foods, such as fried foods, snacks, and sweetened beverages.

**955: In-Albon T, Zumsteg U, Müller D, Schneider S. Mental disorders in the pediatric setting – results of a Swiss survey. Swiss Med Wkly. 2010 Aug 27;140:w13092. doi: 10.4414/smw.2010.13092. PubMed PMID: 20799100.**

#### Abstract

##### THEORETICAL BACKGROUND:

Mental disorders emerge in childhood and adolescence and are important risk factors for mental disorders in adolescence and adulthood. Since paediatricians are typically the first to see children with psychological problems, the aim of this study was to obtain a survey of mental disorders of children in paediatric settings.

##### METHODS:

250 paediatricians completed a questionnaire especially developed for this study, which asked for the estimated frequency and type of mental disorders in their patients, assurance in identifying mental disorders, diagnostic and treatment strategies used for these disorders and requests for training.

##### RESULTS:



Paediatricians estimated that 15% percent of children in their paediatric setting reported psychological difficulties. The most frequent mental disorders indicated by the paediatricians were attention-deficit hyperactivity disorder (ADHD), anxiety disorders, depression and aggressive disorders. Comfort in assigning diagnoses for anxiety disorders and depression was lower than for externalizing disorders. Counselling was the treatment approach most often reported in treating mental disorders, followed by psychopharmacological medication. Psychotherapy, however, was reported very rarely. Paediatricians' wish for continuing education included diagnostics and screening instruments for psychological problems in childhood.

**CONCLUSIONS:**

Estimated prevalence rates reported by paediatricians are comparable with rates in epidemiological studies. As paediatricians are often confronted with psychological problems, they have the important role in recognising the early signs of mental problems.

**956: Burns EM, Naseem H, Bottle A, Lazzarino AI, Aylin P, Darzi A, Moorthy K, Faiz O. Introduction of laparoscopic bariatric surgery in England: observational population cohort study. BMJ. 2010 Aug 26;341:c4296. doi: 10.1136/bmj.c4296. PubMed PMID: 20798224.**

**Abstract**

**OBJECTIVES:**

To describe national trends in bariatric surgery and examine the factors influencing outcome in bariatric surgery in England.

**DESIGN:**

Observational population cohort study.

**SETTING:**

Hospital Episode Statistics database.

**PARTICIPANTS:**

All patients who had primary gastric bypass, gastric banding, or sleeve gastrectomy procedures between April 2000 and March 2008.

**MAIN OUTCOME MEASURES:**

30 day mortality, mortality at one year after surgery, unplanned readmission to hospital within 28 days, and duration of stay in hospital.

**RESULTS:**

6953 primary bariatric procedures were carried out during the study period, of which 3649 were gastric band procedures, 3191 were gastric bypass procedures, and 113 were sleeve gastrectomy procedures. A marked increase occurred in the numbers of bariatric procedures done, from 238 in 2000 to 2543 in 2007, with an increase in the percentage of laparoscopic procedures over the study period (28% (66/238) laparoscopic procedures in 2000 compared with 74.5% (1894/2543) in 2007). Overall, 0.3% (19/6953) patients died within 30 days of surgery. The median length of stay in hospital was 3 (interquartile range 2-6) days. An unplanned readmission to hospital within 28 days of surgery occurred in 8% (556/6953) of procedures. No significant increase in mortality or unplanned readmission was seen over the study period, despite the exponential increase in minimal access surgery and consequently bariatric surgery.

**CONCLUSIONS:**

Bariatric surgery has increased exponentially in England. Although postoperative weight loss and reoperation rates were not evaluated in this observational population cohort study, patients selected

for gastric banding had lower postoperative mortality and readmission rates and a shorter length of stay than did those selected for gastric bypass.

**957: Peltz G, Aguirre MT, Sanderson M, Fadden MK. The role of fat mass index in determining obesity. *Am J Hum Biol.* 2010 Sep-Oct;22(5):639-47. doi: 10.1002/ajhb.21056. PubMed PMID: 20737611; PubMed Central PMCID: PMC2929934.**

Abstract

OBJECTIVES:

The objective of this study is to compare body mass index (BMI), percent body fat (PBF), and fat mass index (FMI) and to investigate the accuracy of FMI as a convenient tool for assessing obesity.

DESIGN:

Anthropometric measurements and bioelectrical impedance analyses were performed on 538 Mexican Americans (373 women and 165 men). Correlations between BMI and PBF and between FMI and PBF were investigated. The percentage of persons misclassified as obese using different classifications was calculated. Multiple linear regression analysis was performed to generate predictive models of FMI for males and females separately.

RESULTS:

BMI and PBF were correlated in men ( $\rho = 0.877$ ;  $P < 0.0001$ ) and women ( $\rho = 0.966$ ;  $P < 0.0001$ ); however, 20 and 67.2% of the men and 9.2 and 84.2% of women, classified as normal weight and overweight by BMI, respectively, were diagnosed as obese by PBF. FMI and PBF were also correlated in men ( $\rho = 0.975$ ;  $P < 0.0001$ ) and women ( $\rho = 0.992$ ;  $P < 0.0001$ ). Four percent of the men classified as normal weight and 65.5% classified as overweight by BMI were obese by FMI, while 71.3% of women classified as overweight by BMI were obese by FMI. Misclassification of obesity between FMI and PBF categories was observed in 5.4% of men and 7.8% of women.

CONCLUSIONS:

The discrepancy observed between BMI and PBF reflects a limitation of BMI. Conversely, FMI accurately assessed obesity in our study of Mexican Americans, but further studies are necessary to confirm our findings in different ethnic groups.

**958: Kuntz B, Lampert T. Socioeconomic factors and obesity. *Dtsch Arztebl Int.* 2010 Jul;107(30):517-22. doi: 10.3238/arztebl.2010.0517. Epub 2010 Jul 30. PubMed PMID: 20737057; PubMed Central PMCID: PMC2925342.**

Abstract

BACKGROUND:

It is already known from multiple studies that obesity is distributed along a socioeconomic gradient. In the present study, we attempt to determine the relative importance of three different status indicators: income, education, and occupational position.

METHOD:

Data were drawn from the 2003 Telephone Health Survey in Germany ( $n = 8318$ ), which yielded representative information on the resident population in Germany aged 18 and older. The socioeconomic variables studied were the net equivalent household income, the highest level of general education completed, and the autonomy of occupational activity as measured on the Hoffmeyer-Zlotnik scale. Age- and sex-specific prevalences of obesity were determined, and odds ratios with 95% confidence intervals were calculated by binary logistic regression.

#### RESULTS:

In Germany in the year 2003, 17% of men and 20% of women aged 18 and older were obese. For men, both the highest level of general education completed and the individual's occupational position were found to have a significant effect on the prevalence of obesity, after statistical controls for the influence of age and the other two status indicators. In women, a statistically significant social gradient was found for all three status indicators. For example, women in the lowest income group were three times as likely to be obese as women in the highest income group.

#### CONCLUSION:

The fight against obesity is a main goal of health-care policy because of its increasing prevalence and its contribution to the causation of many secondary diseases. The results reported here demonstrate that socioeconomic factors play an important role. These factors should be taken into account in the design of target-group-specific measures for the prevention and treatment of obesity.

**959: Saland JM, Pierce CB, Mitsnefes MM, Flynn JT, Goebel J, Kupferman JC, Warady BA, Furth SL; CKiD Investigators. Dyslipidemia in children with chronic kidney disease. *Kidney Int.* 2010 Dec;78(11):1154-63. doi: 10.1038/ki.2010.311. Epub 2010 Aug 25. PubMed PMID: 20736985; PubMed Central PMCID: PMC3222564.**

#### Abstract

Dyslipidemia, a known risk factor for atherosclerosis, is frequent among both adults and children with chronic kidney disease. Here, we describe the prevalence and pattern of dyslipidemia from a cross-sectional analysis of 391 children aged 1-16 years, enrolled in the multicenter Chronic Kidney Disease in Children (CKiD) study, with a median glomerular filtration rate (GFR), measured by the plasma disappearance of iothexol, of 43 ml/min per 1.73 m<sup>2</sup>. Multivariate analysis was applied to adjust for age, gender, body mass index (BMI), GFR, and the urinary protein/creatinine ratio. Proteinuria was in the nephrotic range in 44 and the BMI exceeded the 95th percentile in 57 patients of this cohort. Baseline lipid analysis found a high prevalence of hypertriglyceridemia in 126, increased non-HDL-C in 62, and reduced HDL-C in 83. Overall, 177 children had dyslipidemia, of whom 79 had combined dyslipidemia. Lower GFR was associated with higher triglycerides, lower HDL-C, and higher non-HDL-C. Nephrotic-range proteinuria was significantly associated with dyslipidemia and combined dyslipidemia. Compared with children with a GFR>50, children with a GFR<30 had significantly increased odds ratios for any dyslipidemia or for combined dyslipidemia. Hence, among children with moderate chronic kidney disease, dyslipidemia is common and is associated with lower GFR, nephrotic proteinuria, and non-renal factors including age and obesity.

**961: Cavalcanti CB, Barros MV, Meneses AL, Santos CM, Azevedo AM, Guimarães FJ. Abdominal obesity in adolescents: prevalence and association with physical activity and eating habits. *Arq Bras Cardiol.* 2010 Mar;94(3):350-6, 371-7. English, Portuguese. PubMed PMID: 20730265.**

#### Abstract

##### BACKGROUND:

Abdominal obesity in adolescents is associated with cardiovascular and metabolic diseases, but its prevalence and the factors associated with its occurrence are unknown.

##### OBJECTIVES:

To determine the prevalence of abdominal obesity in adolescents, and to evaluate whether the indicators of physical activity and dietary habits are associated with the occurrence of abdominal obesity in adolescents.

**METHODS:**

The sample included 4138 high school students (14-19 years), selected by cluster sampling in two stages. We obtained data using the Global School-based Health Survey, and anthropometric measurements were taken for determination of overweight and abdominal obesity. Logistic regression was used for analysis of behavioral factors associated with the occurrence of abdominal obesity. The identification of cases of abdominal obesity was performed by waist circumference analysis, using age- and gender-related cutoff points as reference.

**RESULTS:**

The mean age was 16.8 years ( $s = 1.4$ ), and 59.8% of subjects were female. The prevalence of abdominal obesity was 6% (95%CI: 5.3-6.7), and it was significantly higher among girls (6.7%, 95%CI: 5.8-7.8) than among boys (4.9%, 95%CI: 3, 9-6, 0). In the crude analysis, gender and overweight were associated with the occurrence of abdominal obesity. The analysis adjustment by logistic regression allowed us to observe that physical activity was significantly associated with the occurrence of obesity in this group (OR = 0.7; 95% CI: 0.49-0.99), regardless of the presence of overweight.

**CONCLUSIONS:**

The prevalence of abdominal obesity was low compared to that observed in international studies, and physical activity was a factor associated with the occurrence of this event in adolescents.

**962: Supriyatno B, Said M, Hermani B, Sjarir DR, Sastroasmoro S. Risk factors of obstructive sleep apnea syndrome in obese early adolescents: a prediction model using scoring system. Acta Med Indones. 2010 Jul;42(3):152-7. PubMed PMID: 20724769.**

**Abstract**

**AIM:**

to obtain the OSAS prevalence and risk factors of OSAS in obese early adolescents and to create a scoring system based on risk factors for diagnosing OSAS.

**METHODS:**

an observational study in Jakarta, November 2007 until December 2008 on obese adolescents aged 10-12 years with snoring. Subjects underwent clinical examination, lung function test, paranasal sinus X-ray, and polisomnography. Measured outcomes were diagnosis of OSAS; sensitivity, specificity, predictive values, and likelihood ratios of a scoring system based on risk factors.

**RESULTS:**

the prevalence of OSAS in obese early adolescents is 38.2% using AHI cut-off point of  $\geq 3$  on PSG. Tonsillar hypertrophy, adenoid hypertrophy, and neck circumference were the main risk factors. Scoring system was designed based on these results: OS = T + A + NC; OS = OSAS score; T = tonsil hypertrophy ( $\geq T3$  scored 1,  $< T3$  scored 0); A = adenoid hypertrophy (adenoid and nasopharynx ratio of  $\geq 0.8$  scored 1.5,  $< 0.8$  scored 0); NC = neck circumference ( $\geq 34$  cm scored 1;  $< 34$  cm scored 0). Children were most likely to have OSAS if they had a total score of 3.5. This scoring system has a sensitivity of 62% (95%CI 47 to 77%), specificity 100% (95%CI 100 to 100%), positive predictive value 100% (95%CI 100 to 100%), negative predictive value 81% (95%CI 73 to 89%), unlimited LR(+), LR(-) of 0.38 (CI 95% 0.6 to 0.56).

CONCLUSION:

a scoring system based on tonsillar hypertrophy, adenoid hypertrophy, and neck circumference has sensitivity and specificity of 62% and 100% in diagnosing OSAS.

**963: Gallagher D, Larson EL, Wang YH, Richards B, Weng C, Hametz P, Begg MD, Chung WK, Boden-Albala B, Akabas SR. Identifying interdisciplinary research priorities to prevent and treat pediatric obesity in New York City. Clin Transl Sci. 2010 Aug;3(4):172-7. doi: 10.1111/j.1752-8062.2010.00210.x. PubMed PMID: 20718818; PubMed Central PMCID: PMC3677023.**

Abstract

It is well recognized that an interdisciplinary approach is essential in the development and implementation of solutions to address the current pediatric obesity epidemic. In two half-day meetings that included workshops and focus groups, faculty from diverse fields identified critically important research challenges, and gaps to childhood obesity prevention. The purpose of this white paper is to describe the iterative, interdisciplinary process that unfolded in an academic health center setting with a specific focus on underrepresented minority groups of Black and Hispanic communities, and to summarize the research challenges and gaps related to pediatric obesity that were identified in the process. Although the research challenges and gaps were developed in the context of an urban setting including high-risk populations (the northern Manhattan communities of Washington Heights, Inwood, and Harlem), many of the issues raised are broadly applicable. The processes by which the group identified research gaps and methodological challenges that impede a better understanding of how to prevent and treat obesity in children has resulted in an increase in research and community outreach collaborations and interdisciplinary pursuit of funding opportunities across units within the academic health center and overall university.

**964: Ochiai H, Shirasawa T, Nishimura R, Morimoto A, Shimada N, Ohtsu T, Kujirai E, Hoshino H, Tajima N, Kokaze A. Relationship of body mass index to percent body fat and waist circumference among schoolchildren in Japan--the influence of gender and obesity: a population-based cross-sectional study. BMC Public Health. 2010 Aug 18;10:493. doi: 10.1186/1471-2458-10-493. PubMed PMID: 20716379; PubMed Central PMCID: PMC2933721.**

Abstract

BACKGROUND:

Although the correlation coefficient between body mass index (BMI) and percent body fat (%BF) or waist circumference (WC) has been reported, studies conducted among population-based schoolchildren to date have been limited in Japan, where %BF and WC are not usually measured in annual health examinations at elementary schools or junior high schools. The aim of the present study was to investigate the relationship of BMI to %BF and WC and to examine the influence of gender and obesity on these relationships among Japanese schoolchildren.

METHODS:

Subjects included 3,750 schoolchildren from the fourth and seventh grade in Ina-town, Saitama Prefecture, Japan between 2004 and 2008. Information about subject's age, sex, height, weight, %BF, and WC was collected from annual physical examinations. %BF was measured with a bipedal biometrical impedance analysis device. Obesity was defined by the following two criteria: the obese

definition of the Centers for Disease Control and Prevention, and the definition of obesity for Japanese children. Pearson's correlation coefficients between BMI and %BF or WC were calculated separately for sex.

**RESULTS:**

Among fourth graders, the correlation coefficients between BMI and %BF were 0.74 for boys and 0.97 for girls, whereas those between BMI and WC were 0.94 for boys and 0.90 for girls. Similar results were observed in the analysis of seventh graders. The correlation coefficient between BMI and %BF varied by physique (obese or non-obese), with weaker correlations among the obese regardless of the definition of obesity; most correlation coefficients among obese boys were less than 0.5, whereas most correlations among obese girls were more than 0.7. On the other hand, the correlation coefficients between BMI and WC were more than 0.8 among boys and almost all coefficients were more than 0.7 among girls, regardless of physique.

**CONCLUSIONS:**

BMI was positively correlated with %BF and WC among Japanese schoolchildren. The correlations could be influenced by obesity as well as by gender. Accordingly, it is essential to consider gender and obesity when using BMI as a surrogate for %BF and WC for epidemiological use.

**965: Madsen KA, Weedn AE, Crawford PB. Disparities in peaks, plateaus, and declines in prevalence of high BMI among adolescents. *Pediatrics*. 2010 Sep;126(3):434-42. doi: 10.1542/peds.2009-3411. Epub 2010 Aug 16. PubMed PMID: 20713482; PubMed Central PMCID: PMC3013279.**

**Abstract**

**OBJECTIVES:**

The objective of this study was to investigate trends in prevalence of high BMI from 2001 to 2008 and examine racial/ethnic disparities.

**METHODS:**

Records for a total of 8 283 718 fifth-, seventh-, and ninth-grade students who underwent California's school-based BMI screening between 2001 and 2008 were included. Logistic regression identified trends in prevalence of high BMI ( $\geq$ 85th,  $\geq$ 95th,  $\geq$ 97th, and  $\geq$ 99th percentiles).

**RESULTS:**

For 3 of 4 BMI cut points, prevalence continued to increase for black and American Indian girls through 2008, Hispanic girls plateaued after 2005, non-Hispanic white girls declined to 2001 prevalence levels after peaking in 2005, and Asian girls showed no increases. Non-Hispanic white boys peaked in 2005, then declined to 2001 prevalence levels for all BMI cut points; Hispanic and Asian boys declined after 2005 (for 3 lowest BMI cut points only) but remained above 2001 levels; and American Indian boys peaked later (2007) and declined only for BMI  $\geq$ 95th. No girls and few boys showed a decline after peaking in prevalence of BMI  $\geq$ 99th percentile. In 2008, disparities in prevalence were greatest for BMI  $\geq$ 99th percentile, with prevalence of 4.9% for American Indian girls and 4.6% for black girls versus 1.3% for non-Hispanic white girls.

**CONCLUSIONS:**

On the basis of statewide California data, prevalence of high BMI is declining for some groups but has not declined for American Indian and black girls. These trends portend greater disparities over time, particularly in severe obesity. Interventions and policies that are tailored to the highest risk groups should be pursued.

**966: Shirasawa T, Shimada N, Ochiai H, Ohtsu T, Hoshino H, Nishimura R, Morimoto A, Tajima N, Kokaze A. High blood pressure in obese and nonobese Japanese children: blood pressure measurement is necessary even in nonobese Japanese children. J Epidemiol. 2010;20(5):408-12. Epub 2010 Aug 7. PubMed PMID: 20699600; PubMed Central PMCID: PMC3900836.**

Abstract

BACKGROUND:

Although the prevalences of obesity and hypertension (HT) are increasing in children, there have been few epidemiological studies of HT in Japanese children. We evaluated the prevalences of HT and high-normal blood pressure (HNBP), and examined the relationship between blood pressure (BP) and body mass index (BMI), in Japanese children.

METHODS:

The subjects of this study were 2420 children living in the town of Ina, Saitama Prefecture, Japan during the period from 2006 through 2008. Body height, weight, and BP were measured. HT and HNBP were defined according to the HT criteria for Japanese children. Children with HNBP or HT were defined as having high blood pressure (HBP).

RESULTS:

The prevalences of HBP were 15.9% and 15.8% in fourth-grade boys and girls, respectively, and 11.1% and 10.8% in seventh-grade boys and girls, respectively. Irrespective of sex or grade level, a higher BMI was associated with a higher prevalence of HBP ( $P < 0.001$ ). When compared with the <50th percentile BMI category, the crude odds ratios (ORs) were statistically significant for the 75th to 84th percentile category in fourth-grade boys (OR: 4.54, 95% CI: 2.36-8.76), the  $\geq 95$ th percentile in fourth-grade girls (13.29, 5.93-29.77), the 85th to 94th percentile (3.16, 1.46-6.84) in seventh-grade boys, and the  $\geq 95$ th percentile (7.96, 3.18-19.93) in seventh-grade girls.

CONCLUSIONS:

BMI was associated with HBP in Japanese school children. In addition, some children in the lower BMI categories also had HBP.

**967: de Vasconcelos Chaves VL, Freese E, Lapa TM, Cesse EA, de Vasconcelos AL. [Temporal evolution of overweight and obesity among Brazilian male adolescents, 1980-2005]. Cad Saude Publica. 2010 Jul;26(7):1303-13. Portuguese. PubMed PMID: 20694356.**

Abstract

Analysis of the temporal trend in obesity shows the increasing risk posed by this condition worldwide. This article aims to verify and compare the prevalence rates for overweight and obesity in male adolescents in all States of Brazil, from 1980 to 2005. We used the Brazilian Army's database, with 8,989,508 males 17-19 years of age. We defined overweight as body mass index (BMI) from 25 kg/m<sup>2</sup> to 29.9 kg/m<sup>2</sup> and obesity as BMI  $\geq 30$  kg/m<sup>2</sup>. The analysis showed an increasing trend in the prevalence of overweight and obesity in all States of Brazil for the period studied. There was a three-fold increase in adolescents with overweight and a six-fold increase in obesity. The absolute numbers for overweight were higher than for obesity, but the rate of increase over the period was greater for obesity. Analyzing the trend in prevalence rates by five-year period, we observed that from 1980 to 2005, as the prevalence of overweight decreased, that of obesity increased in all States of Brazil.



**968: Centers for Disease Control and Prevention (CDC). Vital signs: state-specific obesity prevalence among adults --- United States, 2009. MMWR Morb Mortal Wkly Rep. 2010 Aug 6;59(30):951-5. PubMed PMID: 20689500.**

Abstract

**BACKGROUND:**

Obesity is a costly condition that can reduce quality of life and increases the risk for many serious chronic diseases and premature death. The U.S. Surgeon General issued the Call to Action to Prevent and Decrease Overweight and Obesity in 2001, and in 2007, no state had met the Healthy People 2010 objective to reduce obesity prevalence among adults to 15%.

**METHODS:**

CDC used 2009 Behavioral Risk Factor Surveillance System survey data to update estimates of national and state-specific obesity prevalence. Obesity was calculated based on self-reported weight and height and defined as body mass index (weight [kg] / height [m]<sup>2</sup>)  $\geq 30$ .

**RESULTS:**

Overall self-reported obesity prevalence in the United States was 26.7%. Non-Hispanic blacks (36.8%), Hispanics (30.7%), those who did not graduate from high school (32.9%), and persons aged 50-59 years (31.1%) and 60-69 years (30.9%) were disproportionately affected. By state, obesity prevalence ranged from 18.6% in Colorado to 34.4% in Mississippi; only Colorado and the District of Columbia (19.7%) had prevalences of  $< 20\%$ ; nine states had prevalences of  $\geq 30\%$ .

**CONCLUSIONS:**

In 2009, no state met the Healthy People 2010 obesity target of 15%, and the self-reported overall prevalence of obesity among U.S. adults had increased 1.1 percentage points from 2007.

**IMPLICATIONS FOR PUBLIC HEALTH PRACTICE:**

Obesity should be addressed through a comprehensive approach across multiple settings and sectors that can change individual nutrition and physical activity behaviors and the environments and policies that affect these behaviors. New and continued national, state, and community-level surveillance of obesity, its behavioral risk factors, and the environments and policies that affect these behaviors is critical to monitor progress in obesity prevention and to target interventions.

**969: Norman GJ, Adams MA, Kerr J, Ryan S, Frank LD, Roesch SC. A latent profile analysis of neighborhood recreation environments in relation to adolescent physical activity, sedentary time, and obesity. J Public Health Manag Pract. 2010 Sep-Oct;16(5):411-9. doi: 10.1097/PHH.0b013e3181c60e92. PubMed PMID: 20689390; PubMed Central PMCID: PMC3222690.**

Abstract

**OBJECTIVE:** This study examined whether multivariate profiles of the neighborhood recreation environment were associated with adolescent physical activity, sedentary time, and obesity.

**DESIGN:**

Residential addresses of 871 adolescents in San Diego County (53% female, mean age = 12.8 years) were geocoded to create 1-mile network buffers.

**MEASURES:**

Geographic information systems calculated neighborhood environmental variables. Accelerometers (worn 3-7 days) estimated daily moderate to vigorous physical activity (MVPA) and sedentary time. Height and weight were directly measured.



#### RESULTS:

Latent profile analysis, using 7 environmental variables, resulted in 3 neighborhood profiles characterized as "open space" (OS), "residential with cul-de-sacs" (RWC), and "housing & facility dense" (HFD). These were named Adolescent Recreation Environment Accessibility (AREA) profiles. Multiple regression models stratified by gender tested associations between the AREA profiles and outcomes. Boys were less sedentary in the OS and RWC neighborhoods (7 hours per day) compared with the HFD neighborhoods (8 hours per day) ( $P < .01$ ), and boys were more likely to be obese in the HFD neighborhoods (55%) compared with the OS group (24%) ( $P < .05$ ). Girls in the RWC neighborhoods had lower MVPA levels (70 minutes per day) and were more likely to be obese (31%) than those in the OS neighborhoods (79 minutes per day MVPA, 21% obese) ( $P$ s  $< .05$ ). No differences were found for boys' MVPA or girls' sedentary time by the AREA profiles.

#### CONCLUSIONS:

These findings highlight the complex relationships among environmental factors, activity levels, and obesity.nn.

**970: The NS, Adair LS, Gordon-Larsen P. A study of the birth weight-obesity relation using a longitudinal cohort and sibling and twin pairs. *Am J Epidemiol.* 2010 Sep 1;172(5):549-57. doi: 10.1093/aje/kwq169. Epub 2010 Aug 5. PubMed PMID: 20688900; PubMed Central PMCID: PMC3025637.**

#### Abstract

Sibling and twin study designs provide control for confounding factors that are typically unmeasured in traditional cohort studies. Using nationally representative data from the National Longitudinal Study of Adolescent Health collected at 3 visits during 1994-2002, the authors evaluated the longitudinal association between birth weight and later obesity in a traditional cohort study ( $n = 13,763$ ; ages 11-21 years at baseline), controlling for sex, age, race/ethnicity, and parental education. Among persons with a nonobese mother, high birth weight ( $>4$  kg) participants were more likely than normal birth weight ( $\geq 2.5$ - $<4$  kg) participants to become obese later in life (incidence rate ratio = 1.46, 95% confidence interval: 1.28, 1.67). In a matched sibling pair sample (full siblings:  $n = 513$ ; monozygotic twins:  $n = 207$ ; dizygotic twins:  $n = 189$ ), the authors examined longitudinal within-pair differences. Birth weight difference was positively associated with body mass index difference later in life for female monozygotic pairs only (beta = 2.67, 95% confidence interval: 0.99, 4.35). Given the null associations observed in the sibling sample, the commonly observed positive association between birth weight and later obesity from cohort analyses may be attributed to confounding by maternal characteristics. Further research is needed to identify specific factors that contribute to the birth weight-obesity relation.

**971: Koukoulis GN, Sakka C, Katsaros F, Goutou M, Tsiroma S, Tsiapali E, Piterou A, Stefanidis I, Stathakis N. High rates of obesity prevalence in adults living in central Greece: data from the ARGOS study. *Hormones (Athens)*. 2010 Jul-Sep;9(3):253-62. PubMed PMID: 20688623.**

Abstract

OBJECTIVE:

To investigate the prevalence of obesity in adults of a large region of Central Greece.

DESIGN:

The target group was adults aged 18 to 79 years who were residents of the region of Thessaly for at least one year. A sample of 852 individuals stratified for sex and age were included. Each subject underwent a thorough physical examination and body mass index (BMI) was calculated from body weight and height. Waist and hip circumferences as well as body fat content were additionally measured.

RESULTS:

Mean (SD) BMI for the total population was 27.5+/-5.5 and was significantly higher in males than in females (28.2+/-4.4 vs. 26.9+/-6.2,  $p < 0.001$ ). The overall prevalence of obesity was 26.6% distributed equally between men (27.8%) and women (25.6%), whereas prevalence of overweight was 39.4% with male predominance (50.8% vs. 29.3%,  $p < 0.001$ ). Morbid obesity (MO) was found in 3.5% with female predominance. The prevalence of central obesity, using waist circumference cut-off points (>102cm for men, >88cm for women), was comparable in males (40.4%) and females (35.3%). There was a positive association between obesity, central obesity, and age. The prevalence of overweight (19.5%) and obesity (9.4%) in the age-range of 18-29 years almost doubled in the next decade of age and attained the highest value, respectively, in the age-range of 50 to 59 (48.2%), and of 60 to 70 years group (38.9%).

CONCLUSIONS:

The rates of overweight and obesity in the population of Thessaly are relatively high with overweight being more prominent in males than in females, whereas MO was higher in females compared to males.

**972: Garcinuño AC, López SA, Alonso IC, García IP. [Social disparities in the prevalence of overweight and obesity in adolescents]. *An Pediatr (Barc)*. 2010 Nov;73(5):241-8. doi: 10.1016/j.anpedi.2010.06.004. Epub 2010 Aug 4. Spanish. PubMed PMID: 20688589.**

Abstract

INTRODUCTION:

Many social factors have a role in determining the risk of overweight/obesity in children and adolescents, and are the main barriers in their management. This study tries to define the effect that some familial and social factors have on the risk of overweight/obesity in children and adolescents.

METHOD:

Population sample of 11- and 14-years old children recruited in three Primary Care Centres in Palencia. Their weight, height and skin folds were measured, and information gathered about sport activities, TV watching, and parental data (weight, height, educational status and occupation).

Multivariate models were used to analyse the effect of these variables on the weight status and on the body fat.

#### RESULTS:

Three hundred and twenty-two children were included. Prevalence of obesity was 5.6% and that of any degree of overweight was 28.9%. Overweight was not related to educational status or occupation, but it was more often found in males (OR 2.07; 95% CI; 1.12-3.83), in children whose father (OR 2.18; 95% CI; 1.14-4.15) or mother (OR 2.17; 95% CI; 1.18-3.98) were overweight, and in those who spent  $\geq 2$  h daily watching TV (OR 2.72; 95% CI; 1.43-5.19), and it was less frequent in 14 than in 11-year old children (OR 0.42; 95% CI; 0.23-0.78). Obesity was only related to a low educational level (OR 19.45; 95% CI; 1.95-193.82).

#### CONCLUSIONS:

Overweight is related with genetic-environmental factors and the modern society way of life, and occurs across the whole social spectrum. But obesity is strongly related to a low educational status of the family, and it still is a marker for health disparities.

**973: Enes CC, Slater B. [Obesity in adolescence and its main determinants]. Rev Bras Epidemiol. 2010 Mar;13(1):163-71. Review. Portuguese. PubMed PMID: 20683564.**

#### Abstract

The objective of this paper was to discuss the main environmental factors determining overweight and obesity in adolescents, based on a critical review of the subject. The main national and international health databases, Medline/PubMed, Web of Science, SciELO, and Lilacs were searched including publications from 1975 to 2009. The following key-words and respective MeSH terms were used: "overweight", "obesity", "adolescence", "adolescents", "physical activity", "food intake". The findings showed that changes in dietary patterns in recent decades as the increased consumption of simple sugars, processed foods, and inadequate intake of fruits and vegetables have contributed directly to the weight gain in this population. In addition, the progressive reduction in physical activity associated with increased time spent with low-intensity activities like television viewing, playing computer and video games has contributed to the weight gain of adolescents. In conclusion, variables related to dietary pattern and physical activity should be prioritized interventions directed toward the prevention of obesity among adolescents.

**974: Arterburn DE, Alexander GL, Calvi J, Coleman LA, Gillman MW, Novotny R, Quinn VP, Rukstalis M, Stevens VJ, Taveras EM, Sherwood NE. Body mass index measurement and obesity prevalence in ten U.S. health plans. Clin Med Res. 2010 Dec;8(3-4):126-30. doi: 10.3121/cmr.2010.880. Epub 2010 Aug 3. PubMed PMID: 20682758; PubMed Central PMCID: PMC3006580.**

#### Abstract

##### OBJECTIVE:

The objective of this study was to examine the frequency of body mass index (BMI) measurement before the implementation of two new Healthcare Effectiveness Data and Information Set (HEDIS) performance measures for obesity that require U.S. health plans to annually report the frequency of BMI and BMI percentile measurement among all adults and children who had at least one outpatient visit during the past two years.

##### DESIGN:

Cross-sectional study.

##### SETTING:

A consortium of ten U.S. health plans and care delivery systems from the Health Maintenance Organization Research Network, which together provide care to more than 6.5 million adults and children.

**PARTICIPANTS:**

Children and adults, age 2 years and older, who were continuously enrolled in one of ten U.S. health plans for at least one full year from 2005 to 2006.

**METHODS:**

We extracted available anthropometric data for 3.7 million adults and 1.2 million children with at least one visit captured from ten electronic medical record databases from 2005 to 2006.

**RESULTS:**

We found that the availability of BMI measurements for adults ranged widely across health plans from 28% to 88%, and availability of BMI percentiles for children ranged from 21% to 81%. Among adults and children with BMI measures in these ten health plans, the overall prevalence of overweight and obesity were very similar to those reported in the 2005 to 2006 U.S. national surveys that used measured heights and weights.

**CONCLUSION:**

The newly approved HEDIS performance measures likely represent an important step in addressing the quality of obesity care in the United States. The current study demonstrates that these HEDIS measures are achievable, especially among health plans that have implemented electronic medical records. Future research should assess the relationship between BMI assessment, provider counseling and treatment practices, and long-term changes in obesity rates among different population groups.

**975: Keith SW, Fontaine KR, Pajewski NM, Mehta T, Allison DB. Use of self-reported height and weight biases the body mass index-mortality association. *Int J Obes (Lond)*. 2011 Mar;35(3):401-8. doi: 10.1038/ijo.2010.148. Epub 2010 Aug 3. PubMed PMID: 20680015; PubMed Central PMCID: PMC3040787.**

**Abstract**

**BACKGROUND:**

Many large-scale epidemiological data sources used to evaluate the body mass index (BMI: kg/m<sup>2</sup>) mortality association have relied on BMI derived from self-reported height and weight. Although measured BMI (BMI(M)) and self-reported BMI (BMI(SR)) correlate highly, self-reports are systematically biased.

**OBJECTIVE:**

To rigorously examine how self-reporting bias influences the association between BMI and mortality rate.

**SUBJECTS:**

Samples representing the US non-institutionalized civilian population.

**DESIGN AND METHODS:**

National Health and Nutrition Examination Survey data (NHANES II: 1976-80; NHANES III: 1988-94) contain BMI(M) and BMI(SR). We applied Cox regression to estimate mortality hazard ratios (HRs) for BMI(M) and BMI(SR) categories, respectively, and compared results. We similarly analyzed subgroups of ostensibly healthy never-smokers.

**RESULTS:**

Misclassification by BMI(SR) among the underweight and obesity ranged from 30-40% despite high correlations between BMI(M) and BMI(SR) ( $r > 0.9$ ). The reporting bias was moderately correlated with BMI(M) ( $r > 0.35$ ), but not BMI(SR) ( $r < 0.15$ ). Analyses using BMI(SR) failed to detect six of eight significant mortality HRs detected by BMI(M). Significantly biased HRs were detected in the NHANES II full data set ( $\chi^2 = 12.49$ ;  $P = 0.01$ ) and healthy subgroup ( $\chi^2 = 9.93$ ;  $P = 0.04$ ), but not in the NHANES III full data set ( $\chi^2 = 5.63$ ;  $P = 0.23$ ) or healthy subgroup ( $\chi^2 = 1.52$ ;  $P = 0.82$ ).

**CONCLUSIONS:**

BMI(SR) should not be treated as interchangeable with BMI(M) in BMI mortality analyses. Bias and inconsistency introduced by using BMI(SR) in place of BMI(M) in BMI mortality estimation and hypothesis tests may account for important discrepancies in published findings.

**976: Cesani MF, Luis MA, Torres MF, Castro LE, Quintero FA, Luna ME, Bergel ML, Oyhenart EE. [Overweight and obesity in schoolchildren from Brandsen and its relationship with socio-environmental characteristics of residence]. Arch Argent Pediatr. 2010 Aug;108(4):294-302. doi: 10.1590/S0325-00752010000400002. Spanish. PubMed PMID: 20672186.**

**Abstract**

**INTRODUCTION:**

Environmental factors play an important role in the etiology of overweight (S) and obesity (O), constituting the "obesogenic environment". The objectives of the present study are: a) to estimate overweight and obesity prevalences in 3 to 14 years-old schoolchildren from Brandsen (Provincia de Buenos Aires), and b) to analyze the probability of occurrence of overweight and obesity in relation to the socioenvironmental conditions of resident.

**POPULATION AND METHODS:**

Weight and height were measured in 989 boys and girls aged 3 to 14 years. S and O were estimated following the criteria suggested by the International Obesity Task Force. The prevalences of S and O were compared between genders and ages. The socio- environmental information was gathered according to surveys and processed by Categorical Principal Components Analysis (catPCA). Generalized Linear Model (link logit) against the variables S and O was employed.

**RESULTS:**

S was found in 15,8% of schoolchildren and O in 7,2%. None significant statistics differences between both genders and ages, were found. The first axis of the catPCA discriminated the cases that presented better socio-environmental conditions with positive values and those with more unfavorable conditions with negatives values. Higher probability of obese children was associated with better socio-environmental conditions (higher educational level of parents, higher income and better access to public services), and higher probability of overweight children was associated with less favored environments.

**CONCLUSIONS:**

The schoolchildren population of Brandsen presents high overweight and obesity prevalences. The chance of presenting overweight is higher in children from households with adverse socio-environmental conditions. On the contrary, obese children are to be more found in households which have more favorable socio-environmental conditions.

**977: Wilson AC, Samuelson B, Palermo TM. Obesity in children and adolescents with chronic pain: associations with pain and activity limitations. Clin J Pain. 2010 Oct;26(8):705-11. doi: 10.1097/AJP.0b013e3181e601fa. PubMed PMID: 20664337; PubMed Central PMCID: PMC2939953.**

Abstract

OBJECTIVES:

Obesity is associated with functional disability in adults with chronic pain, but less is known about obesity among youth with chronic pain. The purpose of this study was to (1) identify the prevalence of overweight and obesity in children and adolescents receiving treatment for chronic pain, and (2) examine associations between Body Mass Index (BMI), pain intensity, and activity limitations in this population.

METHODS:

Data were obtained from records of 118 patients, ages 8 to 18, seen in a multidisciplinary pediatric pain clinic. Information about age, sex, pain problem, duration and severity, medical diagnoses, medications, height, and weight were collected from medical records and intake questionnaires. The CDC's pediatric BMI calculator was used to obtain percentile and category (underweight, healthy weight, overweight, obese). Children and parents completed the Child Activity Limitations Interview-21 (CALI-21), a self-report measure of activity limitations.

RESULTS:

A significantly higher rate of overweight and obesity was observed among youth with chronic pain compared with a normative sample. BMI percentile was predictive of concurrent limitations in vigorous activities, according to parent report.

DISCUSSION:

BMI percentile and weight status may contribute to activity limitations among children and adolescents with chronic pain. Weight status is an important factor to consider in the context of treatment of chronic pain and disability in children and adolescents.

**978: Black MM, Hager ER, Le K, Anliker J, Arteaga SS, Diclemente C, Gittelsohn J, Magder L, Papas M, Snitker S, Treuth MS, Wang Y. Challenge! Health promotion/obesity prevention mentorship model among urban, black adolescents. Pediatrics. 2010 Aug;126(2):280-8. doi: 10.1542/peds.2009-1832. Epub 2010 Jul 26. PubMed PMID: 20660556.**

Abstract

OBJECTIVES:

The objective of this study was to evaluate a 12-session home/community-based health promotion/obesity prevention program (Challenge!) on changes in BMI status, body composition, physical activity, and diet.

METHODS:

A total of 235 black adolescents (aged 11-16 years; 38% overweight/obese) were recruited from low-income urban communities. Baseline measures included weight, height, body composition, physical activity (PA), and diet. PA was measured by 7-day play-equivalent physical activity (> or =1800 activity counts per minute). Participants were randomly assigned to health promotion/obesity prevention that is anchored in social cognitive theory and motivational interviewing and was delivered by college-aged black mentors or to control. Postintervention (11 months) and delayed follow-up (24

months) evaluations were conducted. Longitudinal analyses used multilevel models with random intercepts and generalized estimating equations, controlling for baseline age/gender. Stratified analyses examined baseline BMI category.

**RESULTS:**

Retention was 76% over 2 years; overweight/obese status declined 5% among intervention adolescents and increased 11% among control adolescents. Among overweight/obese youth, the intervention reduced total percentage of body fat and fat mass and increased fat-free mass at delayed follow-up and increased play-equivalent physical activity at postintervention but not at delayed follow-up. Intervention adolescents declined significantly more in snack/dessert consumption than control adolescents at both follow-up evaluations.

**CONCLUSIONS:**

At postintervention, there were intervention effects on diet and PA but not BMI category or body composition. At delayed follow-up, dietary changes were sustained and the intervention prevented an increase in BMI category. Body composition was improved for overweight/obese youth. Changes in body composition follow changes in diet and PA and may not be detected immediately after intervention.

**979: Davis CL, Cooper M. The state of U.S. living kidney donors. Clin J Am Soc Nephrol. 2010 Oct;5(10):1873-80. doi: 10.2215/CJN.01510210. Epub 2010 Jul 15. PubMed PMID: 20634322; PubMed Central PMCID: PMC2974389.**

**Abstract**

**BACKGROUND AND OBJECTIVES:**

Increasing living kidney donation mandates ongoing assessment of living donors for future health risks and revision of national health policy.

**DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS:**

Living kidney donors as reported to the Organ Procurement and Transplant Network database from January 1988 through December 2008 were reviewed for minor medical abnormalities, presence of donor health care coverage, and occurrence of surgical complications and death.

**RESULTS:**

At donation in 2008, 19.5% were obese, 2.0% had a history of hypertension, and 3.5% had proteinuria. The median estimated GFR of living donors was 92.2 ml/min. Additionally, 12.2% of donors were reported not to have health insurance at the time of donation. By racial background, 14.9% of black and 17.0% of Hispanic donors did not have insurance at donation. Perioperative complications included blood transfusion (0.4%), reoperation (0.5%), and vascular complications (0.2%). Death occurred within 30 days of donation in 0.03% donating between October 1999 and December 2008. During those same years, overall donor death was 2.8%.

**CONCLUSIONS:**

Almost one quarter of living donors have medical conditions that may be associated with future health risk. Close follow-up and a registry of these donors are necessary. Only then will we be able to inform prospective living donors most accurately of the real risk of donation on their health and survival. Additionally, these data speak to the need for a national discussion on the provision of health insurance for living donors.

**980: Duncan AE, Lessov-Schlaggar CN, Nelson EC, Pergadia ML, Madden PA, Heath AC. Body mass index and regular smoking in young adult women. *Addict Behav.* 2010 Nov;35(11):983-8. doi: 10.1016/j.addbeh.2010.06.014. Epub 2010 Jun 23. PubMed PMID: 20634004; PubMed Central PMCID: PMC3071024.**

Abstract

Little is known about the relationship between relative body weight and transition from experimentation to regular smoking in young adult women. In the current study, data from 2494 participants in wave 4 of the Missouri Adolescent Female Twin Study (aged 18-29years) who reported ever smoking a cigarette were analyzed using logistic regression. Body mass index (BMI) at time of interview was categorized according to CDC adult guidelines, and regular smoking was defined as having ever smoked 100 or more cigarettes and having smoked at least once a week for two months in a row. Since the OR's for the overweight and obese groups did not differ significantly from one another in any model tested, these groups were combined. Forty-five percent of women who had ever smoked had become regular smokers. Testing of interactions between potential covariates and levels of the categorical BMI variable revealed a significant interaction between overweight/obesity and childhood sexual abuse (CSA;  $p < 0.001$ ) associated with regular smoking. Among women reporting CSA, the association between overweight/obesity and having become a regular smoker was negative ( $n=374$ ;  $OR=0.48$ , 95% CI: 0.28-0.81). Both underweight and overweight/obesity were positively associated with transition to regular smoking among women who did not report CSA ( $n=2076$ ;  $OR=1.57$ , 95% CI: 1.05-2.35 and  $OR=1.73$ , 95% CI: 1.35-2.20, respectively). These results suggest that experiencing CSA alters the association between BMI and regular smoking in women who have experimented with cigarettes.

**981: Bullock SL, Craypo L, Clark SE, Barry J, Samuels SE. Food and beverage environment analysis and monitoring system: a reliability study in the school food and beverage environment. *J Am Diet Assoc.* 2010 Jul;110(7):1084-8. doi: 10.1016/j.jada.2010.04.002. PubMed PMID: 20630167; PubMed Central PMCID: PMC2905385.**

Abstract

States and school districts around the country are developing policies that set nutrition standards for competitive foods and beverages sold outside of the US Department of Agriculture's reimbursable school lunch program. However, few tools exist for monitoring the implementation of these new policies. The objective of this research was to develop a computerized assessment tool, the Food and Beverage Environment Analysis and Monitoring System (FoodBEAMS), to collect data on the competitive school food environment and to test the inter-rater reliability of the tool among research and nonresearch professionals. FoodBEAMS was used to collect data in spring 2007 on the competitive foods and beverages sold in 21 California high schools. Adherence of the foods and beverages to California's competitive food and beverage nutrition policies for schools (Senate Bills 12 and 965) was determined using the data collected by both research and nonresearch professionals. The inter-rater reliability between the data collectors was assessed using the intraclass correlation coefficient. Researcher vs researcher and researcher vs nonresearcher inter-rater reliability was high for both foods and beverages, with intraclass correlation coefficients ranging from .972 to .987. Results of this study provide evidence that FoodBEAMS is a promising tool for assessing and



monitoring adherence to nutrition standards for competitive foods sold on school campuses and can be used reliably by both research and nonresearch professionals.

**982: Ritchie SK, Murphy EC, Ice C, Cottrell LA, Minor V, Elliott E, Neal W. Universal versus targeted blood cholesterol screening among youth: The CARDIAC project. *Pediatrics*. 2010 Aug;126(2):260-5. doi: 10.1542/peds.2009-2546. Epub 2010 Jul 12. PubMed PMID: 20624798.**

Abstract

OBJECTIVES:

The goal was to determine the sensitivity and specificity of family history in identifying children with severe or genetic hyperlipidemias in a rural, predominantly white population.

METHODS:

A total of 20,266 fifth-grade children in West Virginia, from the Coronary Artery Risk Detection in Appalachian Communities (CARDIAC) Project, who completed a family history and fasting lipid profile were used in analyses. The relationship between hyperlipidemia and family history was determined, and the use of family history to predict the need for pharmacologic treatment among children with dyslipidemia was evaluated.

RESULTS:

A total of 71.4% of children met the National Cholesterol Education Program (NCEP) guidelines for cholesterol screening on the basis of positive family history. Of those, 1204 (8.3%) were considered to have dyslipidemia (low-density lipoprotein  $\geq$  130 mg/dL), and 1.2% of these children with dyslipidemia warranted possible pharmacologic treatment (low-density lipoprotein  $\geq$  160 mg/dL). Of the 28.6% who did not have a positive family history (did not meet NCEP guidelines), 548 (9.5%) had dyslipidemia, 1.7% of whom warranted pharmacologic treatment. Sensitivity and specificity data demonstrated that family history does not provide a strong indication as to whether pharmacologic treatment may be warranted.

CONCLUSIONS:

Results indicate that the use of family history to determine the need for cholesterol screening in children would have (1) missed many with moderate dyslipidemia and (2) failed to detect a substantial number with likely genetic dyslipidemias that would require pharmacologic treatment. The use of universal cholesterol screening would identify all children with severe dyslipidemia, allowing for proper intervention and follow-up and leading to the prevention of future atherosclerotic disease.

**983: Eiðsdóttir SP, Kristjánsson AL, Sigfúsdóttir ID, Garber CE, Allegrante JP. Trends in body mass index among Icelandic adolescents and young adults from 1992 to 2007. *Int J Environ Res Public Health*. 2010 May;7(5):2191-207. doi: 10.3390/ijerph7052191. Epub 2010 May 4. PubMed PMID: 20623019; PubMed Central PMCID: PMC2898044.**

Abstract

Trends in body mass index (BMI) among 51,889 14- to 20-year-old Icelandic adolescents and young adults were examined using data from cross-sectional population surveys conducted from 1992 to 2007. Prevalence of overweight increased for both genders in all age groups, except for 14- and 20-year-old girls. Obesity prevalence increased among boys in all age groups, except for 16-year-olds,

and among 15- and 20-year-old girls. The largest increase in obesity rates among both genders was found in the oldest age group. Moreover, not only has the prevalence of obesity increased, but also the extent of obesity has grown more severe among 15- and 17-year-olds boys and among girls in the oldest age group.

KEYWORDS:

Iceland; adolescents; body mass index; obesity; overweight; prevalence.

**984: Barnett TA, O'Loughlin J, Sabiston CM, Karp I, Bélanger M, Van Hulst A, Lambert M. Teens and screens: the influence of screen time on adiposity in adolescents. Am J Epidemiol. 2010 Aug 1;172(3):255-62. doi: 10.1093/aje/kwq125. Pub 2010 Jul 8. PubMed PMID: 20616201.**

Abstract

The effect of screen time during secondary school on percent body fat was examined in a cohort of 744 Canadian adolescents aged 12-13 years at baseline. Participants completed self-reported questionnaires on television viewing and computer use in 19 survey cycles over 57 months from 1999 to 2005. Triceps skinfold thickness and subscapular skinfold thickness were measured in survey cycles 1 and 19. Four screen-time trajectory groups identified in growth mixture modeling included steady-low screen time (73% of the sample), steady-high (10%), increasers (9%), and decreasers (8%). The effect of screen-time trajectory on percent body fat at survey cycle 19 was modeled in boys and girls separately by using linear regression, adjusting for baseline percent body fat and physical activity. Relative to that of steady-low screen-time trajectory group boys, percent body fat was 2.9 (95% confidence interval: 0.7, 5.0) and 2.4 (95% confidence interval: 0.5, 4.2) percentage units higher on average among "increasers" and "steady-high" trajectory group boys, respectively. There was no evidence that screen time has an effect on percent body fat in girls overall, although physical activity modified the association between screen time and percent body fat in both sexes. Efforts to prevent obesity in youth should emphasize reducing screen time.

**985: Akgun C, Dogan M, Akbayram S, Tuncer O, Peker E, Taskin G, Arslan S, Arslan D. The incidence of asymptomatic hypertension in school children. J Nippon Med Sch. 2010 Jun;77(3):160-5. PubMed PMID: 20610900.**

Abstract

BACKGROUND:

Although hypertension is a well-documented risk factor for cardiovascular diseases, including myocardial infarction and stroke, in adults, only recently has knowledge about childhood hypertension increased significantly.

AIM:

To determine the incidence of asymptomatic hypertension in school-age children.

SUBJECTS AND METHODS:

Children in primary school were chosen with a randomized sampling method. During measurement of blood pressure, a calm, comfortable setting was provided. Blood pressure measurements were performed by only 1 researcher. For accurate measurement of blood pressure, recommended standards were followed.

RESULTS:

A total of 1,963 children were included in the study. The incidence of systolic hypertension and diastolic hypertension were 7% and 2%, respectively. Obesity was present in 10.5% girls with hypertension and 13.9% of boys with hypertension.

**CONCLUSION:**

Our findings indicate that hypertension is an important health problem in children, and its prevalence is quite high. Blood pressure measurements must be a part of routine clinical examinations. Further studies should be performed in high-risk populations to prevent hypertension and to establish methods of early diagnosis and treatment in children.

**986: Nafiu OO, Burke C, Lee J, Voepel-Lewis T, Malviya S, Tremper KK. Neck circumference as a screening measure for identifying children with high body mass index. *Pediatrics*. 2010 Aug;126(2):e306-10. doi: 10.1542/peds.2010-0242. Epub 2010 Jul 5. PubMed PMID: 20603254.**

**Abstract**

**OBJECTIVES:**

Overweight in children is most commonly described by using BMI. Because BMI does not adequately describe regional (central) adiposity, other indices of body fatness are being explored. Neck circumference (NC) is positively associated with obstructive sleep apnea, diabetes, and hypertension in adults. NC also has positive correlation with BMI in adults. The possible role of NC in screening for high BMI in children is not well characterized. The aims of this investigation were to examine the correlation between BMI and NC in children and to determine the best NC cutoff that identifies children with high BMI.

**METHODS:**

Children who were aged 6 to 18 years and undergoing elective noncardiac surgeries were the subjects of this study. Trained research assistants collected clinical and anthropometric data from all patients. We calculated Pearson correlation coefficients between NC and other indices of obesity. We then determined by receiver operating characteristic analyses the optimal NC cutoff for identifying children with high BMI.

**RESULTS:**

Among 1102 children, 52% were male. NC was significantly correlated with age, BMI, and waist circumference in both boys and girls, although the correlation was stronger in older children. Optimal NC cutoff indicative of high BMI in boys ranged from 28.5 to 39.0 cm. Corresponding values in girls ranged from 27.0 to 34.6 cm.

**CONCLUSIONS:**

NC is significantly correlated with indices of adiposity and can reliably identify children with high BMI. NC is a simple technique that has good interrater reliability and could be used to screen for overweight and obesity in children.

**987: Taanila H, Suni J, Pihlajamäki H, Mattila VM, Ohrankämnen O, Vuorinen P, Parkkari J. Aetiology and risk factors of musculoskeletal disorders in physically active conscripts: a follow-up study in the Finnish Defence Forces. BMC Musculoskelet Disord. 2010 Jul 5;11:146. doi: 10.1186/1471-2474-11-146. PubMed PMID: 20602765; PubMed Central PMCID: PMC2911403.**

Abstract

BACKGROUND:

Musculoskeletal disorders (MSDs) are the main reason for morbidity during military training. MSDs commonly result in functional impairment leading to premature discharge from military service and disabilities requiring long-term rehabilitation. The purpose of the study was to examine associations between various risk factors and MSDs with special attention to the physical fitness of the conscripts.

METHODS:

Two successive cohorts of 18 to 28-year-old male conscripts (N = 944, median age 19) were followed for six months. MSDs, including overuse and acute injuries, treated at the garrison clinic were identified and analysed. Associations between MSDs and risk factors were examined by multivariate Cox's proportional hazard models.

RESULTS:

During the six-month follow-up of two successive cohorts there were 1629 MSDs and 2879 health clinic visits due to MSDs in 944 persons. The event-based incidence rate for MSD was 10.5 (95% confidence interval (CI): 10.0-11.1) per 1000 person-days. Most MSDs were in the lower extremities (65%) followed by the back (18%). The strongest baseline factors associated with MSDs were poor result in the combined outcome of a 12-minute running test and back lift test (hazard ratio (HR) 2.9; 95% CI: 1.9-4.6), high waist circumference (HR 1.7; 95% CI: 1.3-2.2), high body mass index (HR 1.8; 95% CI: 1.3-2.4), poor result in a 12-minute running test (HR 1.6; 95% CI: 1.2-2.2), earlier musculoskeletal symptoms (HR 1.7; 95% CI: 1.3-2.1) and poor school success (educational level and grades combined; HR 2.0; 95% CI: 1.3-3.0). In addition, risk factors of long-term MSDs ( $\geq 10$  service days lost due to one or several MSDs) were analysed: poor result in a 12-minute running test, earlier musculoskeletal symptoms, high waist circumference, high body mass index, not belonging to a sports club and poor result in the combined outcome of the 12-minute running test and standing long jump test were strongly associated with long-term MSDs.

CONCLUSIONS:

The majority of the observed risk factors are modifiable and favourable for future interventions. An appropriate intervention based on the present study would improve both aerobic and muscular fitness prior to conscript training. Attention to appropriate waist circumference and body mass index would strengthen the intervention. Effective results from well-planned randomised controlled studies are needed before initiating large-scale prevention programmes in a military environment.

**988: Kosa JL, Guendelman S, Pearl M, Graham S, Abrams B, Kharrazi M. The association between pre-pregnancy BMI and preterm delivery in a diverse southern California population of working women. *Matern Child Health J.* 2011 Aug;15(6):772-81. doi: 10.1007/s10995-010-0633-4. PubMed PMID: 20602159; PubMed Central PMCID: PMC3131509.**

Abstract

Whereas preterm birth has consistently been associated with low maternal pre-pregnancy weight, the relationship with high pre-pregnancy weight has been inconsistent. We quantified the pre-pregnancy BMI-preterm delivery (PTD) relationship using traditional BMI categories (underweight, normal weight, overweight and obese) as well as continuous BMI. Eligible women participated in California's statewide prenatal screening program, worked during pregnancy, and delivered a live singleton birth in Southern California in 2002-2003. The final analytic sample included 354 cases delivering at <37 weeks, as identified by clinical estimate of gestational age from screening records, and 710 term normal-birthweight controls. Multivariable logistic regression models using categorical BMI levels and continuous BMI were compared. In categorical analyses, PTD was significantly associated with pre-pregnancy underweight only. Nonparametric local regression revealed a V-shaped relationship between continuous BMI and PTD, with minimum risk at the high end of normal, around 24 kg/m<sup>2</sup>. The odds ratio (OR) for PTD associated with low BMI within the normal range (19 kg/m<sup>2</sup>) was 2.84 (95% CI = 1.61-5.01); ORs for higher BMI in the overweight (29 kg/m<sup>2</sup>) and obese (34 kg/m<sup>2</sup>) ranges were 1.42 (95% CI = 1.10-1.84) and 2.01 (95% CI = 1.20-3.39) respectively, relative to 24 kg/m<sup>2</sup>. BMI categories obscured the preterm delivery risk associated with low-normal, overweight, and obese BMI. We found that higher BMI up to around 24 kg/m<sup>2</sup> is increasingly protective of preterm delivery, beyond which a higher body mass index becomes detrimental. Current NHLBI/WHO BMI categories may be inadequate for identifying women at higher risk for PTD.

**989: Halloran DR, Wall TC, Guild C, Caughey AB. Effect of revised IOM weight gain guidelines on perinatal outcomes. *J Matern Fetal Neonatal Med.* 2011 Mar;24(3):397-401. doi: 10.3109/14767058.2010.497883. Epub 2010 Jul 1. PubMed PMID: 20593973; PubMed Central PMCID: PMC3771357.**

Abstract

OBJECTIVE:

We sought to examine perinatal outcomes in women with a body mass index (BMI) of 25 kg/m<sup>2</sup> comparing those whose weight gain met 2009 IOM guidelines to women meeting 1990 IOM guidelines.

METHODS:

This is a retrospective cohort study utilizing birth records linked to hospital discharge data for all term, singleton infants born to overweight, Missouri residents (2000-2006) with a BMI of 25 kg/m<sup>2</sup>. We excluded congenital anomalies, mothers with diabetes, hypertension, or previous cesarean delivery.

RESULTS:

Fourteen thousand nine hundred fifty-five women gained 25-35 lbs (1990 guidelines); 1.6% delivered low birth weight (LBW) infants and 1.1% delivered macrosomic infants. Eight thousand three hundred fifty women gained 15-25 lbs (2009 guidelines); 3.4% delivered LBW infants and 0.6% delivered

macrosomic infants. Women who gained 15-25 lbs were 1.99 (95% CI 1.67, 2.38) times more likely to have a LBW infant and 0.59 (95% CI 0.40, 0.76) times less likely to deliver a macrosomic infant.

**CONCLUSION:**

Limiting weight gain in women with a BMI of 25 kg/m<sup>2</sup>, per the 2009 guidelines, increases the risk of LBW deliveries and decreases the risk of macrosomia but does not reduce associated adverse perinatal outcomes. Further studies should explore the optimal weight gain to reduce these outcomes.

**990: Bacha F, Lee S, Gungor N, Arslanian SA. From pre-diabetes to type 2 diabetes in obese youth: pathophysiological characteristics along the spectrum of glucose dysregulation. Diabetes Care. 2010 Oct;33(10):2225-31. doi: 10.2337/dc10-0004. Epub 2010 Jun 30. PubMed PMID: 20592052; PubMed Central PMCID: PMC2945164.**

**Abstract**

**OBJECTIVE:**

Impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are considered pre-diabetes states. There are limited data in pediatrics in regard to their pathophysiology. We investigated differences in insulin sensitivity and secretion among youth with IFG, IGT, and coexistent IFG/IGT compared with those with normal glucose tolerance (NGT) and type 2 diabetes.

**RESEARCH DESIGN AND METHODS:**

A total of 24 obese adolescents with NGT, 13 with IFG, 29 with IGT, 11 with combined IFG/IGT, and 30 with type 2 diabetes underwent evaluation of hepatic glucose production ([6,6-(2)H(2)]glucose), insulin-stimulated glucose disposal (R(d), euglycemic clamp), first- and second-phase insulin secretion (hyperglycemic clamp), body composition (dual-energy X-ray absorptiometry), abdominal adiposity (computed tomography), and substrate oxidation (indirect calorimetry).

**RESULTS:**

Adolescents with NGT, pre-diabetes, and type 2 diabetes had similar body composition and abdominal fat distribution. R(d) was lower (P = 0.009) in adolescents with type 2 diabetes than in those with NGT. Compared with adolescents with NGT, first-phase insulin was lower in those with IFG, IGT, and IFG/IGT with further deterioration in those with type 2 diabetes (P < 0.001), and  $\beta$ -cell function relative to insulin sensitivity (glucose disposition index [GDI]) was also lower in those with IFG, IGT, and IFG/IGT (40, 47, and 47%, respectively), with a further decrease (80%) in those with type 2 diabetes (P < 0.001). GDI was the major determinant of fasting and 2-h glucose levels.

**CONCLUSIONS:**

Obese adolescents who show signs of glucose dysregulation, including abnormal fasting glucose, glucose intolerance or both, are more likely to have impaired insulin secretion rather than reduced insulin sensitivity. Given the impairment in insulin secretion, they are at high risk for progression to type 2 diabetes. Further deterioration in insulin sensitivity or secretion may enhance the risk for this progression.

**991: Perry MC, Straker LM, Oddy WH, O'Sullivan PB, Smith AJ. Spinal pain and nutrition in adolescents--an exploratory cross-sectional study. BMC Musculoskeletal Disord. 2010 Jun 30;11:138. doi: 10.1186/1471-2474-11-138. PubMed PMID: 20587071; PubMed Central PMCID: PMC2910660.**

Abstract

BACKGROUND:

Spinal pain is an important health issue for adolescents resulting in functional limitations for many and increasing the risk of spinal pain in adulthood. Whilst human and animal studies suggest nutrition could influence spinal pain, this has not been investigated in adolescents. The objective of this exploratory cross sectional study was to evaluate associations between diet and adolescent spinal pain.

METHODS:

This study surveyed the spinal pain (neck and back) and nutrition (specific nutrients, broad food groups, diet quality and dietary pattern) of 1424 male and female adolescents at 14 years of age, in Western Australia.

RESULTS:

Back or neck pain were experienced by around half of the adolescents, with females more likely to experience spinal pain. Nutrition differed between sexes and deviated from optimal intakes. Vitamin B12, eggs, cereals and meat consumption were related to spinal pain in sex specific multivariate analyses including primary carer education level and adolescent waist girth and smoking.

CONCLUSIONS:

The findings of this study suggest that certain aspects of diet may have an association with spinal pain in adolescence.

**992: D'Adamo E, Northrup V, Weiss R, Santoro N, Pierpont B, Savoye M, O'Malley G, Caprio S. Ethnic differences in lipoprotein subclasses in obese adolescents: importance of liver and intraabdominal fat accretion. Am J Clin Nutr. 2010 Sep;92(3):500-8. doi: 10.3945/ajcn.2010.29270. Epub 2010 Jun 23. PubMed PMID: 20573788; PubMed Central PMCID: PMC2921534.**

Abstract

BACKGROUND:

Recently, the deleterious metabolic effects of visceral fat [visceral adipose tissue (VAT)] deposition were challenged, and liver fat emerged as having a key independent role in the modulation of cardiometabolic risk factors.

OBJECTIVE:

We explored the relation between liver fat content and VAT in 3 ethnic groups and evaluated whether the ethnic differences in the distributions of lipoprotein concentrations and sizes were associated with the hepatic fat fraction (HFF), VAT, or both.

DESIGN:

In a multiethnic group of 33 white, 33 African American, and 33 Hispanic obese adolescents with normal glucose tolerance, we measured VAT and HFF by using magnetic resonance imaging. Fasting lipoprotein particle number and size were measured by using nuclear magnetic resonance spectroscopy. To assess the association between VAT and HFF, we categorized VAT into tertiles.

RESULTS:

In each ethnic group, HFF values increased between successive tertiles of VAT. After multivariate adjustment and in comparison with the 2 other groups, African Americans showed lower triglyceride (P = 0.001) and higher HDL (P = 0.03) concentrations, lower concentrations of total (P = 0.007), large (P = 0.005), and medium (P = 0.0001) VLDL, but higher concentrations of large HDL particles (P = 0.01) and larger HDL (P = 0.005). In multivariate linear models, independent of ethnicity, VAT was a significant predictor for large HDL (P = 0.003) and total small LDL (P = 0.001) concentrations, whereas HFF significantly predicted large VLDL (P = 0.03) concentrations.

**CONCLUSION:**

Liver fat accretion, independent of VAT, may play a role in the ethnic differences seen in large VLDL particles. This trial was registered at [clinicaltrials.gov](http://clinicaltrials.gov) as NCT00536250.

**993: Hodgkin E, Hamlin MJ, Ross JJ, Peters F. Obesity, energy intake and physical activity in rural and urban New Zealand children. Rural Remote Health. 2010 Apr-Jun;10(2):1336. Epub 2010 Jun 15. PubMed PMID: 20572744.**

**Abstract**

**INTRODUCTION:**

Concerns have been raised about childhood obesity and its long-term impact on the health of children. The objective of this study was to investigate rural-urban differences in body composition, energy intake, physical activity and screen time in New Zealand children.

**METHODS:**

This study reports on data collected in a large national cross-sectional population survey of 5-15 year-old New Zealanders (the 2002 National Children's Nutrition Survey, CNS02). Schools were randomly selected to participate, as were pupils from the selected schools. Measurements of body composition were taken at school. Energy intake, physical activity and screen time information were taken from interviews and questionnaires undertaken by the child and parent/guardian. Means and standard deviations were calculated in the Statistical Analysis System (SAS Inst; Cary, NC, USA). Differences between groups were analysed using Proc Mixed after adjusting for socio-economic status and ethnicity. Data indicating differences between groups were presented as least square means +/- 95% confidence limits (CL); unless otherwise stated, and the alpha was set at  $p < 0.05$ .

**RESULTS:**

Rural children had a significantly lower BMI, smaller waist circumferences and thinner skinfold measurements than urban children. The differences in skinfold thicknesses remained after controlling for ethnicity and socioeconomic status. Furthermore, urban boys were 1.3 times more likely to be overweight or obese than rural boys (95% confidence limits 1.1-1.6,  $p < 0.01$ ) and urban girls were 1.4 times more likely to be overweight or obese than rural girls (95% CL 1.2-1.7,  $p < 0.01$ ). There was no significant difference in the energy intake per day of rural and urban children. Similarly, there was no significant difference in the frequency of bouts of physical activity undertaken by rural and urban children.

**CONCLUSION:**

Differences were found in body composition with rural children being leaner than urban children. This finding is different from other Western countries and may be due to differences in the physical and social environment in New Zealand. More research is required to understand these potential environmental rural-urban differences.



**994: Sutin AR, Costa PT Jr, Uda M, Ferrucci L, Schlessinger D, Terracciano A. Personality and metabolic syndrome. Age (Dordr). 2010 Dec;32(4):513-9. doi: 10.1007/s11357-010-9153-9. Epub 2010 Jun 22. PubMed PMID: 20567927; PubMed Central PMCID: PMC2980597.**

Abstract

The prevalence of metabolic syndrome has paralleled the sharp increase in obesity. Given its tremendous physical, emotional, and financial burden, it is of critical importance to identify who is most at risk and the potential points of intervention. Psychological traits, in addition to physiological and social risk factors, may contribute to metabolic syndrome. The objective of the present research is to test whether personality traits are associated with metabolic syndrome in a large community sample. Participants (N = 5,662) from Sardinia, Italy, completed a comprehensive personality questionnaire, the NEO-PI-R, and were assessed on all components of metabolic syndrome (waist circumference, triglycerides, high-density lipoprotein cholesterol, blood pressure, and fasting glucose). Logistic regressions were used to predict metabolic syndrome from personality traits, controlling for age, sex, education, and current smoking status. Among adults over age 45 (n = 2,419), Neuroticism and low Agreeableness were associated with metabolic syndrome, whereas high Conscientiousness was protective. Individuals who scored in the top 10% on Conscientiousness were approximately 40% less likely to have metabolic syndrome (OR = 0.61, 95% CI = 0.41-0.92), whereas those who scored in the lowest 10% on Agreeableness were 50% more likely to have it (OR = 1.53, 95% CI = 1.09-2.16). At the facet level, traits related to impulsivity and hostility were the most strongly associated with metabolic syndrome. The present research indicates that those with fewer psychological resources are more vulnerable to metabolic syndrome and suggests a psychological component to other established risk factors.

**995: Rivera IR, Silva MA, Silva RD, Oliveira BA, Carvalho AC. Physical inactivity, TV-watching hours and body composition in children and adolescents. Arq Bras Cardiol. 2010 Aug;95(2):159-65. Epub 2010 Jun 11. English, Portuguese. PubMed PMID: 20563518.**

Abstract

BACKGROUND:

Physical inactivity is a predisposing factor to the onset/worsening of other cardiovascular risk factors, particularly obesity.

OBJECTIVE:

To determine physical activity level (PAL) and daily number of hours of TV (HTV) and the association and/or correlation of these variables with age, gender, economic class, public/private school, overweight and obesity in children and adolescents.

METHODS:

Cross sectional study, school-based population, public and private education, primary and secondary education. The sample was calculated based on the minimum expected prevalence of several variables, including physical inactivity. Cluster sampling.

PROTOCOL:

structured questionnaire, including Physical Activity for Older Children Questionnaire (PAQ-C) measurements of weight, height, body mass index (BMI) and triceps skinfold (TSF).

STATISTICAL ANALYSIS:

Chi-square, linear correlation.

**RESULTS:**

Among the 1,253 students, averaging  $12.4 \pm 2.9$  years old, of which 549 were male, there was a prevalence of inactivity in 93.5%, more commonly found in female adolescents and there was no association between PAL and excess weight or body fat, soccer and dance were the most frequent activities in boys and girls, respectively; 60% of students did not have physical education classes. Average and median HTV were respectively 3.6 and 3 hours; there was a significant association between HTV and obesity and significant correlation between PAL and age (negative) and between BMI and TSF (positive).

**CONCLUSION:**

Physical inactivity is present in 93.5% of children and adolescents from Maceió. It is more commonly found among teenagers and females, with no association or correlation of this variable with excess weight or body fat; obesity was associated with  $\geq 3$  HTV.

**996: Chen Y, Rennie D, Cormier Y, Dosman J. Association between obesity and atopy in adults. *Int Arch Allergy Immunol.* 2010;153(4):372-7. doi: 10.1159/000316348. Epub 2010 Jun 17. PubMed PMID: 20559003.**

**Abstract**

**BACKGROUND/AIM:**

Previous literature on the association between obesity and atopy has been inconsistent. The aim of the study was to determine the relationship between obesity and atopic sensitization in adults.

**METHODS:**

The study included a total of 1,997 residents aged 18-79 years and was conducted in the town of Humboldt, Sask., Canada in 2003. Body mass index (BMI) and waist circumference (WC) were objectively measured. Allergy skin tests were conducted to determine atopic sensitization.

**RESULTS:**

Overall, the prevalence of one or more positive skin tests for atopy was 33.3% among those with a BMI of at least 30.0, 28.2% among those with a BMI of 25.0-29.9 and 27.3% among those with a BMI of less than 25 ( $p = 0.003$ ). The odds ratio for atopy among those with a BMI of at least 30.0 versus those with a BMI of less than 25.0 was 1.51 (95% confidence interval, CI: 1.17, 1.95) after adjustment for sex, age, and other covariates. Stratified by sex, the adjusted odds ratios for obesity versus normal weight were 1.27 (95% CI: 0.73, 1.93) for men and 1.63 (95% CI: 1.18, 2.26) for women. WC was also significantly associated with the prevalence of atopy in both sexes after controlling for covariates.

**CONCLUSION:**

The data demonstrated a significant association between obesity, defined either by BMI or by WC, and atopy.

**997: Martins Mdo C, Ricarte IF, Rocha CH, Maia RB, Silva VB, Veras AB, Filho MD.**

**Blood pressure, excess weight and level of physical activity in students of a public university. Arq Bras Cardiol. 2010 Aug;95(2):192-9. Epub 2010 Jun 18. English, Portuguese. PubMed PMID: 20549132.**

Abstract

BACKGROUND:

High blood pressure, excess weight and sedentary lifestyle are important risk factors for cardiovascular diseases, and they are closely associated.

OBJECTIVE:

To evaluate the nutritional status, level of physical activity and blood pressure levels of students of Universidade Federal do Piauí, Teresina, Brazil.

METHODS:

Cross-sectional study with a sample of 605 students (46.1% males and 53.9% females), with a mean age of  $21.7 \pm 3.7$  years. The nutritional status was classified according to body mass index (BMI), and central adiposity according to waist circumference (WC). The level of physical activity was evaluated using the short version of the International Physical Activity Questionnaire (IPAQ). Elevated blood pressure was defined as systolic blood pressure  $> 140$  mmHg and/or diastolic blood pressure  $\geq 90$  mmHg.

RESULTS:

The prevalence of elevated blood pressure was 9.7%, and was higher among men. Excess weight (BMI  $> 25$  kg/m<sup>2</sup>) was found in 18.2% of the students, with overweight and obesity rates of 15.2% and 3%, respectively. Abdominal obesity was found in 2.4% of the students regardless of gender, and sedentary lifestyle in 52%. The mean blood pressure increased with increasing BMI and WC. No association was found between the levels of physical activity and blood pressure.

CONCLUSION:

An association of increased body weight and waist circumference with higher blood pressure levels was observed among the participants. Instruments for an early assessment of the cardiovascular risk and preventive advice should be established for these young individuals.

**998: Kozak AT, Daviglius ML, Chan C, Kiefe CI, Jacobs DR Jr, Liu K. Relationship of body mass index in young adulthood and health-related quality of life two decades later: the Coronary Artery Risk Development in Young Adults study. Int J Obes (Lond). 2011 Jan;35(1):134-41. doi: 10.1038/ijo.2010.120. Epub 2010 Jun 15. PubMed PMID: 20548305; PubMed Central PMCID: PMC3875360.**

Abstract

OBJECTIVE:

The expanding overweight and obesity epidemic notwithstanding, little is known about their long-term effect on health-related quality of life (HRQoL). The main objective of this study was to investigate whether overweight (body mass index (BMI) 25 to  $<30$  kg m<sup>-2</sup>) and obese (BMI  $\geq 30$  kg m<sup>-2</sup>) young adults have poorer HRQoL 20 years later.

METHODS:

We studied 3014 participants in the Coronary Artery Risk Development in Young Adults (CARDIA) study, a longitudinal, community-dwelling, biracial cohort from four cities. BMI was measured at baseline and 20 years later. HRQoL was assessed by the Physical Component Summary (PCS) and the

Mental Component Summary (MCS) scores of the Medical Outcomes Study 12-Item Short-Form Health Survey at year 20. Higher PCS or MCS scores indicate better HRQoL.

**RESULTS:**

Mean year 20 PCS score was 52.2 for normal weight participants at baseline, 50.3 for overweight and 46.4 for obese (P-trend <0.001). This relation persisted after adjustment for baseline demographics, general health, and physical and behavioral risk factors and after further adjustment for 20-year changes in risk factors. No association was observed for MCS scores (P-trend 0.43).

**CONCLUSION:**

Overweight and obesity in early adulthood are adversely associated with self-reported physical HRQoL, but not mental HRQoL 20 years later.

**999: Wang J, Iannotti RJ, Luk JW. Bullying victimization among underweight and overweight U.S. youth: differential associations for boys and girls. J Adolesc Health. 2010 Jul;47(1):99-101. doi: 10.1016/j.jadohealth.2009.12.007. Epub 2010 Feb 4. PubMed PMID: 20547298; PubMed Central PMCID: PMC2887712.**

**Abstract**

To examine the associations between body weight and physical, verbal, relational, and cyber victimization among U.S. boys and girls in grade 6 through 10. Underweight boys and girls were more likely to be physical and relational victims, respectively. Overweight boys and obese girls were more likely to be verbal victims.

**1000: Goodman E, Must A, Daniels SR, Dolan LM. Hostility and adiposity mediate disparities in insulin resistance among adolescents and young adults. J Pediatr. 2010 Oct;157(4):572-7, 577.e1. doi: 10.1016/j.jpeds.2010.04.048. Epub 2010 Jun 14. PubMed PMID: 20542297; PubMed Central PMCID: PMC3166621.**

**Abstract**

**OBJECTIVE:**

This study explores whether the relationship between lower socioeconomic status and insulin resistance in adolescents is mediated by both physiological and psychological factors associated with increased cardiometabolic risk.

**STUDY DESIGN:**

School-based longitudinal cohort study of 1222 healthy, non-Hispanic black and white teens. Parent education (PE), youth-specific Cook-Medley hostility scale, waist circumference, height, weight, pubertal status, and fasting plasma insulin (FPI) were measured and FPI reassessed 1 year later. Regression analyses utilizing bootstrapping (n=2000) were used to estimate the direct and indirect effects of PE on FPI and assess the role of hostility and adiposity while adjusting for covariates.

**RESULTS:**

Lower PE predicted higher FPI (B=-1.52, P=.003), as did hostility (B=.19, P=.002) and adiposity (waist circumference B=.44, P<.001, BMI B=.98, P<.001). The effect of PE on FPI was mediated by both hostility and adiposity. When adiposity and hostility were accounted for, the effect of PE on FPI decreased by 32% (B=-1.04, P=.04); the total indirect estimate was -.485 (95% CI, -.652, -.041). Hostility accounted for 36% of the meditational effect.

**CONCLUSIONS:**

Lower PE influences insulin resistance through adiposity and hostility. Thus, interventions to reduce health disparities associated with insulin resistance should consider both physiological and psychological approaches.

1001: Grow HM, Cook AJ, Arterburn DE, Saelens BE, Drewnowski A, Lozano P. Child obesity associated with social disadvantage of children's neighborhoods. *Soc Sci Med.* 2010 Aug;71(3):584-91. doi: 10.1016/j.socscimed.2010.04.018. Epub 2010 May 12. PubMed PMID: 20541306; PubMed Central PMCID: PMC2928553.

#### Abstract

Evidence suggests variability in adult obesity risk at a small-scale geographic area is associated with differences in neighborhood socioeconomic status (SES). However, the extent to which geographic variability in child obesity is associated with neighborhood SES is unknown. The objective of this paper was to estimate risk of child obesity associated with multiple census tract SES measures and race within a large urban U.S. county. Height, weight, age, sex, medical insurance type and census tract residence were obtained for 6-18 year old children (n=8616) who received medical care at a health plan in King County, Washington, in 2006. Spatial analyses examined the individual risk of obesity (BMI > or = 95th percentile) with 2000 US census tract measures of median household income, home ownership, adult female education level, single parent households, and race as predictors. Conditional autoregressive regression models that incorporated adjacent census tracts (spatial autocorrelation) were applied to each census tract variable, adjusting for individual variables. We found that in adjusted spatial models, child obesity risk was significantly associated with each census tract variable in the expected direction: lower household income, lower home ownership, and for each 10% increase in less educated women, and single parent households, as well as non-white residents. In a spatial model including all variables, the SES/race variables explained approximately 24% of geographic variability in child obesity. Results indicated that living in census tracts with social disadvantage defined by multiple different measures was associated with child obesity among insured children in a large U.S. urban county. These results contribute new information on relationships between broader social and economic context and child obesity risk using robust spatial analyses.

**1002: Conway B, Miller RG, Costacou T, Fried L, Kelsey S, Evans RW, Orchard TJ. Temporal patterns in overweight and obesity in Type 1 diabetes. *Diabet Med.* 2010 Apr;27(4):398-404. doi: 10.1111/j.1464-5491.2010.02956.x. PubMed PMID: 20536510; PubMed Central PMCID: PMC3129711.**

#### Abstract

##### AIMS:

Time trends in overweight and obesity in the general population have been well documented; however, temporal patterns in Type 1 diabetes (T1DM) have not been thoroughly investigated. We therefore assessed temporal patterns in overweight and obesity and predictors of weight change in 589 individuals from the Pittsburgh Epidemiology of Diabetes Complications Study, a cohort of childhood-onset T1DM.

##### METHODS:

Participants were first seen in 1986-1988, when mean age and diabetes duration were 29 and 20 years, respectively, and biennially thereafter for 18 years. Overweight was defined as  $25.0 \leq \text{BMI} < 30.0 \text{ kg/m}^2$ . Obesity was defined as  $\text{BMI} \geq 30.0 \text{ kg/m}^2$ .

**RESULTS:**

At baseline, the prevalence of overweight and obesity were 28.6% and 3.4%, respectively. After 18 years' follow-up, the prevalence of overweight increased by 47% while the prevalence of obesity increased sevenfold. Seven per cent were on intensive insulin therapy ( $\geq 3$  insulin injections per day or on insulin pump) at baseline; by 2004-2007, this was 82%. Predictors of weight change were a higher baseline HbA1c, symptomatic autonomic neuropathy (inversely), overt nephropathy (inversely), and going onto intensive insulin therapy during follow-up.

**CONCLUSIONS:**

These data demonstrate dramatic weight gain in T1DM and underscore the complexity of weight change in this disease.

**1003: Juárez-López C, Klünder-Klünder M, Medina-Bravo P, Madrigal-Azcárate A, Mass-Díaz E, Flores-Huerta S. Insulin resistance and its association with the components of the metabolic syndrome among obese children and adolescents. BMC Public Health. 2010 Jun 7;10:318. doi: 10.1186/1471-2458-10-318. PubMed PMID: 20529295; PubMed Central PMCID: PMC2898826.**

**Abstract**

**BACKGROUND:**

Insulin resistance is the primary metabolic disorder associated with obesity; yet little is known about its role as a determinant of the metabolic syndrome in obese children. The aim of this study is to assess the association between the degree of insulin resistance and the different components of the metabolic syndrome among obese children and adolescents.

**METHODS:**

An analytical, cross-sectional and population-based study was performed in forty-four public primary schools in Campeche City, Mexico. A total of 466 obese children and adolescents between 11-13 years of age were recruited. Fasting glucose and insulin concentrations, high density lipoprotein cholesterol, triglycerides, waist circumference, systolic and diastolic blood pressures were measured; insulin resistance and metabolic syndrome were also evaluated.

**RESULTS:**

Out of the total population studied, 69% presented low values of high density lipoprotein cholesterol, 49% suffered from abdominal obesity, 29% had hypertriglyceridemia, 8% presented high systolic and 13% high diastolic blood pressure, 4% showed impaired fasting glucose, 51% presented insulin resistance and 20% metabolic syndrome. In spite of being obese, 13% of the investigated population did not present any metabolic disorder. For each one of the components of the metabolic syndrome, when insulin resistance increased so did odds ratios as cardiometabolic risk factors.

**CONCLUSIONS:**

Regardless of age and gender an increased degree of insulin resistance is associated with a higher prevalence of disorders in each of the components of the metabolic syndrome and with a heightened risk of suffering metabolic syndrome among obese children and adolescents.

**1004: Paes JE, Hua K, Nagy R, Kloos RT, Jarjoura D, Ringel MD. The relationship between body mass index and thyroid cancer pathology features and outcomes: a clinicopathological cohort study. J Clin Endocrinol Metab. 2010 Sep;95(9):4244-50. doi: 10.1210/jc.2010-0440. Epub 2010 Jun 2. PubMed PMID: 20519347; PubMed Central PMCID: PMC2936072.**

Abstract

BACKGROUND:

Obesity has been implicated as a predisposing and disease-modifying factor in cancer. Epidemiological studies suggest that obesity is associated with an increased risk of thyroid cancer; however, the relationships between obesity and thyroid cancer stage or behavior are uncertain. We hypothesized that a higher body mass index (BMI) would be associated with aggressive thyroid cancer features and a higher incidence of persistent/recurrent disease.

METHODS:

Two hundred fifty-nine consecutive patients with thyroid cancer were enrolled in this retrospective cohort study. Histopathological tumor features, stage at diagnosis, and disease status during and at the end of the study were determined based on chart review. BMI was calculated at the first clinical visit to our institution. The relationships between BMI and these parameters were assessed.

RESULTS:

Mean follow-up time for the group was 6.2 yr (0.11-46 yr). No positive associations were identified between BMI and T, N, or M stage at diagnosis, vascular invasion, or recurrent or persistent disease on univariate or multivariate analyses. The absence of an association was also demonstrated on analysis by BMI quartiles. An unexpected inverse association was identified between BMI and nodal metastasis and tumor invasion on both univariate and multivariate analyses, suggesting that obesity may be associated with less aggressive tumor features, a finding that requires confirmatory studies.

CONCLUSION:

Although obesity has been associated with increased thyroid cancer incidence, a higher BMI was found not to be associated with more aggressive tumor features or a greater likelihood of recurrence or persistence over the analyzed time period.

**1005: Conron KJ, Mimiaga MJ, Landers SJ. A population-based study of sexual orientation identity and gender differences in adult health. Am J Public Health. 2010 Oct;100(10):1953-60. doi: 10.2105/AJPH.2009.174169. Epub 2010 Jun 1. PubMed PMID: 20516373; PubMed Central PMCID: PMC2936979.**

Abstract

OBJECTIVES:

We provide estimates of several leading US adult health indicators by sexual orientation identity and gender to fill gaps in the current literature.

METHODS:

We aggregated data from the 2001-2008 Massachusetts Behavioral Risk Factor Surveillance surveys (N = 67,359) to examine patterns in self-reported health by sexual orientation identity and gender, using multivariable logistic regression.

RESULTS:

Compared with heterosexuals, sexual minorities (i.e., gays/lesbians, 2% of sample; bisexuals, 1%) were more likely to report activity limitation, tension or worry, smoking, drug use, asthma, lifetime

sexual victimization, and HIV testing, but did not differ on 3-year Papanicolaou tests, lifetime mammography, diabetes, or heart disease. Compared with heterosexuals, bisexuals reported more barriers to health care, current sadness, past-year suicidal ideation, and cardiovascular disease risk. Gay men were less likely to be overweight or obese and to obtain prostate-specific antigen tests, and lesbians were more likely to be obese and to report multiple risks for cardiovascular disease. Binge drinking and lifetime physical intimate partner victimization were more common among bisexual women.

**CONCLUSIONS:**

Sexual orientation disparities in chronic disease risk, victimization, health care access, mental health, and smoking merit increased attention. More research on heterogeneity in health and health determinants among sexual minorities is needed.

**1006: Taylor RW, Brooking L, Williams SM, Manning PJ, Sutherland WH, Coppell KJ, Tipene-Leach D, Dale KS, McAuley KA, Mann JI. Body mass index and waist circumference cutoffs to define obesity in indigenous New Zealanders. Am J Clin Nutr. 2010 Aug;92(2):390-7. doi: 10.3945/ajcn.2010.29317. Epub 2010 May 26. PubMed PMID: 20504973.**

**Abstract**

**BACKGROUND:**

The suggestion that body mass index (BMI) cutoffs to define obesity should differ in persons of Polynesian descent compared with Europeans is based principally on the observation that persons of Polynesian descent have a relatively higher proportion of lean body mass for a given BMI.

**OBJECTIVES:**

The objectives were to determine whether the relation between BMI, waist circumference, and metabolic comorbidity differs in the 2 major ethnic groups in New Zealand and to ascertain whether ethnicity-specific BMI and waist circumference cutoffs for obesity are justified for Māori (indigenous New Zealanders).

**DESIGN:**

Subjects included a convenience sample of 1539 men and women aged 17-82 y (47% Māori, 53% white) with measures of BMI, waist circumference, blood pressure, fasting insulin, glucose, and lipids. The sensitivity and specificity of BMI (in kg/m<sup>2</sup>; 30 and 32), waist circumference (80 and 88 cm in women, 94 and 102 cm in men), and waist-to-height ratio (WHtR; > or =0.6) in relation to insulin sensitivity, insulin resistance, and the metabolic syndrome were determined. Receiver operating characteristic curves and areas under the curve (AUCs) were also calculated.

**RESULTS:**

No ethnic or sex differences between AUCs were observed for BMI, waist circumference, or WHtR, which showed that these anthropometric measures perform similarly in Māori and European men and women and correctly discriminate between those with and without insulin resistance or the metabolic syndrome 79-87% of the time. Any increase in specificity from a higher BMI cutoff of 32 in Māori was offset by appreciable reductions in sensitivity.

**CONCLUSION:**

These findings argue against having different BMI or waist circumference cutoffs for people of Polynesian descent.



**1007: Omuemu VO, Omuemu CE. The prevalence of overweight and its risk factors among adolescents in an urban city in Edo State. Niger J Clin Pract. 2010 Jun;13(2):128-33. PubMed PMID: 20499742.**

Abstract

INTRODUCTION:

The prevalence of overweight is rising even in countries with significant rates of undernutrition. This is exacerbated by westernization of lifestyles and the image of prosperity associated with overweight. Children are not spared and the health consequences may become apparent in the near future. This study assessed the prevalence of overweight among adolescents in an urban city in a developing country.

METHODOLOGY:

This cross-sectional study conducted from September to December 2005 involved 300 adolescents selected by cluster sampling in Benin-city, Nigeria. Overweight and risk of overweight were defined as Body mass index (BMI)-for-age  $\geq$  95th percentile and BMI-for-age 85th to  $<$  95th percentile respectively.

RESULTS:

Of the participants, 5.7% were overweight while 52.7% were at risk of overweight. Risk factors of overweight identified were consumption of snacks (64.3%), soft drinks (85.7%) and physical inactivity (69.7%). Being overweight was significantly associated with consumption of snacks, soft drinks, physical inactivity and positive family history of obesity, ( $p < 0.05$ ).

CONCLUSION:

The high prevalence of risk factors for overweight suggests that the already high prevalence of overweight will increase in the near future. Preventive measures are required to forestall this increase.

**1008: Mendonça MR, Silva MA, Rivera IR, Moura AA. [Prevalence of overweight and obesity in children and adolescents from the city of Maceió (AL)]. Rev Assoc Med Bras. 2010 Mar-Apr;56(2):192-6. Portuguese. PubMed PMID: 20498994.**

Abstract

OBJECTIVE:

To establish prevalence of overweight and obesity in children and adolescents from the city of Maceió, Alagoas, Brazil, and investigate the association of risk of overweight and obesity with gender, age and type of school.

METHODS:

This was a cross-sectional study. Students between 7 and 17 years of age were selected from 396 public and private schools of Maceió. After randomization, data were collected by questionnaire. Weight and height were measured (body mass index = weight:height<sup>2</sup>). Overweight and obesity were defined, respectively, as body mass index greater than the 85th percentile and equal or greater than the 95th percentile for age and gender.

RESULTS:

The final sample included 1253 students (706 females). One hundred sixteen students were overweight and fifty six students were obese. Obesity was significantly associated with students between 7 and 9 years of age, when compared to the 10 and 13 year olds ( $p < 0.04$ ) and the 14 and 17

year olds ( $p < 0.02$ ). Private school students were more likely to be overweight (OR=2.2; CI95%:1.36 - 3.32) and more likely to be obese (OR=4.7; CI95%:2.32 - 9.34) than students

**CONCLUSION:**

The prevalence of overweight and obesity were, respectively, 9.3% and 4.5%. Overweight and obesity were significantly more frequent among private school students.

**1009: Boutelle KN, Hannan P, Fulkerson JA, Crow SJ, Stice E. Obesity as a prospective predictor of depression in adolescent females. Health Psychol. 2010 May;29(3):293-8. doi: 10.1037/a0018645. PubMed PMID: 20496983; PubMed Central PMCID: PMC2877273.**

**Abstract**

**OBJECTIVE:**

Both obesity and depression are prominent during adolescence, and it is possible that obesity is a trigger for adolescent depression. The purpose of this paper is to evaluate whether overweight or obese status contributes to the development of depression in adolescent girls.

**DESIGN:**

Participants were 496 adolescent girls who completed interview based measures of depression and had their height and weight measured at four yearly assessments. Repeated measures logistic regressions with generalized estimating equations were used to evaluate whether overweight or obese status were associated with major depression or an increase in depressive symptoms the following year.

**MAIN OUTCOME MEASURES:**

Major depression and depressive symptoms were evaluating using a modified version of the K-SADS interview. Overweight and obese status was determined by using standardized protocols to measure height and weight.

**RESULTS:**

RESULTS showed that obese status, not overweight status, was associated with future depressive symptoms, but not major depression. This study demonstrated that obesity is a risk factor for depressive symptoms, but not for clinical depression.

**CONCLUSIONS:**

As depressive symptoms are considered along the spectrum of depression with clinical depression at the high end, these results suggest that weight status could be considered a factor along the pathway of development of depression in some adolescent females.

**1010: Esquivel M, González C. Excess weight and adiposity in children and adolescents in Havana, Cuba: prevalence and trends, 1972 to 2005. MEDICC Rev. 2010 Spring;12(2):13-8. PubMed PMID: 20486409.**

**Abstract**

**INTRODUCTION:**

Rising prevalence of excess weight in children and adolescents is a serious public health problem in both developed and developing countries, associated with a growing burden of chronic non-communicable diseases in youth and adults. In Cuba, population-based growth and development surveys have been conducted since the 1970s, the latest in 2005.

**OBJECTIVE:**

Estimate prevalence of overweight, obesity and high adiposity in children and adolescents aged <19 years in Havana, Cuba, in 1972, 1993 and 2005, and describe secular trends in these conditions in the periods observed.

**METHODS:**

A retrospective, descriptive study examined data from growth and development surveys conducted in Havana in 1972, 1993 and 2005, which obtained Body Mass Index (BMI) and left mid-arm fat area (MAFA) in the population aged < or =19 years using probabilistic sampling and comparable methods of anthropometric measurement and data verification, processing and analysis. Age- and sex-specific percentiles were used as cutoff points for diagnosing overweight, obesity and high adiposity in 3 age groups (early childhood: <5 years; childhood: 5-9 years; and adolescence: 10-19 years). Descriptive statistics were used to calculate prevalence, expressed as a percentage of the population surveyed in each nutritional status category, by sex, age group and survey year. Trends were established by comparing prevalence in 3 periods: 1972-1993, 1993-2005 and 1972-2005. Statistical significance of the percentage differences between survey years in each period was calculated using 95% confidence intervals (CI).

**RESULTS:**

Prevalence of excess weight (overweight + obesity) in the study population was 15.3% in 1972, 9.6% in 1993, and 16.4% in 2005, and was more frequent in males but varied by age group and survey year. Prevalence of high adiposity decreased from 13.3% in 1972 to 12.7% in 1993, increasing significantly to 28.8% in 2005. High adiposity was more frequent in males and decreased as age increased, except in children aged <5 years, who had lowest adiposity in 1972. While excess weight predominated over high adiposity in 1972 (15.3% and 13.3%, respectively), this relationship was reversed in 1993 (9.6% excess weight vs 12.7% high adiposity) and continued as a growing trend in 2005 (16.4% excess weight vs 28.8% high adiposity).

**CONCLUSIONS:**

Prevalence of excess weight and high adiposity generally declined during economic crisis and scarcity, and rose as the economy improved. Continued monitoring is required to detect sustained or rising prevalence of these conditions and to develop interventions to reduce health risks.

**1011: Li D, Sun WP, Zhou YM, Liu QG, Zhou SS, Luo N, Bian FN, Zhao ZG, Guo M. Chronic niacin overload may be involved in the increased prevalence of obesity in US children. World J Gastroenterol. 2010 May 21;16(19):2378-87. PubMed PMID: 20480523; PubMed Central PMCID: PMC2874142.**

**Abstract**

**AIM:**

To investigate nicotinamide's action on glucose metabolism, and the association between niacin consumption and obesity prevalence.

**METHODS:**

Dynamic nicotinamide's effect on plasma hydrogen peroxide and glucose metabolism was investigated using oral glucose tolerance tests with or without nicotinamide in the same five healthy subjects. Lag-regression analysis was used to examine the association between the niacin consumption and the obesity prevalence among US children using the data from the Economic Research Service of the US Department of Agriculture and from US Centers for Disease Control and Prevention, respectively.

**RESULTS:**

Compared with the control oral glucose tolerance test, the 1-h plasma hydrogen peroxide (1.4 +/- 0.1 micromol/L vs 1.6 +/- 0.1 micromol/L, P = 0.016) and insulin levels (247.1 +/- 129.0 pmol/L vs 452.6 +/- 181.8 pmol/L, P = 0.028) were significantly higher, and the 3-h blood glucose was significantly lower (5.8 +/- 1.2 mmol/L vs 4.5 +/- 1.1 mmol/L, P = 0.002) after co-administration of glucose and 300 mg nicotinamide. The obesity prevalence among American children increased with the increasing per capita niacin consumption, the increasing grain contribution to niacin due to niacin-fortification, and the increasing niacin-fortified ready-to-eat cereal consumption, with a 10-year lag. The regression analyses showed that the obesity prevalence in the US children of all age groups was determined by niacin consumption (R(2) = 0.814, 0.961 and 0.94 for 2-5 years, 6-11 years and 12-19 years age groups, respectively).

**CONCLUSION:**

The appetite-stimulating effect of nicotinamide appears to involve oxidative stress. Excess niacin consumption may be a major factor in the increased obesity prevalence in US children.

**1012: Feber J, Ahmed M. Hypertension in children: new trends and challenges. Clin Sci (Lond). 2010 May 14;119(4):151-61. doi: 10.1042/CS20090544. Review. PubMed PMID: 20477751.**

**Abstract**

Childhood HTN (hypertension) has become a widely investigated topic within the last decade due to its increasing prevalence. In the present review, we examine new developments and trends that have significantly contributed to aetiology, diagnosis, evaluation and management of childhood HTN. Many recent reports document an increasing prevalence of HTN, mainly essential HTN, in children worldwide. This is probably related to the increase of childhood obesity, although obesity is not the only factor. Evidence has been accumulating to suggest a rather complex interplay between obesity, uric acid level, dietary sodium intake, inflammation, inheritance and other factors, which lead to increased risk of developing HTN in childhood and adulthood. The detection and monitoring of HTN has significantly improved with the use of ABPM (ambulatory blood pressure monitoring), which allows not only for a more accurate classification and staging of HTN, but also for the calculation of more sophisticated parameters such as the AASI (ambulatory arterial stiffness index). Measurement of arterial stiffness enables assessment of arterial dysfunction, which may precede structural vascular changes evaluated by carotid intima media thickness. Sustained HTN eventually leads to end-organ damage [LVH (left ventricular hypertrophy), central nervous system], which in turn increases the risk of cardiovascular morbidity and mortality. New developments in childhood HTN, as outlined in the present review, will hopefully contribute to better screening and management of HTN in children.

**1013: Kohler MJ, Thormaehlen S, Kennedy JD, Pamula Y, van den Heuvel CJ, Lushington K, Martin AJ. Differences in the association between obesity and obstructive sleep apnea among children and adolescents. J Clin Sleep Med. 2009 Dec 15;5(6):506-11. PubMed PMID: 20465015; PubMed Central PMCID: PMC2792964.**

**Abstract**

**STUDY OBJECTIVES:**

Overweight and obesity are thought to increase the risk of obstructive sleep apnea syndrome (OSAS) among children. However, previous results have been inconsistent and appear to be confounded by both ethnicity and the different ages of children studied. To determine whether the association

between excess weight and OSAS varies with age across childhood, we assessed polysomnographic data from a series of Caucasian children and adolescents referred for clinical evaluation of snoring.

**METHODS:**

Sleep and OSAS severity were assessed using polysomnography in 234 children aged 2.0 to 18.0 years. All children were referred for overnight evaluation of suspected OSAS. Severity of OSAS as a function of body mass and age were then evaluated.

**RESULTS:**

Risk of OSAS among adolescents (age > or =12 years) was increased 3.5 fold with each standard-deviation increase in body mass index z-score. Risk of OSAS was not significantly increased with increasing body mass among younger children.

**CONCLUSIONS:**

Similar to adults, adolescent children show an increased risk for having OSAS in association with overweight and obesity. For Caucasian children, overweight and obesity should be considered a significant risk for OSAS among adolescents or from age 12 years, especially when in combination with other established risk factors, including snoring and adenotonsillar hypertrophy.

**1014: Burgos MS, Reuter CP, Burgos LT, Pohl HH, Pauli LT, Horta JA, Reckziegel MB, Franke SI, Prá D, Camargo M. [Comparison analysis of blood pressure, obesity, and cardio-respiratory fitness in schoolchildren]. Arq Bras Cardiol. 2010 Jun;94(6):788-93. Epub 2010 May 7. English, Portuguese. PubMed PMID: 20464272.**

**Abstract**

**BACKGROUND:**

During childhood and adolescence, physical inactivity, excess weight, and poor nutrition are risk factors for chronic diseases, especially obesity, hypertension, and diabetes mellitus. Early intervention can prevent the development of these complications.

**OBJECTIVE:**

To determine the presence of cardiovascular risk (obesity and hypertension) in schoolchildren and its potential interactions with cardio-respiratory fitness.

**METHODS:**

This was a cross-sectional study conducted in a stratified cluster sample of 1,666 schoolchildren, aged between 7 and 17 years, 873 (52.4%) of them male and 793 (47.6%) of them female. The following variables were evaluated: systolic blood pressure (SBP), diastolic blood pressure (DBP), body mass index (BMI), body fat percentage (BF %), and cardio-respiratory fitness. SBP and DBP were correlated with waist circumference (WC), waist-hip ratio (WHR), sum of skin folds (SigmaSF), and cardio-respiratory fitness.

**RESULTS:**

A BMI assessment of the students showed that 26.7% of them were overweight or obese, and 35.9% had body fat percentage over moderately high. As to blood pressure, we found that 13.9% and 12.1% of the students were borderline or hypertensive, for SBP and DBP, respectively. There was an association among hypertension, obesity, and cardio-respiratory fitness. There was a significant correlation of SBP and DBP with all variables, and also a weak to moderate correlation with age, weight, height, BMI, and waist circumference.

**CONCLUSION:**

The presence of hypertension associated with obesity and its effects on cardio-respiratory fitness stress the importance of recommending, since childhood, a more active and healthy lifestyle.

**1015: Bodor JN, Rice JC, Farley TA, Swalm CM, Rose D. The association between obesity and urban food environments. J Urban Health. 2010 Sep;87(5):771-81. doi: 10.1007/s11524-010-9460-6. PubMed PMID: 20458548; PubMed Central PMCID: PMC2937132.**

Abstract

Several studies have examined associations between the food retail environment and obesity, though virtually no work has been done in the urban South, where obesity rates are among the highest in the country. This study assessed associations between access to food retail outlets and obesity in New Orleans. Data on individual characteristics and body weight were collected by telephone interviews from a random sample of adults (N = 3,925) living in New Orleans in 2004-2005. The neighborhood of each individual was geo-mapped by creating a 2-km buffer around the center point of the census tract in which they lived. Food retailer counts were created by summing the total number of each food store type and fast food establishment within this 2-km neighborhood. Hierarchical linear models assessed associations between access to food retailers and obesity status. After adjusting for individual characteristics, each additional supermarket in a respondent's neighborhood was associated with a reduced odds for obesity (OR 0.93, 95% CI 0.88-0.99). Fast food restaurant (OR 1.01, 95% CI 1.00-1.02) and convenience store (OR 1.01, 95% CI 1.00-1.02) access were each predictive of greater obesity odds. An individual's access to food stores and fast food restaurants may play a part in determining weight status. Future studies with longitudinal and experimental designs are needed to test whether modifications in the food environment may assist in the prevention of obesity.

**1016: Reinehr T, Dobe M, Winkel K, Schaefer A, Hoffmann D. Obesity in disabled children and adolescents: an overlooked group of patients. Dtsch Arztebl Int. 2010 Apr;107(15):268-75. doi: 10.3238/arztebl.2010.0268. Epub 2010 Apr 16. Review. PubMed PMID: 20458368; PubMed Central PMCID: PMC2864441.**

Abstract

BACKGROUND:

There is an ongoing debate concerning the relationship between disability and obesity in childhood and adolescence.

METHODS:

The literature available in Medline was selectively searched for the terms: "(children /OR/ adolescents) /AND/ disability /AND/ (overweight /OR/ obesity)". This search was complemented by inspection of journals in the fields of obesity, pediatrics, and neurology.

RESULTS:

A total of 38 relevant articles were identified. All studies agreed that the prevalence of overweight and obesity in children with disabilities was almost twice that in their non-disabled peers. No effective, long-lasting interventions for obesity in disabled children and adolescents have been published.

CONCLUSION:

Since a high proportion of disabled children and adolescents are overweight or obese, effective strategies for preventing and managing excess weight need to be developed so as not to further

endanger their social participation. Moreover, risk factors for overweight in disabled children and adolescents should be identified and their weight status carefully monitored.

**1017: Caserta CA, Pendino GM, Amante A, Vacalebre C, Fiorillo MT, Surace P, Messineo A, Surace M, Alicante S, Cotichini R, Zuin M, Rosmini F, Mele A, Marcucci F. Cardiovascular risk factors, nonalcoholic fatty liver disease, and carotid artery intima-media thickness in an adolescent population in southern Italy. Am J Epidemiol. 2010 Jun 1;171(11):1195-202. doi: 10.1093/aje/kwq073. Epub 2010 May 9. PubMed PMID: 20457571.**

#### Abstract

The objective of this study was to determine, in an adolescent population, the prevalence of nonalcoholic fatty liver disease (NAFLD) and the association of NAFLD and cardiovascular risk factors with carotid artery intima-media thickness (IMT), a marker of subclinical atherosclerosis. The authors conducted a population-based study among 642 randomly selected adolescents aged 11-13 years in Reggio Calabria, southern Italy, between November 2007 and October 2008. Prevalences of overweight and obesity were 30.5% and 13.5%, respectively. The overall prevalence of NAFLD was 12.5%, increasing to 23.0% in overweight/obese adolescents. In univariate analysis, increased IMT was positively associated with the presence of NAFLD, body mass index (BMI), waist circumference, systolic blood pressure (all P's < 0.001), diastolic blood pressure (P = 0.006), gamma-glutamyl transpeptidase (P = 0.006), alanine aminotransferase (P = 0.007), and C-reactive protein (P = 0.008) and was inversely associated with high density lipoprotein cholesterol (P < 0.001). In multivariate analysis, NAFLD (P = 0.002), BMI (P = 0.004), waist circumference (P = 0.003), and systolic blood pressure (P = 0.005) retained significant associations. The authors conclude that NAFLD, BMI, waist circumference, and systolic blood pressure are independent markers of increased IMT in a random sample of adolescents.

**1018: Duggins M, Cherven P, Carrithers J, Messamore J, Harvey A. Impact of family YMCA membership on childhood obesity: a randomized controlled effectiveness trial. J Am Board Fam Med. 2010 May-Jun;23(3):323-33. doi: 10.3122/jabfm.2010.03.080266. PubMed PMID: 20453178.**

#### Abstract

##### BACKGROUND:

Treatment studies about childhood obesity in primary care are lacking. We hypothesized that providing a paid family membership to the YMCA would be effective in reducing weight.

##### METHODS:

Patients 5 to 17 years old in at least the 85th body mass index (BMI) percentile were eligible. All participants were scheduled to attend 4 nutrition classes and to return for evaluation at 2, 4, 6, 9, and 12 months. Participants were randomized to nutrition classes only (n = 39) or nutrition classes and family YMCA membership (n = 44). The primary outcome measure was year change in BMI-for-age percentile.

##### RESULTS:

Median BMI percentile at baseline was 99. Only 27 of 36 evaluable participants in the treatment group visited the YMCA. Four participants in the control group and one in the treatment group achieved the target reduction of 2 BMI percentile points (Fisher's exact, P = .17). Within the

treatment group, YMCA attendees had a mean increase of 0.30 BMI points compared with an increase of 0.60 BMI points in nonattendees ( $P = .28$ ).

**CONCLUSION:**

In very obese children, eliminating financial barriers to YMCA membership is insufficient to induce more weight loss during 1 year compared with nutrition classes alone. Improvements in nutrition intake were reported by both groups.

**1020: Hasson RE, Adam TC, Davis JN, Weigensberg MJ, Ventura EE, Lane CJ, Roberts CK, Goran MI. Ethnic differences in insulin action in obese African-American and Latino adolescents. J Clin Endocrinol Metab. 2010 Aug;95(8):4048-51. doi: 10.1210/jc.2010-0018. Epub 2010 May 5. PubMed PMID: 20444915; PubMed Central PMCID: PMC2913041.**

**Abstract**

**INTRODUCTION:**

African-American children have a greater acute insulin response to iv glucose (AIR) compared with Latino children despite a similar degree of insulin resistance and body composition. It is unclear whether African-Americans demonstrate an exaggerated insulin response to an oral glucose challenge and whether any differences are seen in more obese children in advanced pubertal development.

**PURPOSE:**

Our objective was to compare glucose and insulin indices derived from an oral glucose tolerance test (OGTT) and iv glucose tolerance test (IVGTT) in sedentary, obese African-American ( $n=59$ ) and Latino ( $n=83$ ) adolescents.

**METHODS:**

Glucose and insulin incremental area under the curve was measured during an OGTT, and AIR, insulin sensitivity, disposition index, and glucose effectiveness were assessed during an IVGTT. Body composition was assessed via dual-energy x-ray absorptiometry and magnetic resonance imaging.

**RESULTS:**

From the OGTT, glucose and insulin IAUC were 29.1 and 22.5% lower ( $P=0.01$ ) in African-Americans compared with Latino adolescents. From the IVGTT, insulin sensitivity and glucose effectiveness were 41.7% ( $P<0.01$ ) and 50.0% ( $P=0.02$ ) lower in African-Americans compared to Latinos. AIR ( $P=0.001$ ) and disposition index ( $P=0.02$ ) were 63.0 and 48.8% higher in African-Americans, respectively, compared with Latinos. These findings persisted after controlling for body composition and fat distribution.

**CONCLUSIONS:**

There were marked differences in glucose and insulin indices derived from the OGTT and IVGTT. African-Americans were more insulin resistant as measured by the IVGTT compared with the Latino adolescents. However, the well-described hyperinsulinemia in response to iv glucose was not observed after oral glucose in African-American adolescents.



**1021: Regidor E, Gutiérrez-Fisac JL, de los Santos Ichaso M, Fernández E. Trends in principal cancer risk factors in Spain. *Ann Oncol.* 2010 May;21 Suppl 3:iii37-42. doi: 10.1093/annonc/mdq086. PubMed PMID: 20427359.**

Abstract

Using data furnished by successive national health surveys, this article describes trends in the prevalence of smoking, physical inactivity, obesity, consumption of fruit and vegetables, and excessive alcohol consumption in Spain. For most of these factors, trends are shown since the end of the 1980s, and in the case of smoking, since the end of the 1970s. The findings indicate decreases in smoking--except among women aged 45-64 years--physical inactivity and high-risk alcohol consumption, and increases in consumption of fruit and vegetables, and obesity. The inclusion of these risk factors in cancer prevention strategies continues to be a matter of priority, in some cases because they display high prevalences despite their downward trend, as occurs with smoking among men and physical inactivity in the overall population, and in others because they display an upward trend, e.g. smoking among women aged 45-64 years and obesity in the overall population.

**1022: Ebrahim S, Kinra S, Bowen L, Andersen E, Ben-Shlomo Y, Lyngdoh T, Ramakrishnan L, Ahuja RC, Joshi P, Das SM, Mohan M, Davey Smith G, Prabhakaran D, Reddy KS; Indian Migration Study group. The effect of rural-to-urban migration on obesity and diabetes in India: a cross-sectional study. *PLoS Med.* 2010 Apr 27;7(4):e1000268. doi: 10.1371/journal.pmed.1000268. Erratum in: *PLoS Med.* 2011 May;8(5). doi:10.1371/annotation/b1ecad56-652a-4a30-9920-26679d5a584a. PubMed PMID: 20436961; PubMed Central PMCID: PMC2860494.**

Abstract

BACKGROUND:

Migration from rural areas of India contributes to urbanisation and may increase the risk of obesity and diabetes. We tested the hypotheses that rural-to-urban migrants have a higher prevalence of obesity and diabetes than rural nonmigrants, that migrants would have an intermediate prevalence of obesity and diabetes compared with life-long urban and rural dwellers, and that longer time since migration would be associated with a higher prevalence of obesity and of diabetes.

METHODS AND FINDINGS:

The place of origin of people working in factories in north, central, and south India was identified. Migrants of rural origin, their rural dwelling sibs, and those of urban origin together with their urban dwelling sibs were assessed by interview, examination, and fasting blood samples. Obesity, diabetes, and other cardiovascular risk factors were compared. A total of 6,510 participants (42% women) were recruited. Among urban, migrant, and rural men the age- and factory-adjusted percentages classified as obese (body mass index [BMI] >25 kg/m<sup>2</sup>) were 41.9% (95% confidence interval [CI] 39.1-44.7), 37.8% (95% CI 35.0-40.6), and 19.0% (95% CI 17.0-21.0), respectively, and as diabetic were 13.5% (95% CI 11.6-15.4), 14.3% (95% CI 12.2-16.4), and 6.2% (95% CI 5.0-7.4), respectively. Findings for women showed similar patterns. Rural men had lower blood pressure, lipids, and fasting blood glucose than urban and migrant men, whereas no differences were seen in women. Among migrant men, but not women, there was weak evidence for a lower prevalence of both diabetes and obesity among more recent (<=10 y) migrants.

CONCLUSIONS:

Migration into urban areas is associated with increases in obesity, which drive other risk factor changes. Migrants have adopted modes of life that put them at similar risk to the urban population. Gender differences in some risk factors by place of origin are unexpected and require further exploration. Please see later in the article for the Editors' Summary.

**1023: Perry C, Hoffman B. Assessing tribal youth physical activity and programming using a community-based participatory research approach. Public Health Nurs. 2010 Mar-Apr;27(2):104-14. doi: 10.1111/j.1525-1446.2010.00833.x. PubMed PMID: 20433664; PubMed Central PMCID: PMC2921582.**

Abstract

OBJECTIVE:

American Indian youth experience a greater prevalence of obesity compared with the general U.S. population. One avenue to reverse the trend toward increasing obesity prevalence is through promoting physical activity. The goal of this project was to understand tribal youths' current patterns of physical activity behavior and their beliefs and preferences about physical activity.

DESIGN AND SAMPLE:

This assessment used a community-based participatory research approach. Sample included 35 Native youth aged 8-18.

MEASURES:

A Community Advisory Board was created that specifically developed an exercise survey for this assessment to explore physical activity patterns, preferences, and determinants. Twenty-six youth completed the survey. Descriptive statistics were analyzed, exploring differences by age group. Nine youth participated in 2 focus groups. Qualitative data were analyzed with thematic analysis.

RESULTS:

Youth distinguished between sports and exercise, with each possessing different determinants. Common motivators were friends, coach, and school, and barriers were lack of programs and school or work. None of the youth reported meeting the recommended 60 min of strenuous exercise daily.

CONCLUSIONS:

This tribal academic partnership responded to a tribal concern by developing an exercise survey and conducting focus groups that addressed tribal-specific questions. The results are informing program development.

**1024: Souza MG, Rivera IR, Silva MA, Carvalho AC. [Relationship of obesity with high blood pressure in children and adolescents]. Arq Bras Cardiol. 2010 Jun;94(6):714-9. Epub 2010 Apr 30. English, Portuguese. PubMed PMID: 20428712.**

Abstract

BACKGROUND:

Excess weight and body fat are currently recognized as the major determinants of high blood pressure in children and adolescents.

OBJECTIVE:

To identify the relationship between obesity - identified by waist circumference (WC), triceps skinfold thickness (TSF) and body mass index (BMI) - high blood pressure (HBP) in children and adolescents.

METHODS:

A cross-sectional epidemiological study based on school population in children and adolescents of both sexes, aged between 7 and 17 years, randomly selected.

**PROTOCOL:**

a structured questionnaire; measures of weight, height, triceps skinfold thickness, waist circumference, blood pressure, diagnosis of obesity through BMI, TSF thickness and waist circumference; diagnosis of HBP.

**STATISTICAL ANALYSIS:**

Chi-square.

**RESULTS:**

A total of 1,253 students (547 males, mean age 12.4 +/- 2.9 years), were assessed. A prevalence of obesity (BMI, TSF thickness, WC) of 13.7%, 14,8% and 9.3% respectively were identified. HBP was identified in 7.7% of young people. There was a significant association between obesity (BMI, TSF thickness, WC) with HBP (\*p < 0.0001). There was a strong correlation (\*p < 0.01) between WC and BMI, a moderate correlation between WC and TSF thickness, WC and SBP, BMI and SBP (\*p < 0.01); weak correlation between DBP and WC, TSF thickness and BMI, and between SBP and TSF thickness (\*p < 0.05).

**CONCLUSION:**

The significant correlation and association between HBP and excess body fat by any of the methods used establish the importance of its use in evaluating children and adolescents, aiming at preventing hypertension in this age group, suggesting, for this, the use of BMI associated to at least another anthropometric method.

**1025: Woodman J, Harden A, Thomas J, Brunton J, Kavanagh J, Stansfield C. Searching for systematic reviews of the effects of social and environmental interventions: a case study of children and obesity. J Med Libr Assoc. 2010 Apr;98(2):140-6. doi: 10.3163/1536-5050.98.2.006. PubMed PMID: 20428279; PubMed Central PMCID: PMC2859273.**

**Abstract**

**SETTING:**

Although an important part of the evidence base in health, systematic reviews are not always easy to find. Difficulties are compounded when interventions under review are "social and environmental" (that is, targeting wider determinants of health). The authors explored searches from a descriptive map containing thirty-two systematic reviews evaluating the effectiveness of social and environmental interventions for childhood obesity.

**QUESTIONS:**

Which sources give the highest yield of relevant reviews per 100 records? What is the value of searching databases that index literature beyond the "health" arena when looking for data on the effectiveness of social and environmental interventions?

**METHODS:**

The authors analyzed search results from nineteen databases and calculated the precision and the relative and unique contribution of each source.

**RESULTS:**

Searches of specialist systematic review databases-Database of Abstracts of Reviews of Effects (DARE), Database of Promoting Health Effectiveness Reviews (DoPHER), and Health Technology Assessment (HTA)-had the highest precision, although MEDLINE, CINAHL, and PsycINFO located many

additional reviews. The Cochrane Database of Systematic Reviews should be searched for health-related reviews. Searches of education, transportation, social policy, and social sciences databases did not identify additional reviews. Searching websites and bibliographies was important.

**CONCLUSIONS:**

Searches for review-level evidence could profitably start with the specialist review databases. Searches of the major health-related databases are essential, but database searching beyond them may not identify much additional evidence. Internet and hand-search remain important sources of reviews not found elsewhere. Comparison of the results with previous research suggests that appropriate sources for locating primary and secondary evidence may be different.

**1026: Al-Daghri N, Alokail M, Al-Attas O, Sabico S, Kumar S. Establishing abdominal height cut-offs and their association with conventional indices of obesity among Arab children and adolescents. Ann Saudi Med. 2010 May-Jun;30(3):209-14. doi: 10.4103/0256-4947.62835. PubMed PMID: 20427937; PubMed Central PMCID: PMC2886871.**

**Abstract**

**BACKGROUND AND OBJECTIVES:**

Obesity, particularly childhood obesity is common in the Middle East, but no studies have examined the relationship of sagittal abdominal diameter (SAD) or abdominal height to conventional markers of obesity in this region. This is the first study to document the association of SAD with measures of obesity among Arab children and adolescents.

**METHODS:**

Nine hundred sixty-four Saudi children aged 5-17 years (365 prepubertal, including 146 boys and 219 girls; 249 pubertal, including 125 boys and 124 girls; and 350 postpubertal, including 198 boys and 152 girls) were included in this cross-sectional study.

**RESULTS:**

SAD was significantly correlated with indices of obesity regardless of gender, but was strongest among pubertal boys. The cut-off values were as follows: for prepubertal children, 14 cm (equivalent to 50th percentile among girls and 60th percentile among boys); for pubertal children, 15 cm for girls (30th percentile) and 16 cm for boys (50th percentile), and for postpubertal, 21.5 cm for girls (70th percentile) and 22 cm for boys (80th percentile).

**CONCLUSION:**

SAD is a reliable indicator of visceral obesity among Arab children and adolescents in particular. Prospective studies should be done to determine whether such an association translates to a promising risk factor for hard endpoints such as diabetes mellitus and coronary heart disease.

**1027: El Mouzan MI, Foster PJ, Al Herbish AS, Al Salloum AA, Al Omer AA, Qurachi MM, Kecojevic T. Prevalence of overweight and obesity in Saudi children and adolescents. Ann Saudi Med. 2010 May-Jun;30(3):203-8. doi: 10.4103/0256-4947.62833. Erratum in: Ann Saudi Med. 2010 Nov-Dec;30(6):500-2. PubMed PMID: 20427936; PubMed Central PMCID: PMC2886870.**

Abstract

BACKGROUND AND OBJECTIVE:

There is limited information on overweight and obesity in Saudi children and adolescents. The objective of this study was to establish the national prevalence of overweight and obesity in Saudi children and adolescents.

METHODS:

The 2005 Saudi reference data set was used to calculate the body mass index (BMI) for children aged 5 to 18 years. Using the 2007 WHO reference, the prevalence of overweight, obesity and severe obesity were defined as the proportion of children with a BMI standard deviation score more than +1, +2 and +3, respectively. The 2000 CDC reference was also used for comparison.

RESULTS:

There were 19 317 healthy children and adolescents from 5 to 18 years of age, 50.8% of whom were boys. The overall prevalence of overweight, obesity and severe obesity in all age groups was 23.1%, 9.3% and 2%, respectively. A significantly lower prevalence of overweight (23.8 vs 20.4;  $P < .001$ ) and obesity (9.5 vs 5.7;  $P < .001$ ) was found when the CDC reference was used.

CONCLUSIONS:

This report establishes baseline national prevalence rates for overweight, obesity and severe obesity in Saudi children and adolescents, indicating intermediate levels between developing and industrialized countries. Measures should be implemented to prevent further increases in the numbers of overweight school-age children and adolescents and the associated health hazards.

**1029: Pirkola J, Pouta A, Bloigu A, Hartikainen AL, Laitinen J, Järvelin MR, Väärasmäki M. Risks of overweight and abdominal obesity at age 16 years associated with prenatal exposures to maternal prepregnancy overweight and gestational diabetes mellitus. Diabetes Care. 2010 May;33(5):1115-21. doi: 10.2337/dc09-1871. PubMed PMID: 20427685; PubMed Central PMCID: PMC2858187.**

Abstract

OBJECTIVE:

The associations of prenatal exposures to maternal prepregnancy overweight and gestational diabetes mellitus (GDM) with offspring overweight are controversial. Research estimating risk for offspring overweight due to these exposures, separately and concomitantly, is limited.

RESEARCH DESIGN AND METHODS:

Prevalence of overweight and abdominal obesity at age 16 years and odds ratios (ORs) for prenatal exposures to maternal prepregnancy overweight and GDM were estimated in participants of the prospective longitudinal Northern Finland Birth Cohort of 1986 (N = 4,168).

RESULTS:

The prevalence and estimates of risk for overweight and abdominal obesity were highest in those exposed to both maternal prepregnancy overweight and GDM (overweight prevalence 40% [OR 4.05], abdominal obesity prevalence 25.7% [3.82]). Even in offspring of mothers with a normal oral

glucose tolerance test during pregnancy, maternal prepregnancy overweight is associated with increased risk for these outcomes (overweight prevalence 27.9% [2.56], abdominal obesity prevalence 19.5% [2.60]). In offspring of women with prepregnancy normal weight, the prevalence or risks of the outcomes were not increased by prenatal exposure to GDM. These estimates of risk were adjusted for parental prepregnancy smoking, paternal overweight, and offspring sex and size at birth.

**CONCLUSIONS:**

Maternal prepregnancy overweight is an independent risk factor for offspring overweight and abdominal obesity at age 16 years. The risks are highest in offspring with concomitant prenatal exposure to maternal prepregnancy overweight and GDM, whereas the risks associated with GDM are only small.

**1030: Tremblay MS, Shields M, Laviolette M, Craig CL, Janssen I, Connor Gorber S.**

**Fitness of Canadian children and youth: results from the 2007-2009 Canadian Health Measures Survey. Health Rep. 2010 Mar;21(1):7-20. PubMed PMID: 20426223.**

**Abstract**

**BACKGROUND:**

The fitness of Canadian children and youth has not been measured in more than two decades, a period during which childhood obesity and sedentary behaviours have increased. This paper provides up-to-date estimates of the fitness of Canadians aged 6 to 19 years.

**DATA AND METHODS:**

Data are from the 2007-2009 Canadian Health Measures Survey (CHMS), the most comprehensive direct health measures survey ever conducted on a nationally representative sample of Canadians. Descriptive statistics for indicators of body composition, aerobic fitness and musculoskeletal fitness are provided by sex and age group, and comparisons are made with the 1981 Canada Fitness Survey (CFS).

**RESULTS:**

Fitness levels of children and youth have declined significantly and meaningfully since 1981, regardless of age or sex. Significant sex differences exist for most fitness measures. Fitness levels change substantially between ages 6 and 19 years. Youth aged 15 to 19 years generally have better aerobic fitness and body composition indicators than 20- to 39-year-olds.

**INTERPRETATION:**

This decline in fitness may result in accelerated chronic disease development, higher health care costs, and loss of future productivity.

**1031: Scherag A, Dina C, Hinney A, Vatin V, Scherag S, Vogel CI, Müller TD, Grallert H, Wichmann HE, Balkau B, Heude B, Jarvelin MR, Hartikainen AL, Levy-Marchal C, Weill J, Delplanque J, Körner A, Kiess W, Kovacs P, Rayner NW, Prokopenko I, McCarthy MI, Schäfer H, Jarick I, Boeing H, Fisher E, Reinehr T, Heinrich J, Rzehak P, Berdel D, Borte M, Biebermann H, Krude H, Rosskopf D, Rimbach C, Rief W, Fromme T, Klingenspor M, Schürmann A, Schulz N, Nöthen MM, Mühleisen TW, Erbel R, Jöckel KH, Moebus S, Boes T, Illig T, Froguel P, Hebebrand J, Meyre D. Two new Loci for body-weight regulation identified in a joint analysis of genome-wide association studies for early-onset extreme obesity in French and German study groups. *PLoS Genet.* 2010 Apr 22;6(4):e1000916. doi: 10.1371/journal.pgen.1000916. PubMed PMID: 20421936; PubMed Central PMCID: PMC2858696.**

#### Abstract

Meta-analyses of population-based genome-wide association studies (GWAS) in adults have recently led to the detection of new genetic loci for obesity. Here we aimed to discover additional obesity loci in extremely obese children and adolescents. We also investigated if these results generalize by estimating the effects of these obesity loci in adults and in population-based samples including both children and adults. We jointly analysed two GWAS of 2,258 individuals and followed-up the best, according to lowest p-values, 44 single nucleotide polymorphisms (SNP) from 21 genomic regions in 3,141 individuals. After this DISCOVERY step, we explored if the findings derived from the extremely obese children and adolescents (10 SNPs from 5 genomic regions) generalized to (i) the population level and (ii) to adults by genotyping another 31,182 individuals (GENERALIZATION step). Apart from previously identified FTO, MC4R, and TMEM18, we detected two new loci for obesity: one in SDCCAG8 (serologically defined colon cancer antigen 8 gene;  $p = 1.85 \times 10^{-8}$ ) in the DISCOVERY step) and one between TNKS (tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase gene) and MSRA (methionine sulfoxide reductase A gene;  $p = 4.84 \times 10^{-7}$ ), the latter finding being limited to children and adolescents as demonstrated in the GENERALIZATION step. The odds ratios for early-onset obesity were estimated at approximately 1.10 per risk allele for both loci. Interestingly, the TNKS/MSRA locus has recently been found to be associated with adult waist circumference. In summary, we have completed a meta-analysis of two GWAS which both focus on extremely obese children and adolescents and replicated our findings in a large followed-up data set. We observed that genetic variants in or near FTO, MC4R, TMEM18, SDCCAG8, and TNKS/MSRA were robustly associated with early-onset obesity. We conclude that the currently known major common variants related to obesity overlap to a substantial degree between children and adults.

**1032: Navarro WH, Agovi MA, Logan BR, Ballen K, Bolwell BJ, Frangoul H, Gupta V, Hahn T, Ho VT, Juckett M, Lazarus HM, Litzow MR, Liesveld JL, Moreb JS, Marks DI, McCarthy PL, Pasquini MC, Rizzo JD. Obesity does not preclude safe and effective myeloablative hematopoietic cell transplantation (HCT) for acute myelogenous leukemia (AML) in adults. Biol Blood Marrow Transplant. 2010 Oct;16(10):1442-50. doi: 10.1016/j.bbmt.2010.04.009. Epub 2010 Apr 20. PubMed PMID: 20412867; PubMed Central PMCID: PMC2933950.**

Abstract

The incidence of excessive adiposity is increasing worldwide, and is associated with numerous adverse health outcomes. We compared outcomes by body mass index (BMI) for adult patients with acute myelogenous leukemia (AML) who underwent autologous (auto, n = 373), related donor (RD, n = 2041), or unrelated donor (URD, n = 1801) allogeneic myeloablative hematopoietic cell transplantation (HCT) using bone marrow or peripheral blood stem cells reported to the Center for International Blood and Marrow Transplant Research (CIBMTR) from 1995 to 2004. Four weight groups by BMI (kg/m<sup>2</sup>) were defined: underweight <18 kg/m<sup>2</sup>; normal 18-25 kg/m<sup>2</sup>; overweight >25-30 kg/m<sup>2</sup>; and obese >30 kg/m<sup>2</sup>. Multivariable analysis referenced to the normal weight group showed an increased risk of death for underweight patients in the RD group (relative risk [RR], 1.92; 95% confidence interval [CI], 1.28-2.89; P = .002), but not in the URD group. There were no other differences in outcomes among the other weight groups within the other HCT groups. Overweight and obese patients enjoyed a modest decrease in relapse incidence, although this did not translate into a survival benefit. Small numbers of patients limit the ability to better characterize the adverse outcomes seen in the underweight RD but not the underweight URD allogeneic HCT patients. Obesity alone should not be considered a barrier to HCT.

**1033: Holm JE, Vogeltanz-Holm N, Poltavski D, McDonald L. Assessing health status, behavioral risks, and health disparities in American Indians living on the northern plains of the U.S. Public Health Rep. 2010 Jan-Feb;125(1):68-78. PubMed PMID: 20402198; PubMed Central PMCID: PMC2789818.**

Abstract

OBJECTIVE:

We assessed health status and behavioral risks in American Indians (AIs) from rural, northern plains reservation communities.

METHODS:

AI interviewers from the communities administered the core and optional modules of the Behavioral Risk Factor Surveillance System (BRFSS) to 404 AI adults randomly selected from housing lists from four AI tribal communities located on the northern plains of the U.S. The BRFSS interview assessed several health functioning areas including medical conditions, preventive screenings, and behavioral risks. We measured health disparities by comparing the AI sample data with a northern plains statewide (North Dakota) sample and a U.S. national sample. We compared outcomes with BRFSS statewide (North Dakota) and U.S. national data from telephone-based interviews.

RESULTS:

AI participants showed a significantly greater prevalence of diabetes, coronary heart disease, myocardial infarction, smoking, obesity, and heavy alcohol use than either the regional or national samples. They also reported being less likely to engage in leisure-time physical activity and to have



had age-appropriate preventive screenings for several diseases including colorectal cancer, prostate cancer, breast cancer, and cardiovascular disease.

**CONCLUSIONS:**

Face-to-face interviews conducted by AI community members are an effective means of gathering health information about AIs living in rural, reservation communities. AIs living in these communities on the northern plains have a much higher prevalence of many health-risk behaviors and some medical conditions than are found in the general population. Improved health-care access, better preventive screenings, and culturally appropriate community-based health promotion programs and policies should be examined as possible ways to reduce health disparities.

**1034: Trotter LJ, Bowen DJ, Beresford SA. Testing for racial/ethnic differences in the association between childhood socioeconomic position and adult adiposity. Am J Public Health. 2010 Jun;100(6):1088-94. doi: 10.2105/AJPH.2009.173492. Epub 2010 Apr 15. PubMed PMID: 20395579; PubMed Central PMCID: PMC2866593.**

Abstract

**OBJECTIVES:**

We tested the association between 2 measures of childhood socioeconomic position (SEP) and adult body mass index (BMI), stratified by race and ethnicity.

**METHODS:**

We used regression analyses to examine associations between adult BMI and 2 measures of childhood SEP (maternal education and whether the head of the child's household was working class), adjusted for a robust set of adult SEP measures, in a sample of 2068 adults from Los Angeles County, California.

**RESULTS:**

Maternal educational attainment was associated with a lower median adult BMI among Whites (8% decrease for high school diploma and 9% decrease for a college degree, compared with no high school diploma). A maternal high school diploma was associated with a 6% decrease in median adult BMI among Hispanics and an 11% decrease among Blacks. Our measure of childhood working-class status was not correlated with adult BMI.

**CONCLUSIONS:**

Our results suggest that childhood SEP is independently associated with adult BMI. However, our results also suggest that the effect may depend on which measures of SEP are used and that some aspects of childhood SEP may matter more for adult BMI than others.

**1035: Ramos Chaves M, Boléo-Tomé C, Monteiro-Grillo I, Camilo M, Ravasco P. The diversity of nutritional status in cancer: new insights. Oncologist. 2010;15(5):523-30. doi: 10.1634/theoncologist.2009-0283. Epub 2010 Apr 15. PubMed PMID: 20395552; PubMed Central PMCID: PMC3227982.**

Abstract

**OBJECTIVE:**

Nutritional status in cancer has been mostly biased toward undernutrition, an issue now in dispute. We aimed to characterize nutrition status, to analyze associations between nutritional and clinical/cancer-related variables, and to quantify the relative weights of nutritional and cancer-related features.

#### METHODS:

The cross-sectional study included 450 nonselected cancer patients (ages 18-95 years) at referral for radiotherapy. Nutritional status assessment included recent weight changes, body mass index (BMI) categorized by World Health Organization's age/sex criteria, and Patient-Generated Subjective Global Assessment (PG-SGA; validated/specific for oncology).

#### RESULTS:

BMI identified 63% as  $\geq 25$  kg/m<sup>2</sup> (43% overweight, 20% obese) and 4% as undernourished. PG-SGA identified 29% as undernourished and 71% as well nourished. Crossing both methods, among the 319 (71%) well-nourished patients according to PG-SGA, 75% were overweight/obese and only 25% were well nourished according to BMI. Concordance between BMI and PG-SGA was evaluated and consistency was confirmed. More aggressive/advanced stage cancers were more prevalent in deficient and excessive nutritional status: in 83% (n = 235/282) of overweight/obese patients by BMI and in 85% (n = 111/131) of undernourished patients by PG-SGA. Results required adjustment for diagnoses: greater histological aggressiveness was found in overweight/obese prostate and breast cancer; undernutrition was associated with aggressive lung, colorectal, head-neck, stomach, and esophageal cancers (p < .005). Estimates of effect size revealed that overweight/obesity was associated with advanced stage (24%), aggressive breast (10%), and prostate (9%) cancers, whereas undernutrition was associated with more aggressive lung (6%), colorectal (6%), and head-neck (6%) cancers; in both instances, age and longer disease duration were of significance.

#### CONCLUSION:

Undernutrition and overweight/obesity have distinct implications and bear a negative prognosis in cancer. This study provides novel data on the prevalence of overweight/obesity and undernutrition in cancer patients and their potential role in cancer histological behavior.

**1036: Powell LM, Han E, Chaloupka FJ. Economic contextual factors, food consumption, and obesity among U.S. adolescents. J Nutr. 2010 Jun;140(6):1175-80. doi: 10.3945/jn.109.111526. Epub 2010 Apr 14. Review. PubMed PMID: 20392882.**

#### Abstract

Adolescents have poor dietary behaviors and high overweight prevalence. Economic contextual factors such as food prices and food store and restaurant availability are hypothesized and increasingly being explored empirically as contributors to the obesity epidemic. Evidence showed that healthful compared with less healthful foods increasingly cost more and that fast food restaurants are increasingly available. In addition, racial, ethnic, and socioeconomic disparities have been documented in access to food outlets, particularly chain supermarkets, and such disparities have been shown to be increasing recently. Empirical evidence based on nationally representative U.S. adolescent data revealed that lower fruit and vegetable prices, higher fast food prices, and greater supermarket availability were related to higher fruit and vegetable consumption and lower BMI, in particular for BMI among teens who are overweight or at risk for overweight and who are low- to middle-socioeconomic status. The availability of fast food restaurants was not associated with youth BMI. Overall, this research implies that pricing interventions of taxes on energy-dense foods such as fast food and/or subsidies to healthful foods such as fruits and vegetables and policy efforts to improve access to supermarkets may help to improve adolescent weight outcomes.

**1037: Campana EM, Brandão AA, Pozzan R, França Mde F, Fonseca FL, Pizzi OL, Magalhães ME, Freitas EV, Brandão AP. Blood pressure in young individuals as a**

**cardiovascular risk marker. The Rio de Janeiro study. Arq Bras Cardiol. 2009 Dec;93(6):608-15, 657-65. English, Portuguese. PubMed PMID: 20379641.**

Abstract

**BACKGROUND:**

The study of the cardiovascular risk variables in young populations is fundamental to establish primary prevention strategies.

**OBJECTIVE:**

To evaluate the blood pressure (BP), anthropometric and metabolic profile in young individuals from The Rio de Janeiro Study, followed by 17 years.

**METHODS:**

A total of 115 individuals (64 males) were evaluated at three different moments (follow-up: 212.23±16.0 months): A1 (12.97±1.48 years), A2 (21.90±1.71 years) and A3 (30.65±2.00 years) and divided in two groups: NG (n=84) with at least two normal BP measurements at the three assessments; HG (n=31) with at least two abnormal BP measurements at the three assessments. BP and body mass index (BMI) were obtained at the three assessments. Levels of glucose, triglycerides, total cholesterol and fractions were obtained at A2 and A3. Abdominal circumference (AC) was obtained only at A3.

**RESULTS:**

1) The means of BP, BMI and AC ( $p<0.0001$ ) as well as the prevalence of systemic arterial hypertension (SAH) and overweight/obesity (O/O) ( $p<0.003$ ) were higher in the HG at the three assessments; 2) The means of LDL-c and glycemia ( $p<0.05$ ) at A2 and the prevalence of metabolic syndrome (MS) at A3 were higher in the HG; 3) the association SAH+O/O was more prevalent in the HG, whereas the association NBP+NBMI was more prevalent in the NG ( $p<0.0001$ ) at the three assessments; 4) SAH at A1 (RR=5.20 = 5.20;  $p<0.0007$ ), male gender (RR=5.26 = 5.26;  $p<0.0019$ ) and OO at A1 (RR=3.40 = 3.40;  $p<0.0278$ ) determined an increased risk for AH at the young adult life (A3).

**CONCLUSION:**

After 17 years of follow-up, the BP of young individuals showed a significant association with the cardiovascular risk variables and the occurrence of MS at the young adult life.

**1038: Diouf I, Charles MA, Ducimetière P, Basdevant A, Eschwege E, Heude B.**

**Evolution of obesity prevalence in France: an age-period-cohort analysis.**

**Epidemiology. 2010 May;21(3):360-5. doi: 10.1097/EDE.0b013e3181d5bff5. PubMed**

**PMID: 20375843; PubMed Central PMCID: PMC3315475.**

Abstract

**BACKGROUND:**

A rapid increase in the prevalence of obesity has been reported in France since 1990. We investigated the impact of birth cohort on the changes in obesity prevalence after taking into account age and survey period.

**METHODS:**

We analyzed data from 4 national surveys in 1997, 2000, 2003, and 2006. For each survey, self-reported data on weight and height were recorded on mailed questionnaires sent to a sample of 20,000 households, representative of the French population. Obesity was defined according to World Health Organization criteria as body mass index  $\geq 30$  kg/m<sup>2</sup>. We modeled the prevalence of obesity using logistic regression with age, cohort, and period as explanatory variables. As these variables are

linearly dependent, only nonlinear effects can be estimated uniquely and interpreted, after including specific chosen constraints in the models.

**RESULTS:**

There was a progressive increase in the prevalence of obesity between 1997 and 2006, attributable either to a period effect or to a cohort effect. There was a substantial departure from a linear trend for the cohort effect only, which seemed to be stronger in women: there was an acceleration in the prevalence of obesity with birth cohort for individuals born after the mid-1960s, in both sexes.

**CONCLUSIONS:**

Our results are consistent with previous studies in other countries. Compared with older generations, men and women born in the late 1960s may have been subject to early exposures that increased their lifelong susceptibility to obesity.

**1039: Depallens SD, Puelma MJ, Krähenbühl JD, Gehri M. The health status of children without resident permit consulting the Children's Hospital of Lausanne.**

**Swiss Med Wkly. 2010 Jul 15;140:w13048. doi: 10.4414/smw.2010.13048. PubMed PMID: 20373177.**

**Abstract**

**OBJECTIVE:**

To assess social, economic and medical data concerning children without a resident permit taken into care by the Children's Hospital of Lausanne (HEL) in order to evaluate their specific needs.

**METHODS:**

Prospective exploratory study by a questionnaire including the socio-demographic, medical and education data of 103 children without a resident permit, who consulted the HEL for the first time between August 2003 and March 2006. These children were then recalled for a second check-up one year later in order to allow a regular monitoring.

**RESULTS:**

Eighty-seven percent of the children were native of Latin America, 36% being less than two years old. This population of children lived in precarious conditions with a family income lower than the poverty level (89% of the families with less than 3100 CHF/month). Forty-five percent of the children had a health insurance. The main reasons for consultation were infectious diseases, a check-up requested by the school or a check-up concerning newborn children. Most of them were in good health and the others were affected by illnesses similar to those found in other children of the same age. At least 13% of the children were obese and 27% were overweight. All children who were of educational age went to school during the year after the first check-up and 48% were affiliated to a health insurance.

**CONCLUSIONS:**

The majority of the children from Latin America lived in very precarious conditions. Their general health status was good and most of them could benefit from regular check-ups. Prevention, focused on a healthier life style, was particularly important among this population characterised by a high incidence of overweight and obesity.

**1040: Becker MA, Schumacher HR, Espinoza LR, Wells AF, MacDonald P, Lloyd E, Lademacher C. The urate-lowering efficacy and safety of febuxostat in the treatment of the hyperuricemia of gout: the CONFIRMS trial. *Arthritis Res Ther*. 2010;12(2):R63. doi: 10.1186/ar2978. Epub 2010 Apr 6. PubMed PMID: 20370912; PubMed Central PMCID: PMC2888216.**

Abstract

INTRODUCTION:

The purpose of this study was to compare urate-lowering (UL) efficacy and safety of daily febuxostat and allopurinol in subjects with gout and serum urate (sUA)  $\geq$  8.0 mg/dL in a six-month trial.

METHODS:

Subjects (n = 2,269) were randomized to febuxostat 40 mg or 80 mg, or allopurinol 300 mg (200 mg in moderate renal impairment). Endpoints included the proportion of all subjects with sUA  $<$ 6.0 mg/dL and the proportion of subjects with mild/moderate renal impairment and sUA  $<$ 6.0 mg/dL. Safety assessments included blinded adjudication of each cardiovascular (CV) adverse event (AE) and death.

RESULTS:

Comorbidities included: renal impairment (65%); obesity (64%); hyperlipidemia (42%); and hypertension (53%). In febuxostat 40 mg, febuxostat 80 mg, and allopurinol groups, primary endpoint was achieved in 45%, 67%, and 42%, respectively. Febuxostat 40 mg UL was statistically non-inferior to allopurinol, but febuxostat 80 mg was superior to both ( $P < 0.001$ ). Achievement of target sUA in subjects with renal impairment was also superior with febuxostat 80 mg (72%;  $P < 0.001$ ) compared with febuxostat 40 mg (50%) or allopurinol (42%), but febuxostat 40 mg showed greater efficacy than allopurinol ( $P = 0.021$ ). Rates of AEs did not differ across treatment groups. Adjudicated (APTC) CV event rates were 0.0% for febuxostat 40 mg and 0.4% for both febuxostat 80 mg and allopurinol. One death occurred in each febuxostat group and three in the allopurinol group.

CONCLUSIONS:

Urate-lowering efficacy of febuxostat 80 mg exceeded that of febuxostat 40 mg and allopurinol (300/200 mg), which were comparable. In subjects with mild/moderate renal impairment, both febuxostat doses were more efficacious than allopurinol and equally safe. At the doses tested, safety of febuxostat and allopurinol was comparable.

**1041: Haines J, Kleinman KP, Rifas-Shiman SL, Field AE, Austin SB. Examination of shared risk and protective factors for overweight and disordered eating among adolescents. *Arch Pediatr Adolesc Med*. 2010 Apr;164(4):336-43. doi: 10.1001/archpediatrics.2010.19. PubMed PMID: 20368486; PubMed Central PMCID: PMC3093706.**

Abstract

OBJECTIVE:

To identify shared risk and protective factors for purging, binge eating, and overweight.

DESIGN:

Prospective cohort study.

SETTING:

Population-based questionnaires of children and adolescents residing across the United States.

PARTICIPANTS:

Girls (n = 6022) and boys (n = 4518), aged 11 to 17 years in 1998, in the ongoing Growing Up Today Study.

**MAIN EXPOSURES:**

Putative risk and protective factors within the psychological, behavioral, and socioenvironmental domains.

**MAIN OUTCOME MEASURES:**

Overweight, use of laxatives or purging (vomiting), and binge eating. Because of the low prevalence of purging, we did not examine shared factors for this behavior among boys.

**RESULTS:**

In 1998, a total of 219 girls (3.7%) and 30 boys (0.7%) reported purging behaviors, 426 girls (7.1%) and 90 boys (2.0%) reported binge eating, and 1019 girls (17.4%) and 1040 boys (24.6%) were overweight. From 1999 through 2001, 331 girls (7.8%) initiated purging behaviors, 503 girls (11.8%) and 132 boys (4.5%) initiated binge eating behaviors, and 424 girls (10.0%) and 382 boys (13.6%) became overweight. Concern for weight was directly associated with all 3 weight-related problems among boys and girls. Among girls, dieting, parental weight-related teasing, and family meal frequency had a shared effect on the weight-related problems examined.

**CONCLUSIONS:**

Factors within the psychological, behavioral, and socioenvironmental domains may have a shared effect on purging, binge eating, and overweight. Further research is needed to determine if an intervention designed to address these shared risk and protective factors is effective in simultaneously reducing these weight-related problems.

**1042: Broyles S, Katzmarzyk PT, Srinivasan SR, Chen W, Bouchard C, Freedman DS, Berenson GS. The pediatric obesity epidemic continues unabated in Bogalusa, Louisiana. *Pediatrics*. 2010 May;125(5):900-5. doi: 10.1542/peds.2009-2748. Epub 2010 Apr 5. PubMed PMID: 20368311; PubMed Central PMCID: PMC3023706.**

**Abstract**

**OBJECTIVES:**

To examine 35-year trends in the prevalence of overweight and obesity among children and adolescents from Bogalusa, Louisiana.

**PATIENTS AND METHODS:**

Height and weight were measured for 11653 children and adolescents between 5 and 17 years of age in 8 cross-sectional surveys. The Bogalusa Heart Study contributed data from 1973-1994, and routine school screening provided 2008-2009 data. Trends in mean BMI, mean gender-specific BMI-for-age z scores, prevalence of overweight/obesity (BMI > or = 85th percentile), and prevalence of obesity (BMI > or = 95th percentile) according to age, race, and gender were examined.

**RESULTS:**

Since 1973-1974, the proportion of children and adolescents aged 5 to 17 years who are overweight (overweight plus obese) has more than tripled, from 14.2% to 48.4% in 2008-2009. Similarly, the proportion of obese children and adolescents has increased more than fivefold from 5.6% in 1973-1974 to 30.8% in 2008-2009. The prevalence of overweight or obesity, and secular changes, were similar among black and white boys and girls.

**CONCLUSIONS:**

In semirural Bogalusa, the childhood obesity epidemic has not plateaued, and nearly half of the children are now overweight or obese.

**1043: Burrows A R, Ceballos S X, Burgueño M M, Muzzo B S. [Trends in puberal development of school age children living in the Metropolitan Region of Chile]. Rev Med Chil. 2010 Jan;138(1):61-7. doi: /S0034-98872010000100008. Epub 2010 Mar 26. Spanish. PubMed PMID: 20361152.**

Abstract

BACKGROUND:

There is a worldwide tendency towards an earlier appearance of puberal development among children, associated with an increase in weight and height.

AIM:

To study the trends in puberal development in Chilean school age children, between the years 1986 and 2001 and correlate it with weight and height changes.

SUBJECTS AND METHODS:

In two representative samples of school age children, collected between years 1985 and 1987 (m-1986) and another between years 2000 and 2002 (m-2001), girls between 7 and 15 years (958 and 935, respectively) and boys between 9 and 15 years (842 and 870 respectively), were selected. Breast development (B) in females and genital development (G) in males were classified according to Tanner stages. Weight, height, body mass index (BMI) and nutritional status (according to Centers for Disease Control/ National Center for Health Statistics (CDC/NCHS) standards) were assessed.

RESULTS:

The prevalence of obesity increased four fold between 1986 and 2001. The 2001 generation had a significantly higher degree of puberal development than their counterparts studied in 1986. Compared to m-1986, m-2001 subjects had a lower mean age at puberal development stage two and three, but no differences at puberal stages 4 and 5. BMI of m-2001 subjects was significantly higher than that of m-1986 subjects at all puberal stages. The m-2001 males showed highest stature than m-1986 in all puberal stage, however, in females there is no difference in height between m-2001 and m-1986.

CONCLUSIONS:

The highest BMI observed in the cohort of 2001, could be facilitating an earlier puberal development and ethnic factors could explain the sexual dimorphism in stature.

**1045: Kimani-Murage EW, Kahn K, Pettifor JM, Tollman SM, Dunger DB, Gómez-Olivé XF, Norris SA. The prevalence of stunting, overweight and obesity, and metabolic disease risk in rural South African children. BMC Public Health. 2010 Mar 25;10:158. doi: 10.1186/1471-2458-10-158. PubMed PMID: 20338024; PubMed Central PMCID: PMC2853509.**

Abstract

BACKGROUND:

Low- to middle-income countries are undergoing a health transition with non-communicable diseases contributing substantially to disease burden, despite persistence of undernutrition and infectious diseases. This study aimed to investigate the prevalence and patterns of stunting and overweight/obesity, and hence risk for metabolic disease, in a group of children and adolescents in rural South Africa.

METHODS:

A cross-sectional growth survey was conducted involving 3511 children and adolescents 1-20 years, selected through stratified random sampling from a previously enumerated population living in Agincourt sub-district, Mpumalanga Province, South Africa. Anthropometric measurements including height, weight and waist circumference were taken using standard procedures. Tanner pubertal assessment was conducted among adolescents 9-20 years. Growth z-scores were generated using 2006 WHO standards for children up to five years and 1977 NCHS/WHO reference for older children. Overweight and obesity for those <18 years were determined using International Obesity Task Force BMI cut-offs, while adult cut-offs of BMI  $\geq 25$  and  $\geq 30$  kg/m<sup>2</sup> for overweight and obesity respectively were used for those  $\geq 18$  years. Waist circumference cut-offs of  $\geq 94$  cm for males and  $\geq 80$  cm for females and waist-to-height ratio of 0.5 for both sexes were used to determine metabolic disease risk in adolescents.

**RESULTS:**

About one in five children aged 1-4 years was stunted; one in three of those aged one year. Concurrently, the prevalence of combined overweight and obesity, almost non-existent in boys, was substantial among adolescent girls, increasing with age and reaching approximately 20-25% in late adolescence. Central obesity was prevalent among adolescent girls, increasing with sexual maturation and reaching a peak of 35% at Tanner Stage 5, indicating increased risk for metabolic disease.

**CONCLUSIONS:**

The study highlights that in transitional societies, early stunting and adolescent obesity may co-exist in the same socio-geographic population. It is likely that this profile relates to changes in nutrition and diet, but variation in factors such as infectious disease burden and physical activity patterns, as well as social influences, need to be investigated. As obesity and adult short stature are risk factors for metabolic syndrome and Type 2 diabetes, this combination of early stunting and adolescent obesity may be an explosive combination.

**1046: Hairston KG, Bryer-Ash M, Norris JM, Haffner S, Bowden DW, Wagenknecht LE. Sleep duration and five-year abdominal fat accumulation in a minority cohort: the IRAS family study. Sleep. 2010 Mar;33(3):289-95. PubMed PMID: 20337186; PubMed Central PMCID: PMC2831422.**

**Abstract**

**STUDY OBJECTIVES:**

To study 5-year change in computed tomography (CT)-derived visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) associated with sleep duration in 2 minority groups.

**DESIGN:**

Longitudinal epidemiologic study.

**SETTING:**

Three US communities.

**PARTICIPANTS:**

African Americans (N = 332) and Hispanic Americans (N = 775), aged 18-81 years, participating in the IRAS Family Study.

**INTERVENTIONS:**

none

**MEASUREMENTS AND RESULTS:**

Abdominal CT scans and BMI obtained at a 5-year interval. Sleep duration was assessed by questionnaire at baseline and categorized as  $\leq 5$  h, 6-7 h, and  $\geq 8$  h. Generalized estimating



equations assessed the association between sleep duration and 5-year fat accumulation with adjustment for age, race, gender, study site, baseline fat measure, physical activity, total calories, smoking status, and education. Age interacted with sleep duration to predict change in fat measures ( $P < 0.01$ ). In those younger than 40 years,  $\leq 5$  h of sleep was related to a greater accumulation of BMI (1.8 kg/m<sup>2</sup>,  $P < 0.001$ ), SAT (42 cm<sup>2</sup>,  $P < 0.0001$ ), and VAT (13 cm<sup>2</sup>,  $P > 0.01$ ), compared to sleep duration between 6 and 7 h. Eight hours or more of sleep was also significantly related to a greater accumulation of BMI (0.8 kg/m<sup>2</sup>,  $P < 0.001$ ), SAT (20 cm<sup>2</sup>,  $P < 0.01$ ) and VAT (6 cm<sup>2</sup>,  $P < 0.05$ ) compared to sleep duration between 6 and 7 h. No significant relationship existed between sleep duration and fat depot change in participants older than 40 years old.

#### CONCLUSIONS:

In this minority cohort, extremes of sleep duration are related to increases in BMI, SAT, and VAT in persons younger than 40 years old.

**1047: Levitan RD, Kaplan AS, Davis C, Lam RW, Kennedy JL. A season-of-birth/DRD4 interaction predicts maximal body mass index in women with bulimia nervosa. *Neuropsychopharmacology*. 2010 Jul;35(8):1729-33. doi: 10.1038/npp.2010.38. Epub 2010 Mar 24. PubMed PMID: 20336060; PubMed Central PMCID: PMC3055483.**

#### Abstract

We have earlier reported that season of birth interacts with the hypofunctional 7-repeat (7R) allele of the dopamine-4 receptor gene (DRD4) to promote weight gain and obesity in women with seasonal affective disorder (SAD). This study examined whether this gene-environment interaction influences body weight regulation in women with bulimia nervosa (BN). In 188 female probands with BN, we performed an analysis of covariance predicting maximum lifetime body mass index (BMI) using season-of-birth, DRD4 genotype (7R present/absent), and past history of anorexia nervosa (yes/no) as independent variables, and age at maximum weight as the co-variate. Consistent with our SAD study, the birth-season x DRD4 interaction was a significant predictor of maximal BMI. Although in SAD, the spring-birth/7R+ group had markedly elevated maximal BMIs and high rates of obesity, in this BN sample, the fall-birth/7R+ group exhibited the highest BMI values (N=17: mean maximal BMI=28.2 kg/m<sup>2</sup> (SE 0.9) vs 25.2 kg/ m<sup>2</sup> (SE 0.3) for all other probands combined (N=171);  $p=0.002$ ). The lifetime rate of obesity (BMI>30) was also higher in the fall-birth/7R+ vs 'other' group (29.9 vs 8.8%, respectively,  $p=0.008$ ). These data offer further evidence that season of birth interacts with the 7R allele of DRD4 to influence body weight regulation in female overeating populations.

**1048: Biro FM, Wien M. Childhood obesity and adult morbidities. *Am J Clin Nutr*. 2010 May;91(5):1499S-1505S. doi: 10.3945/ajcn.2010.28701B. Epub 2010 Mar 24. Review. PubMed PMID: 20335542; PubMed Central PMCID: PMC2854915.**

#### Abstract

The prevalence and severity of obesity have increased in recent years, likely the result of complex interactions between genes, dietary intake, physical activity, and the environment. The expression of genes favoring the storage of excess calories as fat, which have been selected for over many millennia and are relatively static, has become maladaptive in a rapidly changing environment that minimizes opportunities for energy expenditure and maximizes opportunities for energy intake. The consequences of childhood and adolescent obesity include earlier puberty and menarche in girls, type 2 diabetes and increased incidence of the metabolic syndrome in youth and adults, and obesity

in adulthood. These changes are associated with cardiovascular disease as well as with several cancers in adults, likely through insulin resistance and production of inflammatory cytokines. Although concerns have arisen regarding environmental exposures, there have been no formal expert recommendations. Currently, the most important factors underlying the obesity epidemic are the current opportunities for energy intake coupled with limited energy expenditure.

**1049: Ma J, Strub P, Camargo CA Jr, Xiao L, Ayala E, Gardner CD, Buist AS, Haskell WL, Lavori PW, Wilson SR. The Breathe Easier through Weight Loss Lifestyle (BE WELL) Intervention: a randomized controlled trial. BMC Pulm Med. 2010 Mar 24;10:16. doi: 10.1186/1471-2466-10-16. PubMed PMID: 20334686; PubMed Central PMCID: PMC2860346.**

#### Abstract

##### BACKGROUND:

Obesity and asthma have reached epidemic proportions in the US. Their concurrent rise over the last 30 years suggests that they may be connected. Numerous observational studies support a temporally-correct, dose-response relationship between body mass index (BMI) and incident asthma. Weight loss, either induced by surgery or caloric restriction, has been reported to improve asthma symptoms and lung function. Due to methodological shortcomings of previous studies, however, well-controlled trials are needed to investigate the efficacy of weight loss strategies to improve asthma control in obese individuals.

##### METHODS/DESIGN:

BE WELL is a 2-arm parallel randomized clinical trial (RCT) of the efficacy of an evidence-based, comprehensive, behavioral weight loss intervention, focusing on diet, physical activity, and behavioral therapy, as adjunct therapy to usual care in the management of asthma in obese adults. Trial participants (n = 324) are patients aged 18 to 70 years who have suboptimally controlled, persistent asthma, BMI between 30.0 and 44.9 kg/m<sup>2</sup>, and who do not have serious comorbidities (e.g., diabetes, heart disease, stroke). The 12-month weight loss intervention to be studied is based on the principles of the highly successful Diabetes Prevention Program lifestyle intervention. Intervention participants will attend 13 weekly group sessions over a four-month period, followed by two monthly individual sessions, and will then receive individualized counseling primarily by phone, at least bi-monthly, for the remainder of the intervention. Follow-up assessment will occur at six and 12 months. The primary outcome variable is the overall score on the Juniper Asthma Control Questionnaire measured at 12 months. Secondary outcomes include lung function, asthma-specific and general quality of life, asthma medication use, asthma-related and total health care utilization. Potential mediators (e.g., weight loss and change in physical activity level and nutrient intake) and moderators (e.g., socio-demographic characteristics and comorbidities) of the intervention effects also will be examined.

##### DISCUSSION:

This RCT holds considerable potential for illuminating the nature of the obesity-asthma relationship and advancing current guidelines for treating obese adults with asthma, which may lead to reduced morbidity and mortality related to the comorbidity of the two disorders.

##### TRIAL REGISTRATION:

NCT00901095.

**1050: Harvey SB, Glozier N, Carlton O, Mykletun A, Henderson M, Hotopf M, Holland-Elliott K. Obesity and sickness absence: results from the CHAP study. *Occup Med (Lond)*. 2010 Aug;60(5):362-8. doi: 10.1093/occmed/kqq031. Epub 2010 Mar 22. PubMed PMID: 20308262.**

Abstract

BACKGROUND:

Obesity is an increasing public health problem. A small number of studies have examined the relationship between obesity and sickness absence, with mixed results, particularly regarding short-term sickness absence.

AIMS:

To determine if obesity is associated with short- and long-term sickness absence and to investigate the mechanisms that may underlie any association.

METHODS:

Cross-sectional (n = 1489) and prospective (n = 625) analyses were conducted on staff from London Underground Ltd. All participants underwent regular clinical examinations that involved their height and weight being measured, obesity-related medical problems being diagnosed and psychiatric disorders being identified. The number of days taken for short- (<10 days in an episode) and long-term sickness absence were recorded by managers on an electronic database.

RESULTS:

There was a positive linear association between employees' body mass index (BMI) and the number of days' work missed due to sickness absence on both cross-sectional and prospective analyses (P < 0.001). Obesity was a risk factor for both short- and long-term sickness absence. Obese individuals typically took an extra 4 days sick leave every year. The majority of the increased risk for long-term sickness absence appeared to be mediated via co-morbid chronic medical conditions. The excess short-term sickness absence was not explained by obesity-related medical problems, psychiatric disorders or workplace factors.

CONCLUSIONS:

Obese employees take significantly more short- and long-term sickness absence than workers of a healthy weight. There is growing evidence to support employers becoming more involved in tackling obesity.

**1051: Berge JM. A review of familial correlates of child and adolescent obesity: what has the 21st century taught us so far? *Int J Adolesc Med Health*. 2009 Oct-Dec;21(4):457-83. Review. PubMed PMID: 20306760; PubMed Central PMCID: PMC2890027.**

Abstract

With the rising prevalence rates of child and adolescent obesity over the last several decades, it is important to examine the extant research to inform future research.

OBJECTIVE:

The aim of this paper was to review and critique research investigating familial correlates of child and adolescent obesity in the last decade.

METHODS:

A literature review was conducted between March 2008 and December 2008. Studies published after 2000 that assessed familial associations with child and adolescent obesity in the parental, family

functioning, and sibling domains were included in the review. A total of 80 studies met the inclusion criteria.

**RESULTS:**

The majority of studies focused on the parental domain. Substantial evidence indicates an association between authoritative parenting style and child/adolescent lower BMI, healthy dietary intake, and physical activity. Also, research on family meals has consistently shown an association between the frequency of family meals and child/adolescent lower BMI and healthy dietary intake.

**CONCLUSION:**

To date, preliminary evidence suggests that familial factors are associated with child and adolescent obesity, dietary intake, physical activity, and weight control behaviors, but most of the evidence is cross-sectional and there are limitations to the research. Recommendations for future research are discussed.

**1052: Bassett DR Jr, Wyatt HR, Thompson H, Peters JC, Hill JO. Pedometer-measured physical activity and health behaviors in U.S. adults. Med Sci Sports Exerc. 2010 Oct;42(10):1819-25. doi: 10.1249/MSS.0b013e3181dc2e54. PubMed PMID: 20305579; PubMed Central PMCID: PMC2927728.**

**Abstract**

U.S. adults may have lower levels of ambulatory physical activity compared with adults living in other countries.

**PURPOSE:**

The purpose of this study was to provide descriptive, epidemiological data on the average number of steps per day estimated to be taken by U.S. adults and to identify predictors of pedometer-measured physical activity on the basis of demographic characteristics and self-reported behavioral characteristics.

**METHODS:**

The America On the Move study was conducted in 2003. Individuals (N = 2522) aged 13 yr and older consented to fill out a survey, including 1921 adults aged 18 yr and older. Valid pedometer data were collected on 1136 adults with Accusplit AE120 pedometers. Data were weighted to reflect the general U.S. population according to several variables (age, gender, race/ethnicity, education, income, level of physical activity, and number of 5- to 17-yr-old children in the household). Differences in steps per day between subgroups were analyzed using unpaired t-tests when only two subgroups were involved or one-way ANOVA if multiple subgroups were involved.

**RESULTS:**

Adults reported taking an average of 5117 steps per day. Male gender, younger age, higher education level, single marital status, and lower body mass index were all positively associated with steps per day. Steps per day were positively related to other self-reported measures of physical activity and negatively related to self-reported measures on physical inactivity. Living environment (urban, suburban, or rural) and eating habits were not associated with steps per day.

**CONCLUSIONS:**

In the current study, men and women living in the United States took fewer steps per day than those living in Switzerland, Australia, and Japan. We conclude that low levels of ambulatory physical activity are contributing to the high prevalence of adult obesity in the United States.

**1053: Goodwin JL, Vasquez MM, Silva GE, Quan SF. Incidence and remission of sleep-disordered breathing and related symptoms in 6- to 17-year old children--the Tucson Children's Assessment of Sleep Apnea Study. J Pediatr. 2010 Jul;157(1):57-61. doi: 10.1016/j.jpeds.2010.01.033. Epub 2010 Mar 20. PubMed PMID: 20304429; PubMed Central PMCID: PMC2886190.**

Abstract

OBJECTIVE:

To determine the incidence and remission of sleep-disordered breathing in adolescent children.

STUDY DESIGN:

A total of 319 children completed 2 home polysomnograms approximately 5 years apart. Sleep-disordered breathing (SDB) was determined to be present if a child had a respiratory disturbance index  $\geq 1$  event per hour associated with  $\geq 3\%$  oxygen desaturation. Subjective symptoms such as witnessed apnea, excessive daytime sleepiness, difficulty initiating and maintaining sleep, and habitual loud snoring were considered present if they occurred frequently or almost always. Body mass index percentiles were calculated with childhood growth charts from the Centers for Disease Control and Prevention adjusted for sex and age.

RESULTS:

The mean age at assessment was 8.5 years at baseline and 13.7 years at follow-up, respectively. Incident SDB was more common in boys (odds ratio [OR]=3.93, P=.008, confidence interval [CI]=1.41-10.90). Children with prevalent SDB were more likely to be boys (OR=2.48, P=.006) and had a greater increase in body mass index percentile change (OR 1.01, P=.034). Children with prevalent SDB also had 3.41 greater odds for development of obesity from baseline to follow-up in comparison with children with prevalent NoSDB.

CONCLUSIONS:

Adolescent boys are more likely to have persistent and incident SDB than girls. Children with prevalent SDB are more likely to have development of obesity. These risks are similar to those observed in adults.

**1054: Bleich SN, Pickett-Blakely O, Cooper LA. Physician practice patterns of obesity diagnosis and weight-related counseling. Patient Educ Couns. 2011 Jan;82(1):123-9. doi: 10.1016/j.pec.2010.02.018. Epub 2010 Mar 19. PubMed PMID: 20303691; PubMed Central PMCID: PMC2902765.**

Abstract

METHODS:

We analyzed cross-sectional clinical encounter data. Obese adults were obtained from the 2005 National Ambulatory Medical Care Survey (N=2458).

RESULTS:

A third of obese adults received an obesity diagnosis (28.9%) and approximately a fifth received counseling for weight reduction (17.6%), diet (25.2%), or exercise (20.5%). Women (OR=1.54; 95% CI: 1.14, 2.09), young adults ages 18-29 (OR=2.61; 95% CI: 1.37, 4.97), and severely/morbidly obese individuals (class II: OR 2.08; 95% CI: 1.53, 2.83; class III: OR 4.36; 95% CI: 3.09, 6.16) were significantly more likely to receive an obesity diagnosis. One of the biggest predictors of weight-related counseling was an obesity diagnosis (weight reduction: OR=5.72; 95% CI: 4.01, 8.17; diet: OR=2.89; 95% CI: 2.05, 4.06; exercise: OR=2.54; 95% CI: 1.67, 3.85). Other predictors of weight-

related counseling included seeing a cardiologist/other internal medicine specialist, a preventive visit, or spending more time with the doctor ( $p < 0.05$ ).

**CONCLUSIONS:**

most obese patients do not receive an obesity diagnosis or weight-related counseling.

**PRACTICE IMPLICATIONS:**

preventive visits may provide a key opportunity for obese patients to receive weight-related counseling from their physician.

**1055: Morgan OW, Bramley A, Fowlkes A, Freedman DS, Taylor TH, Gargiullo P, Belay B, Jain S, Cox C, Kamimoto L, Fiore A, Finelli L, Olsen SJ, Fry AM. Morbid obesity as a risk factor for hospitalization and death due to 2009 pandemic influenza A(H1N1) disease. PLoS One. 2010 Mar 15;5(3):e9694. doi: 10.1371/journal.pone.0009694. PubMed PMID: 20300571; PubMed Central PMCID: PMC2837749.**

**Abstract**

**BACKGROUND:**

Severe illness due to 2009 pandemic A(H1N1) infection has been reported among persons who are obese or morbidly obese. We assessed whether obesity is a risk factor for hospitalization and death due to 2009 pandemic influenza A(H1N1), independent of chronic medical conditions considered by the Advisory Committee on Immunization Practices (ACIP) to increase the risk of influenza-related complications.

**METHODOLOGY/PRINCIPAL FINDINGS:**

We used a case-cohort design to compare cases of hospitalizations and deaths from 2009 pandemic A(H1N1) influenza occurring between April-July, 2009, with a cohort of the U.S. population estimated from the 2003-2006 National Health and Nutrition Examination Survey (NHANES); pregnant women and children <2 years old were excluded. For hospitalizations, we defined categories of relative weight by body mass index (BMI, kg/m<sup>2</sup>); for deaths, obesity or morbid obesity was recorded on medical charts, and death certificates. Odds ratio (OR) of being in each BMI category was determined; normal weight was the reference category. Overall, 361 hospitalizations and 233 deaths included information to determine BMI category and presence of ACIP-recognized medical conditions. Among  $\geq 20$  year olds, hospitalization was associated with being morbidly obese (BMI  $\geq 40$ ) for individuals with ACIP-recognized chronic conditions (OR = 4.9, 95% CI 2.4-9.9) and without ACIP-recognized chronic conditions (OR = 4.7, 95% CI 1.3-17.2). Among 2-19 year olds, hospitalization was associated with being underweight (BMI  $\leq 5$ (th) percentile) among those with (OR = 12.5, 95% CI 3.4-45.5) and without (OR = 5.5, 95% CI 1.3-22.5) ACIP-recognized chronic conditions. Death was not associated with BMI category among individuals 2-19 years old. Among individuals aged  $\geq 20$  years without ACIP-recognized chronic medical conditions death was associated with obesity (OR = 3.1, 95% CI: 1.5-6.6) and morbid obesity (OR = 7.6, 95% CI 2.1-27.9).

**CONCLUSIONS/SIGNIFICANCE:**

Our findings support observations that morbid obesity may be associated with hospitalization and possibly death due to 2009 pandemic H1N1 infection. These complications could be prevented by early antiviral therapy and vaccination.

**1056: Chandler-Laney PC, Phadke RP, Granger WM, Muñoz JA, Man CD, Cobelli C, Ovalle F, Fernández JR, Gower BA. Adiposity and  $\beta$ -cell function: relationships differ with ethnicity and age. *Obesity (Silver Spring)*. 2010 Nov;18(11):2086-92. doi: 10.1038/oby.2010.44. Epub 2010 Mar 18. PubMed PMID: 20300083; PubMed Central PMCID: PMC3074461.**

Abstract

The prevalence of type 2 diabetes is higher among African Americans (AA) vs. European Americans (EA), is highest at middle age, and is related to obesity. This study was conducted to test the hypothesis that the association of adiposity (percent body fat (%fat)) with indexes of insulin sensitivity (S(I)) and  $\beta$ -cell function would differ with ethnicity and age. Subjects were 168 healthy, normoglycemic AA and EA girls and women aged 7-12 years, 18-32 years, and 40-70 years. An intravenous glucose tolerance test (IVGTT) was used to assess indexes of insulin secretion and action: S(I), acute C-peptide secretion (X0); basal, first-phase, second-phase, and total  $\beta$ -cell responsiveness to glucose (PhiB, Phi1, Phi2, and Phi(TOT), respectively); and the disposition index (DI = S(I)  $\times$  Phi(TOT)). %Fat was assessed with dual energy X-ray absorptiometry. Adiposity was significantly associated with S(I) among EA (-0.57,  $P < 0.001$ ) but not AA (-0.20,  $P = 0.09$ ). Adiposity appeared stimulatory to  $\beta$ -cell function in the two groups of younger subjects and in EA, but inhibitory in postmenopausal women, particularly AA postmenopausal women. Among AA postmenopausal women, %fat was inversely associated with Phi1 ( $r = -0.57$ ,  $P < 0.05$ ) and Phi(TOT) ( $r = -0.68$ ,  $P < 0.01$ ). These results suggest that the impact of adiposity on insulin secretion and action differs with age and ethnicity.

**1057: Finkelstein EA, Strobos KL. The economics of obesity. *Am J Clin Nutr*. 2010 May;91(5):1520S-1524S. doi: 10.3945/ajcn.2010.28701E. Epub 2010 Mar 17. PubMed PMID: 20237140.**

Abstract

The rise in obesity rates, both nationally and internationally, is a result of changes in the environment that have simultaneously lowered the cost of food production, lowered the time and monetary cost of food consumption, increased the real cost of being physically active at work and at home, and decreased the health consequences that result from obesity by bringing a host of new drugs and devices to the market to better manage the adverse health effects that obesity promotes. This changing environment is in response to consumers' demand for labor-saving technology and convenient, affordable food. To be successful, efforts to combat obesity therefore need to recognize and address these realities.

**1059: Oladapo OO, Salako L, Sodiq O, Shoyinka K, Adedapo K, Falase AO. A prevalence of cardiometabolic risk factors among a rural Yoruba south-western Nigerian population: a population-based survey. *Cardiovasc J Afr*. 2010 Jan-Feb;21(1):26-31. PubMed PMID: 20224842; PubMed Central PMCID: PMC3721297.**

Abstract

BACKGROUND:

It has been hypothesised that rural sub-Saharan Africa is at an early stage of epidemiological transition from communicable to non-communicable diseases (NCD). Limited information exists

about the prevalence of cardiometabolic risk factors and the burden of cardiovascular disease (CVD) in the adult Nigerian population, especially in the rural setting.

**OBJECTIVES:**

The aim of this study was to assess and describe the prevalence of several cardiometabolic risk factors in the sub-Saharan adult population of a rural Yoruba community, living in south-western Nigeria.

**METHODS:**

The study was a descriptive, cross-sectional, random-sample survey. Participants were visited at home by trained nurses and community health extension workers (CHEW) who administered a questionnaire, took the relevant history, carried out clinical examinations and measurements and took samples for laboratory tests. They were supervised by primary healthcare physicians serving the community. The variables recorded comprised clinical history, CVD risk factors including blood pressure (BP), body mass index (BMI), waist circumference, blood sugar and serum lipid levels, cigarette use, and dietary habits. The participants included 2 000 healthy adults aged 18 to 64 years who had been living in the area for more than three years.

**RESULTS:**

The average age was 42.1 +/- 21.6, with 43.7% (873) being males and 56.3% (1127) females; 20.8% were hypertensive with BP > or = 140/90 mmHg, 42.3% of the men and 36.8% of the women had BP > or = 130/85 mmHg; 2.5% had diabetes, 1.9% had hypertriglyceridaemia, 43.1% had low HDL-C, 3.9% had general obesity, 14.7% had abdominal obesity, 3.2% were physically inactive, and 1.7% smoked cigarettes. Overall, 12.9% of the subjects were found to have at least one CVD risk factor. Using the Adult Treatment Panel (ATP) III criteria, 2.1% of men and 2.7% of women in the study population had at least three of the criteria, the commonest being HDL-C < 40 mg/dl in men or < 50 mg/dl in women, followed by BP > or = 130/85 mmHg, then waist circumference > 88 cm in women or > 102 cm in men, followed by blood glucose > or = 110 mg/dl.

**CONCLUSION:**

The results obtained from this study strongly suggest a high prevalence of cardiometabolic risk factors in this rural population and that the epidemiological transition is not restricted to the urban population. This serves as a wake-up call for action in the planning of health services for the management of CVD and other chronic NCDs.

**1060: Hart CL, Morrison DS, Batty GD, Mitchell RJ, Davey Smith G. Effect of body mass index and alcohol consumption on liver disease: analysis of data from two prospective cohort studies. *BMJ*. 2010 Mar 11;340:c1240. doi: 10.1136/bmj.c1240. PubMed PMID: 20223873; PubMed Central PMCID: PMC2837144.**

**Abstract**

**OBJECTIVE:**

To investigate whether alcohol consumption and raised body mass index (BMI) act together to increase risk of liver disease.

**DESIGN:**

Analysis of data from prospective cohort studies.

**SETTING:**

Scotland.

**PARTICIPANTS:**



Data were from two of the Midspan prospective cohort studies (9559 men): "Main" study 1965-8, participants from workplaces across central belt of Scotland, population of island of Tiree, and mainland relatives, and "Collaborative" study, 1970-3, participants from 27 workplaces in Glasgow, Clydebank, and Grangemouth. Follow-up was to 31 December 2007 (median 29 years, range 0.13-42). We divided participants into nine groups based on measures of body mass index (BMI) (underweight/normal weight <25, overweight 25 to <30, and obese ≥30) and alcohol consumption (none, 1-14, and ≥15 units per week).

**MAIN OUTCOME MEASURES:**

Liver disease morbidity and mortality.

**RESULTS:**

80 (0.8%) men died with liver disease as the main cause and 146 (1.5%) with liver disease as any cause. In the Collaborative study, 196 men (3.3%) had liver disease defined by a death, admission, or cancer registration. BMI and alcohol consumption were strongly associated with liver disease mortality in analyses adjusted for other confounders ( $P=0.001$  and  $P<0.0001$  respectively). Drinkers of 15 or more units per week in any BMI category and obese drinkers had raised relative rates for all definitions of liver disease, compared with underweight/normal weight non-drinkers. Drinkers of 15 or more units per week had adjusted relative rates for liver disease mortality of 3.16 (95% confidence interval 1.28 to 7.8) for underweight/normal weight men, 7.01 (3.02 to 16.3) for overweight, and 18.9 (6.84 to 52.4) for obese men. The relative rate for obese men who consumed 1-14 units per week was 5.3 (1.36 to 20.7). The relative excess risk due to interaction between BMI and alcohol consumption was 5.58 (1.09 to 10.1); synergy index=2.89 (1.29 to 6.47).

**CONCLUSIONS:**

Raised BMI and alcohol consumption are both related to liver disease, with evidence of a supra-additive interaction between the two. The occurrence of both factors in the same populations should inform health promotion and public health policies.

**1061: Jernigan VB, Duran B, Ahn D, Winkleby M. Changing patterns in health behaviors and risk factors related to cardiovascular disease among American Indians and Alaska Natives. Am J Public Health. 2010 Apr;100(4):677-83. doi: 10.2105/AJPH.2009.164285. PubMed PMID: 20220114; PubMed Central PMCID: PMC2836357.**

**Abstract**

**OBJECTIVES:**

We assessed changes in cardiovascular disease-related health outcomes and risk factors among American Indians and Alaska Natives by age and gender.

**METHODS:**

We used cross-sectional data from the 1995 to 1996 and the 2005 to 2006 Behavioral Risk Factor Surveillance System. The respondents were 2548 American Indian and Alaska Native women and men aged 18 years or older in 1995-1996 and 11 104 women and men in 2005-2006. We analyzed the prevalence of type 2 diabetes, obesity, hypertension, cigarette smoking, sedentary behavior, and low vegetable or fruit intake.

**RESULTS:**

From 1995-1996 to 2005-2006, the adjusted prevalence of diabetes among American Indians and Alaska Natives increased by 26.9%, from 6.7% to 8.5%, and obesity increased by 25.3%, from 24.9% to 31.2%. Hypertension increased by 5%, from 28.1% to 29.5%. Multiple logistic models showed no

meaningful changes in smoking, sedentary behavior, or intake of fruits or vegetables. In 2005-2006, 79% of the population had 1 or more of the 6 risk factors, and 46% had 2 or more.

**CONCLUSIONS:**

Diabetes, obesity, and hypertension and their associated risk factors should be studied further among urban, rural, and reservation American Indian and Alaska Native populations, and effective primary and secondary prevention efforts are critical.

**1062: Rosas LG, Guendelman S, Harley K, Fernald LC, Neufeld L, Mejia F, Eskenazi B. Factors associated with overweight and obesity among children of Mexican descent: results of a binational study. J Immigr Minor Health. 2011 Feb;13(1):169-80. doi: 10.1007/s10903-010-9332-x. PubMed PMID: 20217234; PubMed Central PMCID: PMC2953610.**

**Abstract**

The prevalence of childhood obesity is high among young children of Mexican origin in the United States, however, the determinants are poorly understood. We conducted a binational study with a sample from California (CA) and Mexico (MX), to identify and compare the most important factors associated with overweight and obesity among children of Mexican descent. Significantly more children were classified as overweight or obese in CA compared to MX (53.3 vs. 14.9%,  $P < 0.01$ ). In CA and MX, having an obese mother was significantly associated with being overweight or obese. In MX, male gender, high socioeconomic status and very low food insecurity were associated with being overweight or obese. These data offer hypotheses for how migration may influence the high prevalence of overweight among the Mexican children in California.

**1063: Sundquist J, Johansson SE, Sundquist K. Levelling off of prevalence of obesity in the adult population of Sweden between 2000/01 and 2004/05. BMC Public Health. 2010 Mar 9;10:119. doi: 10.1186/1471-2458-10-119. PubMed PMID: 20214805; PubMed Central PMCID: PMC2847975.**

**Abstract**

**BACKGROUND:**

The escalating global epidemic of obesity is of worldwide concern because of its association with several chronic diseases and premature mortality. Some subgroups seem to be more affected than others. The aim of this study was to examine whether the mean BMI (adjusted for age) and the prevalence of obesity (adjusted for all the explanatory variables) changed between 2000/01 and 2004/05 in different subgroups of the Swedish population.

**METHODS:**

This study compared two cross-sectional, nationwide random samples of persons aged 16 to 84 years: the first from 2000/01 (5515 men, 5838 women) and the second from 2004/05 (4681 men, 4821 women). After stratification by gender, a logistic regression model was applied to analyse possible changes in mean BMI and the prevalence of obesity between 2000/01 and 2004/05.

**RESULTS:**

Total mean BMI remained almost unchanged between 2000/01 and 2004/05 for both men and women. The prevalence of obesity increased slightly in both men and women, but not significantly (from 9.7 to 10.8% and from 9.6 to 10.2%, respectively). The prevalence of obesity in 2004/05 was especially high in some subgroups: men aged 45-54 (14.3%) or 55-64 (16.5%), women aged 65-74

(15.9%) or 75-84 (16.8%), men and women of middle educational level (15.6% and 14.4%, respectively), male former smokers (13.4%), and men from small towns or rural areas (13.1%).

**CONCLUSIONS:**

Although the mean BMI and obesity were almost unchanged in the Swedish adult population between 2000/01 and 2004/05, obesity levels in Sweden remained unacceptably high, especially in certain subgroups. Primary and secondary intervention actions should strive to decrease the prevalence of obesity in Sweden.

**1064: Ejike CE, Ugwu CE, Ezeanyika LU. Variations in the prevalence of point (pre)hypertension in a Nigerian school-going adolescent population living in a semi-urban and an urban area. BMC Pediatr. 2010 Mar 9;10:13. doi: 10.1186/1471-2431-10-13. PubMed PMID: 20214768; PubMed Central PMCID: PMC2841152.**

**Abstract**

**BACKGROUND:**

Hypertension has been shown to start in early life and to track into adulthood. Detecting adolescents with hypertension and prehypertension will aid early intervention and reduce morbidity and mortality from the disorders. This study reports the point-prevalence of the two disorders in a semi-urban and an urban population of school-going adolescents in Nigeria.

**METHODS:**

A total of 843 adolescents from two places of domicile were studied. Their blood pressures and anthropometric indices were measured using standard protocol. Point-hypertension and point-prehypertension were defined with respect to each subject's gender, age and height. The prevalence of the disorders was calculated and reported age-wise and nutritional status-wise.

**RESULTS:**

The prevalence of point-prehypertension in the semi-urban area was 22.2% (20.7% for girls and 23.1% for boys) while it was 25.0% (21.8% for girls and 29.2% for boys) in the urban area. The prevalence of point-hypertension was 4.6% (4.1% for girls and 4.8% for boys) in the semi-urban area and 17.5% (18.0% for girls and 16.9% for boys) in the urban area. Point-prehypertension was not detected among the thin subjects of both places of domicile. The prevalence of point-prehypertension was similar in both the urban and semi-urban areas among the subjects who had normal BMI-for-age, and over-weight/obese subjects respectively. From the semi-urban to the urban area, the prevalence of point-hypertension increased approximately 3-folds among thin and normal BMI-for-age subjects, and 10-folds among overweight/obese subjects. Systolic hypertension was more preponderant in both the semi-urban and urban areas.

**CONCLUSIONS:**

The prevalence of both disorders is considerably high in the studied populations. Urgent pediatric public health action is needed to address the situation.

**1065: Maddah M, Nikooyeh B. Obesity among Iranian adolescent girls: location of residence and parental obesity. J Health Popul Nutr. 2010 Feb;28(1):61-6. PubMed PMID: 20214087; PubMed Central PMCID: PMC2975847.**

**Abstract**

This cross-sectional study was conducted to investigate the prevalence and predictors of overweight and obesity by location of residence among randomly-selected 2,577 urban school girls aged 12-17

years in Rasht, Iran. Data on age, frequency of skipping breakfast per week, physical activity, hours of television viewing, self-perception about body condition, and home address were collected. Birthweight of the girls, educational levels of parents, weights and heights of parents, and employment status of mothers were asked to the parents using a self-administrated questionnaire. The overall prevalence of overweight and obesity in this population was 18.6% and 5.9% respectively. Overweight or obesity was more common among girls from low-income areas compared to high-income areas (21.6% vs 17.1%,  $p < 0.001$ ). Maternal education was positively related to overweight/obesity of the girls. Results of logistic regression analysis showed that risk of overweight/obesity was higher in girls whose either parent was overweight or obese. Furthermore, living in low-income areas and skipping breakfast were independently related to overweight/obesity. These data suggest that overweight and obesity are a public-health concern among school girls, especially in low-income areas in Rasht. Knowing risk factors in population subgroups is important for planners in the country because it helps target interventions.

**1067: Wang J, Shete S. Using both cases and controls for testing hardy-weinberg proportions in a genetic association study. Hum Hered. 2010;69(3):212-8. doi: 10.1159/000289597. Epub 2010 Mar 5. PubMed PMID: 20203526; PubMed Central PMCID: PMC2918648.**

#### Abstract

##### OBJECTIVES:

Assessment of the Hardy-Weinberg proportion (HWP) in controls has been widely used as a quality control measure in case-control association studies. However, when the disease being studied is common, controls might not represent the general population, which could result in inaccurate HWP test results. Such results could lead investigators to discard important single-nucleotide polymorphisms (SNPs) that could potentially be causal. In this paper, we showed the inappropriateness of the HWP test in controls and proposed a mixture HWP (mHWP) exact test using a mixture sample that mimics the general population.

##### METHODS:

The mHWP exact test estimates HWP in a mixture sample that is a combination of both cases and controls proportional to the prevalence of disease. We implemented a re-sampling procedure to construct mixture samples and then obtained the empirical p value of HWP in the general population. Simulation studies were performed to investigate the performance of the proposed mHWP exact test. The method was also applied to a genetic association study of obesity.

##### RESULTS:

The results showed that the mHWP exact test is more likely than either the traditional HWP method in controls or the likelihood-based approach to keep causal SNPs for further analysis when the disease is more common.

##### CONCLUSION:

The mHWP exact test using a mixture sample is a better HWP test for case-control genetic association studies than the traditional HWP in controls or the likelihood-based approach, and it will improve our ability to keep causal SNPs in the case-control genetic association studies.

1068: Li G, de Courten M, Jiao S, Wang Y. Prevalence and characteristics of the metabolic syndrome among adults in Beijing, China. *Asia Pac J Clin Nutr.* 2010;19(1):98-102. PubMed PMID: 20199993.

#### Abstract

This study was performed to investigate the prevalence of the metabolic syndrome using a large representative sample in Beijing. Data from a total of 16442 adults (6489 men and 9953 women) aged  $\geq 18$  years from a survey of behavioral risk factors for chronic diseases in Beijing, in 2005, was analyzed. The prevalence of the metabolic syndrome increased with age and the age-standardized prevalence of the metabolic syndrome defined by International Diabetes Federation IDF and National Cholesterol Education Program Adult Treatment Panel III ATP III criteria were 23.2% (24.5% in men and 22.7% in women) and 16.2% (16.1% in men and 16.6% in women), respectively. The metabolic syndrome was higher in semi-urban areas and associated with higher rates of hypertension, central obesity, salt intake and smoking.

**1069: Li M, Dibley MJ, Sibbritt DW, Yan H. Dietary habits and overweight/obesity in adolescents in Xi'an City, China. *Asia Pac J Clin Nutr.* 2010;19(1):76-82. PubMed PMID: 20199990.**

#### Abstract

This study explored the association between dietary habits and overweight and obesity in adolescents from Xi'an City, China. A cross-sectional sample of 1804 adolescents was recruited in 2004 from 30 junior high schools in six districts of Xi'an City, northwest China. Weight and height was measured and eating habits assessed using a self-administered questionnaire. Logistic regression was used to identify dietary patterns associated with overweight and obesity and adjusted for socio-demographic factors. Consumption of foods and beverages outside three main meals, and potato chips was more popular in boys than in girls, while girls consumed more fried food and soft drinks than boys. In boys, an increased consumption of soft drinks was associated with increased risk of overweight and obesity (1100 mL/day, OR: 1.9, 95% CI: 1.1-3.8), while consuming preserved fruit was associated with decreased risk (OR: 0.6, 95% CI: 0.5-0.9). In girls, having breakfast outside the home (OR: 1.7, 95% CI: 1.1-2.3) and an increased consumption of energy-dense foods (OR: 1.7, 95% CI: 1.04-2.9), was associated with increased risk of overweight and obesity, while frequently having foods and beverages outside the three main meals (OR: 0.6, 95% CI: 0.4-0.9) was associated with decreased risk. The consumption of breakfast outside the home, soft drinks and energy-dense fast foods were positively associated with overweight and obesity in adolescents. Future health education programs to prevent excess weight gain should target such unhealthy eating habits.

**1070: Sage WM, Balthazar M, Kelder S, Millea S, Pont S, Rao M. Mapping data shape community responses to childhood obesity. *Health Aff (Millwood).* 2010 Mar-Apr;29(3):498-502. doi: 10.1377/hlthaff.2010.0153. PubMed PMID: 20194992.**

#### Abstract

Geographic information system (GIS) mapping can help communities visualize the health of their neighborhoods and identify opportunities for improvement. In Austin, Texas, Children's Optimal Health, a nonprofit association, used GIS to map the prevalence of obesity among middle school children and to identify contributory factors. The maps indicated that obesity is a problem in all Austin middle schools. Two neighborhoods outside downtown Austin have particularly high concentrations of overweight and obese students. Maps also showed that the neighborhoods have different proportions of fast-food outlets, grocery stores selling fresh produce, green recreation

space, and students failing cardiovascular testing. The mapping exercise spurred community groups to propose obesity interventions tailored to each neighborhood.

1071: Sanchez-Vaznaugh EV, Sánchez BN, Baek J, Crawford PB. 'Competitive' food and beverage policies: are they influencing childhood overweight trends? *Health Aff (Millwood)*. 2010 Mar-Apr;29(3):436-46. doi: 10.1377/hlthaff.2009.0745. PubMed PMID: 20194985.

**Abstract**

We examined whether new policies restricting sales in schools of so-called competitive foods and beverages—those that fall outside of what is served through federally reimbursed school meal programs—influenced increasing rates of overweight children in the Los Angeles Unified School District and the rest of California. After these policies, which set stricter nutrition standards for certain food and beverages sold to students, took effect, the rate of increase in overweight children significantly diminished among fifth graders in Los Angeles and among fifth-grade boys and seventh graders in the rest of California. The extent to which the new nutritional policies contributed to the change is unclear. This is one of the first studies examining the postulated population-level influence of recently implemented policies aimed at sales of competitive foods and beverages in schools.

**1072: Larson N, Story M. Are 'competitive foods' sold at school making our children fat? *Health Aff (Millwood)*. 2010 Mar-Apr;29(3):430-5. doi: 10.1377/hlthaff.2009.0716. PubMed PMID: 20194984.**

**Abstract**

Almost one-third of American children and adolescents are now either overweight or obese. One contributing factor may be the foods and beverages sold outside of the U.S. Department of Agriculture (USDA) school meal programs, which are often called "competitive foods." These foods, such as cookies, chips, and sodas, are often available through vending machines, snack bars, and other outlets on school premises. They are not required to conform to the nutritional standards of the USDA school meal programs. This paper looks at the research into whether these competitive foods may be affecting students' dietary intake or contributing to their risk of obesity.

1073: Bethell C, Simpson L, Stumbo S, Carle AC, Gombojav N. National, state, and local disparities in childhood obesity. *Health Aff (Millwood)*. 2010 Mar-Apr;29(3):347-56. doi: 10.1377/hlthaff.2009.0762. PubMed PMID: 20194972.

**Abstract**

New data from the 2007 National Survey of Children's Health show that the percentage of children ages 10-17 who are overweight (body mass index in the eighty-fifth to ninety-fourth percentiles) remained stable, while the national prevalence of obesity (BMI in the ninety-fifth percentile and higher) grew significantly, from 14.8 percent in 2003 to 16.4 percent in 2007. This increase in obesity accounted for the entire increase in the combined prevalence of overweight and obesity between 2003 and 2007 (from 30.6 percent to 31.6 percent). An estimated 10.58 million children, or nearly one in three children ages 10-17, were overweight or obese in 2007. Our findings suggest that the obesity epidemic among children may not yet have reached its plateau for some groups of children. The data also reveal persistent and highly variable disparities in childhood overweight and obesity within and among states, associated with socioeconomic status, school outcomes, neighborhoods,

type of health insurance, and quality of care. This requires policy makers' attention nationally and within states.

**1075: Pomerantz WJ, Timm NL, Gittelman MA. Injury patterns in obese versus nonobese children presenting to a pediatric emergency department. Pediatrics. 2010 Apr;125(4):681-5. doi: 10.1542/peds.2009-2367. Epub 2010 Mar 1. PubMed PMID: 20194280.**

Abstract

BACKGROUND:

Two of the most prevalent problems facing youth in the United States are injury and obesity. Obesity increases the risk of injury, prolongs recovery time, and increases morbidity among injured children.

OBJECTIVE:

The purpose of this study was to compare characteristics of injuries between obese and nonobese children who presented to a pediatric emergency department.

METHODS:

Electronic medical records for all patients aged 3 to 14 years who sustained a traumatic injury (International Classification of Diseases, Ninth Revision [ICD-9] codes 800-899) and were seen in our hospital emergency department from January 1, 2005, to March 31, 2008, were obtained. Data collected included age, chief complaint, discharge diagnosis, gender, race, disposition, and weight. Patients with a weight at >95th percentile for age were considered obese. chi(2) analysis was used in comparing the groups; odds ratios (ORs) were calculated.

RESULTS:

During the study period, 24 588 children had ICD-9 codes that met our inclusion criteria. Of these, 1239 had no weights recorded, leaving 23 349 patients in our study population. Of these children, the mean age was 8.2 years (SD: +/-3.6 years), 60.7% were white, and 61.7% were male. Obese children represented 16.5% of the study population (n = 3861). Overall, obese and nonobese children had the same percentage of upper extremity injuries. However, obese children were significantly more likely to have lower extremity injuries compared with upper extremity injuries than were nonobese children (OR: 1.71 [95% confidence interval: 1.56-1.87]; P < .001). In addition, obese children had significantly fewer head and face injuries than nonobese children (OR: 0.54 [95% confidence interval: 0.50- 0.58]; P < .001).

CONCLUSIONS:

Obese children are significantly more likely to sustain lower extremity injuries than upper extremity injuries and less likely to sustain head and face injuries than nonobese children. Strategies for preventing lower extremity injuries among obese youth should be sought.

**1076: Moore SE, Harris C, Wimberly Y. Perception of weight and threat to health. J Natl Med Assoc. 2010 Feb;102(2):119-24. PubMed PMID: 20191924; PubMed Central PMCID: PMC2921822.**

Abstract

OBJECTIVES:

To examine African American women's perception of their risk for obesity-related comorbid illnesses compared to their weight category.

METHODS:



Participants were recruited from urban health centers in Atlanta, Georgia. Anthropometric measurements and self-reported demographics, medical conditions, and health beliefs about obesity and its related comorbid diseases were recorded.

**RESULTS:**

More than 80% of the women (N=323) were either overweight or obese. Among overweight women, 44% reported being a normal weight. Seventy-two percent of the obese women reported being overweight, and 13.6% reported that they were obese. All women reported that each disease was "very serious;" however, overweight women reported having the same risk for each disease as normal weight women. Obese women reported having a higher risk of each disease ( $p < .05$  for all diseases).

**CONCLUSION:**

Overweight and obese women underestimate their weight categories. Overweight, but not obese, women reported the same perceived susceptibility for obesity-related comorbid diseases as normal-weight women. An increase in the perceived threat to health may motivate women to increase prevention efforts in the early stage of overweight to prevent or delay morbidity or mortality.

**1077: Nogueira Fde A, Sichieri R. [Association between consumption of soft drinks, fruit juice, and milk and body mass index among public school students in Niterói, Rio de Janeiro State, Brazil]. Cad Saude Publica. 2009 Dec;25(12):2715-24. Portuguese. PubMed PMID: 20191162.**

**Abstract**

The association between consumption of soft drinks, fruit juice, and milk and body mass index (BMI) was evaluated in 1,423 students 9 to 16 years of age from public schools in Niterói, Rio de Janeiro State, Brazil. Beverage intake was measured using 24-hour recall and a food frequency questionnaire. Weight and height were measured to calculate BMI. Regression analyses took into account the cluster (classes) effect. Analyses were stratified by gender and adjusted for physical activity and age. The results showed a positive association between soft drink intake and age ( $p = 0.05$ ) and a negative association between milk and age ( $p = 0.004$ ). For girls only, there was a significant association between frequent fruit juice intake and BMI ( $\beta = 0.02$ ;  $p = 0.03$ ). For the other beverages, there were no significant associations between BMI and frequent consumption in either gender. Soft drinks and juices accounted for 20% of mean daily energy intake. The results showed that efforts to reduce energy intake from beverages should include consumption of fruit juice.

**1078: Tassitano RM, Barros MV, Tenório MC, Bezerra J, Hallal PC. [Prevalence of overweight and obesity and associated factors among public high school students in Pernambuco State, Brazil]. Cad Saude Publica. 2009 Dec;25(12):2639-52. Portuguese. PubMed PMID: 20191155.**

**Abstract**

This study aims to analyze the association between demographic, socioeconomic, school-related, and behavioral factors and overweight and obesity in adolescents. The sample included 4,210 public high school students (14-19 years old) in Pernambuco State, Brazil, selected by two-stage cluster sampling. Obesity and overweight were assessed using anthropometric measurements, and the Global School-Based Health Survey was used to collect personal and behavioral data. The cutoff points for defining overweight and obesity were those recommended by the International Obesity Task Force.



Prevalence rates for overweight and obesity were 11.5% (95%CI: 10.7-12.8) and 2.4% (95%CI: 1.9-2.9), respectively. Overweight and obesity were more common in males who reported residing in urban areas and were not enrolled in physical education classes. Watching television 3+ hours/day was associated with obesity in females. Reducing TV time and encouraging enrollment in physical education could be effective measures to counteract the growing obesity trends.

**1079: Mendoza JA, Watson K, Cullen KW. Change in dietary energy density after implementation of the Texas Public School Nutrition Policy. J Am Diet Assoc. 2010 Mar;110(3):434-40. doi: 10.1016/j.jada.2009.11.021. PubMed PMID: 20184994; PubMed Central PMCID: PMC2853227.**

Abstract

Consumption of energy-dense foods has been associated with rising obesity rates and the metabolic syndrome. Reducing dietary energy density is an important strategy to address obesity, but few studies have examined the effect of nutrition policies on children's energy density. The study's objective was to assess the impact of the Texas Public School Nutrition Policy on children's energy density by using a pre- and post-policy evaluation. Analysis of variance/covariance and nonparametric tests compared energy density after the Texas policy change to intakes at baseline. Two years of lunch food records were collected from middle school students in Southeast Texas at three public middle schools: baseline (2001-2002) and 1 year after implementation of the Texas Policy (2005-2006). Students recorded the amount and source of foods consumed. The Texas Public School Nutrition Policy was designed to promote a healthy school environment by restricting portion sizes of high-fat and high-sugar snacks and sweetened beverages, fat content of foods, and serving of high-fat vegetables like french fries. Energy density (kcal/g): energy density-1 was the energy of foods only (no beverages) divided by the gram weight and has been previously associated with obesity and insulin resistance; energy density-2 included all food and beverages to give a complete assessment of all sources of calories. Following implementation of the Texas policy, students' energy density-1 significantly decreased from 2.80+/-1.08 kcal/g to 2.17+/-0.78 kcal/g (P<0.0001). Similarly, energy density-2 significantly decreased from 1.38+/-0.76 kcal/g to 1.29+/-0.53 kcal/g (P<0.0001). In conclusion, the Texas Public School Nutrition Policy was associated with desirable reductions in energy density, which suggests improved nutrient intake as a result of student school lunch consumption.

**1080: Mak KK, Ho SY, Lo WS, Thomas GN, McManus AM, Day JR, Lam TH. Health-related physical fitness and weight status in Hong Kong adolescents. BMC Public Health. 2010 Feb 23;10:88. doi: 10.1186/1471-2458-10-88. PubMed PMID: 20178615; PubMed Central PMCID: PMC2836297.**

Abstract

BACKGROUND:

This study was designed to investigate the relation between health-related physical fitness and weight status in Hong Kong adolescents.

METHODS:

3,204 students aged 12-18 years participated in the Hong Kong Student Obesity Surveillance (HKSOS) project in 2006-2007. Anthropometric measures (height, weight) and health-related fitness (push-up, sit-up, sit-and-reach, 9-minute run) were assessed. Body mass index (BMI) was computed to classify

participants into normal weight, underweight (Grade I, II/III), overweight, and obese groups. The associations of health-related physical fitness with BMI and weight status were examined by partial correlation coefficients and analysis of covariance, respectively.

**RESULTS:**

More boys than girls were overweight or obese (18.0% vs 8.7%), but more girls than boys were underweight (22.3% vs 16.7%). Boys performed significantly ( $P < 0.001$ ) better in sit-up (38.8 vs 31.6 times/min) and 9-minute run (1632.1 vs 1353.2 m), but poorer in sit-and-reach (27.4 vs 32.2 cm) than girls. All four physical fitness tests were significantly positively correlated with each other in both sexes, and BMI was only weakly correlated with sit up and sit-and-reach tests in boys. Decreasing performance ( $P$  for trend  $< 0.05$ ) was observed from normal weight to overweight and obese for push-up, sit-up, and 9-minute run in both sexes. From normal weight to Grade I and Grade II/III underweight, decreasing performance ( $P$  for trend  $< 0.05$ ) for sit-up and sit-and-reach in both sexes and for push-up in boys was observed.

**CONCLUSIONS:**

The relations between BMI and health-related physical fitness in adolescents were non-linear. Overweight/obese and underweight adolescents had poorer performance in push-up and sit-up tests than normal weight adolescents. Different aspects of health-related physical fitness may serve as immediate indicators of potential health risks for underweight and overweight adolescents.

**1081: Curtin C, Anderson SE, Must A, Bandini L. The prevalence of obesity in children with autism: a secondary data analysis using nationally representative data from the National Survey of Children's Health. BMC Pediatr. 2010 Feb 23;10:11. doi: 10.1186/1471-2431-10-11. PubMed PMID: 20178579; PubMed Central PMCID: PMC2843677.**

**Abstract**

**BACKGROUND:**

The prevalence of childhood obesity has increased dramatically in the last two decades and numerous efforts to understand, intervene on, and prevent this significant threat to children's health are underway for many segments of the pediatric population. Understanding the prevalence of obesity in populations of children with developmental disorders is an important undertaking, as the factors that give rise to obesity may not be the same as for typically developing children, and because prevention and treatment efforts may need to be tailored to meet their needs and the needs of their families. The goal of the current study was to estimate the prevalence of obesity in children and adolescents with autism.

**METHODS:**

This study was a secondary data analysis of cross-sectional nationally representative data collected by telephone interview of parents/guardians on 85,272 children ages 3-17 from the 2003-2004 National Survey of Children's Health (NSCH). Autism was determined by response to the question, "Has a doctor or health professional ever told you that your child has autism?" Children and adolescents were classified as obese according to CDC guidelines for body mass index (BMI) for age and sex.

**RESULTS:**

The prevalence of obesity in children with autism was 30.4% compared to 23.6% of children without autism ( $p = .075$ ). The unadjusted odds of obesity in children with autism was 1.42 (95% confidence interval (CI): 1.00, 2.02,  $p = .052$ ) compared to children without autism.

**CONCLUSIONS:**

Based on US nationally representative data, children with autism have a prevalence of obesity at least as high as children overall. These findings suggest that additional research is warranted to understand better the factors that influence the development of obesity in this population of children.

**1082: Black JL, Macinko J. The changing distribution and determinants of obesity in the neighborhoods of New York City, 2003-2007. Am J Epidemiol. 2010 Apr 1;171(7):765-75. doi: 10.1093/aje/kwp458. Epub 2010 Feb 19. PubMed PMID: 20172920.**

#### Abstract

Obesity (body mass index  $\geq 30$  kg/m<sup>2</sup>) is a growing urban health concern, but few studies have examined whether, how, or why obesity prevalence has changed over time within cities. This study characterized the individual- and neighborhood-level determinants and distribution of obesity in New York City from 2003 to 2007. Individual-level data from the Community Health Survey (n = 48,506 adults, 34 neighborhoods) were combined with neighborhood measures. Multilevel regression assessed changes in obesity over time and associations with neighborhood-level income and food and physical activity amenities, controlling for age, racial/ethnic identity, education, employment, US nativity, and marital status, stratified by gender. Obesity rates increased by 1.6% (P < 0.05) each year, but changes over time differed significantly between neighborhoods and by gender. Obesity prevalence increased for women, even after controlling for individual- and neighborhood-level factors (prevalence ratio = 1.021, P < 0.05), whereas no significant changes were reported for men. Neighborhood factors including increased area income (prevalence ratio = 0.932) and availability of local food and fitness amenities (prevalence ratio = 0.889) were significantly associated with reduced obesity (P < 0.001). Findings suggest that policies to reduce obesity in urban environments must be informed by up-to-date surveillance data and may require a variety of initiatives that respond to both individual and contextual determinants of obesity.

**1083: Farhat T, Iannotti RJ, Simons-Morton BG. Overweight, obesity, youth, and health-risk behaviors. Am J Prev Med. 2010 Mar;38(3):258-67. doi: 10.1016/j.amepre.2009.10.038. PubMed PMID: 20171527; PubMed Central PMCID: PMC2826832.**

#### Abstract

##### BACKGROUND:

The prevalence and severity of obesity have increased among children and adolescents. Although the medical and psychosocial consequences of youth obesity have been well documented, comparatively less information exists on the association of overweight/obesity with health-risk behaviors, which are considered to be a primary threat to adolescent health.

##### PURPOSE:

This study aims to examine the association of overweight and obesity with health-risk behaviors among U.S. youth.

##### METHODS:

Self-reported height and weight, substance use, violence, and bullying were assessed in a nationally representative sample of students aged 11-17 years (N=7825) who participated in the 2005-2006 Health Behaviors in School-Aged Children survey. Data were analyzed in 2009.

##### RESULTS:

Significant gender and age differences in the relationship of overweight/obesity with risk behaviors were observed. Overweight and obesity were significantly associated with substance use among girls only: Frequent smoking and drinking were associated with overweight and obesity among younger girls, whereas these behaviors were associated with obesity among older girls. Frequent smoking and cannabis use were associated with overweight among younger girls only. Relationships between violent behavior and overweight/obesity were mainly observed among boys: Younger obese boys were more likely to be victims of bullying, whereas older obese boys were more likely to carry weapons compared to boys of normal weight.

**CONCLUSIONS:**

Overweight and obese young people are at risk of developing health-compromising behaviors that may compound medical and social problems associated with excess weight.

**1084: Fett CA, Fett WC, Marchini JS, Ribeiro RP. [Lifestyle and risk factors associated to body fat increase in women]. Cien Saude Colet. 2010 Jan;15(1):131-40. Portuguese. PubMed PMID: 20169240.**

**Abstract**

The objectives were to describe the association between body mass index (BMI, kg/m<sup>2</sup>), body composition and risk factors to metabolic diseases; observe the prevalence of metabolic syndrome and list the characteristics of overweight and obese women. Voluntaries (n=50; BMI=31+/-6; age=36+/-11 years old), were evaluated regarding clinical examination, anthropometrics measurements, samples of blood and urine, resting energy expenditure and food register. Phases in which they become obese in descending order: adulthood, pregnancy, adolescence, over 40 years old and after marriage. The odds to have one or more obese family members were 316%. They were anxious (60%), depressives (12%), compulsives (34%) and had sleep disturbance (32%). The odds to dyslipidemia was 28%, to hypertension was 25% and to glucose over 100 mg/dL 35%. They were in caloric deficit, but, nitrogen balance was positive. The metabolic syndrome was present in 25% of these women and was positively correlated with body fat indicators and age. The obesity of these women seems to be multifactorial with a family influence that could be caused by genetics and environment contributions. The emotional/physical balance should be influenced on this process.

**1085: Moran JP. Obesity epidemic requires federal intervention: "Healthy Kids" key to nation's healthy future. J Diabetes Sci Technol. 2010 Jan 1;4(1):226-7. PubMed PMID: 20167188; PubMed Central PMCID: PMC2825645.**

**Abstract**

The Healthy Kids Act (H.R. 4053) legislation does three things: (1) establishes an office of Childhood Overweight and Obesity Prevention and Treatment within the Department of Health and Human Services to provide information and promote action on healthy eating, (2) institutes a three-tier system for labeling foods, and (3) enables regulatory action to curb food commercials targeting children.

**1086: Flegal KM, Ogden CL, Yanovski JA, Freedman DS, Shepherd JA, Graubard BI, Borrud LG. High adiposity and high body mass index-for-age in US children and adolescents overall and by race-ethnic group. Am J Clin Nutr. 2010 Apr;91(4):1020-6. doi: 10.3945/ajcn.2009.28589. Epub 2010 Feb 17. PubMed PMID: 20164313; PubMed Central PMCID: PMC2844683.**

Abstract

BACKGROUND:

Body mass index (BMI)-for-age has been recommended as a screening test for excess adiposity in children and adolescents.

OBJECTIVE:

We quantified the performance of standard categories of BMI-for-age relative to the population prevalence of high adiposity in children and adolescents overall and by race-ethnic group in a nationally representative US population sample by using definitions of high adiposity that are consistent with expert committee recommendations.

DESIGN:

Percentage body fat in 8821 children and adolescents aged 8-19 y was measured by using dual-energy X-ray absorptiometry in 1999-2004 as part of a health examination survey.

RESULTS:

With the use of several different cutoffs for percentage fat to define high adiposity, most children with high BMI-for-age (> or = 95th percentile of the growth charts) had high adiposity, and few children with normal BMI-for-age (<85th percentile) had high adiposity. The prevalence of high adiposity in intermediate BMI categories varied from 45% to 15% depending on the cutoff. The prevalence of a high BMI was significantly higher in non-Hispanic black girls than in non-Hispanic white girls, but the prevalence of high adiposity was not significantly different.

CONCLUSIONS:

Current BMI cutoffs can identify a high prevalence of high adiposity in children with high BMI-for-age and a low prevalence of high adiposity in children with normal BMI-for-age. By these adiposity measures, less than one-half of children with intermediate BMIs-for-age (85th to <95th percentile) have high adiposity. Differences in high BMI ranges between race-ethnic groups do not necessarily indicate differences in high adiposity.

**1087: Hart CL, Batty GD, Morrison DS, Mitchell RJ, Smith GD. Obesity, overweight and liver disease in the Midspan prospective cohort studies. Int J Obes (Lond). 2010 Jun;34(6):1051-9. doi: 10.1038/ijo.2010.20. Epub 2010 Feb 9. PubMed PMID: 20142829; PubMed Central PMCID: PMC2887083.**

Abstract

OBJECTIVES:

To analyse the relationship between body mass index (BMI) and liver disease in men and women.

DESIGN:

The Midspan prospective cohort studies.

PARTICIPANTS:

The three studies were: Main study, screened in 1965-1968, workplaces across Scotland, the general population of the island of Tiree and mainland relatives; Collaborative study, conducted from 1970 to 1973, 27 workplaces in Glasgow, Clydebank and Grangemouth; Renfrew/Paisley general population

study, screened in 1972-1976. After exclusions there were 16 522 men and 10 216 women, grouped by BMI into under/normal weight (< 25 kg m(-2)), overweight (25 to < 30 kg m(-2)) and obese (>or=30 kg m(-2)).

**MEASUREMENTS:**

Relative rates (RRs) of liver disease mortality, subdivided into liver cancer and all other liver disease, by BMI category and per s.d. increase in BMI, followed-up to end 2007. RRs of liver disease from any diagnosis on the death certificate, hospital discharge records or cancer registrations (Collaborative and Renfrew/Paisley studies only 13 027 men and 9328 women). Analyses adjusted for age and study, then other confounders.

**RESULTS:**

In total, 146 men (0.9%) and 61 women (0.6%) died of liver disease as main cause. There were strong associations of BMI with liver disease mortality in men (RR per s.d. increase in BMI=1.41 (95% confidence interval 1.21-1.65)). Obese men had more than three times the rate of liver disease mortality than under/normal weight men. Adjustment for other risk factors had very little effect. No substantial or robust associations were observed in women. In all, 325 men (2.5%) and 155 women (1.7%) had liver disease established from any source. Similar positive associations were observed for men, and there was evidence of a relationship in women.

**CONCLUSIONS:**

BMI is related to liver disease, although not to liver disease mortality in women. The current rise in overweight and obesity may lead to a continuing epidemic of liver disease.

**1088: Mihardja L, Delima, Manz HS, Ghani L, Soegondo S. Prevalence and determinants of diabetes mellitus and impaired glucose tolerance in Indonesia (a part of basic health research/Riskesdas). Acta Med Indones. 2009 Oct;41(4):169-74. PubMed PMID: 20124611.**

**Abstract**

**AIM:**

To estimate the prevalence of diagnosed and undiagnosed diabetes mellitus (DM) and impaired glucose tolerance (IGT) in 15 year old and over in urban Indonesia and their association with risk factors such as age, smoking, physical inactivity, obesity, hypertension.

**METHODS:**

A national sample involving 24,417 participants living in urban Indonesia aged > 15 years were examined for 2 hours of plasma glucose concentrations in a cross sectional survey using the 75-g oral glucose. Diagnostic criteria of the World Health Organization 1999 and American Diabetes Association (ADA) 2003 were used to determine the prevalence of abnormal glucose tolerance. Data on age, smoking, physical activity were obtained from the personal interview, and obesity included body mass index and waist circumference and blood pressure were measured.

**RESULTS:**

The prevalences of diabetes in urban Indonesia was 5.7%, consisting of diagnosed diabetes mellitus (DDM) 1.5%, undiagnosed diabetes mellitus (UDDM) 4.2% and IGT 10.2%. The prevalence of DM was 6.4% in women and 4.9% in men. In the youngest group (15-24 years) 5.3% had IGT. Prevalence increases with age with a sharp rise from middle age (35-54 years). Determinant factors for IGT and diabetes were age, smoking, obesity, central obesity and hypertension.

**CONCLUSION:**

these results indicate that diabetes has become a major public health problem in Indonesia and needs national strategies to screen, prevent and treat the disease.

**1089: Keyes KM, Utz RL, Robinson W, Li G. What is a cohort effect? Comparison of three statistical methods for modeling cohort effects in obesity prevalence in the United States, 1971-2006. Soc Sci Med. 2010 Apr;70(7):1100-8. doi: 10.1016/j.socscimed.2009.12.018. Epub 2010 Feb 1. PubMed PMID: 20122771; PubMed Central PMCID: PMC3469580.**

#### Abstract

Analysts often use different conceptual definitions of a cohort effect, and therefore different statistical methods, which lead to differing empirical results. A definition often used in sociology assumes that cohorts have unique characteristics confounded by age and period effects, whereas epidemiologists often conceive that period and age effects interact to produce cohort effects. The present study aims to illustrate these differences by estimating age, period, and cohort (APC) effects on obesity prevalence in the U.S. from 1971 to 2006 using both conceptual approaches. Data were drawn from seven cross-sectional waves of the National Health and Nutrition Examination Survey. Obesity was defined as BMI  $\geq 30$  for adults and  $\geq 95$ th percentile for children under the age of 20. APC effects were estimated using the classic constraint-based method (first-order effects estimated and interpreted), the Holford method (first-order effects estimated but second-order effects interpreted), and median polish method (second-order effects are estimated and interpreted). Results indicated that all methods report significant age and period effects, with lower obesity prevalence in early life as well as increasing prevalence in successive surveys. Positive cohort effects for more recently born cohorts emerged based on the constraint-based model; when cohort effects were considered second-order estimates, no significant effects emerged. First-order estimates of age-period-cohort effects are often criticized because of their reliance on arbitrary constraints, but may be conceptually meaningful for sociological research questions. Second-order estimates are statistically estimable and produce conceptually meaningful results for epidemiological research questions. Age-period-cohort analysts should explicitly state the definition of a cohort effect under consideration. Our analyses suggest that the prevalence of obesity in the U.S. in the latter part of the 20th century rose across all birth cohorts, in the manner expected based on estimated age and period effects. As such, the absence or presence of cohort effects depends on the conceptual definition and therefore statistical method used.

**1090: Stovitz SD, Hannan PJ, Lytle LA, Demerath EW, Pereira MA, Himes JH. Child height and the risk of young-adult obesity. Am J Prev Med. 2010 Jan;38(1):74-7. doi: 10.1016/j.amepre.2009.09.033. PubMed PMID: 20117560; PubMed Central PMCID: PMC2818981.**

#### Abstract

##### BACKGROUND:

Childhood obesity is a major risk factor for adult obesity, and obese children tend to be taller than their normal-weight peers.

##### PURPOSE:

The aim of this study is to evaluate whether childhood height influences the probability that normal or overweight children become overweight young adults.

#### METHODS:

The study involved a multicenter prospective cohort of subjects assessed in both third grade and 12th grade, n=2802. Main exposures were CDC childhood BMI categories and height quartiles from third-grade measurements. Main outcome measure was CDC adult BMI categories from 12th-grade measurements. Associations between childhood height quartiles, childhood BMI categories, and adult BMI categories were assessed using chi-square tests and logistic regression models.

#### RESULTS:

Overall, 79% of overweight children remained overweight as young adults. Among children who were overweight or obese, the probability of becoming an overweight or obese young adult was 85% for children in the top quartile of height and 67% for children in the bottom quartile of height ( $p=0.007$ ). Among children who were normal weight, the probability of becoming an overweight or obese young adult was 25% for children in the top height quartile versus 17% for children in the bottom height quartile ( $p=0.003$ ).

#### CONCLUSIONS:

When clinicians classify children by BMI categories and counsel about the risk for future obesity, they should recognize that greater height may be a marker for increased risk of adult overweight and obesity.

**1091: Hatch EE, Nelson JW, Stahlhut RW, Webster TF. Association of endocrine disruptors and obesity: perspectives from epidemiological studies. *Int J Androl.* 2010 Apr;33(2):324-32. doi: 10.1111/j.1365-2605.2009.01035.x. Epub 2010 Jan 22. Review. PubMed PMID: 20113374; PubMed Central PMCID: PMC3005328.**

#### Abstract

Although changes in diet and physical activity are undoubtedly key causal factors related to the increase in obesity, there is growing interest in the possibility that endocrine disrupting chemicals (EDCs) may affect obesity-related pathways by altering cell signalling involved in weight and lipid homeostasis. Proposed mechanisms that could underlie associations between EDCs and obesity include effects on thyroid and steroid hormones, and activation of peroxisome proliferator-activated receptors, which play a major role in adipocyte differentiation and energy storage. Most evidence supporting the hypothesis that EDCs affect obesity comes from laboratory studies. We summarize the limited epidemiological literature on the topic, including prospective studies of human prenatal exposure to EDCs. We also present findings from a cross-sectional study of levels of six phthalate metabolites and body mass index (BMI) and waist circumference (WC), using data from the U.S. National Health and Nutrition Examination Survey. We found positive associations between BMI and WC among adult males for most phthalate metabolites. For example, in males aged 20-59, the adjusted mean BMI across quartiles of mono-benzyl phthalate was 26.7, 27.2, 28.4, 29.0 ( $p$ -trend = 0.0002). In females, BMI and WC increased with quartiles of mono-ethyl phthalate in 12-19 year olds (adjusted mean BMI = 22.9, 23.8, 24.1, 24.7,  $p$ -trend = 0.03), and a similar but less strong pattern was seen in 20-59 year olds. By contrast, higher levels of mono-2-ethylhexyl phthalate were associated with lower BMI in adolescent girls and females aged 20-59. This exploratory analysis found several associations between phthalate metabolites and obesity, including notable differences by gender. However, the cross-sectional data are a limitation. Additional prospective studies of the association between exposures to EDCs, especially during development, and obesity are warranted. As this field of research advances, there are challenging methodological questions that must be considered by both epidemiologists and toxicologists.



**1092: Taner Y, Törel-Ergür A, Bahçivan G, Gürdag M. Psychopathology and its effect on treatment compliance in pediatric obesity patients. Turk J Pediatr. 2009 Sep-Oct;51(5):466-71. PubMed PMID: 20112602.**

Abstract

Obesity is a common health problem in children and adolescents and has life-threatening physical complications as well as psychological consequences, including negative self-image, low self-esteem and social difficulties. Psychiatric disorders, especially depression and anxiety disorders, are present at higher rates in obese patients. The aim of this study was to investigate the presence and type of psychopathology in a group of obese children and to determine the effect of comorbid psychiatric disorders on treatment compliance. Fifty-four obese patients were evaluated by clinical interviews as well as Schedule for Affective Disorders and Schizophrenia for School-Age Children, Present and Lifetime Version (KIDI-SADS-PL) for psychiatric diagnosis. Fifty percent of the sample was found to have psychopathology and treatment compliance was found to be poor in the group with comorbid psychiatric disorders. This shows that child and adolescent psychiatrists should be included as team members while treating pediatric obese patients.

**1093: Langlois K, Garriguet D, Findlay L. Diet composition and obesity among Canadian adults. Health Rep. 2009 Dec;20(4):11-20. PubMed PMID: 20108602.**

Abstract

BACKGROUND:

The contribution of specific nutrients to obesity has not been definitively established. The objective of this study was to determine if an association exists between obesity and the relative percentages of fats, carbohydrates, protein and fibre in the diets of Canadians.

DATA AND METHODS:

The data are from the 2004 Canadian Community Health Survey--Nutrition. The analysis pertains to 6454 respondents aged 18 or older who provided valid 24-hour dietary recall information and measured height and weight, and whose reported energy intake was considered plausible based on their predicted energy expenditure. Logistic regression models with obesity status as the main outcome were conducted, controlling for potential confounders. All analyses were based on weighted estimates.

RESULTS:

When the effect of the control variables was taken into account, total kilocalories consumed increased the odds of obesity in men, and fibre intake decreased the odds. Among women, only total kilocalories consumed was significantly associated with increased odds of obesity.

INTERPRETATION:

Higher consumption of kilocalories increased the odds of obesity, but the relative amounts of fats, carbohydrates and protein were generally not significant. The sole exception was an association between higher fibre intake and lower rates of obesity among men.

**1094: Carter MA, Dubois L. Neighbourhoods and child adiposity: a critical appraisal of the literature. Health Place. 2010 May;16(3):616-28. doi: 10.1016/j.healthplace.2009.12.012. Epub 2010 Jan 4. Review. PubMed PMID: 20106712.**

Abstract

This paper critically appraised the published literature to determine the relationship between physical and social environmental features of neighbourhoods with child adiposity. MEDLINE, EMBASE, PsychINFO, and SCOPUS were searched from 1999 to July 2009 using a systematic search strategy. Twenty-seven primary studies were included based on a priori eligibility criteria. Socioeconomic disadvantage was consistently shown to increase child adiposity, while there was some evidence that high social capital protected against increased adiposity. It is unclear at this time if and how other neighbourhood environmental features play a role. Heterogeneity and methodological issues across studies limits our ability to draw overall conclusions.

**1095: Loaiza M S, Taibo G M, Cornejo A, Atalah S E. [Evolution of nutritional status in a cohort of school age children]. Rev Med Chil. 2009 Nov;137(11):1449-56. doi: /S0034-98872009001100006. Epub 2010 Jan 13. Spanish. PubMed PMID: 20098803.**

Abstract

BACKGROUND:

Considering the high prevalence of obesity among children attending elementary schools, it is important to know the evolution of body weight when these children reach adolescent.

AIM:

To analyze the changes in nutritional status of children between the first year of elementary school and the first year of high school.

MATERIAL AND METHODS:

A historical cohort of children that were assessed when they started elementary school in 1997 was evaluated again eight years later Weight and height were measured and body mass index (BMI) was calculated. Obesity was considered as a BMI over percentile 95 of Center for Disease Control (CDC) references. The concordance between nutritional assessment in both periods and the risk of obesity during adolescence, based on previous weight were also calculated.

RESULTS:

Data from 117,815 children were analyzed. The prevalence of obesity in the first year of elementary school and the first year of high school was 14.6% and 7%, respectively. The mean weight increase during the eight years period was 32.6+/-8.4 kg corresponding to 108%+/-28.1% of the expected increase. There was a low diagnostic concordance between both assessment periods. There was a reduction of under and overweight and a higher proportion of subjects with normal weight in the second assessment period. The risk for being obese in the first year of high school was 6.4 times greater for children that were obese in the first year of elementary school (confidence intervals 6.1-6.9).

CONCLUSIONS:

There was an important reduction in the proportion of obesity between the age of 6 and 14 years. The risk of obesity at 14 years of age was strongly influenced by the presence of obesity at 6 years of

age. The broader BMI ranges for normality for high school children could give a false image of the nutritional status of teenagers .

**1096: Lampert T. Smoking, physical inactivity, and obesity: associations with social status. Dtsch Arztebl Int. 2010 Jan;107(1-2):1-7. doi: 10.3238/arztebl.2010.0001. Epub 2010 Jan 7. PubMed PMID: 20090874; PubMed Central PMCID: PMC2807643.**

Abstract

BACKGROUND:

The author analyzed social-status-specific differences in tobacco smoking, physical inactivity, and obesity among men and women aged 18 years and above in Germany.

METHODS:

The 2003 Telephone Health Survey carried out by the Robert Koch Institute from September 2002 to May 2003 (n = 8318) provided the data for this study. The subjects' current smoking status, physical inactivity, and obesity were assessed. Their social status was judged on the basis of the information they gave about their education and professional training, occupational position, and net household income.

RESULTS:

Men of low social status were found to be more likely to smoke (OR = 1.89, 95% CI = 1.53-2.34), to be physically inactive (OR = 2.30, 95% CI = 1.87-2.84), and to be obese (OR = 1.34, 95% CI = 1.02-1.77) than men of high social status. For women, social status had just as large an effect on smoking and physical inactivity as it did in men (OR = 1.63, 95% CI = 1.30-2.09; and OR = 1.91, 95% CI = 1.58-2.33, respectively), while its effect on obesity was even greater than in men (OR = 3.20, 95% CI = 2.46-4.18).

CONCLUSION:

These results imply that persons of low social status should be an important target group for preventive and health-promoting measures, both in health policy and in medical practice.

**1097: Sidorenkov O, Nilssen O, Brenn T, Martiushov S, Arkhipovsky VL, Grjibovski AM. Prevalence of the metabolic syndrome and its components in Northwest Russia: the Arkhangelsk study. BMC Public Health. 2010 Jan 19;10:23. doi: 10.1186/1471-2458-10-23. PubMed PMID: 20085638; PubMed Central PMCID: PMC2832773.**

Abstract

BACKGROUND:

The metabolic syndrome (MetS) is a cluster of risk factors associated with morbidity from cardiovascular disease (CVD) and associated mortality. Russia has one of the highest CVD mortality rates in the world. However, the prevalence of MetS in Russia remains largely unknown. The aim of this study is to estimate the prevalence of MetS and its components in an urban Russian setting.

METHODS:

Altogether, 3705 Russian adults aged 18-90 years were enrolled in a cross-sectional study in Arkhangelsk (Northwest Russia). All subjects completed a questionnaire and underwent a physical examination. Blood samples were taken and analyzed in Tromsø, Norway. Three separate modified definitions of MetS were used, namely, the National Education Cholesterol Education Program Adult Treatment Panel III (NCEP), the American Heart Association/National Heart, Lung and Blood Institute

(AHA/NHLBI) and the International Diabetes Federation (IDF). To ensure comparability of the findings, the prevalence data were standardized using world and European standard populations and Russian population.

**RESULTS:**

The age-standardized (Segi's world standard population) prevalence rates of the MetS among women were 19.8% (95% CI: 18.1-21.5), 20.6% (95% CI: 18.9-22.3) and 23.1% (95% CI: 21.3-24.9) by the NCEP, AHA/NHLBI and IDF criteria, respectively. The corresponding rates for men were 11.5% (95% CI: 10.1-12.9), 13.7% (95% CI: 12.2-15.2) and 11.0% (95% CI: 9.7-12.4). Among subjects with MetS, central obesity was more common among women, while elevated triglycerides and blood glucose were more common among men. Almost perfect agreement was found between the NCEP and AHA/NHLBI criteria ( $\kappa = 0.94$ ). There was less agreement between the used definitions of MetS in men than in women.

**CONCLUSIONS:**

While the prevalence of MetS among Russian women is comparable to the data for Europe and the U.S., the prevalence among Russian men is considerably lower than among their European and North-American counterparts. Our results suggest that MetS is unlikely to be a major contributor to the high cardiovascular mortality among Russian men. Further studies of MetS determinants and associated cardiovascular risk are needed for a better understanding of the mechanisms leading to the exceptionally high cardiovascular mortality in Russia.

**1098: Petty KH, Li K, Dong Y, Fortenberry J, Stallmann-Jorgensen I, Guo D, Zhu H. Sex dimorphisms in inflammatory markers and adiposity in African-American youth. Int J Pediatr Obes. 2010 Aug;5(4):327-33. doi: 10.3109/17477160903497019. PubMed PMID: 20078375; PubMed Central PMCID: PMC3826793.**

**Abstract**

**OBJECTIVE:**

There are demonstrated sex differences in the association between adiposity and inflammation in adults. Our aim was to determine sex differences in inflammatory markers and in the association between adiposity and inflammation in a sample of African-American adolescents.

**METHODS:**

Adiposity variables including body mass index (BMI), waist circumference, weight, total fat, trunk fat, and inflammatory markers including interleukin-6 (IL-6), leptin, monocyte chemoattractant protein 1 (MCP1), C-reactive Protein (CRP), adiponectin were examined in 166 (53% female) African-American adolescents, aged 14-19 years. Total fat and trunk fat were measured using Dual-Energy X-ray Absorptiometry (DXA).

**RESULTS:**

Results revealed males had higher weight ( $p=0.01$ ); females had higher BMI, trunk fat, and total fat ( $p's <0.01$ ). With inflammation, males had higher MCP1 ( $p=0.024$ ); females had higher leptin ( $p<0.001$ ), adiponectin ( $p=0.006$ ), and IL-6 ( $p=0.026$ ). Partial correlations in males indicated associations of adiposity variables with leptin, adiponectin (all  $p's <0.01$ ), and CRP ( $p<0.05$ ); in females, leptin, CRP, and IL-6 were associated with adiposity variables (all  $p's <0.05$ ). Multiple regression analyses revealed female adiposity variables predicted CRP, ( $R(2)=0.254$ ), IL-6 ( $R(2)=0.167$ ), and MCP1 ( $R(2)=0.220$ ). Adiposity variables in males predicted lower adiponectin ( $R(2)=0.245$ ). For both, leptin was predicted by adiposity (males  $R(2)=0.420$  and females  $R(2)=0.410$ ).

**CONCLUSIONS:**

Data indicate clear sex dimorphisms in the associations between inflammatory markers and adiposity in African-American adolescents, suggesting that preventive measures and treatments for adolescent obesity may need to be sex-specific.

**1099: Pajari M, Pietiläinen KH, Kaprio J, Rose RJ, Saarni SE. The effect of alcohol consumption on later obesity in early adulthood--a population-based longitudinal study. *Alcohol Alcohol*. 2010 Mar-Apr;45(2):173-9. doi: 10.1093/alcalc/agg090. Epub 2010 Jan 12. PubMed PMID: 20071348; PubMed Central PMCID: PMC2842105.**

Abstract

AIMS:

The study aimed to determine whether alcohol use during late adolescence contributes to the weight gain from adolescence to young adulthood or risk of obesity or waist circumference at young adulthood.

METHODS:

A population-based, longitudinal study of 5563 Finnish twins born in 1975-1979 and surveyed at ages 16 (T1), 17 (T2), 18 (T3) and 23-27 (T4) years. Drinking habits, height and weight were self-reported at T1, T2, T3 and T4; waist circumference was self-measured at T4. As potential confounders, we used smoking, diet, physical activity, place of residence, socio-economic status and parents' body mass index (BMI).

RESULTS:

Compared to the reference group (drinking once to twice per month), the BMI increase from T3 to T4 was less among abstaining men (-0.62 kg/m<sup>2</sup>, (95% CI -1.04, -0.20)) and among women in those drinking less than monthly (-0.38 kg/m<sup>2</sup>, (-0.71, -0.04)). In women, at least weekly drinking was associated with larger waist circumference (Beta 1.55 cm, (0.48, 2.61)), but this became statistically non-significant after adjusting for potential confounders. In a multilevel model for change, drinking frequency was not associated with weight change in women; in men, a negative association was seen, but it was statistically non-significant after adjusting for potential confounders.

CONCLUSIONS:

These results from a population-based study with a large set of confounding variables suggest that alcohol use during adolescence has at most a minor effect on weight gain or development of abdominal obesity from adolescence to young adulthood.

**1100: Ferguson TF, Funkhouser E, Roseman J. Factor analysis of metabolic syndrome components in the Coronary Artery Risk Development in Young Adults (CARDIA) study: examination of factors by race-sex groups and across time. *Ann Epidemiol*. 2010 Mar;20(3):194-200. doi: 10.1016/j.annepidem.2009.11.002. Epub 2010 Jan 13. PubMed PMID: 20071194; PubMed Central PMCID: PMC2823988.**

Abstract

PURPOSE:

This study tests hypotheses of one-, two-, three-, and four-factor models of metabolic syndrome (MetS) components and assesses the consistency and fit of the factor models 10 years later using confirmatory factor analysis in a large biracial sample of men and women.

METHODS:

With the use of data from the baseline and year-10 exams of the Coronary Artery Risk Development in Young Adults Study, confirmatory factor analysis was performed overall and for race- and sex-specific groups for one-, two-, three-, and four-factor MetS models in 3403 white and black men and women at baseline and in 2532 white and black men and women 10 years later. Metabolic risk variables used in the factor analysis were insulin resistance (HOMA-IR), fasting glucose, triglycerides, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, systolic and diastolic blood pressure, waist circumference, waist-hip ratio, triceps skinfolds, and uric acid.

**RESULTS:**

Three- and four-factor models of MetS achieved excellent fits of the data, ranging from 0.92 to 0.96 for race- and sex-specific models and from the baseline to year-10 exams.

**CONCLUSIONS:**

The results suggest that MetS factors are consistent across time and race-sex groups. When investigating the MetS, it is necessary to evaluate race-sex groups.

1101: Liu G, Zhu H, Lagou V, Gutin B, Barbeau P, Treiber FA, Dong Y, Snieder H. Common variants near melanocortin 4 receptor are associated with general and visceral adiposity in European- and African-American youth. *J Pediatr.* 2010 Apr;156(4):598-605.e1. doi: 10.1016/j.jpeds.2009.10.037. Epub 2010 Jan 12. PubMed PMID: 20070976; PubMed Central PMCID: PMC4018229.

**Abstract**

**OBJECTIVE:**

Recent genome-wide association studies found common variants near the melanocortin 4 receptor gene associated with obesity. This study aimed to assess the influence of the identified single nucleotide polymorphisms rs17782313 and rs17700633 on general and visceral adiposity in European- and African-American youth.

**STUDY DESIGN:**

In 1890 youth (49.1% European-American, 45.6% male, mean age 16.7 years), we examined the associations of the rs17782313 and rs17700633 with anthropometry, percent body fat, visceral adipose tissue, and subcutaneous abdominal adipose tissue. Interaction of the single nucleotide polymorphisms with ethnicity or sex was investigated and haplotype analyses conducted.

**RESULTS:**

Rs17782313 was significantly associated with weight ( $P = .02$ ) and waist circumference ( $P = .03$ ) in all subjects and with body mass index ( $P = .002$ ) in females. In females rs17700633 was significantly associated with percent body fat ( $P = .001$ ), visceral adipose tissue ( $P < .001$ ), and subcutaneous abdominal adipose tissue ( $P < .001$ ). Rs17700633 was significantly associated with fasting insulin and homeostasis model assessment, but the significance attenuated after adjustment for percent body fat. These findings were confirmed by haplotype analysis. No significant interactions of the variants with ethnicity were found for any of these phenotypes.

**CONCLUSIONS:**

The relatively large effect of these common variants near melanocortin 4 receptor on general and visceral adiposity in childhood, especially in girls, could prove helpful in elucidating the molecular mechanisms underlying the development of obesity in early life.

**1102: Addo OY, Himes JH. Reference curves for triceps and subscapular skinfold thicknesses in US children and adolescents. Am J Clin Nutr. 2010 Mar;91(3):635-42. doi: 10.3945/ajcn.2009.28385. Epub 2010 Jan 6. PubMed PMID: 20053877.**

Abstract

BACKGROUND:

Skinfold thicknesses have long been considered important and valid measurements of subcutaneous fat. Nevertheless, there are no current skinfold reference data for US children and adolescents.

OBJECTIVE:

We developed new percentile reference curves for triceps and subscapular skinfold thicknesses by using the same national samples as those included in the reference curves for body mass index (BMI) in the Centers for Disease Control and Prevention 2000 Growth Charts.

DESIGN:

We included triceps and subscapular skinfold-thickness measurements for 32,783 individuals who also had complete data for BMI. The LMS method was used to derive 10 smoothed skinfold-thickness percentile reference curves and to generate the L, M, and S parameters that allow the calculation of standardized z scores.

RESULTS:

The new reference curves exhibit established age- and sex-related patterns of development, including dramatic prepubescent increases in subcutaneous fatness in boys at the highest percentiles. Comparisons of smoothed medians for race-ethnicity groups confirm greater subcutaneous fatness in white children than in black age mates at the triceps site but similar median subscapular skinfold thicknesses. Median skinfold thicknesses for children considered overweight (> or =85th percentile) or obese (> or =95th percentile) on the basis of BMI cutoffs do not follow closely the skinfold percentile reference channels across age, especially in boys, which suggests a certain degree of independence between BMI and skinfold thickness at the upper extremes of the BMI distribution.

CONCLUSIONS:

The age- and sex-standardized skinfold percentiles and z scores will be appropriate for a wide range of research applications that consider measures of subcutaneous fat. Because they were developed by using the same children as those used for the 2000 BMI curves of the Centers for Disease Control and Prevention, they provide an important new complementary assessment tool that should be appropriate for almost all US children and adolescents.

**1103: Park J, Hilmers DC, Mendoza JA, Stuff JE, Liu Y, Nicklas TA. Prevalence of metabolic syndrome and obesity in adolescents aged 12 to 19 years: comparison between the United States and Korea. J Korean Med Sci. 2010 Jan;25(1):75-82. doi: 10.3346/jkms.2010.25.1.75. Epub 2009 Dec 26. PubMed PMID: 20052351; PubMed Central PMCID: PMC2800028.**

Abstract

This study compared the prevalence of metabolic syndrome (MetS), its risk factors, and obesity in adolescents in the United States (US) and Korea. Data were obtained from 2003-2004 US National Health and Nutrition Examination Survey (NHANES) and 2005 Korea NHANES for adolescents aged 12-19 yr in the US (n=734) and in Korea (n=664). The 2007 International Diabetes Federation (IDF) pediatric definition for diagnosis of MetS and the 2000 US Growth Charts and 2007 Korea Growth

Charts for assessment of obesity were utilized. The prevalence of metabolic syndrome in US and Koreans was 5.5% and 2.5%, respectively. The prevalence of obesity was 18.1% in US compared to 9.0% in Koreans. The prevalence of abdominal obesity, hyperglycemia, and hypertriglyceridemia were higher in the US, whereas that of low HDL-C levels was higher in Korea. Despite the doubled prevalence for the single entities of MetS and obesity in the US, the prevalence of MetS in obese US and Koreans did not differ (20.8% and 24.3%, respectively). In conclusion, there are differences in the prevalence of MetS, obesity, and the individual MetS risk factors between the US and Korean adolescents; however, the risk of MetS among obese adolescents is similar in both countries.

**1104: Jung C, Fischer N, Fritzenwanger M, Thude H, Barz D, Figulla HR. Social and behavioural aspects and their consequences in obese teenagers: importance of family's history. Nutr Hosp. 2009 Nov-Dec;24(6):693-700. PubMed PMID: 20049373.**

Abstract

OBJECTIVES:

Overweight, the metabolic syndrome and accompanying diseases are dramatically increasing problems. We investigated social and behavioral variables that influence overweight in adolescents and tested their influence on plasma markers related to diabetes and endothelial dysfunction.

METHODS:

79 male adolescents were enrolled (age 13-17 years). Endothelial progenitor cells were counted by flow cytometry. Adiponectin and soluble E-selectin (sEselectin) were determined by ELISA.

RESULTS:

Body weight differs significantly if the family's history was positive for arterial hypertension ( $p < 0.001$ ), diabetes ( $p < 0.001$ ), hypercholesterolemia ( $p < 0.001$ ), and coronary artery disease (CAD,  $p < 0.01$ ). The hours of physical activity represent a predictor of BMI in linear regression analysis ( $p < 0.001$ ;  $R(2) = 0.195$ ). Markers for endothelial damage are altered in adolescents with positive family history for hyperlipidemia and CAD.

CONCLUSION:

The family's history is an important variable influencing the body weight of teenagers. Via obesity and independently, it influences the early development of endothelial damage. It might serve to detect teenagers at risk for appropriate intervention.

**1105: Larrañaga Vidal A, García-Mayor RV. [High frequency of non-specific eating disorders in obese persons]. Nutr Hosp. 2009 Nov-Dec;24(6):661-6. Spanish. PubMed PMID: 20049368.**

Abstract

OBJECTIVES:

Determine frequency of Eating Disorders and Non-Specific Eating Disorders and pathological behaviour in obese patients.

SUBJECTS AND METHODS:

The study includes fifty-four obese patients ( $BMI > \text{or} = 30$ ) consecutively attended at the Nutrition Section of the University Hospital of Vigo. Aged  $37.5 \pm 11.1$ . Range 18-58, 45 female and 9 male.

CONTROL GROUP:

15 adult normal-weight subjects (11 female, 4 male), aged  $35.3 \pm 9.2$  años. Frequency of Eating Disorders was determined by a lifestyle clinical interview and the following questionnaires: Eating



Attitudes Test 26 (EAT26), Bulimic Investigatory Test Edimburgh (BITE) and Questionnaire Eating Weight Patterns Revised (QEWP-R).

**RESULTS:**

Twelve out of 54 (20.6%) patients showed Pathological Behavior, while 5 (4.1%) and 3 (2.5%) had Non-Specific Eating Disorders and Classic Eating Disorders respectively, whereas in the control group non subjects showed psychological anomalies. When we divided obese patients by the degree of obesity, differences in the frequencies of the Eating Disorders was no observed.

**CONCLUSIONS:**

In our obese patients, Pathological Behavior was the most frequent finding followed for Non-Specific Eating Disorders and Classic Eating Disorders.

**1106: Classen TJ. Measures of the intergenerational transmission of body mass index between mothers and their children in the United States, 1981-2004. Econ Hum Biol. 2010 Mar;8(1):30-43. doi: 10.1016/j.ehb.2009.11.002. Epub 2009 Nov 26. PubMed PMID: 20042381; PubMed Central PMCID: PMC2821676.**

**Abstract**

This research provides estimates of the intergenerational persistence of body mass index (BMI) between women and their children when both are at similar stages of the lifecycle. Using data from the National Longitudinal Survey of Youth 1979 (NLSY79) and the Young Adults of the NLSY79, associations between the weight status of women and their children are measured when both generations are between the ages of 16 and 24. In the entire sample, the measured intergenerational correlation of BMI is significantly different from zero and equal to 0.35. This result differs by gender with a BMI correlation between female children and their mothers of 0.38, compared to a significantly lower BMI correlation of 0.32 between mothers and their sons. Measures of this relationship across the distribution of BMI using quantile regression and quadrant dependence techniques indicate that the intergenerational persistence of BMI is strongest at higher levels of BMI. Strong dependence across generations is found when categorical outcomes of obesity and overweight are implemented. These results provide evidence of the strong persistence of weight problems across generations which may affect economic mobility within families.

**1107: Jitnarin N, Kosulwat V, Rojroongwasinkul N, Boonpradern A, Haddock CK, Poston WS. Risk factors for overweight and obesity among Thai adults: results of the National Thai Food Consumption Survey. Nutrients. 2010 Jan;2(1):60-74. doi: 10.3390/nu20100060. Epub 2010 Jan 21. PubMed PMID: 22253992; PubMed Central PMCID: PMC3257614.**

**Abstract**

We evaluated the associations between overweight and obesity and socio-economic status (SES), behavioral factors, and dietary intake in Thai adults. A nationally representative sample of 6,445 Thais adults (18-70 years) was surveyed during 2004-2005. Information including demographics, SES characteristics, dietary intake, and anthropometrics were obtained. Overall, 35.0% of men, and 44.9% of women were overweight or obese (BMI  $\geq$  23 kg/m<sup>2</sup>) using the Asian cut-points. Regression models demonstrated that age was positively associated with being overweight in both genders. In gender-stratified analyses, male respondents who were older, lived in urban areas, had higher annual household income, and did not smoke were more likely to be classified as overweight and obese.

Women who were older, had higher education, were not in a marriage-like relationship and were in semi-professional occupation were at greater risk for being overweight and obese. High carbohydrate and protein intake were found to be positively associated with BMI whereas the frequent use of dairy foods was found to be negatively associated with BMI among men. The present study found that SES factors are associated with being classified as overweight and obese in Thai adults, but associations were different between genders. Health promotion strategies regarding obesity and its related co-morbidity are necessary.

**1108: Boardman JD, Blalock CL, Corley RP, Stallings MC, Domingue BW, Mcqueen MB, Crowley TJ, Hewitt JK, Lu Y, Field SH. Ethnicity, body mass, and genome-wide data. *Biodemography Soc Biol.* 2010;56(2):123-36. doi: 10.1080/19485565.2010.524589. PubMed PMID: 21387985; PubMed Central PMCID: PMC3155265.**

Abstract

This article combines social and genetic epidemiology to examine the influence of self-reported ethnicity on body mass index (BMI) among a sample of adolescents and young adults. We use genetic information from more than 5,000 single nucleotide polymorphisms in combination with principal components analysis to characterize population ancestry of individuals in this study. We show that non-Hispanic white and Mexican-American respondents differ significantly with respect to BMI and differ on the first principal component from the genetic data. This first component is positively associated with BMI and accounts for roughly 3% of the genetic variance in our sample. However, after controlling for this genetic measure, the observed ethnic differences in BMI remain large and statistically significant. This study demonstrates a parsimonious method to adjust for genetic differences among individual respondents that may contribute to observed differences in outcomes. In this case, adjusting for genetic background has no bearing on the influence of self-identified ethnicity.

**1109: Cambuli VM, Incani M, Cossu E, Congiu T, Scano F, Pilia S, Sentinelli F, Tiberti C, Cavallo MG, Loche S, Baroni MG. Prevalence of type 1 diabetes autoantibodies (GADA, IA2, and IAA) in overweight and obese children. *Diabetes Care.* 2010 Apr;33(4):820-2. doi: 10.2337/dc09-1573. Epub 2009 Dec 29. PubMed PMID: 20040655; PubMed Central PMCID: PMC2845034.**

Abstract

OBJECTIVE:

Little is known about the prevalence of beta-cell autoantibodies in children with excess body weight. The prevalence of type 1 diabetes autoantibodies and its relation with hyperglycemia was analyzed in 686 overweight/obese children and adolescents.

RESEARCH DESIGN AND METHODS:

All children underwent an oral glucose tolerance test, and anti-GAD, anti-IA2, and anti-IAA autoantibodies were measured. Autoantibody prevalence was evaluated in 107 normal-weight children for comparison.

RESULTS:

A single autoantibody was present in 2.18% of overweight/obese subjects and 1.86% normal-weight subjects (P = NS). Postload glycemia was significantly higher in antibody-positive children (133 +/-

69.9 vs. 105.4 +/- 17.7 mg/dl,  $P < 0.0001$ ) compared with autoantibody-negative subjects. No difference in autoantibody distribution was seen when our cohort was stratified by age, sex, SDS-BMI, pubertal stage, and homeostasis model assessment-insulin resistance (HOMA-IR).

#### CONCLUSIONS:

The 2.18% prevalence of type 1 diabetes autoantibodies is similar to that reported in nonobese children. This study provided evidence that excess body weight and insulin resistance do not influence autoantibody frequency.

**1110: Fowler-Brown AG, Ngo LH, Phillips RS, Wee CC. Adolescent obesity and future college degree attainment. *Obesity (Silver Spring)*. 2010 Jun;18(6):1235-41. doi: 10.1038/oby.2009.463. Epub 2009 Dec 24. PubMed PMID: 20035280; PubMed Central PMCID: PMC3607297.**

#### Abstract

The current impact of adolescent obesity on educational attainment is not clear. The objectives of our study were to determine whether adolescent obesity is associated with college degree attainment and how this association may have changed over time. We used data from a contemporary national cohort of over 4,000 persons who were adolescents (aged 14-18) in 1997 to assess the relationship between adolescent obesity and education. To assess for changes in this relationship over time, we also analyzed an older, similarly structured cohort of over 3,000 persons who were adolescents (aged 16-18) in 1981. Our primary outcome was college degree completion. We found that in the older cohort (adolescents in 1979), there were no differences in college degree attainment by adolescent weight status before and after adjustment. However, unadjusted analysis of the contemporary cohort (adolescents in 1997) demonstrated that those who were normal weight as adolescents had a higher prevalence of college degree attainment at follow-up compared to obese adolescents (24% vs. 10%). After adjustment for socio-demographic variables (age, sex, race, height, parental income-to-poverty ratio, parental education, aptitude test scores), obese adolescents were less likely to have attained a college degree compared to normal weight peers (adjusted risk ratio 0.61 95% confidence interval 0.38-0.83). Expectations for a future college degree did not vary by weight status and did not explain this observation. In conclusion, adolescent obesity is associated with lower likelihood of college completion. This relationship was not observed in an older cohort of adolescents.

**1111: Gordon-Larsen P, The NS, Adair LS. Longitudinal trends in obesity in the United States from adolescence to the third decade of life. *Obesity (Silver Spring)*. 2010 Sep;18(9):1801-4. doi: 10.1038/oby.2009.451. Epub 2009 Dec 24. PubMed PMID: 20035278; PubMed Central PMCID: PMC2929301.**

#### Abstract

No longitudinal analyses using national data have evaluated the increase in obesity from adolescence into early adulthood. We examined obesity incidence, persistence, and reversal in a nationally representative cohort of US teens followed into their early 30s, using measured height and weight data, in individuals enrolled in wave II (1996; 12-21 years), wave III (2001; 17-26 years), and wave IV (2008 early release data; 24-32 years) of the National Longitudinal Study of Adolescent Health (N = 8,675). Obesity was defined as a BMI  $\geq$ 95th percentile of the 2000 Centers for Disease Control/National Center for Health Statistics growth charts or  $\geq 30$  kg/m<sup>2</sup> for individuals  $< 20$

years and  $\geq 30$  kg/m<sup>2</sup> in individuals  $\geq 20$  years. In 1996, 13.3% of adolescents were obese. By 2008, obesity prevalence increased to 36.1%, and was highest among non-Hispanic black females (54.8%). Ninety percent of the obese adolescents remained obese in 2008. While annual obesity incidence did not decline in the total sample across the two study intervals (2.3% per year 1996-2001 vs. 2.2% per year 2001-2008), rates among white females declined (2.7 to 1.9% per year) and were highest among non-Hispanic black and Hispanic females (3.8 and 2.7% per year, 1996-2001 vs. 3.0 and 2.6% per year, 2002-2008, respectively). Obesity prevalence doubled from adolescence to the early 20s, and doubled again from the early to late 20s or early 30s, with strong tracking from adolescence into adulthood. This trend is likely to continue owing to high rates of pediatric obesity. Effective preventive and treatment efforts are critically needed.

**1112: Lundgren JD, Rempfer MV, Brown CE, Goetz J, Hamera E. The prevalence of night eating syndrome and binge eating disorder among overweight and obese individuals with serious mental illness. *Psychiatry Res.* 2010 Feb 28;175(3):233-6. doi: 10.1016/j.psychres.2008.10.027. PubMed PMID: 20031234; PubMed Central PMCID: PMC3666565.**

Abstract

The prevalence of night eating syndrome (NES) and binge eating disorder (BED) was assessed among overweight and obese, weight-loss-seeking individuals with serious mental illness (SMI). Sixty-eight consecutive overweight (BMI  $\geq 25$  kg/m<sup>2</sup>) and obese (BMI  $\geq 30$  kg/m<sup>2</sup>) individuals with SMI (mean age = 43.9 years; mean BMI = 37.2 kg/m<sup>2</sup>; 67.6% Caucasian, 60.3% female) who were enrolled in a group behavioral weight loss treatment program were assessed at baseline for NES and BED with clinician-administered diagnostic interviews. Using conservative criteria, 25.0% met criteria for NES, 5.9% met criteria for BED, and only one participant met criteria for both NES and BED. This is the first study to find that obese individuals with SMI, compared with previously studied populations, are at significantly greater risk for NES, but are not at greater risk for BED. Stress, sleep, and medication use might account for the high prevalence of NES found in this population.

**1113: Marks S, Shaikh U, Hilty DM, Cole S. Weight status of children and adolescents in a telepsychiatry clinic. *Telemed J E Health.* 2009 Dec;15(10):970-4. doi: 10.1089/tmj.2008.0150. PubMed PMID: 20028189; PubMed Central PMCID: PMC2993056.**

Abstract

The prevalence of overweight and obesity is approximately 32% among children and adolescents in the United States. Comorbid conditions associated with pediatric overweight and obesity include psychiatric conditions. The purpose of this study was to determine the prevalence of overweight and obesity among children and adolescents presenting for consultation from rural communities to the UC Davis Telemedicine Program (UCDTP), as well as to collect preliminary data to design an integrated disease management program for children and adolescents with obesity and mental illness. Patients aged 21 and under seen for psychiatric consultation at the UCDTP between 2004 and 2006 were included. Retrospective medical record review was conducted to determine the major psychiatric diagnoses, height, weight, body-mass index, and weight status (underweight/at risk for underweight, normal weight, overweight, or obese) for each patient. Of the 230 patients referred, a total of 121 patients had both height and weight values documented. Three patients were

underweight; 51 were normal weight; 28 were overweight; 39 were obese. The most common psychiatric diagnoses in the 121 patients were attention deficit/hyperactivity disorder (ADHD; n = 40), bipolar disorder (n = 36), and depression (n = 31). The most common psychiatric diagnoses in patients with available weight and height data who were overweight and obese were bipolar disorder (n = 20), depression (n = 18), and ADHD (n = 17). Approximately 55% of child and adolescent patients seen for telepsychiatry consultation whose charts documented height and weight measurements were overweight or obese. Psychiatric diagnoses in overweight youngsters need to be researched further to determine whether the weight change is primary or secondary to mood and/or to treatments, such as medication. At such a high rate of comorbidity, monitoring the weight status of young psychiatric patients in this population is indicated.

**1114: Maynard MJ, Baker G, Rawlins E, Anderson A, Harding S. Developing obesity prevention interventions among minority ethnic children in schools and places of worship: The DEAL (DiEt and Active Living) study. BMC Public Health. 2009 Dec 21;9:480. doi: 10.1186/1471-2458-9-480. PubMed PMID: 20025775; PubMed Central PMCID: PMC2806304.**

Abstract

BACKGROUND:

Childhood obesity is a major public health concern with serious implications for the sustainability of healthcare systems. Studies in the US and UK have shown that ethnicity is consistently associated with childhood obesity, with Black African origin girls in particular being more vulnerable to overweight and obesity than their White peers. Little is known, however, about what promotes or hinders engagement with prevention programmes among ethnic minority children.

METHODS/DESIGN:

This paper describes the background and design of an exploratory study conducted in London, UK. The aim of the study was to assess the feasibility, efficacy and cultural acceptability of child- and family-based interventions to reduce risk factors for childhood and adolescent obesity among ethnic minorities. It investigated the use of a population approach (in schools) and a targeted approach (in places of worship). We used a mixture of focus group discussions, in-depth interviews and structured questionnaires to explore what children, parents, grandparents, teachers and religious leaders think hinder and promote engagement with healthy eating and active living choices. We assessed the cultural appropriateness of validated measures of physical activity, dietary behaviour and self efficacy, and of potential elements of interventions informed by the data collected. We are also currently assessing the potential for wider community support (local councils, community networks, faith forums etc) of the intervention.

DISCUSSION:

Analysis of the data is ongoing but the emergent findings suggest that while the school setting may be better for the main implementation of healthy lifestyle interventions, places of worship provide valuable opportunities for family and culturally specific support for implementation. Tackling the rise in childhood and adolescent obesity is a policy priority, as reflected in a range of government initiatives. The study will enhance such policy by developing the evidence base about culturally acceptable interventions to reduce the risk of obesity in children.

**1115: Arnaud A, Fagot-Campagna A, Reach G, Basin C, Laporte A. Prevalence and characteristics of diabetes among homeless people attending shelters in Paris, France, 2006. Eur J Public Health. 2010 Oct;20(5):601-3. doi: 10.1093/eurpub/ckp197. Epub 2009 Dec 16. PubMed PMID: 20015964.**

Abstract

Chronic diseases are frequent in homeless people. The aims of this study were to estimate the prevalence of diabetes in people living in shelters and to describe the characteristics of homeless people previously diagnosed with diabetes. Diabetes screening was systematically performed in nine shelters in Paris, from October to December 2006. We found a high prevalence of diabetes comparable with those of the general population, but a high frequency of major complications, in spite of a relatively young age, short duration since diabetes diagnosis and moderate glycaemic control. This study underlines the burden of diabetes among precarious people and supports the development of more effective strategies to improve diabetes management in this population, especially regarding podiatric care.

**1116: Viner RM, Hsia Y, Neubert A, Wong IC. Rise in antiobesity drug prescribing for children and adolescents in the UK: a population-based study. Br J Clin Pharmacol. 2009 Dec;68(6):844-51. doi: 10.1111/j.1365-2125.2009.03528.x. PubMed PMID: 20002078; PubMed Central PMCID: PMC2810795.**

Abstract

WHAT IS ALREADY KNOWN ABOUT THIS SUBJECT:

\* The antiobesity drugs sibutramine and orlistat are not licensed for use in children and adolescents in the UK or USA. \* Clinical trials suggest antiobesity drugs are effective and well-tolerated in obese adolescents.

WHAT THIS STUDY ADDS:

\* Prescribing of unlicensed antiobesity drugs in children and adolescents has increased significantly in the past 8 years. \* Most prescribed antiobesity drugs in children and adolescents are rapidly discontinued before patients can see clinical benefit, suggesting they are poorly tolerated or poorly efficacious.

AIMS:

The international childhood obesity epidemic has driven increased use of unlicensed antiobesity drugs, whose efficacy and safety are poorly studied in children and adolescents. We investigated the use of unlicensed antiobesity drugs (orlistat, sibutramine and rimonabant) in children and adolescents (0-18 years) in the UK.

METHODS:

Population-based prescribing data from the UK General Practice Research Database between 1 January 1999 and 31 December 2006.

RESULTS:

A total of 452 subjects received 1334 prescriptions during the study period. The annual prevalence of antiobesity drug prescriptions rose significantly from 0.006 per 1000 [95% confidence interval (CI) 0.0007, 0.0113] in 1999 to 0.091 per 1000 (95% CI 0.07, 0.11) in 2006, a 15-fold increase, with similar increases seen in both genders. The majority of prescriptions were made to those  $\geq 14$  years old, although 25 prescriptions were made for children  $< 12$  years old. Orlistat accounted for 78.4% of all prescriptions; only one patient was prescribed rimonabant. However, approximately 45% of the

patients ceased orlistat and 25% ceased sibutramine after only 1 month. The estimated mean treatment durations for orlistat and sibutramine were 3 and 4 months, respectively.

**CONCLUSIONS:**

Prescribing of unlicensed antiobesity drugs in children and adolescents has dramatically increased in the past 8 years. The majority are rapidly discontinued before patients can see weight benefit, suggesting they are poorly tolerated or poorly efficacious when used in the general population. Further research into the effectiveness and safety of antiobesity drugs in clinical populations of children and adolescents is needed.

**1117: Gigante DP, Moura EC, Sardinha LM. Prevalence of overweight and obesity and associated factors, Brazil, 2006. Rev Saude Publica. 2009 Nov;43 Suppl 2:83-9. English, Portuguese. PubMed PMID: 19936502.**

**Abstract**

**OBJECTIVE:**

To estimate the prevalence of overweight and obesity and factors associated.

**METHODS:**

The study analyzed data referring to individuals aged 18 years or older interviewed through the system Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico (VIGITEL--Telephone-based surveillance of risk and protective factors for chronic diseases), carried out in the Brazilian capitals and Federal District in 2006. For 49,395 individuals, the body mass index (BMI) was used to identify overweight (BMI > or = 25 kg/m<sup>2</sup>) and obesity (BMI > or = 30 kg/m<sup>2</sup>). Prevalence and prevalence ratios were presented according to sociodemographic variables, level of schooling, health condition/comorbidities, and self-evaluation of health, stratified by sex. Poisson regression was employed for crude and age-adjusted analyses.

**RESULTS:**

The prevalence of overweight was of 47% for men and 39% for women, obesity was around 11% for both sexes. Direct association was observed between overweight and level of schooling among men and inverse association among women. Obesity was more frequent among men living with a partner and was associated neither with level of schooling nor skin color. The prevalence of overweight and obesity was higher among black women and women who lived with a partner. The presence of diabetes, systemic arterial hypertension and dyslipidemias, as well as the subject perceiving his/her health as regular or poor, were also reported by the interviewees with overweight or obesity.

**CONCLUSIONS:**

While approximately one out of every two interviewees was classified as being overweight, obesity was reported by one out of every ten interviewed subjects. Socioeconomic and demographic variables, as well as reported morbidities, were associated with overweight and obesity. These results were similar to the ones found in other Brazilian studies.

**1118: Leproult R, Van Cauter E. Role of sleep and sleep loss in hormonal release and metabolism. Endocr Dev. 2010;17:11-21. doi: 10.1159/000262524. Epub 2009 Nov 24. Review. PubMed PMID: 19955752; PubMed Central PMCID: PMC3065172.**

**Abstract**

Compared to a few decades ago, adults, as well as children, sleep less. Sleeping as little as possible is often seen as an admirable behavior in contemporary society. However, sleep plays a major role in



neuroendocrine function and glucose metabolism. Evidence that the curtailment of sleep duration may have adverse health effects has emerged in the past 10 years. Accumulating evidence from both epidemiologic studies and well-controlled laboratory studies indicates that chronic partial sleep loss may increase the risk of obesity and weight gain. The present chapter reviews epidemiologic studies in adults and children and laboratory studies in young adults indicating that sleep restriction results in metabolic and endocrine alterations, including decreased glucose tolerance, decreased insulin sensitivity, increased evening concentrations of cortisol, increased levels of ghrelin, decreased levels of leptin and increased hunger and appetite. Altogether, the evidence points to a possible role of decreased sleep duration in the current epidemic of obesity. Bedtime extension in short sleepers should be explored as a novel behavioral intervention that may prevent weight gain or facilitate weight loss. Avoiding sleep deprivation may help to prevent the development of obesity, particularly in children.

**1119: Stewart ST, Cutler DM, Rosen AB. Forecasting the effects of obesity and smoking on U.S. life expectancy. *N Engl J Med.* 2009 Dec 3;361(23):2252-60. doi: 10.1056/NEJMs0900459. PubMed PMID: 19955525.**

Abstract

BACKGROUND:

Although increases in obesity over the past 30 years have adversely affected the health of the U.S. population, there have been concomitant improvements in health because of reductions in smoking. Having a better understanding of the joint effects of these trends on longevity and quality of life will facilitate more efficient targeting of health care resources.

METHODS:

For each year from 2005 through 2020, we forecasted life expectancy and quality-adjusted life expectancy for a representative 18-year-old, assuming a continuation of past trends in smoking (based on data from the National Health Interview Survey for 1978 through 1979, 1990 through 1991, 1999 through 2001, and 2004 through 2006) and past trends in body-mass index (BMI) (based on data from the National Health and Nutrition Examination Survey for 1971 through 1975, 1988 through 1994, 1999 through 2002, and 2003 through 2006). The 2003 Medical Expenditure Panel Survey was used to examine the effects of smoking and BMI on health-related quality of life.

RESULTS:

The negative effects of increasing BMI overwhelmed the positive effects of declines in smoking in multiple scenarios. In the base case, increases in the remaining life expectancy of a typical 18-year-old are held back by 0.71 years or 0.91 quality-adjusted years between 2005 and 2020. If all U.S. adults became nonsmokers of normal weight by 2020, we forecast that the life expectancy of an 18-year-old would increase by 3.76 life-years or 5.16 quality-adjusted years.

CONCLUSIONS:

If past obesity trends continue unchecked, the negative effects on the health of the U.S. population will increasingly outweigh the positive effects gained from declining smoking rates. Failure to address continued increases in obesity could result in an erosion of the pattern of steady gains in health observed since early in the 20th century.



**1120: Gray L, Hart CL, Smith GD, Batty GD. What is the predictive value of established risk factors for total and cardiovascular disease mortality when measured before middle age? Pooled analyses of two prospective cohort studies from Scotland. Eur J Cardiovasc Prev Rehabil. 2010 Feb;17(1):106-12. doi: 10.1097/HJR.0b013e3283348ed9. PubMed PMID: 19952759; PubMed Central PMCID: PMC2939979.**

Abstract

AIMS:

To examine the association of physiological, behavioural and social characteristics in pre-middle age with future total and cardiovascular disease (CVD) mortality.

METHODS AND RESULTS:

Risk factor data on 1503 individuals aged 16-35 years at baseline were collected in two prospective cohort studies using standard protocols. Their association with total and CVD mortality ascertained during 40 years of follow-up was summarized using Cox proportional hazards regression. A median follow-up of 39.6 years gave rise to 255 deaths (103 from CVD). In age-adjusted and sex-adjusted analyses, impaired lung function [one standard deviation increases in forced expiratory volume in 1 s: hazards ratio 0.69; 95% confidence interval 0.55, 0.86; and in forced vital capacity: 0.76; 0.59, 0.98], current cigarette smoking (4.16; 2.22, 7.80) and higher alcohol consumption (one standard deviation increase in standard units consumed: 1.20; 1.02, 1.41) were associated with CVD. In fully adjusted analyses associations generally held. For total mortality, these factors and obesity and socioeconomic disadvantage were predictive.

CONCLUSION:

A range of risk factors measured before middle age were related to risk of total and CVD mortality up to four decades later, indicating that public health interventions should be implemented earlier in the life course than is currently the case.

**1121: Lee JM, Pili S, Gebremariam A, Keirns CC, Davis MM, Vijan S, Freed GL, Herman WH, Gurney JG. Getting heavier, younger: trajectories of obesity over the life course. Int J Obes (Lond). 2010 Apr;34(4):614-23. doi: 10.1038/ijo.2009.235. Epub 2009 Dec 1. PubMed PMID: 19949415; PubMed Central PMCID: PMC2926791.**

Abstract

CONTEXT:

Although recent trends in obesity have been well documented, generational patterns of obesity from early childhood through adulthood across birth cohorts, which account for the recent epidemic of childhood obesity, have not been well described. Such trends may have implications for the prevalence of obesity-associated conditions among population subgroups, including type 2 diabetes.

OBJECTIVE:

Our objective was to evaluate trajectories of obesity over the life course for the US population, overall and by gender and race.

DESIGN, SETTING AND PARTICIPANTS:

We conducted an age, period and birth cohort analysis of obesity for US individuals who participated in the National Health and Nutrition Examination Surveys (NHANES) (1971-2006).

MAIN OUTCOME MEASURES:

Obesity was defined as a body mass index  $\geq$ 95th percentile for individuals aged 2-16 years or  $\geq$ 30 kg m<sup>-2</sup> among individuals older than 16 years. Age was represented by the age of the individual at each NHANES, period was defined by the year midpoint of each survey, and cohort was calculated by subtracting age from period.

**RESULTS:**

Recent birth cohorts are becoming obese in greater proportions for a given age, and are experiencing a greater duration of obesity over their lifetime. For example, although the 1966-1975 and 1976-1985 birth cohorts had reached an estimated obesity prevalence of at least 20% by 20-29 years of age, this level was only reached by 30-39 years for the 1946-1955 and 1956-1965 birth cohorts, by 40-49 years for the 1936-1945 birth cohort and by 50-59 years of age for the 1926-1935 birth cohort. Trends are particularly pronounced for female compared with male, and black compared with white cohorts.

**CONCLUSIONS:**

The increasing cumulative exposure to excess weight over the lifetime of recent birth cohorts will likely have profound implications for future rates of type 2 diabetes, and mortality within the US population.

**1122: Mulligan K, Harris DR, Monte D, Stoszek S, Emmanuel P, Hardin DS, Kapogiannis BG, Worrell C, Meyer WA 3rd, Sleasman J, Wilson CM, Aldrovandi GM; Adolescent Trials Network 021 Protocol Team. Obesity and dyslipidemia in behaviorally HIV-infected young women: Adolescent Trials Network study 021. Clin Infect Dis. 2010 Jan 1;50(1):106-14. doi: 10.1086/648728. PubMed PMID: 19947855; PubMed Central PMCID: PMC2939739.**

**Abstract**

**BACKGROUND:**

The goal of this study was to determine the nature and prevalence of abnormalities in lipids, glucose metabolism, and body composition in behaviorally human immunodeficiency virus (HIV)-infected young women and the relationship of these abnormalities to different classes of antiretroviral therapy regimens.

**METHODS:**

We conducted a cross-sectional, multicenter study involving 173 behaviorally HIV-infected women aged 14-24 years and 61 HIV-seronegative control subjects. HIV-infected women were categorized as follows: antiretroviral therapy naive (n=85), receiving a regimen containing a nonnucleoside reverse-transcriptase inhibitor (NNRTI; n=33), receiving a regimen containing a protease inhibitor (PI; n=36), or receiving a regimen not containing an NNRTI or a PI (n=19). Measurements included fasting lipid levels, glucose and insulin levels before and 2 hours after an oral glucose challenge, high-sensitivity C-reactive protein (hsCRP) levels, anthropometry, fat distribution (measured by dual energy X-ray absorptiometry), and antiretroviral therapy and medical histories. Race-adjusted results were compared across groups and within HIV-infected groups.

**RESULTS:**

The median age of participants was 20 years. Of HIV-infected subjects, 77% were African American, 35% smoked cigarettes, and 32% reported exercising regularly. More than 40% had a body mass index  $\geq$ 25. Triglycerides; total, high-density lipoprotein (HDL), and non-HDL cholesterol; and hsCRP levels differed significantly among groups, with higher levels being most common among those receiving antiretroviral therapy. Indices of glucose metabolism did not differ among groups. In

general, cholesterol levels, hsCRP levels, and indices of glucose metabolism worsened as body mass index increased.

**CONCLUSIONS:**

Obesity, dyslipidemia, and inflammation were prominent among HIV-infected adolescent women and, coupled with other risk factors, may accelerate the lifetime risk of cardiovascular disease and other adverse events. These results underscore the need for a multifaceted approach to addressing risk reduction in this population.

**1123: Gomes Fda S, Anjos LA, Vasconcellos MT. [Association between anthropometric nutritional status and socioeconomic conditions among adolescents in Niterói, Rio de Janeiro State, Brazil]. Cad Saude Publica. 2009 Nov;25(11):2446-54. Portuguese. PubMed PMID: 19936482.**

**Abstract**

This study focused on the relationship between nutritional and socioeconomic status among adolescents in Niterói, Rio de Janeiro State, Brazil. Data from 523 adolescents living in 1,734 households were collected from January to December 2003, from a total of 71,922 adolescents living in Niterói. Subjects were selected through a probabilistic household sample. The analyses included the estimation of confidence intervals for prevalence ratios and proportional distributions and independence tests between categories of nutritional status and per capita family income and number of residents per household. There was a significant positive association between underweight/thinness and number of residents in the same household (male:  $p < 0.05$ ; female:  $p < 0.001$ ). Number of residents in the same household was positively associated with prevalence of underweight/thinness in adolescents. Overweight/obesity was positively associated with per capita family income.

**1124: Seubsman SA, Lim LL, Banwell C, Sripaiboonkit N, Kelly M, Bain C, Sleight AC. Socioeconomic status, sex, and obesity in a large national cohort of 15-87-year-old open university students in Thailand. J Epidemiol. 2010;20(1):13-20. Epub 2009 Nov 21. PubMed PMID: 19934589; PubMed Central PMCID: PMC3900775.**

**Abstract**

**BACKGROUND:**

As obesity increases, middle-income countries are undergoing a health-risk transition. We examine the association between socioeconomic status (SES) and emerging obesity in Thailand, and ascertain if an inverse relationship between SES and obesity has appeared.

**METHODS:**

The data derived from 87 134 individuals (54% female; median age, 29 years) in a national cohort of distance-learning Open University students aged 15-87 years and living throughout Thailand. We calculated adjusted odds ratios for associations of SES with obesity (body mass index,  $\geq 25$ ) across 3 age groups by sex, after controlling for marital status, age, and urbanization.

**RESULTS:**

Obesity increased with age and was more prevalent among males than females (22.7% vs 9.9%); more females were underweight (21.8% vs 6.2%). Annual income was 2000 to 3000 US dollars for most participants. High SES, defined by education, income, household assets, and housing type,

associated strongly with obesity-positively for males and inversely for females-especially for participants younger than 40 years. The OR for obesity associated with income was as high as 1.54 for males and as low as 0.68 for females (P for trend <0.001).

**CONCLUSIONS:**

Our national Thai cohort has passed a tipping point and assumed a pattern seen in developed countries, ie, an inverse association between SES and obesity in females. We expect the overall population of Thailand to follow this pattern, as education spreads and incomes rise. A public health problem of underweight females could emerge. Recognition of these patterns is important for programs combating obesity. Many middle income countries are undergoing similar transitions.

**1125: Tsaoussoglou M, Bixler EO, Calhoun S, Chrousos GP, Sauder K, Vgontzas AN. Sleep-disordered breathing in obese children is associated with prevalent excessive daytime sleepiness, inflammation, and metabolic abnormalities. J Clin Endocrinol Metab. 2010 Jan;95(1):143-50. doi: 10.1210/jc.2009-0435. Epub 2009 Nov 19. PubMed PMID: 19926716; PubMed Central PMCID: PMC2805493.**

**Abstract**

**BACKGROUND:**

In obese adults, sleep apnea is associated with excessive daytime sleepiness (EDS) and cardiometabolic risk factors. In children, on the other hand, sleep-disordered breathing (SDB) is primarily associated with anatomic abnormalities and neurocognitive impairment, whereas studies on potential concurrent metabolic aberrations and EDS have been limited and inconsistent. In this study, we examined the joint effect of SDB and obesity in EDS as well as proinflammatory and metabolic markers.

**METHODS:**

One hundred fifty children, aged 5-17 yr, were consecutively recruited from our sleep disorders clinic and a subset of the Penn State Children's Cohort. Every child had a thorough history and physical examination, 9-h polysomnographic study, and a single blood draw for the assessment of IL-6, TNF $\alpha$ , soluble IL-6 receptor, TNF receptor-1, hypersensitive C-reactive protein, leptin, and adiponectin. In addition, parents completed a subjective questionnaire to assess EDS. Analysis of covariance was performed on four groups that were separated by SDB severity and body mass index.

**RESULTS:**

EDS frequency increased progressively and significantly in the four groups. There was a significant linear trend in plasma IL-6, TNF receptor-1, hypersensitive C-reactive protein, and leptin concentrations, with lowest levels observed in lean controls and highest in overweight/obese with moderate SDB. Adiponectin followed the opposite pattern.

**CONCLUSIONS:**

This study suggests that in a clinical sample of obese children, SDB is associated with EDS, elevation of proinflammatory cytokines, increased leptin, and decreased adiponectin. All these changes point to an inflammatory/insulin resistance state, suggesting that SDB in obese children share many similarities with SDB in obese adults.

**1126: Corvalán C, Uauy R, Kain J, Martorell R. Obesity indicators and cardiometabolic status in 4-y-old children. Am J Clin Nutr. 2010 Jan;91(1):166-74. doi: 10.3945/ajcn.2009.27547. Epub 2009 Nov 18. PubMed PMID: 19923378.**

Abstract

BACKGROUND:

In adults and adolescents, obesity is positively associated with cardiovascular disease risk factors; however, evidence in preschool children is scarce.

OBJECTIVE:

The objective was to assess the relations between obesity indicators and cardiometabolic risk factors in 324 Chilean children 4 y of age.

DESIGN:

We collected anthropometric measurements and calculated general indicators of obesity [weight, body mass index (BMI), sum of 4 skinfold thicknesses, percentage fat, and body fat index] and central obesity (waist circumference, waist-to-hip ratio, waist-to-height ratio, and truncal fatness based on skinfold thickness). We measured blood sample concentrations of C-reactive protein, interleukin-6, homeostasis model assessment of insulin resistance, triglycerides, and total, LDL, and HDL cholesterol. We used correlation and multiple linear regression analyses.

RESULTS:

The prevalence of obesity (BMI-for-age z score >2, World Health Organization 2006), central obesity (> or = 90th percentile, third National Health and Nutrition Examination Survey), and lipid disorders was high (13%, 11%, and > or = 20%, respectively), and 70% of the children had at least one cardiometabolic risk factor. Most correlations between obesity and central obesity indicators were moderate to strong ( $0.40 < r < 0.96$ ). Obesity was positively but weakly associated with C-reactive protein in both sexes and with homeostasis model assessment of insulin resistance only in girls (all  $r < 0.3$ ,  $P < 0.05$ ). Obesity indicators were unrelated to interleukin-6 and lipid concentrations ( $P > 0.05$ ). Overall, obesity indicators explained, at most, 8% of the variability in cardiometabolic risk factors.

CONCLUSIONS:

Obesity and central obesity were common, and most of the children had at least one cardiometabolic risk factor, particularly lipid disorders. Obesity and central obesity indicators were highly intercorrelated and, overall, were weakly related to cardiometabolic status. At this age, body mass index and waist circumference were poor predictors of cardiometabolic status.

**1127: Popkin BM. Recent dynamics suggest selected countries catching up to US obesity. Am J Clin Nutr. 2010 Jan;91(1):284S-288S. doi: 10.3945/ajcn.2009.28473C. Epub 2009 Nov 11. PubMed PMID: 19906804; PubMed Central PMCID: PMC2793114.**

Abstract

BACKGROUND:

The United States has been the country with the highest body mass indexes (BMIs; in kg/m<sup>2</sup>) at higher centiles, but research that compares the United States with other nations is lacking.

OBJECTIVE:

To present a picture of global obesity and examine the shifts in BMI in children, I examined BMI data for men and women at the upper ends of the BMI distributions in Australia, China, the United Kingdom, and the United States.

#### DESIGN:

As representative data, I used directly measured weight and height for children aged 6-18 y and for men and women aged > or =19 y. Quantile regression analysis with BMI was used to determine the outcome, and the coefficients of age, age squared, and age cubed represented the explanatory variables plotted to determine mean BMI at the 95th centile for each age group. Overweight and obesity measures across all selected countries, with the use of nationally representative surveys and the 95th centile mean BMI, were determined.

#### RESULTS:

Among women, much larger increases were found in mean BMI at the 95th percentile in Australia (+5.7 BMI units) and the United Kingdom (+3.7 BMI units) than in the United States (+2.7 BMI units) in one-half the time. In contrast, among children, younger Chinese children experienced the largest increase. For example, the mean BMI at the 95th centile for 6-y-old Chinese children is 24.8 (a 5.0 increase), which is 2.6 BMI units more than the BMI at the 95th centile for children in the United States.

#### CONCLUSIONS:

Among children, BMIs for US children at the 95th centile are below those in China, whereas among women, Australian and UK women are rapidly approaching BMIs found in US women.

**1128: Van Meijgaard J, Fielding JE, Kominski GF. Assessing and forecasting population health: integrating knowledge and beliefs in a comprehensive framework. Public Health Rep. 2009 Nov-Dec;124(6):778-89. PubMed PMID: 19894419; PubMed Central PMCID: PMC2773940.**

#### Abstract

A comprehensive population health-forecasting model has the potential to interject new and valuable information about the future health status of the population based on current conditions, socioeconomic and demographic trends, and potential changes in policies and programs. Our Health Forecasting Model uses a continuous-time microsimulation framework to simulate individuals' lifetime histories by using birth, risk exposures, disease incidence, and death rates to mark changes in the state of the individual. The model generates a reference forecast of future health in California, including details on physical activity, obesity, coronary heart disease, all-cause mortality, and medical expenditures. We use the model to answer specific research questions, inform debate on important policy issues in public health, support community advocacy, and provide analysis on the long-term impact of proposed changes in policies and programs, thus informing stakeholders at all levels and supporting decisions that can improve the health of populations.

**1129: Currie J. Policy interventions to address child health disparities: moving beyond health insurance. Pediatrics. 2009 Nov;124 Suppl 3:S246-54. doi: 10.1542/peds.2009-1100M. PubMed PMID: 19861476.**

#### Abstract

A full accounting of the excess burden of poor health in childhood must include any continuing loss of productivity over the life course. Including these costs results in a much higher estimate of the burden than focusing only on medical costs and other shorter-run costs to parents (such as lost work time). Policies designed to reduce this burden must go beyond increasing eligibility for health insurance, because disparities exist not only in access to health insurance but also in take-up of

insurance, access to care, and the incidence of health conditions. We need to create a comprehensive safety net for young children that includes automatic eligibility for basic health coverage under Medicaid unless parents opt out by enrolling children in a private program; health and nutrition services for pregnant women and infants; quality preschool; and home visiting for infants and children at risk. Such a program is feasible and would be relatively inexpensive.

**1130: Harris KM, Perreira KM, Lee D. Obesity in the transition to adulthood: predictions across race/ethnicity, immigrant generation, and sex. Arch Pediatr Adolesc Med. 2009 Nov;163(11):1022-8. doi: 10.1001/archpediatrics.2009.182. PubMed PMID: 19884593; PubMed Central PMCID: PMC2788784.**

Abstract

OBJECTIVE:

To trace how racial/ethnic and immigrant disparities in body mass index (BMI) change over time as adolescents (age, 11-19 years) transition to young adulthood (age, 20-28 years).

DESIGN:

We used growth curve modeling to estimate the pattern of change in BMI from adolescence through the transition to adulthood.

SETTING:

All participants in the study were residents of the United States enrolled in junior high school or high school during the 1994-1995 school year.

PARTICIPANTS:

More than 20 000 adolescents from nationally representative data interviewed at wave I (1994-1995) and followed up in wave II (1996) and III (2001-2002) of the National Longitudinal Study of Adolescent Health when the sample was in early adulthood.

MAIN EXPOSURES:

Race/ethnicity, immigrant generation, and sex.

OUTCOME MEASURE:

Body mass index.

RESULTS:

Findings indicate significant differences in both the level and change in BMI across age by sex, race/ethnicity, and immigrant generation. Females, second- and third-generation immigrants, and Hispanic and black individuals experience more rapidly increasing BMIs from adolescence into young adulthood. Increases in BMI are relatively lower for males, first-generation immigrants, and white and Asian individuals.

CONCLUSION:

Disparities in BMI and prevalence of overweight and obesity widen with age as adolescents leave home and begin independent lives as young adults in their 20s.

**1131: Franco OH, Massaro JM, Civil J, Cobain MR, O'Malley B, D'Agostino RB Sr. Trajectories of entering the metabolic syndrome: the framingham heart study. *Circulation*. 2009 Nov 17;120(20):1943-50. doi: 10.1161/CIRCULATIONAHA.109.855817. Epub 2009 Nov 2. PubMed PMID: 19884471.**

Abstract

BACKGROUND:

We evaluated the progression of the metabolic syndrome (MetS) and its components, the trajectories followed by individuals entering MetS, and the manner in which different trajectories predict cardiovascular disease and mortality.

METHODS AND RESULTS:

Using data from 3078 participants from the Framingham Offspring Study (a cohort study) who attended examinations 4 (1987), 5 (1991), and 6 (1995), we evaluated the progression of MetS and its components. MetS was defined according to the Adult Treatment Panel III criteria. Using logistic regression, we evaluated the predictive ability of the presence of each component of the MetS on the subsequent development of MetS. Additionally, we examined the probability of developing cardiovascular disease or mortality (until 2007) by having specific combinations of 3 that diagnose MetS. The prevalence of MetS almost doubled in 10 years of follow-up. Hyperglycemia and central obesity experienced the highest increase. High blood pressure was most frequently present when a diagnosis of MetS occurred (77.3%), and the presence of central obesity conferred the highest risk of developing MetS (odds ratio, 4.75; 95% confidence interval, 3.78 to 5.98). Participants who entered the MetS having a combination of central obesity, high blood pressure, and hyperglycemia had a 2.36-fold (hazard ratio, 2.36; 95% confidence interval, 1.54 to 3.61) increase of incident cardiovascular events and a 3-fold (hazard ratio, 3.09, 95% confidence interval, 1.93 to 4.94) increased risk of mortality.

CONCLUSIONS:

Particular trajectories and combinations of factors on entering the MetS confer higher risks of incident cardiovascular disease and mortality in the general population and among those with MetS. Intense efforts are required to identify populations with these particular combinations and to provide them with adequate treatment at early stages of disease.

**1132: Groth SW, Kearney MH. Diverse women's beliefs about weight gain in pregnancy. *J Midwifery Womens Health*. 2009 Nov-Dec;54(6):452-7. doi: 10.1016/j.jmwh.2009.03.003. PubMed PMID: 19879517; PubMed Central PMCID: PMC2799189.**

Abstract

This research was conducted to describe ethnically diverse new mothers' perceptions of gestational weight gain. Forty-nine low-income women of diverse racial and ethnic origins who birthed an infant within the past year completed a semistructured interview in a pediatric clinic waiting room. The interviews were designed to elicit views on gestational weight gain, including expectations and perceived consequences. Data were analyzed using content analysis techniques. Women believed that others like themselves were concerned about pregnancy weight gain. Many focused on the effects of insufficient pregnancy weight gain on the infant but were not aware of the infant risks of excessive gain. Several had inaccurate knowledge of appropriate gestational weight gain, and many suggested an amount below the current recommendations. One-third of the women believed women



will weigh more following pregnancy, yet others assumed that even with excessive weight gain there would be a return to prepregnant weight following pregnancy. Pregnancy-related weight gain is disturbing to women. Health care providers have the opportunity to intervene by acknowledging these concerns and providing information and support to help women make positive choices and achieve appropriate weight gain.

**1133: Stray-Pedersen M, Helsing RM, Gibbons L, Cormick G, Holmen TL, Vik T, Belizán JM. Weight status and hypertension among adolescent girls in Argentina and Norway: data from the ENNyS and HUNT studies. BMC Public Health. 2009 Oct 30;9:398. doi: 10.1186/1471-2458-9-398. PubMed PMID: 19878550; PubMed Central PMCID: PMC2775744.**

Abstract

BACKGROUND:

To provide data on overweight, obesity and hypertension among adolescent girls in Norway and Argentina.

METHODS:

Data was obtained from two population-based, cross-sectional and descriptive studies containing anthropometric and blood pressure measurements of 15 to 18 year old girls. The study included 2,156 adolescent girls from Norway evaluated between 1995 and 1997, and 669 from Argentina evaluated between 2004 and 2005.

RESULTS:

Around 15% of adolescent girls in Norway and 19% in Argentina are overweight or obese. Body mass index (BMI) distribution in these two countries is similar, with a low percentage (< 1%) of girls classified as thin. Norwegian adolescents show a height mean value 8 cm taller than the Argentinean. Obesity is strongly associated with systolic hypertension in both populations, with odds ratios of 11.4 [1.6; 82.0] and 28.3 [11.8; 67.7] in Argentina and Norway, respectively. No direct association between BMI and systolic hypertension was found, and only extreme BMI values (above 80th - 90th percentile) were associated with hypertension.

CONCLUSION:

This study confirms a current world health problem by showing the high prevalence of obesity in adolescents and its association with hypertension in two different countries (one developed and one in transition).

**1134: Richmond TK, Walls CE, Gooding HC, Field AE. Television viewing is not predictive of BMI in Black and Hispanic young adult females. Obesity (Silver Spring). 2010 May;18(5):1015-20. doi: 10.1038/oby.2009.391. Epub 2009 Oct 29. PubMed PMID: 19876003; PubMed Central PMCID: PMC2861148.**

Abstract

Previous studies have observed that television (TV) viewing is predictive of obesity and weight gain. We examined whether the cross-sectional association between TV viewing and BMI varied by racial/ethnic subgroups among young women in Wave III (collected in 2001-2002) of the National Longitudinal Study of Adolescent Health. We used multivariate linear regression to examine the relationship between TV viewing and BMI among 6,049 females while controlling for sociodemographic and health attributes. We stratified the sample by race/ethnicity to better

understand the association between TV viewing and BMI across different groups. Black and Hispanic females had higher BMIs (black: 28.5 kg/m<sup>2</sup>, Hispanic: 27.3 kg/m<sup>2</sup>, white: 26.0 kg/m<sup>2</sup>) than white females, while black females reported higher numbers of hours spent watching TV (black: 14.7 h/week, Hispanic: 10.6 h/week, white: 11.2 h/week) when compared to their white and Hispanic peers. TV viewing was positively associated with BMI (beta = 0.79, P = 0.003 for 8-14 vs. < or =7 h/week; beta = 1.18, P = 0.01 for >14 vs. < or =7 h/week) independent of race/ethnicity, age, maternal education, history of pregnancy, parental obesity, and household income. However, in models stratified by race/ethnicity, increased TV viewing was associated with increased BMI only among white females; TV viewing was not predictive of higher BMI in black or Hispanic young adult females. Among black and Hispanic females, counseling to decrease TV viewing may be important but insufficient for promoting weight loss.

**1135: Robinson WR, Stevens J, Kaufman JS, Gordon-Larsen P. The role of adolescent behaviors in the female-male disparity in obesity incidence in US black and white young adults. *Obesity (Silver Spring)*. 2010 Jul;18(7):1429-36. doi: 10.1038/oby.2009.362. Epub 2009 Oct 29. PubMed PMID: 19875993; PubMed Central PMCID: PMC2888698.**

#### Abstract

In the United States, black women are at much greater risk for obesity than black men. We explored whether adolescent behaviors (family dinners, hours of television, playing sports with mother, playing sports with father, bouts of physical activity) were associated with gender disparity in 6-year obesity incidence in young adulthood. We used data from the nationally representative National Longitudinal Study of Adolescent Health to examine adolescent behaviors in nonimmigrant black (n = 1,503) and white (n = 4,452) youths in 1994-95 (aged 11-19 years) and 1995-96 (aged 12-20). We assessed gender disparity in obesity incidence (female incidence minus male incidence) during young adulthood (2001-02; aged 18-26). Standardized gender disparities were calculated using race- and gender-stratified, covariate-adjusted logistic regression models in which males and females were set to the same distributions of adolescent behaviors. In adolescence, black females reported less leisure-time physical activity and lower likelihood of playing sports with either parent compared with black males. Setting adolescent behaviors equal for black males and females did not reduce the estimated gender disparity in obesity incidence (nonstandardized: 9.8 percentage points (95% confidence interval (CI): 4.5, 15.1); fully standardized: 10.2 percentage points (5.2, 15.2)). There was little gender disparity in whites before or after adjustments. To our knowledge, this is the first study to examine to what extent behavioral differences during adolescence might account for gender disparity in obesity incidence in black young adults. Male-female differences in these adolescent behaviors did not appear to underlie the gender gap in young adult obesity.

**1136: Okuda M, Sugiyama S, Kunitsugu I, Hinoda Y, Okuda Y, Shirabe K, Yoshitake N, Hobara T. Use of body mass index and percentage overweight cutoffs to screen Japanese children and adolescents for obesity-related risk factors. J Epidemiol. 2010;20(1):46-53. Epub 2009 Oct 24. PubMed PMID: 19855138; PubMed Central PMCID: PMC3900779.**

Abstract

**BACKGROUND:**

Cutoffs based on percentage overweight (POW) are used for screening students in Japan; however, body mass index (BMI) is more common in the rest of the world. To screen for risk factors related to obesity among Japanese primary and secondary school students, we compared fasting and postprandial values, and the receiver operating characteristic (ROC) curves for the POW and BMI criteria.

**METHODS:**

The subjects were students aged 10 and 13 years living in Shunan City, Japan between 2006 and 2008 (n = 6566). POW and International Obesity Taskforce (IOTF) BMI criteria were used to screen for obesity-related risk factors. The lower (20%, 18-year-old equivalent: 25 kg/m<sup>2</sup>) and higher (50%, 18-year-old equivalent: 30 kg/m<sup>2</sup>) cutoffs were examined, and ROC curves were drawn.

**RESULTS:**

Fasting cholesterol levels were higher than postprandial levels. The prevalences of overweight/obesity were 6.6% to 10.0% using the lower cutoff and 0.6% to 5.0% using the higher cutoff. Among overweight subjects under fasting conditions, dyslipidemia was present in 12% to 52%, hypertriglyceridemia in 29% to 54%, hyperglycemia in 11% to 21%, and hypertension in 15% to 40%. Although the use of the lower and higher POW cutoffs resulted in lower sensitivity and the higher specificity, the POW and BMI ROC curves largely overlapped. However, for girls aged 10 years, the POW curve for  $\geq 3$  risks factors was lower than that of the latter (P = 0.013).

**CONCLUSIONS:**

For Japanese aged 10 and 13 years, both BMI and POW are useful for risk factor screening. However, subjects may be misclassified with dyscholesterolemia if postprandial blood samples are used.

**1137: Heid IM, Huth C, Loos RJ, Kronenberg F, Adamkova V, Anand SS, Ardlie K, Biebertmann H, Bjerregaard P, Boeing H, Bouchard C, Ciullo M, Cooper JA, Corella D, Dina C, Engert JC, Fisher E, Francès F, Froguel P, Hebebrand J, Hegele RA, Hinney A, Hoehe MR, Hu FB, Hubacek JA, Humphries SE, Hunt SC, Illig T, Järvelin MR, Kaakinen M, Kollerits B, Krude H, Kumar J, Lange LA, Langer B, Li S, Luchner A, Lyon HN, Meyre D, Mohlke KL, Mooser V, Nebel A, Nguyen TT, Paulweber B, Perusse L, Qi L, Rankinen T, Rosskopf D, Schreiber S, Sengupta S, Sorice R, Suk A, Thorleifsson G, Thorsteinsdottir U, Völzke H, Vimalaewaran KS, Wareham NJ, Waterworth D, Yusuf S, Lindgren C, McCarthy MI, Lange C, Hirschhorn JN, Laird N, Wichmann HE. Meta-analysis of the INSIG2 association with obesity including 74,345 individuals: does heterogeneity of estimates relate to study design? *PLoS Genet.* 2009 Oct;5(10):e1000694. doi: 10.1371/journal.pgen.1000694. Epub 2009 Oct 23. PubMed PMID: 19851442; PubMed Central PMCID: PMC2757909.**

#### Abstract

The INSIG2 rs7566605 polymorphism was identified for obesity (BMI > or = 30 kg/m<sup>2</sup>) in one of the first genome-wide association studies, but replications were inconsistent. We collected statistics from 34 studies (n = 74,345), including general population (GP) studies, population-based studies with subjects selected for conditions related to a better health status ('healthy population', HP), and obesity studies (OB). We tested five hypotheses to explore potential sources of heterogeneity. The meta-analysis of 27 studies on Caucasian adults (n = 66,213) combining the different study designs did not support overall association of the CC-genotype with obesity, yielding an odds ratio (OR) of 1.05 (p-value = 0.27). The I<sup>2</sup> measure of 41% (p-value = 0.015) indicated between-study heterogeneity. Restricting to GP studies resulted in a declined I<sup>2</sup> measure of 11% (p-value = 0.33) and an OR of 1.10 (p-value = 0.015). Regarding the five hypotheses, our data showed (a) some difference between GP and HP studies (p-value = 0.012) and (b) an association in extreme comparisons (BMI > or = 32.5, 35.0, 37.5, 40.0 kg/m<sup>2</sup>) versus BMI < 25 kg/m<sup>2</sup>) yielding ORs of 1.16, 1.18, 1.22, or 1.27 (p-values 0.001 to 0.003), which was also underscored by significantly increased CC-genotype frequencies across BMI categories (10.4% to 12.5%, p-value for trend = 0.0002). We did not find evidence for differential ORs (c) among studies with higher than average obesity prevalence compared to lower, (d) among studies with BMI assessment after the year 2000 compared to those before, or (e) among studies from older populations compared to younger. Analysis of non-Caucasian adults (n = 4889) or children (n = 3243) yielded ORs of 1.01 (p-value = 0.94) or 1.15 (p-value = 0.22), respectively. There was no evidence for overall association of the rs7566605 polymorphism with obesity. Our data suggested an association with extreme degrees of obesity, and consequently heterogeneous effects from different study designs may mask an underlying association when unaccounted for. The importance of study design might be under-recognized in gene discovery and association replication so far.

**1138: North KE, Graff M, Adair LS, Lange EM, Lange LA, Guo G, Gordon-Larsen P. Genetic epidemiology of BMI and body mass change from adolescence to young adulthood. Obesity (Silver Spring). 2010 Jul;18(7):1474-6. doi: 10.1038/oby.2009.350. Epub 2009 Oct 22. PubMed PMID: 19851309; PubMed Central PMCID: PMC2889186.**

Abstract

The complex interplay between genes and environment affecting body mass gain over lifecycle periods of risk is not well understood. We use longitudinal sibling cohort data to examine the role of shared household environment, additive genetic, and shared genetic effects on BMI and BMI change. In the National Longitudinal Study of Adolescent Health, siblings and twin pairs sharing households for  $\geq 10$  years as adolescents ( $N = 5,524$ ; mean = 16.5  $\pm$  1.7 years) were followed into young adulthood ( $N = 4,368$ ; mean = 22.4  $\pm$  1.8 years). Using a variance component approach, we quantified genetic and household effects on BMI in siblings and nonsiblings sharing household environments over time. Adjusting for race, age, sex, and age-by-sex interaction, we detected a heritability of 0.43  $\pm$  0.05 for BMI change. Significant household effects were noted during the young adulthood period only (0.11  $\pm$  0.06). We find evidence for shared genetic effects between BMI and BMI change during adolescence (genetic correlation ( $\rho(G)$ ) = 0.61  $\pm$  0.03) and young adulthood ( $\rho(G)$  = 0.23  $\pm$  0.06). Our findings support a complex etiology of BMI and BMI change.

**1139: Calcaterra V, De Amici M, Klersy C, Torre C, Brizzi V, Scaglia F, Albanesi M, Albertini R, Allais B, Larizza D. Adiponectin, IL-10 and metabolic syndrome in obese children and adolescents. Acta Biomed. 2009 Aug;80(2):117-23. PubMed PMID: 19848048.**

Abstract

The metabolic syndrome (MetS) is a common basis for the development of atherogenic cardiovascular disease. Adiponectin has been demonstrated to be insulin-sensitizing and an anti-atherogenic factor and is considered a key of MetS. It was suggested that IL-10 may be involved in the inflammatory network of MetS in relation to adiponectin. We examined the relationship between adiponectin, IL-10 and MetS in pediatric obese patients. MetS components were assessed in 70 severely obese and 30 non-obese children and adolescents. Serum levels of adiponectin and IL-10 were measured in these subjects. Serum adiponectin levels were significantly lower ( $p < 0.001$ ) and levels of IL-10 were significantly higher ( $p = 0.012$ ) in obese subjects. MetS was present in 35.71% of obese patients. Patients with MetS showed a borderline significant decrease in serum adiponectin levels and significantly increased IL-10 levels when compared to those without MetS ( $p = 0.051$  and  $p = 0.031$ , respectively); the differences in adiponectin and IL-10 values were controlled to the effect of BMI. No correlation between adiponectin and IL-10 levels was found. Our obese children showed hypo-adiponectin and hyper-IL10 values. MetS was not associated with low IL-10. We probably observe a first phase of the complex mechanism implicated in the development of the MetS in children.

**1140: Qin L, Knol MJ, Corpeleijn E, Stolk RP. Does physical activity modify the risk of obesity for type 2 diabetes: a review of epidemiological data. Eur J Epidemiol. 2010;25(1):5-12. doi: 10.1007/s10654-009-9395-y. Epub 2009 Oct 22. Review. PubMed PMID: 19847656; PubMed Central PMCID: PMC2807936.**

Abstract

Obesity and physical inactivity are both risk factors for type 2 diabetes. Since they are strongly associated, it has been suggested that they might interact. In this study, we summarized the evidence on this interaction by conducting a systematic review. Two types of interaction have been discerned, statistical and biological interaction, which could give different results. Therefore, we calculated both types of interaction for the studies in our review. Cohort studies, published between 1999 and 2008, that investigated the effects of obesity and physical activity on the risk of type 2 diabetes were included. We calculated both biological and statistical interaction in these studies. Eight studies were included of which five were suitable to calculate interaction. All studies showed positive biological interaction, meaning that the joint effect was more than the sum of the individual effects. However, there was inconsistent statistical interaction; in some studies the joint effect was more than the product of the individual effects, in other studies it was less. The results show that obesity and physical inactivity interact on an additive scale. This means that prevention of either obesity or physical inactivity, not only reduces the risk of diabetes by taking away the independent effect of this factor, but also by preventing the cases that were caused by the interaction between both factors. Furthermore, this review clearly showed that results can differ depending on what method is used to assess interaction.

**1141: Pludowski P, Litwin M, Niemirska A, Jaworski M, Sladowska J, Kryskiewicz E, Karczmarewicz E, Neuhoff-Murawska J, Wierzbicka A, Lorenc RS. Accelerated skeletal maturation in children with primary hypertension. Hypertension. 2009 Dec;54(6):1234-9. doi: 10.1161/HYPERTENSIONAHA.109.139949. Epub 2009 Oct 19. PubMed PMID: 19841285.**

Abstract

It is hypothesized that primary hypertension (PH) is a disorder with origins in childhood linked to, at least in part, aberrations of growth and maturation processes. To evaluate the possible relation between the rate of biological maturity and development of PH, bone age (BA) assessments on the basis of dual x-ray absorptiometry-derived hand scans were performed in 54 newly diagnosed children and adolescents with PH and 54 healthy controls matched for body mass index (BMI), age and sex. Chronological age (CA), body height (in centimeters), body weight (in kilograms), BMI (in kilograms per meter squared), and blood pressure were assessed. Healthy controls had a mean BA of 14.7+/-2.3 years that was not significantly different from their mean CA of 14.2+/-2.1 years. In the PH group, the BA of 16.0+/-2.0 years was higher by 1.9+/-0.9 years compared with their CA of 14.1+/-2.0 years (P<0.0001). The magnitude of acceleration of skeletal maturation (BA-CA) and its prevalence (88.9%) were significantly higher in PH compared with BMI-matched controls (37.0%; chi(2)=31.4; P<0.0001). BA-CA values of PH patients were higher by 1.24 years in normal weight (P<0.0001), 1.80 years in overweight (P<0.01), and 1.40 years in obese (P<0.0001) subgroups of BMI z score-matched controls. Stepwise regression revealed that predictors of blood pressure status from normotension through prehypertension stages 1 and 2 of hypertension were BA-CA (beta=0.530; P<0.0001), height (beta=-0.379; P<0.01), and CA (beta=0.298; P<0.05; R(2)=0.43). In conclusion, irrespective of BMI,

advanced biological maturation should be considered as an independent marker for the development of hypertension.

**1143: Lytle LA. Examining the etiology of childhood obesity: The IDEA study. Am J Community Psychol. 2009 Dec;44(3-4):338-49. doi: 10.1007/s10464-009-9269-1. PubMed PMID: 19838791; PubMed Central PMCID: PMC2819263.**

Abstract

The prevalence of childhood obesity is of great public health concern. A social ecological framework that is transdisciplinary and multilevel by nature is recognized as the most promising approach for studying this problem. The purpose of this paper is to describe longitudinal research using a social ecological framework to study the etiology of childhood obesity. Individual and contextual factors are assessed in a cohort of youth and their parents including psychosocial factors, and home, school and neighborhood environments. The conceptual model guiding the research and the study design and measures used to operationalize the factors in the model and the descriptive characteristics of the baseline sample of youth and parents enrolled in the research are presented. The use of a conceptual model to guide the research, a transdisciplinary approach, a longitudinal cohort design and state-of-the-art measures of the individual and the environment are strengths of this research.

**1144: Lightwood J, Bibbins-Domingo K, Coxson P, Wang YC, Williams L, Goldman L. Forecasting the future economic burden of current adolescent overweight: an estimate of the coronary heart disease policy model. Am J Public Health. 2009 Dec;99(12):2230-7. doi: 10.2105/AJPH.2008.152595. Epub 2009 Oct 15. PubMed PMID: 19833999; PubMed Central PMCID: PMC2775763.**

Abstract

OBJECTIVES:

We predicted the future economic burden attributable to high rates of current adolescent overweight.

METHODS:

We constructed models to simulate the costs of excess obesity and associated diabetes and coronary heart disease (CHD) among adults aged 35-64 years in the US population in 2020 to 2050.

RESULTS:

Current adolescent overweight is projected to result in 161 million life-years complicated by obesity, diabetes, or CHD and 1.5 million life-years lost. The cumulative excess attributable total costs are estimated at \$254 billion: \$208 billion because of lost productivity from earlier death or morbidity and \$46 billion from direct medical costs. Currently available therapies for hypertension, hyperlipidemia, and diabetes, used according to guidelines, if applied in the future, would result in modest reductions in excess mortality (decreased to 1.1 million life-years lost) but increase total excess costs by another \$7 billion (increased to \$261 billion total).

CONCLUSIONS:

Current adolescent overweight will likely lead to large future economic and health burdens, especially lost productivity from premature death and disability. Application of currently available medical treatments will not greatly reduce these future burdens of increased adult obesity.

**1145: Swinburn B, Sacks G, Ravussin E. Increased food energy supply is more than sufficient to explain the US epidemic of obesity. Am J Clin Nutr. 2009 Dec;90(6):1453-6. doi: 10.3945/ajcn.2009.28595. Epub 2009 Oct 14. PubMed PMID: 19828708.**

Abstract

BACKGROUND:

The major drivers of the obesity epidemic are much debated and have considerable policy importance for the population-wide prevention of obesity.

OBJECTIVE:

The objective was to determine the relative contributions of increased energy intake and reduced physical activity to the US obesity epidemic.

DESIGN:

We predicted the changes in weight from the changes in estimated energy intakes in US children and adults between the 1970s and 2000s. The increased US food energy supply (adjusted for wastage and assumed to be proportional to energy intake) was apportioned to children and adults and inserted into equations that relate energy intake to body weight derived from doubly labeled water studies. The weight increases predicted from the equations were compared with weight increases measured in representative US surveys over the same period.

RESULTS:

For children, the measured weight gain was 4.0 kg, and the predicted weight gain for the increased energy intake was identical at 4.0 kg. For adults, the measured weight gain was 8.6 kg, whereas the predicted weight gain was somewhat higher (10.8 kg).

CONCLUSIONS:

Increased energy intake appears to be more than sufficient to explain weight gain in the US population. A reversal of the increase in energy intake of approximately 2000 kJ/d (500 kcal/d) for adults and of 1500 kJ/d (350 kcal/d) for children would be needed for a reversal to the mean body weights of the 1970s. Alternatively, large compensatory increases in physical activity (eg, 110-150 min of walking/d), or a combination of both, would achieve the same outcome. Population approaches to reducing obesity should emphasize a reduction in the drivers of increased energy intake.

**1146: Grayson BE, Kievit P, Smith MS, Grove KL. Critical determinants of hypothalamic appetitive neuropeptide development and expression: species considerations. Front Neuroendocrinol. 2010 Jan;31(1):16-31. doi: 10.1016/j.yfrne.2009.10.001. Epub 2009 Oct 12. Review. PubMed PMID: 19822169; PubMed Central PMCID: PMC2813940.**

Abstract

Over the last decade there has been a striking increase in the early onset of metabolic disease, including obesity and diabetes. The regulation of energy homeostasis is complex and involves the intricate integration of peripheral and central systems, including the hypothalamus. This review provides an overview of the development of brain circuitry involved in the regulation of energy homeostasis as well as recent findings related to the impact of both prenatal and postnatal maternal environment on the development of these circuits. There is surprising evidence that both overnutrition and undernutrition impact the development of these circuits in a similar manner as well



as having similar consequences of increased obesity and diabetes later in life. There is also a special focus on relevant species differences in the development of hypothalamic circuits. A deeper understanding of the mechanisms involved in the development of brain circuitry is needed to fully understand how the nutritional and/or maternal environments impact the functional circuitry as well as the behavior and physiological outcomes.

**1147: Gosman GG, King WC, Schrope B, Steffen KJ, Strain GW, Courcoulas AP, Flum DR, Pender JR, Simhan HN. Reproductive health of women electing bariatric surgery. *Fertil Steril*. 2010 Sep;94(4):1426-31. doi: 10.1016/j.fertnstert.2009.08.028. Epub 2009 Oct 7. PubMed PMID: 19815190; PubMed Central PMCID: PMC2888936.**

Abstract

OBJECTIVE:

To describe the reproductive health history and characteristics of women having bariatric surgery and to determine whether this differs by age of onset of obesity.

DESIGN:

Retrospective and cross-sectional analyses of self-reported survey data.

SETTING:

Six sites of the Longitudinal Assessment of Bariatric Surgery-2 study.

PATIENT(S):

The study included 1,538 females having bariatric surgery.

INTERVENTION(S):

None.

MAIN OUTCOME MEASURE(S):

Reported polycystic ovary syndrome (PCOS), pregnancy and fertility history, contraceptive use, and plans for pregnancies.

RESULT(S):

Mean age was 44.8 years (range, 18-78 years); mean body mass index was 47.2 kg/m<sup>2</sup> (range, 33.8-87.3 kg/m<sup>2</sup>). PCOS had been diagnosed by a health care provider in 13.1% of subjects. Of women who had tried to conceive, 41.9% experienced infertility and 61.4% had a live birth after experiencing infertility. In the whole group, prior live birth was reported by 72.5%. Women who were obese by 18 years old were more likely to report PCOS and infertility and less likely to have ever been pregnant, compared with women who became obese later in life. Future pregnancy was important to 30.3% of women younger than 45 years, whereas 48.6% did not plan to become pregnant in the future. In the year before surgery, 51.8% used contraception.

CONCLUSION(S):

Self-reporting of obesity by age 18 appears to be related to reproductive morbidity. Women undergoing bariatric surgery have important reproductive health care needs, including reliable contraception and counseling about plans for postoperative pregnancy.

**1148: Lahiry P, Cao H, Ban MR, Pollex RL, Mamakeesick M, Zinman B, Harris SB, Hanley AJ, Huff MW, Connelly PW, Hegele RA. APOC1 T45S polymorphism is associated with reduced obesity indices and lower plasma concentrations of leptin and apolipoprotein C-I in aboriginal Canadians. J Lipid Res. 2010 Apr;51(4):843-8. doi: 10.1194/jlr.P002014. Epub 2009 Oct 6. PubMed PMID: 19812053; PubMed Central PMCID: PMC2842156.**

Abstract

Apolipoprotein (apo) C-I is a constituent of chylomicrons, very low density lipoprotein, and high density lipoprotein. The role of apo C-I in human metabolism is incompletely defined. We took advantage of a naturally occurring amino acid polymorphism that is present in aboriginal North Americans, namely apo C-I T45S. We assessed the hypothesis that metabolic traits, including obesity-related and lipoprotein-related traits, would differ between carriers and noncarriers of apo C-I T45S. A genotyping assay was developed for APOC1 T45S and genotypes were determined in a sample of 410 Canadian Oji-Cree subjects. The allele frequency of the apo C-I S45 allele was approximately 8% in this sample. We observed the apo C-I S45 allele was significantly associated with 1) lower percent body fat ( $P < 0.05$ ), 2) lower waist circumference ( $P = 0.058$ ), 3) lower serum leptin levels ( $P < 0.05$ ), and 4) lower plasma apo C-I levels ( $P < 0.0001$ ), using a newly developed ELISA-based method. Taken together, these results suggest that at the whole human phenotype level, apo C-I is associated with the complex metabolic trait of obesity as well as with serum leptin levels.

1149: Park J, Myers D, Kao D, Min S. Immigrant obesity and unhealthy assimilation: alternative estimates of convergence or divergence, 1995-2005. Soc Sci Med. 2009 Dec;69(11):1625-33. doi: 10.1016/j.socscimed.2009.09.008. Epub 2009 Oct 5. PubMed PMID: 19811864; PubMed Central PMCID: PMC2808110.

Abstract

We re-examine the pace of rising obesity among Hispanic immigrants and the effects associated with longer duration in the US, or what is referred to as unhealthy assimilation, the convergence of immigrant health to a less healthy native-born standard. Consistent with previous research, we find that across all race-ethnic groups, immigrants tend to be less obese than native-born persons. Second, obesity is clearly on the rise, with obesity rates increasing for both immigrant and native-born populations between 1995 and 2005. However, our findings are that immigrant obesity rises more slowly than for native-born Hispanics in the same age cohort. The significance is that immigrants do not converge to obesity prevalence of the native-born as commonly assumed and, in fact, the differential is wider in 2005 than it was in 1995. The analysis, which is based on the National Health Interview Survey tracks the obesity rates of different cohort populations observed in repeated cross-sections (1995 and 2005), as both immigrants and the native-born grow older and additionally, as immigrants reside in the U.S. longer. More specifically, for immigrants, our study distinguishes the effects of length of U.S. residence (observed at a single point in time) and increasing duration of residence (observed over time). Of crucial importance, we contrast the changes over time for native and foreign-born residents passing through the same age range from 1995 to 2005. Misconclusions of previous research stem from 1) assuming that any change for immigrants equates to assimilation, without regard to native-born change, and 2) an unbalanced analysis that fails to track in parallel the growing obesity of both immigrant and native-born cohorts.

**1150: Durán P, Mangialavori G, Biglieri A, Kogan L, Abeyá Gilardon E. [Nutrition status in Argentinean children 6 to 72 months old: results from the National Nutrition and Health Survey (ENNyS)]. Arch Argent Pediatr. 2009 Oct;107(5):397-404. doi: 10.1590/S0325-00752009000500005. Spanish. PubMed PMID: 19809759.**

Abstract

INTRODUCTION:

Data availability on nutrition status from vulnerable population groups is essential for the design and evaluation of interventions. The Ministry of Health from Argentina developed in 2004-2005 the National Survey of Nutrition and Health. Our objective is to describe the nutrition status of infants and preschool children (6-72 months), globally and by region and socioeconomic level.

POPULATION AND METHODS:

A probabilistic, multistage sample was selected, representative at the national, regional and provincial levels. Anthropometric indices weight/age, height/age and weight/height, were estimated, according to WHO reference. Nutrient intake was estimated by a 24-hours recall, and hemoglobin, serum ferritin, retinol and vitamin D concentration were measured.

RESULTS:

Prevalence of stunting, wasting and obesity were 8.0%, 1.3%, and 10.4%, respectively. Prevalence of anemia was 16.5% in children <6 years and 35.3% in children aged 6-23 months. Prevalence of subclinical vitamin A deficiency in children of 2-5 years was 14.3%, and prevalence of vitamin D deficiency in Patagonia was 2.8% in children aged 6-23 months. Different nutrient intake inadequacies were observed. Infants and children at the lower socioeconomic level showed higher prevalence of nutrition inadequacies.

CONCLUSIONS:

The coexistence of different nutrition deficiencies and overweight and obesity constitute the main characteristic of Argentinean infants and preschool children. Relevant differences exist according to socio-economic and geographic conditions.

**1151: Davis JN, Alexander KE, Ventura EE, Toledo-Corral CM, Goran MI. Inverse relation between dietary fiber intake and visceral adiposity in overweight Latino youth. Am J Clin Nutr. 2009 Nov;90(5):1160-6. doi: 10.3945/ajcn.2009.28133. Epub 2009 Sep 30. PubMed PMID: 19793854; PubMed Central PMCID: PMC2762155.**

Abstract

BACKGROUND:

To date, no studies have assessed the longitudinal changes of dietary intake on metabolic risk factors in Latino youth.

OBJECTIVE:

We assessed the relation between changes in dietary intake, specifically sugar and fiber intakes, with changes in adiposity and risk factors for type 2 diabetes in a longitudinal analysis of overweight Latino youth.

DESIGN:

Overweight Latino youth (n = 85; aged 11-17 y) underwent the following measures over 2 y [mean (+/-SD) time difference was 1.5 +/- 0.5 y]: dietary intake by 2-d diet recalls, body composition by dual-energy X-ray absorptiometry and magnetic resonance imaging, and glucose and insulin indexes by

oral- and intravenous-glucose-tolerance tests. Partial correlations and repeated-measures analysis of covariance assessed the relation between changes in dietary intake with changes in adiposity and glucose and insulin indexes, independent of the following a priori covariates: sex, Tanner stage, time between visits, and baseline dietary and metabolic variables of interest.

**RESULTS:**

Increases in total dietary fiber (g/1000 kcal) and insoluble fiber (g/1000 kcal) were associated with decreases in visceral adipose tissue (VAT) ( $r = -0.29$ ,  $P = 0.02$ , and  $r = -0.27$ ,  $P = 0.03$ , for total dietary and insoluble fiber, respectively), independent of baseline covariates and change in subcutaneous abdominal adipose tissue. Participants who had decreased total dietary fiber (mean decrease of 3 g . 1000 kcal(-1) x d(-1)) had significant increases in VAT compared with participants who had increased total dietary fiber (21% compared with -4%;  $P = 0.02$ ). No other changes in dietary variables were related to changes in adiposity or metabolic variables.

**CONCLUSION:**

Small reductions in dietary fiber intake over 1-2 y can have profound effects on increasing visceral adiposity in a high-risk Latino youth population.

**1152: González DA, Nazmi A, Victora CG. Growth from birth to adulthood and abdominal obesity in a Brazilian birth cohort. *Int J Obes (Lond)*. 2010 Jan;34(1):195-202. doi: 10.1038/ijo.2009.201. Epub 2009 Sep 29. PubMed PMID: 19786970; PubMed Central PMCID: PMC3448044.**

**Abstract**

**BACKGROUND:**

Rapid weight gain in childhood may increase the risk of chronic adult diseases. Few studies have examined the effects of lifecourse weight gain on waist circumference (WC), hip circumference (HC), or waist-to-hip ratio (WHR).

**OBJECTIVE:**

To evaluate the effects of birthweight and weight gain from birth to age 23 years on WC, HC, and WHR in young adults.

**DESIGN:**

Population-based birth cohort study started in 1982. A sample of 856 individuals was examined in 2006. Conditional growth analyses were carried out with adjustment for confounders. WC and HC were also mutually adjusted.

**RESULTS:**

Weight gains during all age ranges studied (birthweight, 0-2, 2-4, 4-15, 15-18/19, and 18/19-23 years) were positively associated with WC and HC in both sexes. These effects were strongest from 4 to 15 years range ( $\beta = 5.0$  cm for both circumferences). Proxies for visceral adipose tissue (WHR and WC adjusted for HC) were associated with weight gain after 2 years in females and after 4 years in males. Subcutaneous adipose and muscular tissues, assessed by HC adjusted for WC, were associated with birthweight and weight gain from 0 to 2 years in both sexes, and again with weight gains from 4 to 18 years in males and 4 to 15 years in females.

**CONCLUSIONS:**

Weight gains in utero and in the first 2 years had long-term effects on HC, but weight gain after age 4 years was strongly associated with WC. Weight gains up to age 2 years may reduce cardiovascular risk associated with adult fat patterns in a middle-income setting.

**1153: Gokee-LaRose J, Gorin AA, Raynor HA, Laska MN, Jeffery RW, Levy RL, Wing RR. Are standard behavioral weight loss programs effective for young adults? Int J Obes (Lond). 2009 Dec;33(12):1374-80. doi: 10.1038/ijo.2009.185. Epub . PubMed PMID: 19786967; PubMed Central PMCID: PMC2996044.**

Abstract

OBJECTIVE:

To compare the enrollment, attendance, retention and weight losses of young adults in behavioral weight loss (BWL) programs with older participants in the same trials.

METHODS:

Data were pooled from three NIH-funded adult BWL trials from two clinical centers in different regions of the country (total N=298); young adults were defined as those aged 18-35 years. Both young adults and adults were compared on session attendance, retention at the 6-month assessment, weight loss and physical activity at 6 months.

RESULTS:

Young adults represented 7% of the sample, attended significantly fewer sessions than did adults (52 vs 74%, respectively;  $P < 0.001$ ) and were less likely to be retained for the 6-month assessment (67 vs 95%, respectively;  $P < 0.05$ ). Controlling for demographic variables, study and baseline weight, the mean weight losses achieved were significantly less for young adults compared with adults (-4.3 kg (6.3) vs -7.7 kg (7.0), respectively;  $P < 0.05$ ); fewer young adults achieved  $\geq 5\%$  weight loss at 6 months compared with older participants (8/21 (38%) vs 171/277 (62%);  $P < 0.05$ ). After controlling for session attendance, differences in the mean weight loss were not significant ( $P = 0.81$ ). Controlling for baseline values, study and demographics, changes in total physical activity over the initial 6 months of treatment were less for young adults compared with adults, but these differences only approached statistical significance ( $P = 0.07$ ).

CONCLUSION:

These data indicate that standard programs do not meet the weight control needs of young adults. Research is urgently required to improve recruitment and retention efforts with this high-risk group.

**1154: Fox KA, Després JP, Richard AJ, Brette S, Deanfield JE; IDEA Steering Committee and National Co-ordinators. Does abdominal obesity have a similar impact on cardiovascular disease and diabetes? A study of 91,246 ambulant patients in 27 European countries. Eur Heart J. 2009 Dec;30(24):3055-63. doi: 10.1093/eurheartj/ehp371. Epub . PubMed PMID: 19778928.**

Abstract

AIMS:

Differences in cardiovascular risk factors across Europe provide an opportunity to examine the impact of adiposity on the frequency of diabetes and cardiovascular disease (CVD).

METHODS AND RESULTS:

The International Day for Evaluation of Abdominal obesity (IDEA) study evaluated the prevalence of abdominal obesity, elevated body mass index (BMI), and other cardiometabolic risk factors among primary care patients. Abdominal obesity predicted increased diabetes risk, despite socio-economic, demographic, and risk factor differences. Cardiovascular disease was at least two-fold more frequent in Eastern Europe vs. Northwest Europe ( $P < 0.0001$ ) and 2.5-fold more vs. Southern Europe ( $P < 0.0001$ ). Waist circumference (WC) predicted increased ( $P < 0.0001$ ) age- and BMI-adjusted risks of

CVD and diabetes. In women, odds ratios (95% confidence intervals) for CVD per 1 SD increase in WC were: Northwest Europe 1.28 (1.18-1.40); Southern Europe 1.26 (1.16-1.37); and Eastern Europe 1.10 (1.03-1.18). Values for diabetes were 1.72 (1.58-1.88), 1.45 (1.35-1.56), and 1.59 (1.46-1.73), with similar findings in men.

**CONCLUSION:**

Abdominal obesity impacted similarly on the frequency of diabetes across Europe, despite regional differences in cardiovascular risk factors and CVD rates. Increasing abdominal obesity may offset future declines in CVD, even where CVD rates are lower.

**1155: Sun Y, Sekine M, Kagamimori S. Lifestyle and overweight among Japanese adolescents: the Toyama Birth Cohort Study. J Epidemiol. 2009;19(6):303-10. Epub 2009 Sep 19. PubMed PMID: 19776497; PubMed Central PMCID: PMC3924099.**

**Abstract**

**OBJECTIVE:**

To investigate the effects of lifestyle factors on overweight among Japanese adolescents.

**METHODS:**

We studied 5753 junior high school students (2842 boys and 2911 girls) aged 12 to 13 years. The students were residents of Toyama prefecture, Japan and completed a questionnaire about their height, weight, and lifestyle factors, in June and July 2002. Subjects with a body-mass index (BMI) higher than age- and sex-specific cut-off points were defined as obese. Parental overweight was defined as a BMI of 25 or higher. Logistic regression analysis was used to examine associations between lifestyle factors and overweight.

**RESULTS:**

Skipping breakfast, eating quickly, excessive eating, physical inactivity, and long hours of TV watching were positively and significantly associated with overweight in both sexes. There was a negative association between snacking and overweight in girls ( $P < 0.001$ ); no such association was found in boys ( $P > 0.05$ ). Nighttime snacking was negatively associated with overweight in boys and girls ( $P < 0.05$ ). Extended video game playing ( $> \text{or} = 2$  hours;  $\text{OR} = 2.00$ ,  $P = 0.012$ ) and short sleep duration ( $< 7$  hours;  $\text{OR} = 1.81$ ,  $P = 0.004$ ) were significantly associated with overweight in girls only. The respective risks of overweight that derived from the subjects' fathers and mothers were 2.0 and 2.5 times, respectively, in boys and 1.9 and 3.0 times in girls.

**CONCLUSIONS:**

Parental overweight, skipping breakfast, eating quickly, excessive eating, long hours of TV watching, long hours of video game playing, physical inactivity, and short sleep duration were associated with adolescent overweight. Furthermore, there were significant negative associations between adolescent overweight and snacking in girls and nighttime snacking in both sexes.

**1156: Balarajan Y, Villamor E. Nationally representative surveys show recent increases in the prevalence of overweight and obesity among women of reproductive age in Bangladesh, Nepal, and India. J Nutr. 2009 Nov;139(11):2139-44. doi: 10.3945/jn.109.112029. Epub 2009 Sep 23. PubMed PMID: 19776182.**

**Abstract**

Our aims in this study were to examine trends in the prevalence of overweight-obesity and underweight among women of reproductive age in 3 South Asian countries between 1996 and 2006

and to identify sociodemographic correlates of overweight in the most recent survey. Using nationally representative data from 8 Demographic and Health Surveys conducted in Bangladesh (n = 19,211), Nepal (n = 19,354), and India (n = 161,755), we examined the change in the prevalence rates of overweight-obesity (BMI > or = 25 kg/m<sup>2</sup>) and underweight (BMI < 18.5 kg/m<sup>2</sup>) over a recent 7- to 10-y period among women aged 15-49 y. The prevalence of overweight-obesity increased substantially in all countries. Comparing the first to the latest survey in Bangladesh, the prevalence of overweight-obesity increased from 2.7 to 8.9% [age and parity-adjusted prevalence ratio (PR): 2.42; 95% CI: 1.88, 3.13]; in Nepal, from 1.6 to 10.1% [adjusted PR: 4.18; 95% CI: 3.00, 5.83]; and in India, from 10.6 to 14.8% [adjusted PR: 1.28; 95% CI: 1.20, 1.36]. These increases were observed in both rural and urban areas and were greater in rural areas. During the study period, the prevalence of underweight decreased substantially in Bangladesh and only modestly in Nepal and India. Overweight-obesity was positively related to age, higher socioeconomic status, and urban residence in all countries. In conclusion, while the prevalence of underweight has remained high in Bangladesh, Nepal, and India, the prevalence of overweight-obesity in women of reproductive age has risen between 1996 and 2006.

**1157: Reither EN, Hauser RM, Yang Y. Do birth cohorts matter? Age-period-cohort analyses of the obesity epidemic in the United States. Soc Sci Med. 2009 Nov;69(10):1439-48. doi: 10.1016/j.socscimed.2009.08.040. Epub 2009 Sep 19. PubMed PMID: 19773107; PubMed Central PMCID: PMC2782961.**

#### Abstract

Many studies have cited the importance of secular changes or "period effects" as causes of the U.S. obesity epidemic. Unfortunately, relatively little attention has been devoted to the possible influence of cohort-related mechanisms. To address this current gap in the scientific literature, this investigation utilized the responses from 1.7 million participants in the 1976-2002 National Health Interview Surveys to determine how birth cohorts may have contributed to the rapid increase in the prevalence of obesity. Results from hierarchical age-period-cohort (HAPC) models confirmed that period effects are principally responsible for the U.S. obesity epidemic. However, HAPC models also demonstrated that birth cohort membership is influential. Independent of age and period effects, the predicted probability of obesity at age 25 increased by 30% for cohorts born between 1955 and 1975. Our results also showed that age, period and cohort effects varied by race/gender and educational attainment. For instance, increases in the predicted probabilities of obesity were particularly sharp for recent cohorts of Black females. Our investigation successfully demonstrated that both secular change and birth cohort membership have independently contributed to elevated odds of obesity among recent generations of Americans, suggesting that cohort-specific strategies may be needed to combat disconcertingly high rates of obesity in the U.S.

**1158: Boone-Heinonen J, Jacobs DR Jr, Sidney S, Sternfeld B, Lewis CE, Gordon-Larsen P. A walk (or cycle) to the park: active transit to neighborhood amenities, the CARDIA study. Am J Prev Med. 2009 Oct;37(4):285-92. doi: 10.1016/j.amepre.2009.06.006. PubMed PMID: 19765499; PubMed Central PMCID: PMC2881319.**

Abstract

BACKGROUND:

Building on known associations between active commuting and reduced cardiovascular disease (CVD) risk, this study examines active transit to neighborhood amenities and differences between walking and cycling for transportation.

METHODS:

Year-20 data from the Coronary Artery Risk Development in Young Adults study (3549 black and white adults aged 38-50 years in 2005-2006) were analyzed in 2008-2009. Sociodemographic correlates of transportation mode (car-only, walk-only, any cycling, other) to neighborhood amenities were examined in multivariable multinomial logistic models. Gender-stratified multivariable linear or multinomial regression models compared CVD risk factors across transit modes.

RESULTS:

Active transit was most common to parks and public transit stops; walking was more common than cycling. Among those who used each amenity, active transit (walk-only and any cycling versus car-only transit) was more common in men and those with no live-in partner and less than full-time employment (significant ORs [95% CI] ranging from 1.56 [1.08, 2.27] to 4.54 [1.70, 12.14]), and less common in those with children. Active transit to any neighborhood amenity was associated with more favorable BMI, waist circumference, and fitness (largest coefficient [95% CI] -1.68 [-2.81, -0.55] for BMI, -3.41 [-5.71, -1.11] for waist circumference [cm], and 36.65 [17.99, 55.31] for treadmill test duration [seconds]). Only cycling was associated with lower lifetime CVD risk classification.

CONCLUSIONS:

Active transit to neighborhood amenities was related to sociodemographics and CVD risk factors. Variation in health-related benefits by active transit mode, if validated in prospective studies, may have implications for transportation planning and research.

**1159: Simmons A, Mavoja HM, Bell AC, De Courten M, Schaaf D, Schultz J, Swinburn BA. Creating community action plans for obesity prevention using the ANGELO (Analysis Grid for Elements Linked to Obesity) Framework. Health Promot Int. 2009 Dec;24(4):311-24. doi: 10.1093/heapro/dap029. Epub 2009 Sep 16. PubMed PMID: 19759046; PubMed Central PMCID: PMC2776999.**

Abstract

Community-based interventions are an important component of obesity prevention efforts. The literature provides little guidance on priority-setting for obesity prevention in communities, especially for socially and culturally diverse populations. This paper reports on the process of developing prioritized, community-participatory action plans for obesity prevention projects in children and adolescents using the ANGELO (Analysis Grid for Elements Linked to Obesity) Framework. We combined stakeholder engagement processes, the ANGELO Framework (scans for environmental barriers, targeted behaviours, gaps in skills and knowledge) and workshops with key stakeholders to create action plans for six diverse obesity prevention projects in Australia (n = 3), New Zealand, Fiji



and Tonga from 2002 to 2005. Some sites included sociocultural contextual analyses in the environmental scans. Target groups were under-5-year-olds (Australia), 4-12-year-olds (Australia) and 13-18-year-olds (all four countries). Over 120 potential behavioural, knowledge, skill and environmental elements were identified for prioritization leading into each 2-day workshop. Many elements were common across the diverse cultural communities; however, several unique sociocultural elements emerged in some cultural groups which informed their action plans. Youth were actively engaged in adolescent projects, allowing their needs to be incorporated into the action plans initiating the process of ownership. A common structure for the action plan promoted efficiencies in the process while allowing for community creativity and innovation. The ANGELO is a flexible and efficient way of achieving an agreed plan for obesity prevention with diverse communities. It is responsive to community needs, combines local and international knowledge and creates stakeholder ownership of the action plan.

**1160: Ryan KW. Surveillance, screening, and reporting children's BMI in a school-based setting: a legal perspective. *Pediatrics*. 2009 Sep;124 Suppl 1:S83-8. doi: 10.1542/peds.2008-3586K. PubMed PMID: 19720671.**

Abstract

The rising epidemic of childhood and adolescent obesity is placing a heretofore unprecedented physical and fiscal burden on individuals and communities. Federal and state government officials who seek to determine the scope of the problem are using a spectrum of tools that include reporting, screening, and surveillance initiatives. The extent of authority to use these public health tools is yet to be determined, especially in the area of data use, privacy, and liability as government officials balance the need to improve public health with individual freedom and autonomy.

**1161: Thompson JW, Card-Higginson P. Arkansas' experience: statewide surveillance and parental information on the child obesity epidemic. *Pediatrics*. 2009 Sep;124 Suppl 1:S73-82. doi: 10.1542/peds.2008-3586J. PubMed PMID: 19720670.**

Abstract

Parents, clinicians, public health officials, and policy makers need readily available information on the extent of the childhood obesity epidemic. As in any epidemic, the strategies and tools used to combat the imminent threat are frequently based on scientific rationale and experience but applied in areas in which we lack complete understanding. The urgent need for information requires execution of decisions that are not risk-free--such is the case of BMI screening obesity. Use of BMI percentiles to classify weight status among youth and quantify the epidemic can inform and engage parents and other key stakeholders. Arkansas has completed its sixth year of BMI screenings for public school students. Through a groundbreaking legislative mandate that requires BMI assessments in public schools, the state has achieved both enhanced awareness among parents and their children and increased engagement by school, clinical, public health, and community leaders in response to the epidemic. External evaluations conducted since institution of BMI assessments have revealed none of the initially feared negative consequences of BMI measurements such as teasing, use of diet pills, or excessive concerns about weight. In the face of this epidemic, the risks of using BMI assessments in clinical or school-based settings must be recognized but can be managed. Arkansas' Act 1220 and BMI-reporting efforts have not only afforded parents detailed information about their children's

health but also provided longitudinal data needed to fully understand the scope of childhood and adolescent obesity in the state and to track progress made in combating this epidemic.

**1162: Amarasinghe A, D'Souza G, Brown C, Oh H, Borisova T. The influence of socioeconomic and environmental determinants on health and obesity: a West Virginia case study. *Int J Environ Res Public Health*. 2009 Aug;6(8):2271-87. doi: 10.3390/ijerph6082271. Epub 2009 Aug 19. PubMed PMID: 19742160; PubMed Central PMCID: PMC2738887.**

Abstract

A recursive system of ordered self assessed health together with BRFSS data were used to investigate health and obesity in the Appalachian state of West Virginia. Implications of unobserved heterogeneity and endogeneity of lifestyle outcomes on health were investigated. Obesity was found to be an endogenous lifestyle outcome associated with impaired health status. Risk of obesity is found to increase at a decreasing rate with per capita income and age. Intervention measures which stimulate human capital development, diet-disease knowledge and careful land use planning may improve health and obesity outcomes in Appalachia in particular and rural America in general.

**1163: Doshi N, Perrin EM, Lazorick S, Esserman D, Steiner MJ. Short-term change in body mass index in overweight adolescents following cholesterol screening. *Arch Pediatr Adolesc Med*. 2009 Sep;163(9):812-7. doi: 10.1001/archpediatrics.2009.152. PubMed PMID: 19736334; PubMed Central PMCID: PMC2909479.**

Abstract

OBJECTIVE:

To determine the relationship between routine screening for cholesterol level and subsequent change in body mass index (BMI; calculated as weight in kilograms divided by height in meters squared).

DESIGN:

Retrospective cohort.

SETTING:

General pediatrics clinics at 2 academic centers.

PARTICIPANTS:

Adolescents with BMIs in the 85th percentile or higher aged 10 to 18 years whose cholesterol levels were screened between June 2003 and June 2005 and controls matched for age, sex, ethnicity, and BMI. Main Exposure Cholesterol screening.

OUTCOME MEASURES:

The primary outcome was the "best" individual BMI change following screening. The secondary outcome was the trend of BMI change during follow-up.

RESULTS:

Sixty-four matched pairs met the inclusion criteria (N = 128). Subjects were followed up for 3 to 30 months after identification (mean [SD], 18 [8] months). The mean BMI changes for screened subjects did not differ from those of unscreened subjects (-0.33 vs -0.34; P = .97). However, age at time of enrollment significantly modified the results (P = .02). After cholesterol screening, younger subjects initially increased in BMI, while older subjects initially decreased. The overall trend of individual BMI

change increased during the follow-up period and was not significantly different between the 2 groups (likelihood ratio test, 0.9; P = .64).

**CONCLUSIONS:**

Cholesterol screening of overweight and obese adolescents is not associated with short-term BMI change, though age at time of screening modified subsequent BMI change. Clinicians should not assume that screening will help motivate weight loss, though the effect of age at the time of screening deserves further research.

**1164: Freedman DS, Wang J, Thornton JC, Mei Z, Sopher AB, Pierson RN Jr, Dietz WH, Horlick M. Classification of body fatness by body mass index-for-age categories among children. Arch Pediatr Adolesc Med. 2009 Sep;163(9):805-11. doi: 10.1001/archpediatrics.2009.104. PubMed PMID: 19736333; PubMed Central PMCID: PMC2846460.**

**Abstract**

**OBJECTIVE:**

To examine the ability of various body mass index (BMI)-for-age categories, including the Centers for Disease Control and Prevention's 85th to 94th percentiles, to correctly classify the body fatness of children and adolescents.

**DESIGN:**

Cross-sectional.

**SETTING:**

The New York Obesity Research Center at St Luke's-Roosevelt Hospital from 1995 to 2000.

**PARTICIPANTS:**

Healthy 5- to 18-year-old children and adolescents (N = 1196) were recruited in the New York City area through newspaper notices, announcements at schools and activity centers, and word of mouth.

**MAIN OUTCOME MEASURES:**

Percent body fat as determined by dual-energy x-ray absorptiometry. Body fatness cutoffs were chosen so that the number of children in each category (normal, moderate, and elevated fatness) would equal the number of children in the corresponding BMI-for-age category (<85th percentile, 85th-94th percentile, and > or =95th percentile, respectively).

**RESULTS:**

About 77% of the children who had a BMI for age at or above the 95th percentile had an elevated body fatness, but levels of body fatness among children who had a BMI for age between the 85th and 94th percentiles (n = 200) were more variable; about one-half of these children had a moderate level of body fatness, but 30% had a normal body fatness and 20% had an elevated body fatness. The prevalence of normal levels of body fatness among these 200 children was highest among black children (50%) and among those within the 85th to 89th percentiles of BMI for age (40%).

**CONCLUSION:**

Body mass index is an appropriate screening test to identify children who should have further evaluation and follow-up, but it is not diagnostic of level of adiposity.

**1165: Cook S, Auinger P, Huang TT. Growth curves for cardio-metabolic risk factors in children and adolescents. J Pediatr. 2009 Sep;155(3):S6.e15-26. doi: 10.1016/j.jpeds.2009.04.051. PubMed PMID: 19732566; PubMed Central PMCID: PMC2789447.**

Abstract

OBJECTIVE:

This study developed percentile curves for anthropometric (waist circumference) and cardiovascular (lipid profile) risk factors for US children and adolescents.

STUDY DESIGN:

A representative sample of US children and adolescents from the National Health and Nutrition Examination Survey from 1988 to 1994 (NHANES III) and the current national series (NHANES 1999-2006) were combined. Percentile curves were constructed, nationally weighted, and smoothed using the Lambda, Mu, and Sigma method. The percentile curves included age- and sex-specific percentile values that correspond with and transition into the adult abnormal cut-off values for each of these anthropometric and cardiovascular components. To increase the sample size, a second series of percentile curves was also created from the combination of the 2 NHANES databases, along with cross-sectional data from the Bogalusa Heart Study, the Muscatine Study, the Fels Longitudinal Study and the Princeton Lipid Research Clinics Study.

RESULTS:

These analyses resulted in a series of growth curves for waist circumference, total cholesterol, LDL cholesterol, triglycerides, and HDL cholesterol from a combination of pediatric data sets. The cut-off for abnormal waist circumference in adult males (102 cm) was equivalent to the 94(th) percentile line in 18-year-olds, and the cut-off in adult females (88 cm) was equivalent to the 84(th) percentile line in 18-year-olds. Triglycerides were found to have a bimodal pattern among females, with an initial peak at age 11 and a second at age 20; the curve for males increased steadily with age. The HDL curve for females was relatively flat, but the male curve declined starting at age 9 years. Similar curves for total and LDL cholesterol were constructed for both males and females. When data from the additional child studies were added to the national data, there was little difference in their patterns or rates of change from year to year.

CONCLUSIONS:

These curves represent waist and lipid percentiles for US children and adolescents, with identification of values that transition to adult abnormalities. They could be used conditionally for both epidemiological and possibly clinical applications, although they need to be validated against longitudinal data.

**1166: Grebla RC, Rodriguez CJ, Borrell LN, Pickering TG. Prevalence and determinants of isolated systolic hypertension among young adults: the 1999-2004 US National Health And Nutrition Examination Survey. J Hypertens. 2010 Jan;28(1):15-23. doi: 10.1097/HJH.0b013e328331b7ff. PubMed PMID: 19730124; PubMed Central PMCID: PMC2891994.**

Abstract

BACKGROUND:

Little is known about isolated systolic hypertension (ISH) in younger adults. We examined the prevalence and determinants of ISH in this age group using the 1999-2004 National Health and

Nutrition Examination Surveys (NHANES) and made comparisons using data from NHANES III (1988-1994).

**METHODS:**

A total of 5685 adults aged 18-39 years and not on antihypertensive medications were analyzed. Prevalence estimates of ISH and potential risk factors were estimated by age and sex. For comparison of prevalence estimates with published reports of NHANES III data, age cutoffs (18-24, 25-34, and 35-44 year) by sex were also employed. A multivariate logistic regression model tested independent determinants of ISH.

**RESULTS:**

ISH in young adults had a higher prevalence than systolic/diastolic hypertension (1.57 +/- 0.23% vs. 0.93 +/- 0.18%). ISH prevalence increased within the last decade particularly for men for each respective age category [men (0.8 vs. 2.2%, 1.3 vs. 2.4%, 1.3 vs. 2.4%), women (0.0 vs. 0.3%, 0.1 vs. 0.7%, 1.7 vs. 1.8%)]. On multivariate analysis, obesity [odds ratio (OR): 2.68, 95% confidence interval (CI): 1.06, 6.77], male sex (OR: 2.19, 95% CI: 1.10, 4.37), education level less than high school (OR: 2.98, 95% CI: 1.10, 8.06), and current smoking (OR: 2.06, 95% CI: 1.03, 4.11) were characteristics independently associated with higher odds of ISH among young adults. Relative increases in prevalence between the surveys were noted for current smoking (24.3 vs. 51.5%), obesity (33.9 vs. 42.7%) and low educational level (18.4 vs. 38.6%).

**CONCLUSION:**

ISH among young adults is increasing in prevalence, and is more common than systolic/diastolic hypertension. Obesity, smoking, and low socioeconomic status appear to be important determinants of ISH among young adults and have all increased over the last decade.

**1167: Barroso CS, Kelder SH, Springer AE, Smith CL, Ranjit N, Ledingham C, Hoelscher DM. Senate Bill 42: implementation and impact on physical activity in middle schools. J Adolesc Health. 2009 Sep;45(3 Suppl):S82-90. doi: 10.1016/j.jadohealth.2009.06.017. PubMed PMID: 19699442; PubMed Central PMCID: PMC2903960.**

**Abstract**

**PURPOSE:**

In 2005, the Texas State Legislature passed Senate Bill 42 (SB42), which required public middle school students (grades 6-8) to participate in 30 minutes of daily structured physical activity. The purpose of this study was to assess awareness of and adherence to SB42 in Texas middle schools, and to assess the impact of SB42 on the frequency and quality of structured physical activity.

**METHODS:**

Key informant (school principals, physical education [PE] instructors, nurses, or designated personnel) telephone interviews on the implementation of SB42 were conducted from a statewide representative sample of public middle schools (n=112). Direct observation, key informant, and student report of physical activity in PE classes at 17 Texas-Mexico border middle schools assessed the frequency and quality of structured physical activity.

**RESULTS:**

State level (94% +/- 4.5%) and border district (94% +/- 13.5%) key informants reported a high level of overall awareness of SB42. Postimplementation of SB42 border districts reported a minimum of 4 days per week of PE instruction and more than 58 minutes per PE class, exceeding the 30-minute minimum of structured physical activity per day or 135 minutes per week as required by SB42 (range:

58.2-61.4 minutes). A significant increase in the number of days of PE class was observed in the border sample between 2004 and 2005 and 2006 and 2008, with eighth grade students reporting an average of 2.0 days and 3.7 days of PE per week, respectively ( $p < .001$ ). Additionally, border districts met the Healthy People 2010 objective of 50% time in moderate-to-vigorous physical activity (mean 54.9% +/- 5.1%) during PE class.

**CONCLUSIONS:**

Implementation of SB42 appears to have impacted the frequency of school PE in Texas and the prevalence of child self-reported physical activity behaviors along the Texas-Mexico border. General awareness of and adherence to SB42 was high in both statewide and among the border districts. Our mixed findings on adherence to specific components of the legislation suggest the need for further investigation of the factors that both facilitate and inhibit local leadership around school policy and the mechanisms to ensure the school policy is being implemented.

**1168: Terry-McElrath YM, O'Malley PM, Delva J, Johnston LD. The school food environment and student body mass index and food consumption: 2004 to 2007 national data. J Adolesc Health. 2009 Sep;45(3 Suppl):S45-56. doi: 10.1016/j.jadohealth.2009.04.007. Epub 2009 Jun 24. PubMed PMID: 19699436; PubMed Central PMCID: PMC2739104.**

**Abstract**

**PURPOSE:**

This study identifies trends in the availability of various food choices in United States' middle and high schools from 2004 to 2007, and examines the potential associations between such food availability and students' self-reported eating habits and body mass index (BMI)-related outcomes.

**METHODS:**

Data are based on nationally representative samples of 78,442 students in 684 secondary schools surveyed from 2004 to 2007 as part of the Youth, Education, and Society (YES) study and the Monitoring the Future (MTF) study. In the YES study, school administrators and food service managers completed self-administered questionnaires on their school's food environment. In the MTF study, students in the same schools completed self-administered questionnaires, providing data used to construct BMI and food consumption measures.

**RESULTS:**

Overall, there was a decrease in the availability of regular-sugar/fat food items in both middle and high schools, and some indication of an increase in high school availability of reduced-fat food items through school lunch or a la carte. Some minimal evidence was found for relationships between the school food environment and student BMI-related outcomes and food consumption measures.

**CONCLUSIONS:**

United States secondary schools are making progress in the types of foods offered to students, with food items of lower nutritional value becoming less prevalent in recent years. Continued monitoring of food environment trends may help clarify whether and how such factors relate to youth health outcomes.

**1169: Glaser Pediatric Research Network Obesity Study Group. Intraperitoneal fat and insulin resistance in obese adolescents. Obesity (Silver Spring). 2010 Feb;18(2):402-9. doi: 10.1038/oby.2009.261. Epub 2009 Aug 27. PubMed PMID: 19713950; PubMed Central PMCID: PMC3507443.**

Abstract

Obesity is epidemic among adolescents in the United States. We sought to analyze the anthropometric measures of adiposity and fasting indices of insulin resistance, including insulin-like growth factor-binding protein-1 (IGFBP-1), and to provide a clinical estimate of intraperitoneal (IP) fat in obese adolescents (BMI  $\geq$  95th percentile), between ages 13 and 17 years. Subjects had baseline testing to determine eligibility for a subsequent randomized, placebo-controlled trial of metformin XR therapy. Anthropometry and dual-energy X-ray absorptiometry (DXA) were used to quantify total body fat while abdominal computed tomography (CT) was used to measure IP (CT-IP) and subcutaneous (CT-SQ) fat. Using anthropometry and fasting laboratory data, we constructed regression models for both CT-IP and CT-SQ. A total of 92 subjects, 33 males, were evaluated. Of the 92 subjects, 19 were black. Fasting insulin concentrations were highly associated with other measures of insulin resistance. Median percent body fat across all subjects, as measured by DXA, was 41%. Using CT measures, 67% of abdominal cross-sectional area was fat, 14% of which was IP fat. In multiple regression analysis, waist circumference (WC) and BMI, jointly and independently, were strongly associated with both CT-IP and CT-SQ fat. BMI and WC explained 62% of variance of CT-SQ fat, but only 26% of variance of CT-IP fat. Adding triglyceride:high-density lipoprotein (TG:HDL) ratio and IGFBP-1 (among nonblacks) to the regression model increased the explained variance for estimating CT-IP fat to 45%. When evaluating the metabolic morbidity of an obese adolescent, a model using fasting IGFBP-1, TG:HDL, BMI, and WC may be worthwhile as an estimate of IP fat.

**1170: Khan MM, Kraemer A. Factors associated with being underweight, overweight and obese among ever-married non-pregnant urban women in Bangladesh. Singapore Med J. 2009 Aug;50(8):804-13. PubMed PMID: 19710981.**

Abstract

Extremes of body mass index (BMI), viz. underweight, overweight and obese categories, are associated with a variety of adverse health outcomes such as diabetes mellitus, cardiovascular diseases, low birth weight, poor quality of life and higher mortality. In Bangladesh, the prevalence of underweightness is very high with an increasing trend of overweightness and obesity. This is a serious public health concern as it indicates a dual burden of disease. The present study assessed the associations of being underweight, overweight and obese with socioeconomic, demographical and migration variables among ever-married non-pregnant urban Bangladeshi women aged 13-49 years.

**METHODS:**

The data was extracted from the Bangladesh Demographic and Health Survey 2004. Bivariable, factor and multinomial logistic regression analyses were performed in this study.

**RESULTS:**

The prevalence of being underweight, overweight and obese among ever-married non-pregnant urban women in Bangladesh was 25.2 percent, 15.7 percent and 3.9 percent, respectively. Age, education, region of residence, marital status, current use of contraception and type of occupation were significantly associated with BMI categories. Adjusted multinomial logistic regression analysis indicated that women with a high socioeconomic status were significantly negatively associated with

being underweight (odds ratio [OR] 0.55, 95 percent confidence interval [CI] 0.48-0.63) but positively associated with being overweight (OR 1.70, 95 percent CI 1.48-1.96) and obese (OR 2.48, 95 percent CI 1.89-3.26), as compared to the women with normal BMI. In contrast, women who migrated from rural to urban areas showed a significantly positive association with being underweight (OR 1.15, 95 percent CI 1.04-1.27) but negative associations with being overweight (OR 0.80, 95 percent CI 0.71-0.89) and obese (OR 0.75, 95 percent CI 0.62-0.92), when compared with women who did not migrate.

**CONCLUSION:**

Suitable interventions based on further studies are needed to reduce the prevalence of being underweight and overweight among ever-married non-pregnant urban women in Bangladesh. Factors, viz. socioeconomic status, rural-urban migration and education, should be considered while developing interventional strategies to reduce the prevalence of extreme BMIs among women living in urban areas of Bangladesh.

**1171: Kattelman KK, Conti K, Ren C. The medicine wheel nutrition intervention: a diabetes education study with the Cheyenne River Sioux Tribe. J Am Diet Assoc. 2009 Sep;109(9):1532-9. doi: 10.1016/j.jada.2009.06.362. PubMed PMID: 19699832; PubMed Central PMCID: PMC2765410.**

**Abstract**

**OBJECTIVE:**

The Northern Plains Indians of the Cheyenne River Sioux Tribe have experienced significant lifestyle and dietary changes over the past seven generations that have resulted in increased rates of diabetes and obesity. The objective of this study was to determine if Northern Plains Indians with type 2 diabetes mellitus who are randomized to receive culturally adapted educational lessons based on the Medicine Wheel Model for Nutrition in addition to their usual dietary education will have better control of their type 2 diabetes than a nonintervention, usual care group who received only the usual dietary education from their personal providers.

**DESIGN:**

A 6-month, randomized, controlled trial was conducted January 2005 through December 2005, with participants randomized to the education intervention or usual care control group. The education group received six nutrition lessons based on the Medicine Wheel Model for Nutrition. The usual care group received the usual dietary education from their personal providers.

**PARTICIPANTS:**

One hundred fourteen Northern Plains Indians from Cheyenne River Sioux Tribe aged 18 to 65 years, with type 2 diabetes.

**METHODS:**

Weight, body mass index (BMI), hemoglobin A1c, fasting serum glucose and lipid parameters, circulating insulin, and blood pressure were measured at the beginning and completion. Diet histories, physical activity, and dietary satiety surveys were measured at baseline and monthly through completion. Differences were determined using Student t tests, chi(2) tests, and analysis of variance.

**RESULTS:**

The education group had a significant weight loss (1.4+/-0.4 kg, P<or=0.05) and decrease in BMI (1.0+/-0.1, P<or=0.05) from baseline to completion. The usual care group had no change in weight



(0.5+/-0.5 kg) or BMI (0.5+/-0.2). There were no between group differences due to intervention in energy, carbohydrate, protein, and fat intake and physical activity.

**CONCLUSIONS:**

The culturally based nutrition intervention promoted small but positive changes in weight. Greater frequency and longer duration of educational support may be needed to influence blood glucose and lipid parameters.

**1172: Afghani A, Goran MI. The interrelationships between abdominal adiposity, leptin and bone mineral content in overweight Latino children. Horm Res. 2009;72(2):82-7. doi: 10.1159/000232160. Epub 2009 Aug 18. PubMed PMID: 19690425; PubMed Central PMCID: PMC2790747.**

**Abstract**

**BACKGROUND/AIMS:**

The link between abdominal fat and bone mineral content (BMC), independent of weight, has not been extensively studied. In Latino children, the contributions of abdominal subcutaneous and visceral fat to BMC have not been examined. Research on the effect of leptin on BMC has also been inconclusive.

**METHODS:**

The present study included 256 overweight Latino children (111 girls, 145 boys; mean BMI 28.2; age 11.1 +/- 1.7 years) from Los Angeles, California. Subcutaneous abdominal adipose tissue (SAAT) and intra-abdominal adipose tissue (IAAT) were determined by single-slice magnetic resonance imaging. BMC was measured using dual-energy X-ray absorptiometry.

**RESULTS:**

Independent of age, Tanner stage and weight, abdominal adipose tissue (SAAT + IAAT) was inversely correlated with BMC ( $r = -0.46$ ,  $p < 0.0001$ ;  $n = 256$ ). In girls, there was an inverse correlation between SAAT and BMC ( $r = -0.38$ ,  $p < 0.05$ ), between IAAT and BMC ( $r = -0.32$ ,  $p < 0.05$ ) and between leptin and BMC ( $r = -0.39$ ,  $p < 0.05$ ). In boys, SAAT and BMC were inversely correlated ( $r = -0.26$ ,  $p < 0.05$ ), but the correlation between IAAT and BMC was not significant ( $p = 0.22$ ). Leptin was also inversely correlated with BMC ( $r = -0.38$ ,  $p < 0.05$ ) in boys and contributed to the variances in BMC in both girls and boys.

**CONCLUSION:**

Total abdominal adipose fat and leptin are negatively associated with BMC in Latino children. The correlation between SAAT and BMC is stronger in girls than boys. IAAT and BMC are negatively associated in girls but not correlated in boys.

**1173: Withycombe JS, Post-White JE, Meza JL, Hawks RG, Smith LM, Sacks N, Seibel NL. Weight patterns in children with higher risk ALL: A report from the Children's Oncology Group (COG) for CCG 1961. *Pediatr Blood Cancer*. 2009 Dec 15;53(7):1249-54. doi: 10.1002/pbc.22237. PubMed PMID: 19688832; PubMed Central PMCID: PMC3044478.**

Abstract

BACKGROUND:

This retrospective analysis defined and described patterns and predictors of weight change during treatment in children with acute lymphocytic leukemia (ALL) with high-risk features who received treatment on Children's Cancer Group protocol CCG 1961.

PROCEDURE:

Patients (1,638) were enrolled in CCG 1961 from November 1996 to May 2002. Weight was measured as BMI percent (%), specific for age and gender, and defined as  $100 \times \ln(\text{BMI}/\text{median BMI})$ .

RESULTS:

By the end of treatment, 23% of children were obese (BMI  $\geq 95\%$ ), compared with 14% at diagnosis. Children who received post-induction intensified therapy (arms C, D, SER with Doxorubicin or Idarubicin) had higher gastrointestinal toxicities and lower BMI% from consolidation through interim maintenance 1. BMI% then increased for all arms between delayed intensification and maintenance 1 or 2. Children who were of Black or Hispanic race, obese at diagnosis, or who had grade 3 or 4 pancreatitis/glucose toxicities during induction had higher BMI% throughout treatment. Children were more likely to be obese at the end of the study if they were aged 5-9 years at diagnosis or female gender. Cranial radiation was not a predictor of obesity.

CONCLUSIONS:

Successful treatment of higher risk childhood ALL was associated with obesity, independent of cranial irradiation. The beginning of maintenance therapy may be the best time to intervene with nutritional and behavioral interventions, particularly for children who are obese or aged 5-9 years at diagnosis, female, Black or Hispanic, or those with metabolic toxicities during induction.

**1174: Dillemans B, Sakran N, Van Cauwenberge S, Sablon T, Defoort B, Van Dessel E, Akin F, Moreels N, Lambert S, Mulier J, Date R, Vandelanotte M, Feryn T, Proot L. Standardization of the fully stapled laparoscopic Roux-en-Y gastric bypass for obesity reduces early immediate postoperative morbidity and mortality: a single center study on 2606 patients. *Obes Surg*. 2009 Oct;19(10):1355-64. doi: 10.1007/s11695-009-9933-4. Epub 2009 Aug 15. PubMed PMID: 19685100; PubMed Central PMCID: PMC2762050.**

Abstract

BACKGROUND:

Various techniques of laparoscopic Roux-en-Y gastric bypass have been described. We completely standardized this procedure to minimize its sometimes substantial morbidity and mortality. This study describes our experience with the standardized fully stapled laparoscopic Roux-en-Y gastric bypass (FS-LRYGB) and its influence on the 30-day morbidity and mortality.

METHODS:

We retrospectively analyzed 2,645 patients who underwent FS-LRYGB from May 2004 to August 2008. Operative time, hospital stay and readmission, re-operation, and 30-day morbidity/mortality rates were then calculated. The 30-day follow-up data were complete for 2,606 patients (98.5%).

**RESULTS:**

There were 539 male and 2,067 female patients. Mean age was 39.2 years (range 14-73), mean BMI 41.44 kg/m<sup>2</sup> (range, 23-75.5). The mean hospital stay was 3.35 days (range 2-71). Mean total operative time was 63 min (range 35-150). One patient died of pneumonia within 30 days of surgery (0.04%). One hundred and fifty one (5.8%) patients had postoperative complications as follows: gastrointestinal hemorrhage (n = 89, 3.42%), intestinal obstruction (n = 9, 0.35%), anastomotic leak (n = 5, 0.19%) and others (n = 47, 1.80%). In 66 patients, the bleeding resolved without any surgical re-intervention. One hemorrhage resulted in hypovolemic shock with subsequent renal and hepatic failure.

**CONCLUSION:**

The systematic approach and the full standardization of the FS-LRYGB procedure contribute highly to the very low mortality and the low morbidity rates in our institution. Gastrointestinal bleeding appears to be the commonest complication, but is self-limiting in the majority of cases. Our approach also significantly reduces operative time and turns the technically demanding laparoscopic Roux-en-Y gastric bypass procedure into an easy reproducible operation, effective for training.

**1175: Goree LL, Darnell BE, Oster RA, Brown MA, Gower BA. Associations of free fatty acids with insulin secretion and action among African-American and European-American girls and women. Obesity (Silver Spring). 2010 Feb;18(2):247-53. doi: 10.1038/oby.2009.248. Epub 2009 Aug 13. PubMed PMID: 19680231; PubMed Central PMCID: PMC2814008.**

**Abstract**

Ethnic differences in insulin secretion and action between African Americans (AAs) and European Americans (EAs) may influence mobilization of free fatty acids (FFAs). We tested the hypotheses that FFA concentrations would be associated with measures of insulin secretion and action before and during a glucose challenge test. Subjects were 48 prepubertal girls, 60 premenopausal women, and 46 postmenopausal women. Fasting insulin (insulin(0)), the acute insulin response to glucose (AIR(g)), the insulin sensitivity index (S(I)), basal and nadir FFA (FFA(0), FFA(nadir)), and nadir time (TIME(nadir)) were determined during an intravenous glucose tolerance test (IVGTT). Stepwise multiple linear regression (MLR) analysis was conducted to identify associations of FFA(0), FFA(nadir), and TIME(nadir) with ethnicity, age group, insulin measures, indexes of body composition from dual-energy X-ray absorptiometry, and measures of fat distribution from computed tomography scan. In this population, insulin(0) and AIR(g) were higher among AAs vs. EAs, whereas S(I) was lower, independent of age group. MLR analyses indicated that FFA(0) was best predicted by lean tissue mass (LTM), leg fat mass, ethnicity (lower in AAs), S(I), and insulin(0). FFA(nadir) was best predicted by FFA(0), age group, and intra-abdominal adipose tissue (IAAT). TIME(nadir) was best predicted by leg fat mass, AIR(g), and S(I). In conclusion, indexes of insulin secretion and action were associated with FFA dynamics in healthy girls and women. Lower FFA(0) among AAs was independent of insulin(0) and S(I). Whether lower FFA(0) is associated with substrate oxidation or risk for obesity remains to be determined.

**1176: Adam TC, Toledo-Corral C, Lane CJ, Weigensberg MJ, Spruijt-Metz D, Davies JN, Goran MI. Insulin sensitivity as an independent predictor of fat mass gain in Hispanic adolescents. Diabetes Care. 2009 Nov;32(11):2114-5. doi: 10.2337/dc09-0833. Epub 2009 Aug 12. PubMed PMID: 19675204; PubMed Central PMCID: PMC2768217.**

Abstract

OBJECTIVE:

The purpose of this study was to examine the relationship between changes in insulin sensitivity and subsequent changes in fat mass in obese Hispanic children over 3 consecutive years.

RESEARCH DESIGN AND METHODS:

In a longitudinal research design, insulin sensitivity ( $S(i)$ ) of 96 research participants was determined at baseline and 1 year later. Body adiposity was assessed at four assessments.

RESULTS:

The change in  $S(i)$  during the first year of the study was a significant predictor of further fat mass development ( $P < 0.05$ ). Considering different directions of  $S(i)$  change,  $S(i)$  was a strong predictor for further fat mass development only in the group that decreased their  $S(i)$  ( $P < 0.05$ ).

CONCLUSIONS:

The results show that the direction of change in insulin sensitivity at an early age is an important independent predictor for further fat mass development and emphasize the importance of insulin sensitivity as a primary target for long-term obesity prevention, as well as the significance of early age intervention.

**1177: Gomes Fda S, Anjos LA, Vasconcellos MT. Influence of different body mass index cut-off values in assessing the nutritional status of adolescents in a household survey. Cad Saude Publica. 2009 Aug;25(8):1850-7. PubMed PMID: 19649426.**

Abstract

The purpose of this study was to evaluate the anthropometric nutritional status of the adolescent population of Niterói, Rio de Janeiro State, Brazil, and the influence of changes in the adopted body mass index (BMI) cut-offs in the nutritional status assessment of the adolescent population. A population-based survey conducted in 2003 obtained data from a probabilistic sample of 1,734 households and 523 adolescents. The multiple proportions test and prevalence ratios were used to analyze differences between estimates obtained from different BMI cut-offs. Changes in cut-off values from the old to the new recommendation of the World Health Organization (WHO) resulted in a significant increase in overweight prevalence among total, male and female adolescent population (25%, 27% and 23%, respectively) ( $p < 0.05$ ). There were significant increases in the prevalence of low-BMI-for-age among the total (29% increase) and male (39%) adolescent populations when the proposal of the International Obesity Task Force was compared to current WHO BMI-for-age cut-offs ( $p < 0.05$ ). It is shown that a simple change in cut-off values used to define the anthropometric nutritional status can significantly modify the nutritional profile of an adolescent population.

**1178: Ross KR, Hart MA, Storfer-Isser A, Kibler AM, Johnson NL, Rosen CL, Kerckmar CM, Redline S. Obesity and obesity related co-morbidities in a referral population of children with asthma. *Pediatr Pulmonol.* 2009 Sep;44(9):877-84. doi: 10.1002/ppul.21065. PubMed PMID: 19639627; PubMed Central PMCID: PMC2940418.**

Abstract

OBJECTIVE:

Although there is mounting evidence that childhood obesity is a risk factor for incident asthma, it remains unclear if there is a distinct "asthma-obesity" phenotype. This study characterized body composition, obesity related co-morbidities, and traditional risk factors for asthma in a cohort of children referred for asthma management in a pulmonary clinic. We hypothesized that children with asthma and obesity would have distinct risk factors and co-morbidities, particularly with respect to metabolic and sleep abnormalities.

PARTICIPANTS AND METHODS:

One hundred sixteen asthmatic children ages 4-18 years underwent comprehensive measurements of common asthma risk factors as well as measurements of obesity-related morbidities, including lung function tests, atopy, and assessments of sleep (overnight oximetry and actigraphy), physical activity (accelerometry), and metabolism. Characteristics of children who were obese (BMI > or =95th percentile) were compared to those who were not obese (BMI <95th percentile).

RESULTS:

Obesity was present in 44% of participants. Obese participants had similar rates of atopy and family history of atopy, lung function, and asthma control at enrolment as their non-obese peers. A significantly higher proportion of obese participants had metabolic syndrome (23% vs. 0%) and habitual snoring (60% vs. 33%) compared to non-obese participants; insufficient sleep and nocturnal desaturations tended to be more prevalent among obese subjects.

CONCLUSIONS:

Obesity and obesity related co-morbidities were common in a referral population of children with asthma. The specific influence of metabolic abnormalities on asthma morbidity and management is still uncertain and likely will need to be addressed in prospective studies.

**1179: Valente TW, Fujimoto K, Chou CP, Spruijt-Metz D. Adolescent affiliations and adiposity: a social network analysis of friendships and obesity. *J Adolesc Health.* 2009 Aug;45(2):202-4. doi: 10.1016/j.jadohealth.2009.01.007. Epub 2009 Mar 17. PubMed PMID: 19628148; PubMed Central PMCID: PMC2747768.**

Abstract

Friendship choices and BMI were measured for 617 adolescents 11-15 years of age. Overweight youth were twice as likely to have overweight friends. There was a weak association between social position and weight status. Overweight youth nominated more friends but were nominated as friends less frequently than their normal weight peers.

**1180: Feldstein AE, Charatcharoenwitthaya P, Treeprasertsuk S, Benson JT, Enders FB, Angulo P. The natural history of non-alcoholic fatty liver disease in children: a follow-up study for up to 20 years. Gut. 2009 Nov;58(11):1538-44. doi: 10.1136/gut.2008.171280. Epub 2009 Jul 21. PubMed PMID: 19625277; PubMed Central PMCID: PMC2792743.**

Abstract

OBJECTIVES:

The long-term prognosis of non-alcoholic fatty liver disease (NAFLD) in children remains uncertain. We aimed at determining the long-term outcomes and survival of children with NAFLD.

DESIGN:

Retrospective longitudinal hospital-based cohort study.

PATIENTS:

Sixty-six children with NAFLD (mean age 13.9 (SD 3.9) years) were followed up for up to 20 years with a total of 409.6 person-years of follow-up.

RESULTS:

The metabolic syndrome was present in 19 (29%) children at the time of NAFLD diagnosis with 55 (83%) presenting with at least one feature of the metabolic syndrome including obesity, hypertension, dyslipidaemia and/or hyperglycaemia. Four children with baseline normal fasting glucose developed type 2 diabetes 4-11 years after NAFLD diagnosis. A total of 13 liver biopsies were obtained from five patients over a mean of 41.4 (SD 28.8) months showing progression of fibrosis stage in four children. During follow-up, two children died and two underwent liver transplantation for decompensated cirrhosis. The observed survival free of liver transplantation was significantly shorter in the NAFLD cohort as compared to the expected survival in the general United States population of the same age and sex (log-rank test,  $p < 0.00001$ ), with a standardised mortality ratio of 13.6 (95% confidence interval, 3.8 to 34.8). NAFLD recurred in the allograft in the two cases transplanted, with one patient progressing to cirrhosis and requiring re-transplantation.

CONCLUSIONS:

Children with NAFLD may develop end-stage liver disease with the consequent need for liver transplantation. NAFLD in children seen in a tertiary care centre may be associated with a significantly shorter survival as compared to the general population.

**1181: Venditti EM, Elliot DL, Faith MS, Firrell LS, Giles CM, Goldberg L, Marcus MD, Schneider M, Solomon S, Thompson D, Yin Z; HEALTHY Study Group. Rationale, design and methods of the HEALTHY study behavior intervention component. Int J Obes (Lond). 2009 Aug;33 Suppl 4:S44-51. doi: 10.1038/ijo.2009.116. PubMed PMID: 19623189; PubMed Central PMCID: PMC2747742.**

Abstract

HEALTHY was a multi-center primary prevention trial designed to reduce risk factors for type 2 diabetes in adolescents. Seven centers each recruited six middle schools that were randomized to either intervention or control. The HEALTHY intervention integrated multiple components in nutrition, physical education, behavior change and communications and promotion. The conceptual rationale as well as the design and development of the behavior intervention component are described. Pilot study data informed the development of the behavior intervention component. Principles of social learning and health-related behavior change were incorporated. One element of

the behavior intervention component was a sequence of peer-led, teacher-facilitated learning activities known as FLASH (Fun Learning Activities for Student Health). Five FLASH modules were implemented over five semesters of the HEALTHY study, with the first module delivered in the second semester of the sixth grade and the last module in the second semester of the eighth grade. Each module contained sessions that were designed to be delivered on a weekly basis to foster self-awareness, knowledge, decision-making skills and peer involvement for health behavior change. FLASH behavioral practice incorporated individual and group self-monitoring challenges for eating and activity. Another element of the behavior intervention component was the family outreach strategy for extending changes in physical activity and healthy eating beyond the school day and for supporting the student's lifestyle change choices. Family outreach strategies included the delivery of newsletters and supplemental packages with materials to promote healthy behavior in the home environment during school summer and winter holiday breaks. In conclusion, the HEALTHY behavior intervention component, when integrated with total school food and physical education environmental changes enhanced by communications and promotional campaigns, is a feasible and acceptable mechanism for delivering age-appropriate social learning for healthy eating and physical activity among an ethnically diverse group of middle school students across the United States.

**1182: Shah S, Kublaoui BM, Oden JD, White PC. Screening for type 2 diabetes in obese youth. *Pediatrics*. 2009 Aug;124(2):573-9. doi: 10.1542/peds.2008-2949. Epub 2009 Jul 20. PubMed PMID: 19620188.**

Abstract

OBJECTIVE:

To assess available blood tests as potential screening tools for impaired glucose tolerance (IGT) and type 2 diabetes mellitus (T2DM).

METHODS:

We studied 468 obese (BMI mean: 34.4 kg/m<sup>2</sup>) children, including a subgroup with serum fasting insulin levels of >15 microIU/mL. Fasting laboratory tests included measurements of serum glucose and insulin, hemoglobin A1c (HbA1c), and 1,5-anhydroglucitol (insulin-resistant subgroup only) levels. An oral glucose-tolerance test was performed on each patient, and 2-hour postload serum glucose and insulin levels were obtained. Fasting blood glucose (BG), Homeostasis Model of Assessment for Insulin Resistance (HOMA-IR), HbA1c, and 1,5-anhydroglucitol values were used as predictors for exceeding various 2-hour BG cut-offs. Receiver operator characteristic curves were fitted to determine area-under-the-curve values as measures of screening efficacy.

RESULTS:

In the insulin-resistant subgroup, 3 (2%) patients had T2DM and 23 (12%) had IGT. Optimal sensitivity and specificity to detect T2DM were, respectively, 99% and 96% at HbA1c  $\geq$  6.0%, and 96% and 88% at 1,5-anhydroglucitol < 17.0 microg/mL, with lower values for fasting BG and the HOMA-IR. In the entire study group, 9 (2%) patients had T2DM and 44 (9%) had IGT. Optimal sensitivity and specificity to detect T2DM were, respectively, 86% and 85% at HbA1c levels of 5.7%, 88%, and 93% at a fasting BG level of 104 mg/dL, and 62% and 70% at an HOMA-IR of 7.9.

CONCLUSIONS:

HbA1c, 1,5-anhydroglucitol, and fasting BG levels are good predictors of T2DM in obese children, whereas HOMA-IR values are not. HbA1c and 1,5-anhydroglucitol are excellent predictors of T2DM in insulin-resistant obese children.

**1183: Oza-Frank R, Narayan KM. Overweight and diabetes prevalence among US immigrants. Am J Public Health. 2010 Apr;100(4):661-8. doi: 10.2105/AJPH.2008.149492. Epub 2009 Jul 16. PubMed PMID: 19608956; PubMed Central PMCID: PMC2836348.**

Abstract

OBJECTIVES:

We estimated the prevalence of overweight and diabetes among US immigrants by region of birth.

METHODS:

We analyzed data on 34 456 US immigrant adults from the National Health Interview Survey, pooling years 1997 to 2005. We estimated age- and gender-adjusted and multivariable-adjusted overweight and diabetes prevalence by region of birth using logistic regression.

RESULTS:

Both men (odds ratio [OR] = 3.3; 95% confidence interval [CI] = 1.9, 5.8) and women (OR = 4.2; 95% CI = 2.3, 7.7) from the Indian subcontinent were more likely than were European migrants to have diabetes without corresponding increased risk of being overweight. Men and women from Mexico, Central America, or the Caribbean were more likely to be overweight (men: OR = 1.5; 95% CI = 1.3, 1.7; women: OR = 2.0; 95% CI = 1.7, 2.2) and to have diabetes (men: OR = 2.0; 95% CI = 1.4, 2.9; women: OR = 2.0; 95% CI = 1.4, 2.8) than were European migrants.

CONCLUSIONS:

Considerable heterogeneity in both prevalence of overweight and diabetes by region of birth highlights the importance of making this distinction among US immigrants to better identify subgroups with higher risks of these conditions.

**1184: Kuo T, Jarosz CJ, Simon P, Fielding JE. Menu labeling as a potential strategy for combating the obesity epidemic: a health impact assessment. Am J Public Health. 2009 Sep;99(9):1680-6. doi: 10.2105/AJPH.2008.153023. Epub 2009 Jul 16. PubMed PMID: 19608944; PubMed Central PMCID: PMC2724462.**

Abstract

OBJECTIVES:

We conducted a health impact assessment to quantify the potential impact of a state menu-labeling law on population weight gain in Los Angeles County, California.

METHODS:

We utilized published and unpublished data to model consumer response to point-of-purchase calorie postings at large chain restaurants in Los Angeles County. We conducted sensitivity analyses to account for uncertainty in consumer response and in the total annual revenue, market share, and average meal price of large chain restaurants in the county.

RESULTS:

Assuming that 10% of the restaurant patrons would order reduced-calorie meals in response to calorie postings, resulting in an average reduction of 100 calories per meal, we estimated that menu labeling would avert 40.6% of the 6.75 million pound average annual weight gain in the county population aged 5 years and older. Substantially larger impacts would be realized if higher percentages of patrons ordered reduced-calorie meals or if average per-meal calorie reductions increased.

CONCLUSIONS:



Our findings suggest that mandated menu labeling could have a sizable salutary impact on the obesity epidemic, even with only modest changes in consumer behavior.

**1185: Gordon-Larsen P, Boone-Heinonen J, Sidney S, Sternfeld B, Jacobs DR Jr, Lewis CE. Active commuting and cardiovascular disease risk: the CARDIA study. Arch Intern Med. 2009 Jul 13;169(13):1216-23. doi: 10.1001/archinternmed.2009.163. PubMed PMID: 19597071; PubMed Central PMCID: PMC2736383.**

#### Abstract

##### BACKGROUND:

There is little research on the association of lifestyle exercise, such as active commuting (walking or biking to work), with obesity, fitness, and cardiovascular disease (CVD) risk factors.

##### METHODS:

This cross-sectional study included 2364 participants enrolled in the Coronary Artery Risk Development in Young Adults (CARDIA) study who worked outside the home during year 20 of the study (2005-2006). Associations between walking or biking to work (self-reported time, distance, and mode of commuting) with body weight (measured height and weight); obesity (body mass index [BMI], calculated as weight in kilograms divided by height in meters squared,  $\geq 30$ ); fitness (symptom-limited exercise stress testing); objective moderate-vigorous physical activity (accelerometry); CVD risk factors (blood pressure [oscillometric systolic and diastolic]); and serum measures (fasting measures of lipid, glucose, and insulin levels) were separately assessed by sex-stratified multivariable linear (or logistic) regression modeling.

##### RESULTS:

A total of 16.7% of participants used any means of active commuting to work. Controlling for age, race, income, education, smoking, examination center, and physical activity index excluding walking, men with any active commuting (vs none) had reduced likelihood of obesity (odds ratio [OR], 0.50; 95% confidence interval [CI], 0.33-0.76), reduced CVD risk: ratio of geometric mean triglyceride levels ( $\text{trig(active)}/\text{trig(nonactive)}$ ) = 0.88 (95% CI, 0.80 to 0.98); ratio of geometric mean fasting insulin ( $\text{FI(active)}/\text{FI(nonactive)}$ ) = 0.86 (95% CI, 0.78 to 0.93); difference in mean diastolic blood pressure (millimeters of mercury) ( $\text{DBP(active)} - \text{DBP(nonactive)}$ ) = -1.67 (95% CI, -3.20 to -0.15); and higher fitness: mean difference in treadmill test duration (in seconds) in men ( $\text{TT(active)} - \text{TT(nonactive)}$ ) = 50.0 (95% CI, 31.45 to 68.59) and women ( $\text{TT(active)} - \text{TT(nonactive)}$ ) = 28.77 (95% CI, 11.61 to 45.92).

##### CONCLUSIONS:

Active commuting was positively associated with fitness in men and women and inversely associated with BMI, obesity, triglyceride levels, blood pressure, and insulin level in men. Active commuting should be investigated as a modality for maintaining or improving health.

**1186: Fuemmeler BF, Dedert E, McClernon FJ, Beckham JC. Adverse childhood events are associated with obesity and disordered eating: results from a U.S. population-based survey of young adults. J Trauma Stress. 2009 Aug;22(4):329-33. doi: 10.1002/jts.20421. PubMed PMID: 19588510; PubMed Central PMCID: PMC2748336.**

Abstract

The authors investigated the relationship between childhood abuse and obesity in young adulthood (M age = 22) in a large, U.S. representative sample (N = 15,197). Controlling for demographics and depression, men with a history of childhood sexual abuse were at increased risk of overweight and obesity. No association between childhood abuse and obesity or overweight was observed for women in this sample. Higher percentages of skipping meals to lose weight and problematic eating were observed among women with a history of physical abuse. This is the first study to note an association between childhood abuse with obesity and problematic weight management behaviors in a sample of young adults.

**1187: Ujcic-Voortman JK, Schram MT, Jacobs-van der Bruggen MA, Verhoeff AP, Baan CA. Diabetes prevalence and risk factors among ethnic minorities. Eur J Public Health. 2009 Oct;19(5):511-5. doi: 10.1093/eurpub/ckp096. Epub 2009 Jul 8. PubMed PMID: 19587231.**

Abstract

BACKGROUND:

Ethnic minorities living in Western societies may have a higher prevalence of diabetes. We investigated whether the prevalence of diabetes among Turkish and Moroccan migrants differs from the indigenous urban population in the Netherlands, and whether these differences can be explained by differences in risk factors.

METHODS:

In 2004 a general health survey, stratified by ethnicity and age, was carried out among the population of Amsterdam. The current study included 375 Turkish, 314 Moroccan and 417 Dutch individuals aged 18-70 years. Participants underwent a physical examination and a health interview. Diabetes was based on self-report, the use of anti-diabetic medicine, blood glucose levels and HbA1c.

RESULTS:

The prevalence of diabetes in the Amsterdam population was significantly higher in Turkish (5.6%) and Moroccan (8.0%), compared to Dutch individuals (3.1%). These differences, which were much larger after adjustment for age, were only partly explained by the lower socioeconomic status and higher frequency of obesity among ethnic minorities. The difference between Dutch and Moroccan individuals remained significant even after adjustments for multiple risk factors. The typical age of onset of diabetes in both Turks and Moroccans is respectively one and two decades younger than in the indigenous population.

CONCLUSION:

Diabetes is more prevalent among Turkish and Moroccan migrants as compared to the indigenous population. Only part of this difference can be explained by differences in demographic and lifestyle risk factors.

**1188: Harrington J, Perry IJ, Lutomski J, Fitzgerald AP, Shiely F, McGee H, Barry MM, Van Lente E, Morgan K, Shelley E. Living longer and feeling better: healthy lifestyle, self-rated health, obesity and depression in Ireland. Eur J Public Health. 2010 Feb;20(1):91-5. doi: 10.1093/eurpub/ckp102. Epub 2009 Jul 8. PubMed PMID: 19587230.**

Abstract

BACKGROUND:

The combination of four protective lifestyle behaviours (being physically active, a non-smoker, a moderate alcohol consumer and having adequate fruit and vegetable intake) has been estimated to increase life expectancy by 14 years. However, the effect of adopting these lifestyle behaviours on general health, obesity and mental health is less defined. We examined the combined effect of these behaviours on self-rated health, overweight/obesity and depression.

METHODS:

Using data from the Survey of Lifestyle Attitudes and Nutrition (SLAN) 2007 (), a protective lifestyle behaviour (PLB) score was constructed for 10,364 men and women (>18 years), and representative of the Republic of Ireland adult population (response rate 62%). Respondents scored a maximum of four points, one point each for being physically active, consuming five or more fruit and vegetable servings daily, a non-smoker and a moderate drinker.

RESULTS:

One-fifth of respondents (20%) adopted four PLBs, 35% adopted three, 29% two, 13% one and 2% adopted none. Compared to those with zero PLBs, those with four were seven times more likely to rate their general health as excellent/very good [OR 6.8 95% CI (3.64-12.82)] and four times more likely to have better mental health [OR 4.4 95% CI (2.34-8.22)].

CONCLUSIONS:

Adoption of core protective lifestyle factors known to increase life expectancy is associated with positive self-rated health, healthier weight and better mental health. These lifestyles have the potential to add quality and quantity to life.

**1189: McAlexander KM, Banda JA, McAlexander JW, Lee RE. Physical activity resource attributes and obesity in low-income African Americans. J Urban Health. 2009 Sep;86(5):696-707. doi: 10.1007/s11524-009-9385-0. Epub 2009 Jul 8. PubMed PMID: 19585244; PubMed Central PMCID: PMC2729871.**

Abstract

More than two thirds of Americans are overweight or obese, and African Americans are particularly vulnerable to obesity when compared to Caucasians. Ecological models of health suggest that lower individual and environmental socioeconomic status and the built environment may be related to health attitudes and behaviors that contribute to obesity. This cross-sectional study measured the direct associations of neighborhood physical activity resource attributes with body mass index (BMI) and body fat among low-income 216 African Americans (Mean (M) age = 43.5 years, 63.9% female) residing in 12 public housing developments. The Physical Activity Resource Assessment instrument measured accessibility, incivilities, and the quality of features and amenities of each physical activity resource within an 800-m radius around each housing development. Sidewalk connectivity was measured using the Pedestrian Environment Data Scan instrument. Ecological multivariate regression models analyzed the associations between the built environment attributes and resident BMI and

body fat at the neighborhood level. Sidewalk connectivity was associated with BMI ( $M = 31.3 \text{ kg/m}^2$ ;  $p < 0.05$ ). Sidewalk connectivity and resource accessibility were associated with body fat percentage ( $M = 34.8\%$ ,  $p < 0.05$ ). Physical activity resource attributes and neighborhood sidewalk connectivity were related to BMI and body fat among low-income African Americans living in housing developments.

**1190: Skelton JA, Cook SR, Auinger P, Klein JD, Barlow SE. Prevalence and trends of severe obesity among US children and adolescents. Acad Pediatr. 2009 Sep-Oct;9(5):322-9. doi: 10.1016/j.acap.2009.04.005. Epub 2009 Jun 27. PubMed PMID: 19560993; PubMed Central PMCID: PMC2746875.**

Abstract

OBJECTIVE:

To determine the extent to which the 2007 definitions for severe obesity (body mass index [BMI]  $\geq$  99th percentile for age and gender) and morbid obesity (BMI  $\geq 40 \text{ kg/m}^2$ ) affects different groups of American children and adolescents and has increased over time.

METHODS:

Analysis of nationally representative data from the National Health and Nutrition Examination Survey (NHANES) II, III, and 1999-2004; 12 384 US children and adolescents ages 2 to 19 years were included in the analysis. Outcome measures were the proportion of subjects with severe and morbid obesity, with age, gender, race, and poverty-income ratio (PIR) as key variables.

RESULTS:

In 1999-2004, 3.8% of children 2 to 19 years old had a BMI in the  $\geq$  99th percentile, with higher prevalence among boys than girls (4.6% vs 2.9%;  $P < .001$ ). Prevalence was highest among blacks, 5.7% and Mexican Americans, 5.2%, compared with whites, 3.1% ( $P < .001$ ). The prevalence differed by the PIR category as well (4.3% for those with PIR  $\leq 3$  vs 2.5% for those with PIR  $> 3$ ;  $P = .002$ ). BMI  $\geq 40 \text{ kg/m}^2$  was found in 1.3% of adolescents ages 12 to 19 years, with similar associations with race and poverty. The overall prevalence of BMI  $\geq$  99th percentile has increased by more than 300% since NHANES II (1976), and over 70% since NHANES III (1994) in children 2 to 19 years of age.

CONCLUSIONS:

Rates of severe childhood obesity have tripled in the last 25 years, with significant differences by race, gender, and poverty. This places demands on health care and community services, especially because the highest rates are among children who are frequently underserved by the health care system.

**1191: Gunderson EP, Jacobs DR Jr, Chiang V, Lewis CE, Tsai A, Quesenberry CP Jr, Sidney S. Childbearing is associated with higher incidence of the metabolic syndrome among women of reproductive age controlling for measurements before pregnancy: the CARDIA study. Am J Obstet Gynecol. 2009 Aug;201(2):177.e1-9. doi: 10.1016/j.ajog.2009.03.031. Epub 2009 Jun 26. PubMed PMID: 19560114; PubMed Central PMCID: PMC2807822.**

Abstract

OBJECTIVE:

We sought to prospectively examine whether childbearing is associated with higher incidence of the metabolic syndrome (MetS) after delivery among women of reproductive age.

STUDY DESIGN:

In 1451 nulliparas who were aged 18-30 years and free of the MetS at baseline (1985-1986) and reexamined up to 4 times during 20 years, we ascertained incident MetS defined by the National Cholesterol Education Program Adult Treatment Panel III criteria among time-dependent interim birth groups by gestational diabetes mellitus (GDM): (0 [referent], 1 non-GDM, 2+ non-GDM, 1+ GDM births). Complementary log-log models estimated relative hazards of the MetS among birth groups adjusted for race, age, and baseline and follow-up covariates.

RESULTS:

We identified 259 incident MetS cases in 25,246 person-years (10.3/1000 person-years). Compared with 0 births, adjusted relative hazards (95% confidence interval [CI]) were 1.33 (95% CI, 0.93-1.90) for 1 non-GDM, 1.62 (95% CI, 1.16-2.26) for 2+ non-GDM (P trend = .02), and 2.43 (95% CI, 1.53-3.86) for 1+ GDM births.

CONCLUSION:

Increasing parity is associated with future development of the MetS independent of prior obesity and pregnancy-related weight gain. Risk varies by GDM status.

**1192: Skidmore PM, Cassidy A, Swaminathan R, Richards JB, Mangino M, Spector TD, MacGregor AJ. An obesogenic postnatal environment is more important than the fetal environment for the development of adult adiposity: a study of female twins. Am J Clin Nutr. 2009 Aug;90(2):401-6. doi: 10.3945/ajcn.2008.27269. Epub 2009 Jun 24. PubMed PMID: 19553297.**

Abstract

BACKGROUND:

A relation between birth weight and adult body composition has been reported in singleton populations, especially when more accurate measures of body composition, such as dual-energy X-ray absorptiometry (DXA) were used. It remains uncertain whether this is mediated by a direct effect of fetal nutrition, through factors in the shared environment, or through genetic factors.

OBJECTIVE:

The objective was to investigate the relation between birth weight and body composition with the use of a co-twin design.

DESIGN:

DXA measurements and birth weights were available for 2228 dizygotic and 842 monozygotic female twins aged between 18 and 80 y. Multivariate regression models were used to identify both individual specific relations and those mediated through the shared environment.

#### RESULTS:

Significant relations were found between birth weight and DXA measures for individuals. A 1-kg increase in birth weight was associated with a 1.72-kg increase in lean mass, a 0.25-kg increase in fat mass, and a 0.05-unit increase in the lean:fat mass ratio. Within twin pairs, the analysis showed that associations between birth weight and absolute levels of lean and fat mass were mediated through individual-specific effects, whereas the relation between birth weight and the proportion of lean to fat mass was mediated purely through factors common to twin pairs.

#### CONCLUSIONS:

A higher birth weight is associated with a higher proportion of lean to fat mass as adults. However, these analyses suggest that this association is not determined by individual specific factors in utero (eg, fetal nutrition) but through factors in the shared common environment of the twins.

**1194: Tikkinen KA, Auvinen A, Johnson TM 2nd, Weiss JP, Keränen T, Tiitinen A, Polo O, Partinen M, Tammela TL. A systematic evaluation of factors associated with nocturia--the population-based FINNO study. Am J Epidemiol. 2009 Aug 1;170(3):361-8. doi: 10.1093/aje/kwp133. Epub 2009 Jun 10. PubMed PMID: 19515794; PubMed Central PMCID: PMC2714949.**

#### Abstract

In a case-control study with prevalence sampling, the authors explored the correlates for nocturia and their population-level impact. In 2003-2004, questionnaires were mailed to 6,000 subjects (aged 18-79 years) randomly identified from the Finnish Population Register (62.4% participated; 53.7% were female). Questionnaires contained items on medical conditions, medications, lifestyle, sociodemographic and reproductive factors, urinary symptoms, and snoring. Nocturia was defined as > or =2 voids/night. In age-adjusted analyses, factors associated with nocturia were entered into a multivariate model. Backward elimination was used to select variables for the final model, with adjustment for confounding. Although numerous correlates were identified, none affected > or =50% of nocturia cases of both sexes. The factors with the greatest impact at the population level were (urinary) urgency (attributable number/1,000 subjects (AN) = 24), benign prostatic hyperplasia (AN = 19), and snoring (AN = 16) for men and overweight and obesity (AN = 40), urgency (AN = 24), and snoring (AN = 17) for women. Moreover, correlates included prostate cancer and antidepressant use for men, coronary artery disease and diabetes for women, and restless legs syndrome and obesity for both sexes. Although several correlates were identified, none accounted for a substantial proportion of the population burden, highlighting the multifactorial etiology of nocturia.

**1195: Böttcher Y, Unbehauen H, Klötting N, Ruschke K, Körner A, Schleinitz D, Tönjes A, Enigk B, Wolf S, Dietrich K, Koriath M, Scholz GH, Tseng YH, Dietrich A, Schön MR, Kiess W, Stumvoll M, Blüher M, Kovacs P. Adipose tissue expression and genetic variants of the bone morphogenetic protein receptor 1A gene (BMPR1A) are associated with human obesity. *Diabetes*. 2009 Sep;58(9):2119-28. doi: 10.2337/db08-1458. Epub 2009 Jun 5. PubMed PMID: 19502417; PubMed Central PMCID: PMC2731538.**

Abstract

OBJECTIVE:

Members of the family of bone morphogenetic proteins (BMPs) are important regulators of adipogenesis. We examined the role of the BMP receptor 1A gene (BMPR1A) in the pathophysiology of human obesity.

RESEARCH DESIGN AND METHODS:

We measured BMPR1A mRNA expression in paired samples of visceral and subcutaneous adipose tissue from 297 subjects and sequenced the BMPR1A in 48 nonrelated white subjects. Twenty-one representative variants including HapMap tagging single nucleotide polymorphisms (SNPs) were then genotyped for association studies in German whites (n = 1,907). For replication analyses, we used a population of Sorbs from Germany (n = 900) and German childhood cohorts (n = 1,029 schoolchildren and 270 obese children).

RESULTS:

mRNA expression of the BMPR1A was significantly increased in both visceral and subcutaneous adipose tissue of overweight and obese subjects compared with lean subjects (P < 0.05). In a case-control study, four SNPs (rs7095025, rs11202222, rs10788528, and rs7922846) were nominally associated with obesity (adjusted P < 0.05). For three SNPs (rs7095025, rs11202222, and rs10788528), the association with obesity was confirmed in the independent cohort of Sorbs (adjusted P < 0.005). Consistent with this, BMPR1A SNPs were nominally associated with obesity-related quantitative traits in nondiabetic subjects in both adult cohorts. Furthermore, homozygous carriers of the obesity risk alleles had higher BMPR1A mRNA expression in fat than noncarriers.

CONCLUSIONS:

Our data suggest that genetic variation in the BMPR1A may play a role in the pathophysiology of human obesity, possibly mediated through effects on mRNA expression.

**1196: Roehrig M, Masheb RM, White MA, Rothschild BS, Burke-Martindale CH, Grilo CM. Chronic dieting among extremely obese bariatric surgery candidates. *Obes Surg*. 2009 Aug;19(8):1116-23. doi: 10.1007/s11695-009-9865-z. Epub 2009 Jun 3. PubMed PMID: 19495894; PubMed Central PMCID: PMC3671950.**

Abstract

BACKGROUND:

Extremely obese bariatric surgery candidates report numerous episodes of both successful and unsuccessful dieting attempts, but little is known about the clinical significance of frequent dieting attempts in this patient group.

METHODS:

The current study examined psychological and weight-related correlates of self-reported dieting frequency in 219 bariatric surgery candidates (29 men and 190 women). Prior to surgery, patients

completed a battery of established self-report assessments. Patients were dichotomized into chronic dieters (n=109) and intermittent dieters (n=110) based on a median split of self-reported percent time spent dieting during adulthood. The two dieting groups were compared on demographics, eating and weight history, eating disorder psychopathology, and global functioning.

**RESULTS:**

Chronic dieters had significantly lower pre-operative body mass indexes (BMIs), lower highest-ever BMIs, more episodes of weight cycling, and earlier ages of onset for overweight and dieting than intermittent dieters. After controlling for differences in BMI, chronic dieters were found to have statistically but not clinically significant elevations in eating concerns, dietary restraint, and body dissatisfaction than infrequent dieters. The two groups, however, did not differ significantly on depressive symptoms, self-esteem, or health-related quality of life; nor did they differ in binge-eating status.

**CONCLUSIONS:**

Chronic dieting is commonly reported among extremely obese bariatric candidates and is not associated with poorer psychological functioning or binge eating and may be beneficial in attenuating even greater weight gain. Our findings provide preliminary data to suggest that requiring additional presurgical weight loss attempts may not be warranted for the vast majority of extremely obese bariatric candidates.

**1197: Daniels ZS, Nick TG, Liu C, Cassedy A, Glauser TA. Obesity is a common comorbidity for pediatric patients with untreated, newly diagnosed epilepsy.**

**Neurology. 2009 Sep 1;73(9):658-64. doi: 10.1212/WNL.0b013e3181ab2b11. Epub 2009**

**May 27. PubMed PMID: 19474413; PubMed Central PMCID: PMC2734289.**

**Abstract**

**OBJECTIVE:**

This study aimed to determine the frequency and factors associated with obesity in a cohort of children and adolescents with newly diagnosed untreated epilepsy.

**METHODS:**

Body mass index (BMI) Z-scores and percentiles, both adjusted for age, were used as measures for obesity. Potential covariates associated with these BMI measures included age, etiology (cryptogenic, idiopathic, symptomatic), seizure type (generalized, partial, unclear), concomitant medications (stimulants, nonstimulants, none), and insurance status (privately insured, Medicaid). The primary analysis compared the epilepsy patients' BMI Z-scores to Centers for Disease Control and Prevention data for healthy children. The secondary analysis compared the epilepsy patients' BMI Z-scores to those of a regional healthy control group. Additional analyses incorporated the secondary outcome measure BMI percentiles indexed for age.

**RESULTS:**

Children with newly diagnosed untreated epilepsy had higher BMI Z-scores compared to standard CDC growth charts ( $p < 0.0001$ ) and the healthy control cohort ( $p = 0.0002$ ) specifically at both of the 2 tail ends of the distribution. Overall, 38.6% of the epilepsy cohort were overweight or obese (BMI  $>$  or  $=$ 85th percentile for age). Differences in age, etiology, and concomitant nonepilepsy medications were significantly associated with variability in age-adjusted BMI Z-score. Patients in adolescence had higher adjusted BMI Z-scores than younger patients. Patients with symptomatic epilepsy had lower adjusted BMI Z-scores than patients with idiopathic epilepsy. Patients on stimulant psychotropics exhibited lower adjusted BMI Z-scores than patients on no medication.



CONCLUSION:

Obesity is a common comorbidity in children with newly diagnosed untreated epilepsy and correlates with increasing age, idiopathic etiology, and absence of concomitant medication.

**1198: de Castro AB, Gee GC, Takeuchi DT. Examining alternative measures of social disadvantage among Asian Americans: the relevance of economic opportunity, subjective social status, and financial strain for health. *J Immigr Minor Health*. 2010 Oct;12(5):659-71. doi: 10.1007/s10903-009-9258-3. PubMed PMID: 19434494; PubMed Central PMCID: PMC2891922.**

Abstract

Socioeconomic position is often operationalized as education, occupation, and income. However, these measures may not fully capture the process of socioeconomic disadvantage that may be related to morbidity. Economic opportunity, subjective social status, and financial strain may also place individuals at risk for poor health outcomes. Data come from the Asian subsample of the 2003 National Latino and Asian American Study (n = 2095). Regression models were used to examine the associations between economic opportunity, subjective social status, and financial strain and the outcomes of self-rated health, body mass index, and smoking status. Education, occupation, and income were also investigated as correlates of these outcomes. Low correlations were observed between all measures of socioeconomic status. Economic opportunity was robustly negatively associated with poor self-rated health, higher body mass index, and smoking, followed by financial strain, then subjective social status. Findings show that markers of socioeconomic position beyond education, occupation, and income are related to morbidity among Asian Americans. This suggests that potential contributions of social disadvantage to poor health may be understated if only conventional measures are considered among immigrant and minority populations.

**1199: Premanath M, Basavanagowdappa H, Shekar MA, Vikram SB, Narayanappa D. Mysore childhood obesity study. *Indian Pediatr*. 2010 Feb;47(2):171-3. Epub 2009 Apr 15. PubMed PMID: 19430069.**

Abstract

We conducted this study to document the prevalence of obesity, overweight and underweight in the school children aged 5 to 16 years from Mysore. 5 Principal Investigators and 13 Co-Investigators trained the teachers of 139 schools (Private--111, Govt--28) to record the vital statistics of the children studying in their schools. A total of 43,152 school children (23,527 boys and 19,625 girls) were surveyed. 36,354 children were from private schools and 6798 children were from Government (Govt) schools. Indian Academy of Pediatrics growth charts were used as reference. The prevalence of obesity, overweight and underweight were 3.4%, 8.5% and 17.2%, respectively. The prevalence of obesity was maximum in the age group of 5-7 years and in those from private schools.

**1201: Falkner B. Hypertension in children and adolescents: epidemiology and natural history. *Pediatr Nephrol.* 2010 Jul;25(7):1219-24. doi: 10.1007/s00467-009-1200-3. Epub 2009 May 7. Review. PubMed PMID: 19421783; PubMed Central PMCID: PMC2874036.**

Abstract

Primary hypertension is detectable in children and adolescents and, as in adults, is associated with a positive family history of hypertension, obesity, and life-style factors. Owing to the well-established childhood obesity epidemic, the population prevalence of high blood pressure (BP) in the young is increasing. Hypertension in childhood is commonly associated with other cardiovascular risk factors as well as obesity. Although death and cardiovascular disability do not occur in hypertensive children, intermediate markers of target organ damage, such as left ventricular hypertrophy, thickening of the carotid vessel wall, retinal vascular changes, and even subtle cognitive changes, are detectable in children and adolescents with high BP. Considering the rates of verified hypertension (>3%) and pre-hypertension (>3%) in asymptomatic children and adolescents, high BP should be considered a common long-term health problem in childhood.

**1202: Sisson SB, Katzmarzyk PT, Srinivasan SR, Chen W, Freedman DS, Bouchard C, Berenson GS. Ethnic differences in subcutaneous adiposity and waist girth in children and adolescents. *Obesity (Silver Spring).* 2009 Nov;17(11):2075-81. doi: 10.1038/oby.2009.132. Epub 2009 Apr 23. PubMed PMID: 19390519; PubMed Central PMCID: PMC2783504.**

Abstract

The purpose of this study was to examine ethnic differences in adiposity as measured by sum of skinfolds (SKF) and waist circumference (WC) in children and adolescents, after statistical adjustment for the BMI and age. A cross sectional sample of 3,218 (55% white, 49% male) children and adolescents aged 5-18 years who participated in the Bogalusa Heart Study (1992-1994) were included in these analyses. Sex-specific ANOVAs, adjusted for BMI and age, for each 2-year age group compared measures of adiposity (SKF and WC) between ethnic groups. No significant differences in the proportions of children and adolescents who were overweight and obese by ethnicity or sex were found. Mean SKF in normal weight ( $P < 0.0001$ ) and overweight ( $P < 0.0001$ ) categories was higher for white than black children of both sexes. Across most age categories, white boys and girls had significantly higher SKF than black boys and girls, respectively ( $P \leq 0.05$ ). Across most age categories, white boys had significantly higher WC than black boys ( $P \leq 0.05$ ) with no difference in the girls, when adjusted for BMI and age. Measures of adiposity in childhood and adolescence were significantly higher in white children compared to black children, when adjusted for BMI and age. Throughout childhood and adolescence, white boys and girls had higher SKF and white boys had higher WC. Differences in adiposity between ethnic groups should be considered in disease risk assessment and stratification as they are observed even for a given BMI level.

**1203: Jackson AS, Ellis KJ, McFarlin BK, Sailors MH, Bray MS. Body mass index bias in defining obesity of diverse young adults: the Training Intervention and Genetics of Exercise Response (TIGER) study. Br J Nutr. 2009 Oct;102(7):1084-90. doi: 10.1017/S0007114509325738. Epub 2009 Apr 6. PubMed PMID: 19344545; PubMed Central PMCID: PMC2873180.**

Abstract

The BMI cut-score used to define overweight and obesity was derived primarily using data from Caucasian men and women. The present study evaluated the racial/ethnic bias of BMI to estimate the adiposity of young men and women (aged 17-35 years) using dual-energy X-ray absorptiometry (DXA) determination of percentage body fat (DXA-BF%) as the referent standard. The samples were 806 women and 509 men who were tested from one to three times over 9 months providing 1300 observations for women and 820 observations for men. Linear mixed models (LMM) regression showed that with age and BMI controlled, DXA-BF% of African-American (AA) men and women, Asian-Indian men and women, Hispanic women and Asian women significantly differed from non-Hispanic white (NHW) men and women. For the same BMI of NHW women, the DXA-BF% of AA women was 1.76 % lower, but higher for Hispanic (1.65 %), Asian (2.65 %) and Asian-Indian (5.98 %) women. For the same BMI of NHW men, DXA-BF% of AA men was 4.59 % lower and 4.29 % higher for Asian-Indian men. Using the recommended BMI cut-scores to define overweight and obesity systematically overestimated overweight and obesity prevalence for AA men and women, and underestimated prevalence for Asian-Indian men and women, Asian women and Hispanic women. The present study extends the generalisability of research documenting the racial/ethnic bias of the universal overweight and obesity BMI cut-scores.

**1204: Jia H, Lubetkin EI. The statewide burden of obesity, smoking, low income and chronic diseases in the United States. J Public Health (Oxf). 2009 Dec;31(4):496-505. doi: 10.1093/pubmed/fdp012. Epub 2009 Feb 27. PubMed PMID: 19251766.**

Abstract

BACKGROUND:

We developed an estimation equation of EuroQoL EQ-5D index scores from the Healthy Days measures of the Centers for Disease Control and Prevention for use in burden of disease and cost-effectiveness studies in population subgroups. This study estimated EQ-5D scores, quality-adjusted life years (QALYs) and quality-adjusted life expectancy (QALE) for the USA and the individual states.

METHODS:

We estimated the EQ-5D scores for respondents from the 2000-2003 Behavioral Risk Factor Surveillance System. We calculated QALYs and QALE lost to morbidity due to obesity/overweight, smoking, low income and chronic diseases.

RESULTS:

The mean EQ-5D score for US adults was 0.870. The mean scores ranged from 0.826 (West Virginia) to 0.902 (Hawaii). Smoking contributed from 5.6 (Utah) to 12.3 (Kentucky) percent, obesity/overweight 5.4 (South Dakota) to 13.8 (Louisiana) percent, low income 16.6 (Hawaii) to 39.9 (South Carolina) percent and chronic diseases 8.7 (Minnesota) to 22.9 (Tennessee) percent of explainable QALYs lost. These risks contributed the greatest proportion of explainable QALYs and QALE lost in Kentucky, Tennessee and South Carolina.

#### CONCLUSIONS:

We estimated the burden of disease contributed by selected risk factors. Currently, such data are unavailable but are needed to set targets for reducing modifiable health risks and eliminating health disparities among at-risk populations.

**1205: Lajous M, Chavarro J, Peterson KE, Hernández-Prado B, Cruz-Valdéz A, Hernández-Avila M, Lazcano-Ponce E. Screen time and adiposity in adolescents in Mexico. Public Health Nutr. 2009 Oct;12(10):1938-45. doi: 10.1017/S1368980009004881. Epub 2009 Feb 23. PubMed PMID: 19232154; PubMed Central PMCID: PMC3968312.**

#### Abstract

##### OBJECTIVE:

To assess the association of time spent viewing television, videos and video games with measures of fat mass (BMI) and distribution (triceps and subscapular skinfold thicknesses (TSF, SSF)).

##### DESIGN:

Cross-sectional validated survey, self-administered to students to assess screen time (television, videos and video games) and lifestyle variables. Trained personnel obtained anthropometry. The association of screen time with fat mass and distribution, stratified by sex, was modelled with multivariable linear regression analysis, adjusting for potential confounders and correlation of observations within schools.

##### SETTING:

State of Morelos, Mexico.

##### SUBJECTS:

Males (n 3519) and females (n 5613) aged 11 to 18 years attending urban and rural schools in Morelos.

##### RESULTS:

In males, screen time of >5 h/d compared with <2 h/d was significantly associated with a 0.13 (95% CI 0.04, 0.23) higher BMI Z-score, 0.73 mm (95% CI 0.24, 1.22) higher SSF and 1.08 mm (95% CI 0.36, 1.81) higher TSF. The positive association of screen time with SSF was strongest in males aged 11-12 years. Sexual maturity appeared to modify the association in females; a positive association between screen time and SSF was observed in those who had not undergone menarche (P for trend = 0.04) but not among sexually mature females (P for trend = 0.75).

##### CONCLUSION:

Screen time is associated with fat mass and distribution among adolescent males in Mexico. Maturation tempo appears to affect the relationship of screen time with adiposity in boys and girls. Findings suggest that obesity preventive interventions in the Mexican context should explore strategies to reduce screen time among youths in early adolescence.

**1207: Polotsky AJ, Hailpern SM, Skurnick JH, Lo JC, Sternfeld B, Santoro N. Association of adolescent obesity and lifetime nulliparity--the Study of Women's Health Across the Nation (SWAN). Fertil Steril. 2010 Apr;93(6):2004-11. doi: 10.1016/j.fertnstert.2008.12.059. Epub 2009 Jan 30. PubMed PMID: 19185860; PubMed Central PMCID: PMC2891509.**

Abstract

OBJECTIVE:

To evaluate whether adolescent obesity is associated with difficulties in becoming pregnant later in life.

DESIGN:

Cross-sectional analysis of baseline data from a longitudinal cohort.

SETTING:

Multiethnic, community-based observational study of U.S. women.

PATIENT(S):

Three thousand one hundred fifty-four midlife women.

MAIN OUTCOME MEASURE(S):

Lifetime nulliparity and lifetime nulligravidity.

RESULT(S):

Five hundred twenty-seven women (16.7%) women had never delivered a baby. Participants were categorized by self-reported high school body mass index (BMI): underweight (<18.5 kg/m<sup>2</sup>), normal (18.5-24.9 kg/m<sup>2</sup>), overweight (25-29.9 kg/m<sup>2</sup>), and obese (>30 kg/m<sup>2</sup>). The prevalence of lifetime nulliparity increased progressively across the high school BMI categories: 12.7%, 16.7%, 19.2%, and 30.9%, respectively. Multivariable logistic regression analysis confirmed that women who were obese adolescents had significantly higher odds of remaining childless compared with normal weight women (odds ratio [OR] 2.84; 95% confidence interval [CI], 1.59-5.10) after adjusting for adult BMI, history of nongestational amenorrhea, marital status, ethnicity, study site, and measures of socioeconomic status. Furthermore, adolescent obesity was associated with lifetime nulligravidity (OR = 3.93; 95% CI, 2.12-7.26).

CONCLUSION(S):

Adolescent obesity is associated with lifetime nulliparity and nulligravidity in midlife U.S. women.

**1208: Thunfors P, Collins BN, Hanlon AL. Health behavior interests of adolescents with unhealthy diet and exercise: implications for weight management. Health Educ Res. 2009 Aug;24(4):634-45. doi: 10.1093/her/cyn064. Epub 2009 Jan 30. PubMed PMID: 19181908.**

Abstract

This study sought to determine individual factors that may influence adolescents' interests in various health behaviors and, by extension, their potential interest in programs that promote healthy lifestyles and reduce obesity. The sample consisted of 737 rural Pennsylvania (United States) middle and high school students not involved in either healthy exercise or dietary behaviors (a target group for health-promoting interventions). Participants completed a self-report measure of their general health functioning, including their interests in sports programs, outdoor recreation programs, weightlifting, weight loss and healthy eating/cooking. Nurses measured body mass indices (BMIs). The vast majority of the sample endorsed self-efficacy in healthy eating and physical activity, and this

self-efficacy was associated with interest in a healthy diet and outdoor recreation. Interest in healthy activities was consistently higher among 7th graders (age mean = 12.6 years) than 11th graders (age mean = 16.3 years). Females were more interested in weight loss and healthy eating/cooking, whereas males were more interested in weightlifting. Higher BMI only predicted interest in weight loss. These results indicate that adolescent health interests vary on the basis of their gender, grade level, BMI and self-efficacy. These trends are potentially important to consider when seeking to match intervention programs to adolescent interests.

**1209: Krause KM, Ostbye T, Swamy GK. Occurrence and correlates of postpartum depression in overweight and obese women: results from the active mothers postpartum (AMP) study. *Matern Child Health J.* 2009 Nov;13(6):832-8. doi: 10.1007/s10995-008-0418-1. Epub 2008 Oct 4. PubMed PMID: 18836820; PubMed Central PMCID: PMC2909871.**

Abstract

OBJECTIVE:

Postpartum depression (PPD) is a significant concern for new mothers and their infants, as well as the health professionals who care for them. Obesity may be a risk factor for depression, and therefore, for PPD specifically. We examined the occurrence and risk factors for PPD in a sample of overweight and obese new mothers.

METHODS:

In this cross-sectional study, 491 women who were overweight or obese prior to pregnancy completed the Edinburgh Postnatal Depression Scale (EPDS) 6 weeks postpartum, along with a number of other health- and pregnancy-related measures. Occurrence of depression was investigated, as well as bivariate and multivariate relationships between depression and demographic and health-related characteristics.

RESULTS:

As determined by an EPDS score of 13 or higher, the prevalence of PPD was 9.2%. Three items on the scale stood out as drivers of the total score ("blame myself unnecessarily", "anxious or worried," "feel overwhelmed"). Bivariate correlates of depression included education, income, marital status, and self-reported chronic illness; income remained significant in the multivariate logistic regression model. BMI was not related to postpartum depression.

DISCUSSION:

In this group of overweight and obese women, there was no association between BMI group and postpartum depression.

**1210: Wolin KY, Colangelo LA, Chiu BC, Gapstur SM. Obesity and immigration among Latina women. *J Immigr Minor Health.* 2009 Oct;11(5):428-31. doi: 10.1007/s10903-007-9115-1. Epub 2008 Jan 9. PubMed PMID: 18183486; PubMed Central PMCID: PMC2756727.**

Abstract

Several studies have shown a positive association between acculturation and obesity in Hispanics. We sought to examine the association in a sample of urban Hispanic women. Using data collected in the Chicago Breast Health Project, we used logistic regression to examine the association of obesity (BMI > or = 30 kg/m<sup>2</sup>) with language acculturation and years in the US in a sample of 388 Hispanic

women. Women self-reported the number of years they had lived in the US (mean 17.6) as well as their preferred language across several domains, which was used to calculate a language acculturation score. Nearly all the women (98%) were born outside the US with the majority (65%) born in Mexico and the majority of women (69%) had low language acculturation, i.e., answered "only Spanish" in every domain. Over half of the women were obese (56%). In multivariable analysis, odds of obesity was twice as high among women living in the US for greater than 20 years compared to those in the US for 10 years or less (OR/year = 2.07, 95% CI 1.25-3.42). In contrast, low language acculturation was not associated with odds of obesity (OR = 1.14, 95% CI 0.70-1.86). While greater years in the US increased odds of obesity among Hispanic women, no association of obesity with language acculturation was found. These results suggest that mechanisms other than language contribute to the immigration effect.

*C. Artículos con resumen con la estrategia de búsqueda:  
("Overweight/epidemiology"[Mesh]) AND "Obesity/epidemiology"[Mesh] and  
lifestyles*

**1: Ghosh A. Explaining overweight and obesity in children and adolescents of Asian Indian origin: the Calcutta childhood obesity study. Indian J Public Health. 2014 Apr-Jun;58(2):125-8. doi: 10.4103/0019-557X.132290. PubMed PMID: 24820988.**

**Abstract**

The present study was aimed to find out the prevalence of overweight and obesity and its associated factors among Bengalee children and adolescents in the Kolkata, India. A total of 1061 Bengalee school children and adolescents (610 boys and 451 girls) participated and were divided into three age groups: Group I = 8-11 years; Group II = 12-15 years and Group III = 16-18 years. Overweight and obesity were defined as: Overweight (between  $\geq 85$  th and  $< 95$  th percentile) and obesity ( $\geq 95$  th percentile). Multivariate regression analyses (adjusted for age and sex) of body mass index (BMI) revealed that about 18% ( $R^2 = 0.185$ ) of total variance of BMI could be explained by monthly family income, participants think obese, consumption of too much junk foodstuffs, breakfast skip, extra consumption of salt, and computer hours. Sedentary lifestyles, including increasing fast food preferences may be responsible for increasing occurrence of pediatric and adolescent obesity in this population

**2: Fernández Villa T, Alguacil Ojeda J, Ayán Pérez C, Bueno Cavanillas A, Cancela Carral JM, Capelo Álvarez R, Delgado Rodríguez M, Jiménez Mejías E, Jiménez Moleón JJ, Llorca Díaz J, Mateos Campos R, Molina de la Torre AJ, Valero Juan LF, Martín Sánchez V. [UNIHCOS Project: dynamic cohort of Spanish college students to the study of drug and other addictions]. Rev Esp Salud Publica. 2013 Nov-Dec;87(6):575-85. doi: 10.4321/S1135-57272013000600003. Spanish. PubMed PMID: 24549356.**

**Abstract**

The University stage gives rise to social and personal changes as the independence of the nuclear family and the increased responsibilities that are related to the acquisition and/or consolidation of life styles and habits that may determine the future health status. Inadequate nutrition, a high level of inactivity, risky sexual behavior, abuse of new technologies or starting consumption of legal and illegal drugs, are among the most significant risk behaviors in this phase. In order to know how to set and / or consolidate the habits and lifestyles in the university stage and health effects in the future, to born the uniHcos project. It is a dynamic cohort of university students who join the project during the first academic year and will be followed during their stay at college and working life. The follow-up will be biennially and for the capture and the information collection will be used on-line technologies. This paper aims to show the uniHcos project to the scientific community as well as present preliminary results found so far in the two cohorts established since 2011.



**3: Ghavamzadeh S, Khalkhali HR, Alizadeh M. TV viewing, independent of physical activity and obesogenic foods, increases overweight and obesity in adolescents. J Health Popul Nutr. 2013 Sep;31(3):334-42. PubMed PMID: 24288947; PubMed Central PMCID: PMC3805883.**

Abstract

The aim of this study was to estimate the prevalence of overweight and obesity (OAO) and associated risk factors in a representative sample of students aged 11-20 years in Urmia, Iran. In this population-based cross-sectional study, a multistage random cluster-sampling method was used, through which 2,498 students were selected. OAO were defined based on criteria set by the US Center for Health Statistics in collaboration with the US Center for Chronic Disease Prevention and Health Promotion under the Centers for Disease Control and Prevention (CDC). OAO risk factors were assessed using a questionnaire containing questions about TV viewing, nutrition, physical activities (PA), social and economic factors. Contents of the questionnaire were validated by calculating the content validity ratio (CVR) and content validity index (CVI), based on the responses elicited from 15 experts. Reliability of the questionnaire was obtained from a test and re-test of the questionnaire completed by 15 students. To analyze the data,  $\chi^2$ -test, t-test, and multiple logistic regression analysis were conducted. The prevalence of OAO was found to be 14.1% among the 11-20 years old students of junior and senior high schools. The results of multiple logistic regression analysis indicated that the educational level of mothers, type of school, and the time spent on viewing TV were associated with an increased risk of OAO while obesogenic foods and PA had no effect on the frequency of OAO [Odds ratio (OR) for the time spent on watching TV one hour more than usual equals 1.27 at  $p=0.001$ ]. The direct correlation between TV viewing and OAO, which is independent of PA and obesogenic foods, needs to be carefully investigated through randomized clinical trials and cohort studies.

**4: Lawson JA, Rennie DC, Dosman JA, Cammer AL, Senthilselvan A. Obesity, diet, and activity in relation to asthma and wheeze among rural dwelling children and adolescents. J Obes. 2013;2013:315096. doi: 10.1155/2013/315096. Epub 2013 Sep 26. PubMed PMID: 24191194; PubMed Central PMCID: PMC3804370.**

Abstract

AIMS AND OBJECTIVES:

We investigated associations between weight status, activity level, and diet with asthma or wheeze as well as the interrelationship between these factors.

METHODS:

We conducted a case-control study of 6-18-year olds from 2005 to 2007. Cases ( $n = 87$ ) were subjects reporting episodes or breathing medication use along with doctor-diagnosed asthma or wheeze in the past 12 months. Controls were randomly selected ( $n = 208$ ) and without asthma or wheeze. Data regarding health outcomes, diet, and activity were obtained from questionnaire. Objectively measured height and weight were collected.

RESULTS:

In the adjusted analysis, there was a trend ( $P = 0.07$ ) towards an increased risk of asthma or wheeze associated with high fast food and/or pop consumption. Among cases, a significantly lower

proportion (66%) classified as overweight participated in hard exercise in  $\geq 9$  of the past 14 days compared to those who were not overweight (86%). This pattern was not seen among controls (76% participating in hard exercise versus 78%, resp.). However, based on perceived weight status by the parent, the patterns were similar regardless of case-control status.

**CONCLUSIONS:**

Overweight status may negatively impact activity level among those with asthma or wheeze. Efforts should be made to encourage healthy food choices, and activity programming must consider the needs of overweight children with asthma.

**5: Camhi SM, Waring ME, Sisson SB, Hayman LL, Must A. Physical activity and screen time in metabolically healthy obese phenotypes in adolescents and adults. J Obes. 2013;2013:984613. doi: 10.1155/2013/984613. Epub 2013 Sep 11. PubMed PMID: 24102022; PubMed Central PMCID: PMC3786460.**

**Abstract**

**INTRODUCTION:**

The purpose of this study was to examine levels of physical activity (PA) and screen time (ST) in metabolically healthy obese (MHO) and metabolically unhealthy obese (MUO) adolescents and adults.

**METHODS:**

NHANES data from obese adolescents (12-18 years, BMI z-score  $\geq$  95th percentile) and adults (19-85 years, BMI  $\geq$  30 kg/m<sup>2</sup>) were pooled from 2003-2005 cycles. Metabolic phenotypes were categorized as MHO (0 or 1 cardiometabolic risk factor; triglycerides, HDL-C, blood pressure, or glucose) or MUO ( $\geq$ 2 cardiometabolic risk factors). Logistic regression models estimated associations between phenotype and PA/ST adjusted for age, gender, BMI, race/ethnicity, menopausal status, and NHANES cycle.

**RESULTS:**

Among adolescents, PA was not associated with MHO. In contrast, MHO adults 19-44 years were 85% more likely to engage in active transportation and 2.7 times more likely to be involved in light intensity usual daily activity versus sitting. For each minute per day, adults 45-85 years were 36% more likely to have the MHO phenotype with higher levels of moderate PA. ST was not associated with metabolic phenotypes in adolescents or adults.

**CONCLUSION:**

The current study provides evidence that PA, but not ST, differs between MHO and MUO in adults, but not in adolescents. Future studies are needed to confirm results.

**6: Gates M, Hanning RM, Martin ID, Gates A, Tsuji LJ. Body Mass Index of First Nations youth in Ontario, Canada: influence of sleep and screen time. Rural Remote Health. 2013;13(3):2498. Epub 2013 Sep 14. PubMed PMID: 24033103.**

**Abstract**

**INTRODUCTION:**

Prevalence rates of overweight and obesity in Canada have risen rapidly in the past 20 years. Concurrent with the obesity epidemic, sleep time and physical activity levels have decreased among youth. Aboriginal youth experience disproportionately high obesity prevalence but there is inadequate knowledge of contributing factors. This research aimed to examine sleep and screen time

behavior and their relationship to Body Mass Index (BMI) in on-reserve First Nations youth from Ontario, Canada.

**METHODS:**

This was an observational population-based study of cross-sectional design. Self-reported physical activity, screen time, and lifestyle information was collected from 348 youth aged 10-18 years residing in five northern, remote First Nations communities and one southern First Nations community in Ontario, Canada, from October 2004 to June 2010. Data were collected in the school setting using the Waterloo Web-based Eating Behaviour Questionnaire. Based on self-reported height and weight, youth were classified normal (including underweight), overweight and obese according to BMI. Descriptive cross-tabulations and Pearson's  $\chi^2$  tests were used to compare screen time, sleep habits, and physical activity across BMI categories.

**RESULTS:**

Participants demonstrated low levels of after-school physical activity, and screen time in excess of national guidelines. Overall, 75.5% reported being active in the evening three or less times per week. Approximately one-quarter of the surveyed youth watched more than 2 hours of television daily and 33.9% spent more than 2 hours on the internet or playing video games. For boys, time using the internet/video games ( $p=0.022$ ) was positively associated with BMI category, with a greater than expected proportion of obese boys spending more than 2 hours using the internet or video games daily (56.7%). Also for boys, time spent outside after school ( $p=0.033$ ) was negatively associated with BMI category, with a lesser than expected proportion spending 'most of the time' outside (presumably being active) after school. These relationships were not observed in girls. Adjusted standardized residuals suggest a greater than expected proportion of obese individuals had a television in their bedroom (66.7%) as compared with the rest of the population.

**CONCLUSIONS:**

The current study adds to the limited information about contributors to overweight and obesity in First Nations youth living on-reserve in Canada. Concerns about inadequate sleep, excess screen time, and inadequate physical activity mirror those of the general population. Further investigation is warranted to improve the understanding of how various lifestyle behaviors influence overweight, obesity, and the development of chronic disease among First Nations youth. Initiatives to reduce screen time, increase physical activity, and encourage adequate sleep among on-reserve First Nations youth are recommended.

**7: Jodkowska M, Tabak I, Oblacińska A, Stalmach M. [Sedentary behaviour 13-years-olds and its association with selected health behaviours, parenting practices and body mass]. Med Wieku Rozwoj. 2013 Apr-Jun;17(2):165-73. Polish. PubMed PMID: 23988375.**

**Abstract**

**OBJECTIVE:**

1. To estimate the time spent in sedentary behaviour (watching TV, using the computer, doing homework). 2. To assess the link between the total time spent on watching TV, using the computer, doing homework and dietary habits, physical activity, parental practices and body mass.

**MATERIAL AND METHODS:**

Cross-sectional study was conducted in Poland in 2008 among 13-year olds ( $n=600$ ). They self-reported their time of TV viewing, computer use and homework. Their dietary behaviours, physical

activity (MVPA) and parenting practices were also self-reported. Height and weight were measured by school nurses. Descriptive statistics and correlation were used in this analysis.

**RESULTS:**

The mean time spent watching television in school days was 2.3 hours for girls and 2.2 for boys. Boys spent significantly more time using the computer than girls - respectively 1.8 and 1.5 hours, while girls took longer doing homework - respectively 1.7 and 1.3 hours. Mean screen time was about 4 hours in school days and about 6 hours during weekend, statistically longer for boys in weekdays. Screen time was positively associated with intake of sweets, chips, soft drinks, "fast food" and meals consumption during TV, and negatively with regularity of meals and parental supervision. There was no correlation between screen time with physical activity and body mass.

**CONCLUSION:**

Sedentary behaviours and physical activity are not competing behaviours in Polish teenagers, but their relationship with unhealthy dietary patterns may lead to development of obesity. Good parental practices, both mother's and father's supervision seems to be crucial for screen time limitation in their children. Parents should become aware that relevant lifestyle monitoring of their children is a crucial element of health education in prevention of civilization diseases. This is a task for both healthcare workers and educational staff.

**8: Rani MA, Sathiyasekaran BW. Behavioural determinants for obesity: a cross-sectional study among urban adolescents in India. J Prev Med Public Health. 2013 Jul;46(4):192-200. doi: 10.3961/jpmph.2013.46.4.192. Epub 2013 Jul 31. PubMed PMID: 23946877; PubMed Central PMCID: PMC3740224.**

**Abstract**

On tests comparing 176 biological and adoptive parents of hyperactive and normal control children, biological parents of hyperactives evidenced more attentional difficulties, slower mean reaction times, and fewer correct recognitions than did the other parents. They showed no significant differences in impulsivity. A familial association between childhood hyperactivity and attentional deficits in the biological parents was suggested, as was the persistence of attentional difficulties as compared to impulse control problems.

**9: Lee HA, Park H. Overview of noncommunicable diseases in Korean children and adolescents: focus on obesity and its effect on metabolic syndrome. J Prev Med Public Health. 2013 Jul;46(4):173-82. doi: 10.3961/jpmph.2013.46.4.173. Epub 2013 Jul 31. PubMed PMID: 23946875; PubMed Central PMCID: PMC3740222.**

**Abstract**

Obesity during childhood is a dominant risk factor for noncommunicable diseases (NCDs), and is itself considered a disease that needs to be treated. Recently, the growth in childhood obesity in Korea has become stagnant; however, two in every ten children are still overweight. In addition, 60% or more of overweight children have at least one metabolic syndrome risk factor. Thus, childhood obesity should be controlled through lifestyle modification. This paper reviews studies of the modifiable risk factors of obesity in Korean children. According to the life-course approach, preschool-aged children (<5 years) are influenced by their parents rather than individual habits because they are under mostly parental care. Elementary school-aged children (6 to 11 years) are affected by overlapping individual and parental effects. This may mean that the establishment of individual behavior patterns begins

during this period. The conditions of poor eating habits such as skipping meals, eating out, and high fat intake, along with low physical activity, facilitate increased obesity among adolescents (12 to 18 years). Notably, adolescent girls show high rates of both underweight and obesity, which may lead to the development of NCDs in their offspring. Therefore, the problem of NCDs is no longer limited to adults, but is also prevalent among children. In addition, early intervention offers cost-effective opportunities for preventing NCDs. Thus, children need primary consideration, adequate monitoring, diagnosis, and treatment to reduce the burden of NCDs later in adulthood.

**10: Khalaf A, Ekblom Ö, Kowalski J, Berggren V, Westergren A, Al-Hazzaa H. Female university students' physical activity levels and associated factors--a cross-sectional study in southwestern Saudi Arabia. *Int J Environ Res Public Health*. 2013 Aug 9;10(8):3502-17. doi: 10.3390/ijerph10083502. PubMed PMID: 23939387; PubMed Central PMCID: PMC3774451.**

Abstract

BACKGROUND:

The high prevalence of physical inactivity in Saudi Arabia is a growing challenge to public health. This study aimed to examine the prevalence of physical activity (PA) and associated factors among female university students.

METHODS:

This cross-sectional study involved 663 randomly selected female university students who completed the Arab Teens Life Style questionnaire. Data included measurements of anthropometric, socioeconomic and environmental factors, as well as self-reported PA. Ordinal regression was used to identify associated factors with low, moderate and high PA levels.

RESULTS:

The mean age of participants was 20.4 years (SD 1.5). Mean BMI of the students in relation to PA were 23.0, 22.9, 22.1 for high, moderate and low levels of activity, respectively. The analysis revealed significantly higher PA levels among married students, those with high educated mothers, and those who lived far from parks, and lower activity levels among underweight students.

CONCLUSIONS:

This study raises four important determinants for female university students' PA levels. These factors could be of great importance in the endeavor to prevent the health-threatening increase in physical inactivity patterns and thus non-communicable diseases and obesity where the focus should be on the specific situation and needs of women in Saudi Arabia.

**11: Ichiho HM, Roby FT, Ponausuia ES, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the territory of American Samoa: a systems perspective. *Hawaii J Med Public Health*. 2013 May;72(5 Suppl 1):10-8. PubMed PMID: 23901364; PubMed Central PMCID: PMC3689461.**

Abstract

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).<sup>1</sup> This assessment, funded by the National Institutes of Health, was conducted in American Samoa and describes the burden of selected NCDs (ie, diabetes, heart disease, hypertension, stroke, and chronic kidney disease); and assesses the system of service capacity and activities regarding service delivery, data collection and reporting as well as identifies the issues

needing to be addressed. Findings reveal that nutrient-poor diet, lack of physical activity, and other lifestyle behaviors are associated with overweight and obesity and subsequent NCDs that impact the morbidity and mortality of the population. The leading causes of death include heart disease, diabetes, cancer and stroke. Population surveys show that 93% of the adults are overweight or obese and 47% have diabetes. Among public school children, 44.6% are overweight or obese. Other data show that between 2006 and 2010, there was a 33% increase in the number of patients receiving hemodialysis. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCDs. There is a paucity of health plans, policy and procedure manuals, coordination among providers, and lack of common standards of care. The combined administrative and clinical system of service needs were identified and prioritized. They include the need for a Territory-wide health strategy and plan, need for standards of care, and a need for collaborative team approach for the treatment and management of patients with diabetes and other chronic diseases.

**12: Ichiho HM, Tolenoa N, Taulung L, Mongkeya M, Lippwe K, Aitaoto N. An assessment of non-communicable diseases, diabetes, and related risk factors in the Federated States of Micronesia, State of Kosrae: a systems perspective. Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):39-48. PubMed PMID: 23900387; PubMed Central PMCID: PMC3689452.**

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI). This assessment, funded by the National Institutes of Health, was conducted in the Federated States of Micronesia, State of Kosrae and describes the burdens due to NCDs, including diabetes, and assesses the system of service capacity and current activities for service delivery, data collection and reporting as well as identifying the issues that need to be addressed. There has been a 13.9% decline in the population between 2000 and 2010. Findings reveal that the risk factors of poor diet, lack of physical activity, and lifestyle behaviors lead to overweight and obesity and subsequent NCD that are a significant factor in the morbidity and mortality of the population. Leading causes of death were due to nutrition and metabolic diseases followed by diseases of the circulatory system. Data from selected community programs show that the prevalence of overweight and obese participants ranged between 82% and 95% and the rate of reported diabetes ranged from 13% to 14%. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCD. There is no functional data system that is able to identify, register, or track patients with diabetes. Priority administrative and clinical issues were identified that need to be addressed to begin to mitigate the burdens of NCDs among the residents of Kosrae State

**13: Gutiérrez-Salmeán G, Meaney A, Ocharán ME, Araujo JM, Ramírez-Sánchez I, Olivares-Corichi IM, García-Sánchez R, Castillo G, Méndez-Bolaina E, Meaney E, Ceballos G. Anthropometric traits, blood pressure, and dietary and physical exercise habits in health sciences students; the obesity observatory project. *Nutr Hosp.* 2013 Jan-Feb;28(1):194-201. doi: 10.3305/nh.2013.28.1.6185. PubMed PMID: 23808450.**

Abstract

BACKGROUND:

Obesity and the metabolic syndrome affect a considerable segment of the population worldwide, including health professionals. In fact, several studies have reported that physicians tend to have more cardiovascular risk factors than their patients. The present cross-sectional study assessed whether the Health Sciences students had a healthier lifestyle, thus could have a more preventive attitude towards chronic diseases than the general population.

MATERIALS AND METHODS:

Students of the medical-biological areas were surveyed by answering a questionnaire about familiar cardiovascular risk factors, personal smoking, alcohol drinking, dietary and exercise habits. Blood pressure was also measured, along with weight, height, and abdominal circumference.

RESULTS:

23.4% of the participants were overweight and 10% obese. Parental obesity was the most frequent risk factor, followed by social drinking and smoking. We found high consumption of animal derived foods, breakfast- like cereals, pastries, white bread and sweetened beverages; while low intake of fruit and vegetables were reported. More than half the sample reported to practice very little or no exercise at all.

DISCUSSION AND CONCLUSIONS:

We found similar or even higher rates of risk factors than the average population, that may eventually lead to the development of chronic cardiometabolic diseases. Thus we can infer that biomedical education is inefficient in inducing healthy lifestyles among biomedical students, which could have impact in their future practice as they will most probable become obese health-professionals, thus fail to effectively treat their own patients.

**14: Brener ND, Eaton DK, Kann LK, McManus TS, Lee SM, Scanlon KS, Fulton JE, O'Toole TP. Behaviors related to physical activity and nutrition among U.S. high school students. *J Adolesc Health.* 2013 Oct;53(4):539-46. doi: 10.1016/j.jadohealth.2013.05.006. Epub 2013 Jun 21. PubMed PMID: 23796969.**

Abstract

PURPOSE:

National data related to physical activity (PA) and nutrition among adolescents are needed to help develop effective obesity prevention programs. The 2010 National Youth Physical Activity and Nutrition Study (NYPANS) was conducted to provide nationally representative data on behaviors and behavioral correlates related to healthy eating and PA.

METHODS:

NYPANS used a three-stage cluster sample design to obtain data representative of public- and private-school students in grades 9 through 12 in the United States (n = 11,429). Students completed an anonymous, self-administered questionnaire in their classrooms during a regular class period.

Trained data collectors directly measured the students' height and weight at school using a standard protocol.

**RESULTS:**

Analyses revealed that 19.0% of students were obese and 17.8% were overweight. Students participated in a range of physical activities during the 12 months before the survey; prevalence ranged from 5.0% for ice hockey to 83.9% for walking. In addition, 52.5% of students enjoyed the physical education classes they took at school. During the 7 days before the survey, 74.8% of students ate at least one meal or snack from a fast food restaurant, with black students more likely than white and Hispanic students to have done so. Forty-one percent of students always or most of the time have a TV on while eating dinner at home.

**CONCLUSIONS:**

These and other NYPANS results can be used to develop obesity prevention programs that address specific behaviors and behavioral correlates, and target subgroups in which behaviors and behavioral correlates related to obesity are most prevalent.

**15: Wojtyła-Buciora P, Stawińska-Witoszyńska B, Klimberg A, Wojtyła A, Goździewska M, Wojtyła K, Piątek J, Wojtyła C, Sygit M, Ignyś I, Marcinkowski JT. Nutrition-related health behaviours and prevalence of overweight and obesity among Polish children and adolescents. *Ann Agric Environ Med.* 2013;20(2):332-40. PubMed PMID: 23772587.**

**Abstract**

**INTRODUCTION:**

An adequate mode of nutrition is among the most important environmental factors affecting the development of Man and maintenance of a good health status. An improper selection of nutrients and irregular consumption of meals may lead to overweight and obesity.

**OBJECTIVE:**

The characteristics of health behaviours of the examined population of schoolchildren, with consideration of nutrition and body weight disorders. A comparison of the opinions of schoolchildren and their parents concerning health behaviours. Development of guidelines for educational programmes carried out in the place of residence of the population of schoolchildren and their parents.

**MATERIALS AND METHOD:**

The survey covered a randomised group of schoolchildren attending elementary and secondary schools in the Kalisz Province and province of the city of Kalisz. The study was conducted in May and June 2009, in a randomly selected representative group of 1,100 boys and girls from classes V and VI of elementary schools, and 1,100 secondary school adolescents aged 16-19 and their parents. The studies of schoolchildren attending elementary and secondary schools were compared with the all-Polish studies of junior high school adolescents in the school year 2006-2007.

**RESULTS:**

The respondents most often consumed 3-4 meals; however, as many as 26% of junior high school adolescents and 27% of secondary school adolescents admitted that they consume only one meal daily. The schoolchildren show inadequate nutritional habits concerning an insufficient consumption of fruits, vegetables and fish, in favour of high calorific meals and sweet snacks and drinks. Parents improperly assess the body weight of their children and perceive them as slimmer, which is not confirmed by the BMI value for age and gender.



#### CONCLUSIONS:

Systematic monitoring and analysis of changes in the health behaviours of adolescents should be a basis for planning health education and promotion programmes. Educational programmes concerning various aspects of health should be implemented in an organized and complementary way, directed not only at schools, but also at entire families and local communities. Knowledge, beliefs, skills and attitudes towards health acquired during the period of adolescence decide about life style in adulthood.

**16: Leatherdale ST, Rynard V. A cross-sectional examination of modifiable risk factors for chronic disease among a nationally representative sample of youth: are Canadian students graduating high school with a failing grade for health? BMC Public Health. 2013 Jun 11;13:569. doi: 10.1186/1471-2458-13-569. PubMed PMID: 23758659; PubMed Central PMCID: PMC3751757.**

#### Abstract

##### BACKGROUND:

Substance use and weight gain among youth increase the risk for future disease. As such, the purpose of this study is to examine how many Canadian youth are currently failing to meet substance use and weight gain related public health guidelines.

##### METHODS:

Data from the 2010-11 Youth Smoking Survey were used to examine grade 9 to 12 students meeting seven different guidelines by sex and by grade.

##### RESULTS:

Among Canadian youth, 8.8% were current smokers, 18.8% were current marijuana users, 25.5% were current binge drinkers, 22.5% were considered overweight or obese, 31.2% did not meet physical activity guidelines, 89.4% exceeded sedentary behaviour guidelines, and 93.6% reported inadequate fruit and vegetable intake. The mean number of risk factors per student was 2.9 ( $\pm 1.2$ ); only 0.5% of youth reported having none of the risk factors.

##### CONCLUSION:

Students rarely met all seven public health guideline examined, and the vast majority of actually reported having two or more modifiable risk factors for disease.

**17: Showell NN, Fawole O, Segal J, Wilson RF, Cheskin LJ, Bleich SN, Wu Y, Lau B, Wang Y. A systematic review of home-based childhood obesity prevention studies. Pediatrics. 2013 Jul;132(1):e193-200. doi: 10.1542/peds.2013-0786. Epub 2013 Jun 10. Review. PubMed PMID: 23753095; PubMed Central PMCID: PMC3691540.**

#### Abstract

##### BACKGROUND AND OBJECTIVES:

Childhood obesity is a global epidemic. Despite emerging research about the role of the family and home on obesity risk behaviors, the evidence base for the effectiveness of home-based interventions on obesity prevention remains uncertain. The objective was to systematically review the effectiveness of home-based interventions on weight, intermediate (eg, diet and physical activity [PA]), and clinical outcomes.

##### METHODS:

We searched Medline, Embase, PsychInfo, CINAHL, clinicaltrials.gov, and the Cochrane Library from inception through August 11, 2012. We included experimental and natural experimental studies with  $\geq 1$ -year follow-up reporting weight-related outcomes and targeting children at home. Two independent reviewers screened studies and extracted data. We graded the strength of the evidence supporting interventions targeting diet, PA, or both for obesity prevention.

**RESULTS:**

We identified 6 studies; 3 tested combined interventions (diet and PA), 1 used diet intervention, 1 combined intervention with primary care and consumer health informatics components, and 1 combined intervention with school and community components. Select combined interventions had beneficial effects on fruit/vegetable intake and sedentary behaviors. However, none of the 6 studies reported a significant effect on weight outcomes. Overall, the strength of evidence is low that combined home-based interventions effectively prevent obesity. The evidence is insufficient for conclusions about home-based diet interventions or interventions implemented at home in association with other settings.

**CONCLUSIONS:**

The strength of evidence is low to support the effectiveness of home-based child obesity prevention programs. Additional research is needed to test interventions in the home setting, particularly those incorporating parenting strategies and addressing environmental influences

**18: Cortes TR, Schlüssel MM, Franco-Sena AB, Rebelo F, Kac G. Television viewing and abdominal obesity in women according to smoking status: results from a large cross-sectional population-based study in Brazil. Rev Bras Epidemiol. 2013 Mar;16(1):137-45. PubMed PMID: 23681330.**

**Abstract**

**OBJECTIVE:**

To investigate the associations between television viewing and abdominal obesity (AO) in Brazilian women, according to smoking status.

**METHODS:**

Data of 13,262 adult women (18-49 years) from the 2006's Demographic Health Survey, a cross-sectional household study with complex probabilistic sample and national representativeness, were analyzed. AO, defined as waist circumference  $\geq 80.0$  cm, was the outcome. Television viewing frequency ( $\geq 5$  times/week, 1-4 times/week,  $< 1$  time/week) was the main exposure variable, and smoking status (yes or no) the main co-variable. Prevalence ratios were estimated using Poisson regression models separately for smokers and non-smokers.

**RESULTS:**

A statistically significant interaction term was observed between smoking status and television viewing ( $p < 0.05$ ). Prevalence of AO among smokers who reported television viewing  $\geq 5$  times/week amounted to 59.0%, higher than the 35.0% for those with  $< 1$  time/week television viewing ( $p$ -value = 0.020). The values for non-smokers were 55.2% and 55.7%, respectively. Smokers with television viewing  $\geq 5$  times/week were 1.7 times (95% CI: 1.1 - 2.5) more likely to pre-sent AO, compared to those who reported a frequency  $< 1$  time/week. There was no significant association among non-smokers.

**CONCLUSIONS:**

Television viewing  $\geq 5$  times/week may increase the prevalence of AO among women who smoke. More detailed information on media use, as hours per day, may offer better estimates.

**19: Vollmer RL, Mobley AR. A pilot study to explore how low-income mothers of different ethnic/racial backgrounds perceive and implement recommended childhood obesity prevention messages. Child Obes. 2013 Jun;9(3):261-8. doi: 10.1089/chi.2012.0139. Epub 2013 May 16. PubMed PMID: 23679199; PubMed Central PMCID: PMC3675836.**

Abstract

BACKGROUND:

Mothers often serve as the "gatekeepers" of food and the eating experience for young children in the home. Children of different ethnic/racial groups have different obesity prevalence rates, but little is known about how mothers of these groups interpret or implement common childhood obesity prevention messages. The purpose of this mixed methods pilot study was to explore comprehension and implementation of common childhood obesity prevention messages and to identify feeding styles among low-income mothers of young children.

METHODS:

White, black, and Hispanic low-income mothers (n=30) of children ages 3-10 were recruited from Indiana. Mothers were interviewed individually regarding the perception and implementation of eight commonly used nutrition and/or physical activity messages. Other outcomes included the results of the Caregiver Feeding Styles Questionnaire and self-reported weight of mothers and child(ren). Interviews were analyzed using thematic analysis to find common themes among the different ethnic/racial groups.

RESULTS:

Childhood obesity prevention messages were often interpreted or implemented differently among the different ethnic/racial groups. For example, white mothers cited control as a means to manage a child's weight more often compared to the other racial/ethnic groups, whereas black and Hispanic mothers reported catering to a child's preference more frequently compared to white mothers.

CONCLUSION:

The pilot study provides evidence that it may be prudent to tailor nutrition messages to mothers of different ethnic/racial backgrounds during nutrition education.

**20: Ratner RG, Hernández PJ, Martel JA, Atalah ES. [Food quality and nutritional status in university students of eleven Chilean regions]. Rev Med Chil. 2012 Dec;140(12):1571-9. doi: 10.4067/S0034-98872012001200008. Spanish. PubMed PMID: 23677230.**

Abstract

BACKGROUND:

The Chilean population has inadequate lifestyles and high prevalence of chronic diseases.

AIM:

To analyze eating behaviors, nutritional status and history of previous diseases, in students of higher education.

MATERIAL AND METHODS:

Cross-sectional study in students of 54 higher education centers across the country. They answered a survey about dietary habits, physical activity, smoking, previous diseases and opinion of their nutritional condition. Weight and height were measured under standardized conditions and nutritional status classified according to body mass index.

RESULTS:

We studied 6,823 students aged 17 to 29 years. Forty seven percent did not have breakfast and 35% did not have lunch every day. A low proportion had a daily consumption of vegetables (51.2%), fruits (39.4%) and dairy products (57.5%). There was a high frequency of soft drinks, chips, cakes and sweets consumption. Seventy six percent were sedentary, 40.3% smokers and 27.4% overweight or obese. The latter had a significantly higher frequency of diabetes, hypertension and hypercholesterolemia. There was a poor agreement between actual nutritional status and self-perception, especially in males (Kappa index 0.38). Recipients of a food scholarship provided by the Ministry of Education ate lunch usually with a higher frequency ( $p < 0.05$ ).

CONCLUSIONS:

A high prevalence of inadequate eating and physical activity patterns in these young subjects with good educational level was observed. The food scholarship has some positive effects, although differences in socioeconomic levels limited comparisons.

**21: Birdee GS, Byrne DW, McGown PW, Rothman RL, Rolando LA, Holmes MC, Yarbrough MI. Relationship between physical inactivity and health characteristics among participants in an employee-wellness program. J Occup Environ Med. 2013 May;55(5):514-9. doi: 10.1097/JOM.0b013e31827f37d7. PubMed PMID: 23618884; PubMed Central PMCID: PMC3651750.**

Abstract

OBJECTIVE:

To characterize factors associated with physical inactivity among employees with access to workplace wellness program.

METHODS:

We examined data on physical inactivity, defined as exercise less than once a week, from the 2010 health risk assessment completed by employees at a major academic institution (N = 16,976).

RESULTS:

Among employees, 18% of individuals reported physical activity less than once a week. Individuals who were physically inactive as compared with physically active reported higher prevalence of cardiovascular diseases (adjusted odds ratio [AOR], 1.36 [1.23 to 1.51]), fair or poor health status (AOR, 3.52 [2.97 to 4.17]), and absenteeism from work (AOR, 1.59 [1.41 to 1.79]). Overall, physically inactive employees as compared with physically active employees reported more interest in health education programs.

CONCLUSION:

Future research is needed to address barriers to physical inactivity to improve employee wellness and potentially lower health utility costs.

**22: Lowry R, Lee SM, Fulton JE, Demissie Z, Kann L. Obesity and other correlates of physical activity and sedentary behaviors among US high school students. J Obes. 2013;2013:276318. doi: 10.1155/2013/276318. Epub 2013 Mar 31. PubMed PMID: 23606950; PubMed Central PMCID: PMC3628188.**

Abstract

Understanding correlates of physical activity (PA) can help inform and improve programs that promote PA among youth. We analyzed data from the 2010 National Youth Physical Activity and Nutrition Study, a representative sample of US students in grades 9-12. Logistic regression was used to examine associations between PA correlates (obesity, physical education classes, sports team participation, attitude toward PA, adult support for PA, and environmental support for PA) and participation in daily PA (DPA), vigorous PA (VPA), muscle-strengthening activity (MSA), viewing television (TV), and using computers or video games (C/VG). A positive attitude toward PA and adult support for PA were both associated with increased PA and decreased sedentary behavior. However, among students who lived in neighborhoods that were not safe for PA, a positive attitude toward PA was not associated with increased DPA or decreased sedentary behavior and was less strongly associated with VPA and MSA. Efforts to increase PA among youth should promote a positive attitude toward PA among youth and encourage adult family members to support their efforts to be active. Policies that promote safe neighborhoods may work synergistically with a positive attitude toward PA to increase participation in PA and decrease sedentary behaviors.

**23: Satija A, Agrawal S, Bowen L, Khandpur N, Kinra S, Prabhakaran D, Reddy KS, Smith GD, Ebrahim S. Association between milk and milk product consumption and anthropometric measures in adult men and women in India: a cross-sectional study. PLoS One. 2013 Apr 8;8(4):e60739. doi: 10.1371/journal.pone.0060739. Print 2013. PubMed PMID: 23593300; PubMed Central PMCID: PMC3620205.**

Abstract

BACKGROUND:

The nutritional aetiology of obesity remains unclear, especially with regard to the role of dairy products in developing countries.

OBJECTIVE:

To examine whether milk/milk product consumption is associated with obesity and high waist circumference among adult Indians.

METHODS:

Information on plain milk, tea, curd and buttermilk/lassi consumption assessed using a Food Frequency Questionnaire was obtained from the cross-sectional sib-pair designed Indian Migration Study (3698 men and 2659 women), conducted at four factory locations across north, central and south India. The anthropometric measures included were Body Mass Index (BMI) and Waist Circumference (WC). Mixed-effect logistic regression models were conducted to accommodate sib-pair design and adjust for potential confounders.

RESULTS:

After controlling for potential confounders, the risk of being obese (BMI  $\geq$  25 kg/m<sup>2</sup>) was lower among women (OR = 0.57;95%CI:0.43-0.76;p  $\leq$  0.0001) and men (OR = 0.67;95%CI: 0.51-0.87;p = 0.005), and the risk of a high WC (men: >90 cm; women: >80 cm) was lower among men (OR = 0.71;95%CI:0.54-0.93;p = 0.005) and women (OR = 0.79;95%CI:0.59-1.05;p>0.05) who consume  $\geq$ 1

portions of plain milk daily than those who do not consume any milk. The inverse association between daily plain milk consumption and obesity was also confirmed in sibling-pair analyses. Daily tea consumption of  $\geq 1$  portion was associated with obesity (OR = 1.51;95%CI:1.00-2.25;p>0.050) and high WC (OR = 1.65;95%CI:1.08-2.51;p>0.019) among men but not among women but there was no strong evidence of association of curd and buttermilk/lassi consumption with obesity and high waist circumference among both men and women.

**CONCLUSIONS:**

The independent, inverse association of daily plain milk consumption with the risk of being obese suggests that high plain milk intake may lower the risk of obesity in adult Indians. However, this is an observational finding and uncontrolled confounding cannot be excluded as an explanation for the association. Therefore, confirmatory studies are needed to clarify this relationship.

**24: Mitchell JA, Rodriguez D, Schmitz KH, Audrain-McGovern J. Greater screen time is associated with adolescent obesity: a longitudinal study of the BMI distribution from Ages 14 to 18. Obesity (Silver Spring). 2013 Mar;21(3):572-5. doi: 10.1002/oby.20157. PubMed PMID: 23592665; PubMed Central PMCID: PMC3630469.**

**Abstract**

**OBJECTIVE:**

Previous research has examined the association between screen time and average changes in adolescent body mass index (BMI). Until now, no study has evaluated the longitudinal relationship between screen time and changes in the BMI distribution across mid to late adolescence.

**DESIGN AND METHODS:**

Participants (n = 1,336) were adolescents who were followed from age 14 to age 18 and surveyed every 6 months. Time spent watching television/videos and playing video games was self-reported (<1 h day(-1) , 1 h day(-1) , 2 h day(-1) , 3 h day(-1) , 4 h day(-1) , or 5+ h day(-1) ). BMI (kg m(-2) ) was calculated from self-reported height and weight. Longitudinal quantile regression was used to model the 10th, 25th, 50th, 75th, and 90th BMI percentiles as dependent variables. Study wave and screen time were the main predictors, and adjustment was made for gender, race, maternal education, hours of sleep, and physical activity.

**RESULTS:**

Increases at all the BMI percentiles over time were observed, with the greatest increase observed at the 90th BMI percentile. Screen time was positively associated with changes in BMI at the 50th (0.17, 95% CI: 0.06, 0.27), 75th (0.31, 95% CI: 0.10, 0.52), and 90th BMI percentiles (0.56, 95% CI: 0.27, 0.82). No associations were observed between screen time and changes at the 10th and 25th BMI percentiles.

**CONCLUSIONS:**

Positive associations between screen time and changes in the BMI at the upper tail of the BMI distribution were observed. Therefore, lowering screen time, especially among overweight and obese adolescents, could contribute to reducing the prevalence of adolescent obesity.

**25: Datar A, Nicosia N, Shier V. Parent perceptions of neighborhood safety and children's physical activity, sedentary behavior, and obesity: evidence from a national longitudinal study. Am J Epidemiol. 2013 May 15;177(10):1065-73. doi: 10.1093/aje/kws353. Epub 2013 Apr 11. PubMed PMID: 23579555; PubMed Central PMCID: PMC3649633.**

Abstract

We examined the relationship between parent-perceived neighborhood safety and children's physical activity, sedentary behavior, body mass, and obesity status using 9 years of longitudinal data (1999-2007) on a cohort of approximately 19,000 US kindergartners from the Early Childhood Longitudinal Study. Children's height and weight measurements and parent perceptions of neighborhood safety were available in kindergarten and in the first, third, fifth, and eighth grades. Dependent variables included age- and gender-specific body mass index percentile, obesity status, and parent- or child-reported weekly physical activity and television-watching. Pooled cross-sectional and within-child longitudinal regression models that controlled for child, family, and school characteristics were fitted. Both cross-sectional and longitudinal models indicated that children whose parents perceived their neighborhoods as unsafe watched more television and participated in less physical activity, although the magnitude of this association was much weaker in longitudinal models. However, there was no significant association between parent-perceived neighborhood safety and children's body mass index.

**26: Bickham DS, Blood EA, Walls CE, Shrier LA, Rich M. Characteristics of screen media use associated with higher BMI in young adolescents. Pediatrics. 2013 May;131(5):935-41. doi: 10.1542/peds.2012-1197. Epub 2013 Apr 8. PubMed PMID: 23569098; PubMed Central PMCID: PMC3639454.**

Abstract

OBJECTIVES:

This study investigates how characteristics of young adolescents' screen media use are associated with their BMI. By examining relationships between BMI and both time spent using each of 3 screen media and level of attention allocated to use, we sought to contribute to the understanding of mechanisms linking media use and obesity.

METHODS:

We measured heights and weights of 91 13- to 15-year-olds and calculated their BMIs. Over 1 week, participants completed a weekday and a Saturday 24-hour time-use diary in which they reported the amount of time they spent using TV, computers, and video games. Participants carried handheld computers and responded to 4 to 7 random signals per day by completing onscreen questionnaires reporting activities to which they were paying primary, secondary, and tertiary attention.

RESULTS:

Higher proportions of primary attention to TV were positively associated with higher BMI. The difference between 25th and 75th percentiles of attention to TV corresponded to an estimated +2.4 BMI points. Time spent watching television was unrelated to BMI. Neither duration of use nor extent of attention paid to video games or computers was associated with BMI.

CONCLUSIONS:

These findings support the notion that attention to TV is a key element of the increased obesity risk associated with TV viewing. Mechanisms may include the influence of TV commercials on preferences

for energy-dense, nutritionally questionable foods and/or eating while distracted by TV. Interventions that interrupt these processes may be effective in decreasing obesity among screen media users.

KEYWORDS:

adolescents; computer; ecological momentary assessment; obesity; television; video games

**27: Mitchell JA, Rodriguez D, Schmitz KH, Audrain-McGovern J. Sleep duration and adolescent obesity. *Pediatrics*. 2013 May;131(5):e1428-34. doi: 10.1542/peds.2012-2368. Epub 2013 Apr 8. PubMed PMID: 23569090; PubMed Central PMCID: PMC3639456.**

Abstract

OBJECTIVES:

Short sleep has been associated with adolescent obesity. Most studies used a cross-sectional design and modeled BMI categories. We sought to determine if sleep duration was associated with BMI distribution changes from age 14 to 18.

METHODS:

Adolescents were recruited from suburban high schools in Philadelphia when entering ninth grade (n = 1390) and were followed-up every 6 months through 12th grade. Height and weight were self-reported, and BMIs were calculated (kg/m<sup>2</sup>). Hours of sleep were self-reported. Quantile regression was used to model the 10th, 25th, 50th, 75th, and 90th BMI percentiles as dependent variables; study wave and sleep were the main predictors.

RESULTS:

BMI increased from age 14 to 18, with the largest increase observed at the 90th BMI percentile. Each additional hour of sleep was associated with decreases in BMI at the 10th (-0.04; 95% confidence interval [CI]: -0.11, 0.03), 25th (-0.12; 95% CI: -0.20, -0.04), 50th (-0.15; 95% CI: -0.24, -0.06), 75th (-0.25; 95% CI: -0.38, -0.12), and 90th (-0.27; 95% CI: -0.45, -0.09) BMI percentiles. The strength of the association was stronger at the upper tail of the BMI distribution. Increasing sleep from 7.5 to 10.0 hours per day at age 18 predicted a reduction in the proportion of adolescents >25 kg/m<sup>2</sup> by 4%.

CONCLUSIONS:

More sleep was associated with nonuniform changes in BMI distribution from age 14 to 18. Increasing sleep among adolescents, especially those in the upper half of the BMI distribution, may help prevent overweight and obesity.

KEYWORDS:

adolescence; longitudinal study; obesity; sleep

**28: Vasconcellos MB, Anjos LA, Vasconcellos MT. [Nutritional status and screen time among public school students in Niterói, Rio de Janeiro State, Brazil]. *Cad Saude Publica*. 2013 Apr;29(4):713-22. Portuguese. PubMed PMID: 23568301.**

Abstract

The aim of this study was to assess nutritional status, sedentary behavior (TV, computer, and videogame time and screen time as the sum of these first three) and physical activity using a questionnaire with youth (10 to 18 years of age) enrolled in public schools in Niterói, Rio de Janeiro State, Brazil. Anthropometry (body mass and stature), sedentary behavior, and information on physical activity were obtained in a probability sample of 10 to 18 year-old students (n = 328; 108 boys) stratified by school and selected in two stages (classes and students). Low height for age did



not appear as a problem, but 25.7% of the youth presented excess weight (18% overweight and 7.7% obese). Total screen time did not differ between the sexes, but boys spent more time playing videogames than girls, regardless of age, while girls watched more TV. Boys spent twice as much time as girls of all ages in physical activity (three times more in the  $\geq 14$  year-old group). Screen time was significantly associated with excess weight. In conclusion, public school youth in Niterói show high prevalence rates of excess weight associated with inadequate lifestyle.

**29: Richards K, Fuddy LJ, Greenwood MR, Pressler V, Rajan R, St John TL, Sinclair BM, Irvin L; Childhood Obesity Prevention Task Force. The Childhood Obesity Prevention Task Force (ACT 269): recommendations for obesity prevention in Hawai'i. Hawaii J Med Public Health. 2013 Mar;72(3):102-6. PubMed PMID: 23520569; PubMed Central PMCID: PMC3602950.**

Abstract

Obesity in both adults and children is a critical issue in Hawai'i, as well as nationally and internationally. Today in Hawai'i, 57 percent of adults are overweight or obese as are almost 1 in 3 children entering kindergarten. Each year, obesity costs Hawai'i more than \$470 million in medical expenditures alone.(1) These staggering human and economic costs underscore the serious need for Hawai'i to address obesity now. Due to the urgent need to reverse the current trends in obesity Senate Bill 2778 was signed into law, on July 6, 2012, as Act 269 by Governor Neil Abercrombie, creating The Childhood Obesity Prevention Task Force. The task force was charged with developing policy recommendations and proposed legislation for the 2013 legislature. The task force ultimately identified eleven recommendations for the 2013 legislative session and one recommendation for the 2014 legislative session. When implemented together, these recommendations could profoundly reshape Hawai'i's school, work, community, and health care environments, making healthier lifestyles obtainable for all Hawai'i residents.

**30: Dancause KN, Vilar M, Wilson M, Soloway LE, DeHuff C, Chan C, Tarivonda L, Regenvanu R, Kaneko A, Lum JK, Garruto RM. Behavioral risk factors for obesity during health transition in Vanuatu, South Pacific. Obesity (Silver Spring). 2013 Jan;21(1):E98-E104. doi: 10.1002/oby.20082. PubMed PMID: 23505203; PubMed Central PMCID: PMC3605745.**

Abstract

The South Pacific archipelago of Vanuatu, like many developing countries, is currently experiencing a shift in disease burdens from infectious to chronic diseases with economic development. A rapid increase in obesity prevalence represents one component of this "health transition."

OBJECTIVE:

To identify behaviors associated with measures of obesity in Vanuatu.

DESIGN AND METHODS:

Five hundred and thirty four adults from three islands varying in level of economic development were surveyed. Height, weight, waist, and hip circumferences; triceps, subscapular and suprailiac skinfolds; and percent body fat (%BF) by bioelectrical impedance were measured. Diet through 24-h dietary recall and physical activity patterns using a survey were assessed. We analyzed prevalence of obesity and central obesity based on multiple indicators (body mass index, %BF, waist circumference, and

waist-to-height ratio), and analyzed differences among islands and associations with behavioral patterns.

**RESULTS:**

Obesity prevalence was lowest among rural and highest among suburban participants. Prevalence of central obesity was particularly high among women (up to 73.9%), even in rural areas (ranging from 14.7 to 41.2% depending on the measure used). Heavier reliance on animal protein and incorporation of Western foods in the diet—specifically, tinned fish and instant noodles—was significantly associated with increased obesity risk.

**CONCLUSIONS:**

Even in rural areas where diets and lifestyles remain largely traditional, modest incorporation of Western foods in the diet can contribute to increased risk of obesity. Early prevention efforts are thus particularly important during health transition. Where public health resources are limited, education about dietary change could be the best target for prevention.

**31: Aguilar Cordero MJ, Neri Sánchez M, Padilla López CA, Pimentel Ramírez ML, García Rillo A, Sánchez López AM. [Risk factors in the development of breast cancer, state of Mexico]. Nutr Hosp. 2012 Sep-Oct;27(5):1631-6. doi: 10.3305/nh.2012.27.5.5997. Spanish. PubMed PMID: 23478716.**

**Abstract**

**INTRODUCTION:**

Breast cancer is one of the most frequent diseases in women today, and its social impact is devastating. The risk factors focused on in recent research are mainly hormonal, genetic, and environmental though toxic habits, overweight, and obesity have also been studied. In contrast, protective factors against breast cancer include breastfeeding and daily exercise.

**OBJECTIVE:**

To ascertain the risk factors for the women with breast cancer in our study sample.

**MATERIAL AND METHODS:**

A study of cases and controls was performed on 115 women diagnosed with breast cancer and on 115 healthy women, who had been patients at the National Cancer Institute ISSEMYM in Mexico from January to December 2011. Information was collected from the women in the sample pertaining to their family history of cancer, personal background, life style, and body mass index (BMI). Breast cancer risk was estimated with multivariate logistic regression models and the chi-square test.

**RESULTS:**

It was found that there was a greater risk of breast cancer in overweight or obese women who did not do any physical exercise and either who had breastfed their children for a very short time or who had not breastfed them at all. No significant differences were found between breast cancer and toxic habits.

**CONCLUSIONS:**

The results of our study found a direct relation between breast cancer and overweight, obesity, and physical inactivity. Breastfeeding during the first months of the baby's life was found to be a protective factor against breast cancer.

**32: Stone MR, Faulkner GE, Buliung RN. How active are children in Toronto? A comparison with accelerometry data from the Canadian Health Measures Survey. *Chronic Dis Inj Can.* 2013 Mar;33(2):61-8. PubMed PMID: 23470171.**

Abstract

INTRODUCTION:

The Canadian Health Measures Survey (CHMS) is the most comprehensive direct health measures survey ever conducted in Canada. Results show that the majority of children and youth (93%) do not meet current physical activity recommendations for health. CHMS data have not yet been considered alongside an independent sample of Canadian youth; such a Canadian-context examination could support CHMS results and contribute to discussions regarding accelerometry data reduction protocols.

METHODS:

From 2010 to 2011, valid accelerometry data were collected on 856 children living in the Greater Toronto Area (GTA). Where possible, data presentation and analyses were aligned with the CHMS protocol such that physical activity outcomes could be compared.

RESULTS:

Overall, trends were similar, with some deviations likely due to contextual and sampling differences and differences in data collection/reduction protocols regarding accelerometer model selection, wear time, activity intensity thresholds and epoch.

CONCLUSION:

The similar trends support the notion that physical inactivity is an ongoing problem in communities across Canada.

**33: Delahanty L, Kriska A, Edelstein S, Amodei N, Chadwick J, Copeland K, Galvin B, El Ghormli L, Haymond M, Kelsey MM, Lassiter C, Milaszewski K, Syme A, Mayer-Davis E. Self-reported dietary intake of youth with recent onset of type 2 diabetes: results from the TODAY study. *J Acad Nutr Diet.* 2013 Mar;113(3):431-9. doi: 10.1016/j.jand.2012.11.015. PubMed PMID: 23438494; PubMed Central PMCID: PMC3584416.**

Abstract

Despite the widely recognized importance of diet in managing diabetes, few studies have documented usual dietary intake in young people with type 2 diabetes. The objectives of our study were to assess dietary intake among a large, ethnically diverse cohort of young people with type 2 diabetes and compare intake to current recommendations. The Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY) study is a multicenter randomized clinical trial of 699 youth aged 10 to 17 years. At baseline, following a run-in period that included standard diabetes education, diet was assessed using a food frequency questionnaire between 2004 and 2009. Analysis of variance and nonparametric tests were used to compare mean and median nutrient intakes; logistic regression was used to compare the odds of meeting predefined dietary intake recommendation cutpoints between subgroups of age, sex, and race-ethnicity. Percent of energy from saturated fat was consistently 13% to 14% across all subgroups-substantially exceeding national recommendations. Overall, only 12% of youth met Healthy People 2010 guidelines for intake of <10% of energy from saturated fat and only 1% of youth met American Diabetes Association recommendations for intake of <7% of energy from saturated fat. Dietary intake fell substantially

below other Healthy People 2010 targets; only 3% met calcium intake goals, 11% met fruit consumption goals, 5% met vegetable consumption goals, and 67% met grain intake goals. Overall, dietary intake in this large cohort of young people with type 2 diabetes fell substantially short of recommendations, in ways that were consistent by sex, age, and race-ethnicity. The data suggest a critical need for better approaches to improve dietary intake of these young people.

**34: Khan FS, Lotia-Farrukh I, Khan AJ, Siddiqui ST, Sajun SZ, Malik AA, Burfat A, Arshad MH, Codlin AJ, Reininger BM, McCormick JB, Afridi N, Fisher-Hoch SP. The burden of non-communicable disease in transition communities in an Asian megacity: baseline findings from a cohort study in Karachi, Pakistan. PLoS One. 2013;8(2):e56008. doi: 10.1371/journal.pone.0056008. Epub 2013 Feb 13. PubMed PMID: 23418493; PubMed Central PMCID: PMC3572147.**

#### Abstract

##### BACKGROUND:

The demographic transition in South Asia coupled with unplanned urbanization and lifestyle changes are increasing the burden of non-communicable disease (NCD) where infectious diseases are still highly prevalent. The true magnitude and impact of this double burden of disease, although predicted to be immense, is largely unknown due to the absence of recent, population-based longitudinal data. The present study was designed as a unique 'Framingham-like' Pakistan cohort with the objective of measuring the prevalence and risk factors for hypertension, obesity, diabetes, coronary artery disease and hepatitis B and C infection in a multi-ethnic, middle to low income population of Karachi, Pakistan.

##### METHODS:

We selected two administrative areas from a private charitable hospital's catchment population for enrolment of a random selection of cohort households in Karachi, Pakistan. A baseline survey measured the prevalence and risk factors for hypertension, obesity, diabetes, coronary artery disease and hepatitis B and C infection.

##### RESULTS:

Six hundred and sixty-seven households were enrolled between March 2010 and August 2011. A majority of households lived in permanent structures (85%) with access to basic utilities (77%) and sanitation facilities (98%) but limited access to clean drinking water (68%). Households had high ownership of communication technologies in the form of cable television (69%) and mobile phones (83%). Risk factors for NCD, such as tobacco use (45%), overweight (20%), abdominal obesity (53%), hypertension (18%), diabetes (8%) and pre-diabetes (40%) were high. At the same time, infectious diseases such as hepatitis B (24%) and hepatitis C (8%) were prevalent in this population.

##### CONCLUSION:

Our findings highlight the need to monitor risk factors and disease trends through longitudinal research in high-burden transition communities in the context of rapid urbanization and changing lifestyles. They also demonstrate the urgency of public health intervention programs tailored for these transition communities.

**35: Saunders TJ, Tremblay MS, Després JP, Bouchard C, Tremblay A, Chaput JP. Sedentary behaviour, visceral fat accumulation and cardiometabolic risk in adults: a 6-year longitudinal study from the Quebec Family Study. PLoS One. 2013;8(1):e54225. doi: 10.1371/journal.pone.0054225. Epub 2013 Jan 9. PubMed PMID: 23326600; PubMed Central PMCID: PMC3541147.**

Abstract

BACKGROUND:

Sedentary behaviour has recently emerged as a unique risk factor for chronic disease morbidity and mortality. One factor that may explain this relationship is visceral adiposity, which is prospectively associated with increased cardiometabolic risk and mortality. The objective of the present study was to determine whether sedentary behaviour was associated with increased accumulation of visceral fat or other deleterious changes in cardiometabolic risk over a 6-year follow-up period among adult participants in the Quebec Family Study.

METHODS:

The current study included 123 men and 153 women between the ages of 18 and 65. Total sedentary time and physical activity were assessed by self-report questionnaire. Cross-sectional areas of visceral and subcutaneous abdominal adipose tissue were assessed using computed tomography. Cardiometabolic biomarkers including fasting insulin, glucose, blood lipids, HOMA-Insulin Resistance, and oral glucose tolerance were also measured. All variables of interest were collected at both baseline and follow-up.

RESULTS:

After adjustment for age, sex, baseline BMI, physical activity, energy intake, smoking, education, income and menopausal status, baseline sedentary behaviour was not associated with changes in visceral adiposity or any other marker of cardiometabolic risk. In the longitudinal model which adjusted for all studied covariates, every 15-minute increase in sedentary behaviour from baseline to follow-up was associated with a 0.13 cm increase in waist circumference (95% CI = 0.02, 0.25). However, there was no association between changes in sedentary behaviour and changes in visceral adiposity or other markers of cardiometabolic risk.

CONCLUSION:

These results suggest that neither baseline sedentary behaviour nor changes in sedentary behaviour are associated with longitudinal changes in visceral adiposity in adult men and women. With the exception of waist circumference, the present study did not find evidence of a relationship between sedentary behaviour and any marker of cardiometabolic risk in this population.

**36: Tchernof A, Després JP. Pathophysiology of human visceral obesity: an update. Physiol Rev. 2013 Jan;93(1):359-404. doi: 10.1152/physrev.00033.2011. Review. PubMed PMID: 23303913.**

Abstract

Excess intra-abdominal adipose tissue accumulation, often termed visceral obesity, is part of a phenotype including dysfunctional subcutaneous adipose tissue expansion and ectopic triglyceride storage closely related to clustering cardiometabolic risk factors. Hypertriglyceridemia; increased free fatty acid availability; adipose tissue release of proinflammatory cytokines; liver insulin resistance and inflammation; increased liver VLDL synthesis and secretion; reduced clearance of triglyceride-rich lipoproteins; presence of small, dense LDL particles; and reduced HDL cholesterol levels are among

the many metabolic alterations closely related to this condition. Age, gender, genetics, and ethnicity are broad etiological factors contributing to variation in visceral adipose tissue accumulation. Specific mechanisms responsible for proportionally increased visceral fat storage when facing positive energy balance and weight gain may involve sex hormones, local cortisol production in abdominal adipose tissues, endocannabinoids, growth hormone, and dietary fructose. Physiological characteristics of abdominal adipose tissues such as adipocyte size and number, lipolytic responsiveness, lipid storage capacity, and inflammatory cytokine production are significant correlates and even possible determinants of the increased cardiometabolic risk associated with visceral obesity. Thiazolidinediones, estrogen replacement in postmenopausal women, and testosterone replacement in androgen-deficient men have been shown to favorably modulate body fat distribution and cardiometabolic risk to various degrees. However, some of these therapies must now be considered in the context of their serious side effects. Lifestyle interventions leading to weight loss generally induce preferential mobilization of visceral fat. In clinical practice, measuring waist circumference in addition to the body mass index could be helpful for the identification and management of a subgroup of overweight or obese patients at high cardiometabolic risk.

**37: Gonçalves H, González DA, Araújo CP, Muniz L, Tavares P, Assunção MC, Menezes AM, Hallal PC. Adolescents' perception of causes of obesity: unhealthy lifestyles or heritage? J Adolesc Health. 2012 Dec;51(6 Suppl):S46-52. doi: 10.1016/j.jadohealth.2012.08.015. Epub 2012 Nov 10. PubMed PMID: 23283160; PubMed Central PMCID: PMC3508415.**

Abstract

PURPOSE:

To evaluate adolescents' perception of the causes of obesity, with emphasis on differences according to nutritional status and socioeconomic position.

METHODS:

We conducted qualitative research including 80 adolescents belonging to the 1993 Pelotas (Brazil) Birth Cohort Study, and their mothers. We classified adolescent boys and girls into four groups (girls-obese, girls-eutrophic, boys-obese, and boys-eutrophic) according to body mass index for age and sex, and systematically selected them according to family income at age 15 years. Research techniques included semistructured interviews and history of life. Topics covered in the interviews included early experiences with weight management, effect of weight on social relationships, family history, eating habits, and values.

RESULTS:

Low-income obese adolescents and their mothers perceive obesity as a heritage, caused by family genes, side effects of medication use, and stressful life events. However, low-income eutrophic adolescents emphasize the role of unhealthy diets on obesity development. Among the high-income adolescents, those who are obese attribute it to genetic factors and emotional problems, whereas those who are eutrophic mention unhealthy diets and lack of physical activity as the main causes of obesity.

CONCLUSIONS:

Perceptions of the causes of obesity in adolescents from a middle-income setting vary by gender, socioeconomic position, and nutritional status. Whereas some blame genetics as responsible for obesity development, others blame unhealthy diets and lifestyles, and others acknowledge the roles of early life experiences and family traditions in the process of obesity development.

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**38: Altenburg TM, Hofsteenge GH, Weijs PJ, Delemarre-van de Waal HA, Chinapaw MJ. Self-reported screen time and cardiometabolic risk in obese Dutch adolescents. PLoS One. 2012;7(12):e53333. doi: 10.1371/journal.pone.0053333. Epub 2012 Dec 28. PubMed PMID: 23285284; PubMed Central PMCID: PMC3532349.**

Abstract

BACKGROUND:

It is not clear whether the association between sedentary time and cardiometabolic risk exists among obese adolescents. We examined the association between screen time (TV and computer time) and cardiometabolic risk in obese Dutch adolescents.

METHODS AND FINDINGS:

For the current cross-sectional study, baseline data of 125 Dutch overweight and obese adolescents (12-18 years) participating in the Go4it study were included. Self-reported screen time (Activity Questionnaire for Adolescents and Adults) and clustered and individual cardiometabolic risk (i.e. body composition, systolic and diastolic blood pressure, low-density (LDL-C), high-density (HDL-C) and total cholesterol (TC), triglycerides, glucose and insulin) were assessed in all participants. Multiple linear regression analyses were used to assess the association between screen time and cardiometabolic risk, adjusting for age, gender, pubertal stage, ethnicity and moderate-to-vigorous physical activity. We found no significant relationship between self-reported total screen time and clustered cardiometabolic risk or individual risk factors in overweight and obese adolescents. Unexpectedly, self-reported computer time, but not TV time, was slightly but significantly inversely associated with TC (B = -0.002; CI = [-0.003;-0.000]) and LDL-C (B = -0.002; CI = [-0.001;0.000]).

CONCLUSIONS:

In obese adolescents we could not confirm the hypothesised positive association between screen time and cardiometabolic risk. Future studies should consider computer use as a separate class of screen behaviour, thereby also discriminating between active video gaming and other computer activities.

**39: Ginsburg C, Griffiths PL, Richter LM, Norris SA. Residential mobility, socioeconomic context and body mass index in a cohort of urban South African adolescents. Health Place. 2013 Jan;19:99-107. doi: 10.1016/j.healthplace.2012.09.016. Epub 2012 Nov 7. PubMed PMID: 23211581; PubMed Central PMCID: PMC3895683.**

Abstract

Adolescents who are changing residence, as well as their social and economic circumstances may experience lifestyle changes that have an effect on body composition outcomes such as undernutrition, overweight or obesity. This paper uses data from Birth to Twenty, a birth cohort of South African urban children, to determine the relationship between residential mobility and body mass index (BMI) amongst Black adolescents aged 15 (n=1613), and to examine the role of changes in household socioeconomic status (SES). The prevalence of overweight and obesity in the sample was 25% in females and 8% in males. Amongst the females, a strong positive association between residential mobility and BMI was observed for those who also experienced an increase in household

SES between birth and 15 years ( $\beta=0.42$ ,  $SE=0.13$ ), while no effect was identified for males. The study shows the potential for environmental change and increased resources to influence the risk for obesity. It also highlights the value in considering the range of social environmental factors and changes across the early life course that might play a part in evolving nutritional patterns in urban transitioning environments.

**40: Labonté ME, Dewailly E, Chateau-Degat ML, Couture P, Lamarche B.**

**Population-based study of high plasma C-reactive protein concentrations among the Inuit of Nunavik. *Int J Circumpolar Health*. 2012;71. doi:**

**10.3402/ijch.v71i0.19066. Epub 2012 Oct 17. PubMed PMID: 23087913; PubMed Central PMCID: PMC3475996.**

Abstract

BACKGROUND:

The shift away from traditional lifestyle in the Inuit population over the past few decades has been associated with an increased prevalence of coronary heart disease (CHD) risk factors such as obesity, high blood pressure (BP) and diabetes. However, the impact of this transition on the pro-inflammatory marker high-sensitivity C-reactive protein (hs-CRP) has not been documented.

OBJECTIVES:

To examine the prevalence of elevated plasma hs-CRP concentrations in Inuit from Nunavik in the province of Quebec (Canada) and identify anthropometric, biochemical and lifestyle risk factors associated with elevated hs-CRP.

DESIGN:

A population-representative sample of 801 Inuit residents from 14 villages of Nunavik, aged between 18 and 74 years, was included in the analyses. Subjects participated in a clinical session and completed questionnaires on lifestyle. Multivariate logistic regression was used to determine risk factors for elevated hs-CRP.

RESULTS:

Elevated plasma hs-CRP concentrations ( $\geq 2$  mg/L) were present in 32.7% (95% confidence interval (CI) 29.5-35.8) of the Inuit adult population and were more prevalent among women than among men (36.7% vs. 29.0%,  $p=0.007$ ). Multivariate logistic regression analysis indicated that every 1 mmHg increase in systolic BP was associated with a 3% increase in the odds of having hs-CRP concentrations  $\geq 2$  mg/L in the Inuit population (95% CI 1.01-1.04). The combination of older age ( $\geq 50$  vs.  $<30$  years) and elevated waist circumference (gender-specific cut-off values) in a multivariate logistic model was also associated with a 13.3-fold increase in the odds of having plasma hs-CRP concentrations  $\geq 2$  mg/L (95% CI 5.8-30.9).

CONCLUSIONS:

These data indicate that elevated hs-CRP is relatively prevalent among Inuit with values that are similar to those seen in Canadian Caucasian populations. Sex, age, waist circumference and systolic BP are major factors that increase the risk of this inflammatory phenotype among Inuit from Nunavik, despite their different lifestyle background compared with Caucasians.

KEYWORDS:

C-reactive protein; Inuit; Nunavik; aging; prevalence; risk factors; sex; systolic blood pressure; waist circumference.



**41: Arora M, Nazar GP, Gupta VK, Perry CL, Reddy KS, Stigler MH. Association of breakfast intake with obesity, dietary and physical activity behavior among urban school-aged adolescents in Delhi, India: results of a cross-sectional study. BMC Public Health. 2012 Oct 17;12:881. doi: 10.1186/1471-2458-12-881. PubMed PMID: 23075030; PubMed Central PMCID: PMC3549919.**

Abstract

BACKGROUND:

In developed countries, regular breakfast consumption is inversely associated with excess weight and directly associated with better dietary and improved physical activity behaviors. Our objective was to describe the frequency of breakfast consumption among school-going adolescents in Delhi and evaluate its association with overweight and obesity as well as other dietary, physical activity, and sedentary behaviors.

METHODS:

DESIGN:

Cross-sectional study.

SETTING:

Eight schools (Private and Government) of Delhi in the year 2006.

PARTICIPANTS:

1814 students from 8th and 10th grades; response rate was 87.2%; 55% were 8th graders, 60% were boys and 52% attended Private schools.

MAIN OUTCOME MEASURES:

Body mass index, self-reported breakfast consumption, diet and physical activity related behaviors, and psychosocial factors.

DATA ANALYSIS:

Mixed effects regression models were employed, adjusting for age, gender, grade level and school type (SES).

RESULTS:

Significantly more Government school (lower SES) students consumed breakfast daily as compared to Private school (higher SES) students (73.8% vs. 66.3%;  $p < 0.01$ ). More 8th graders consumed breakfast daily vs. 10th graders (72.3% vs. 67.0%;  $p < 0.05$ ). A dose-response relationship was observed such that overall prevalence of overweight and obesity among adolescents who consumed breakfast daily (14.6%) was significantly lower vs. those who only sometimes (15.2%) or never (22.9%) consumed breakfast ( $p < 0.05$  for trend). This relationship was statistically significant for boys (15.4% vs. 16.5% vs. 26.0%;  $p < 0.05$  for trend) but not for girls. Intake of dairy products, fruits and vegetables was 5.5 (95% CI 2.4-12.5), 1.7 (95% CI 1.1-2.5) and 2.2 (95% CI 1.3-3.5) times higher among those who consumed breakfast daily vs. those who never consumed breakfast. Breakfast consumption was associated with greater physical activity vs. those who never consumed breakfast. Positive values and beliefs about healthy eating; body image satisfaction; and positive peer and parental influence were positively associated with daily breakfast consumption, while depression was negatively associated.

CONCLUSION:

Daily breakfast consumption is associated with less overweight and obesity and with healthier dietary- and physical activity-related behaviors among urban Indian students. Although prospective studies should confirm the present results, intervention programs to prevent or treat childhood obesity in India should consider emphasizing regular breakfast consumption.

**42: Sikorski C, Luppá M, Brähler E, König HH, Riedel-Heller SG. Obese children, adults and senior citizens in the eyes of the general public: results of a representative study on stigma and causation of obesity. PLoS One. 2012;7(10):e46924. doi: 10.1371/journal.pone.0046924. Epub 2012 Oct 12. PubMed PMID: 23071664; PubMed Central PMCID: PMC3470564.**

Abstract

Obese individuals are blamed for their excess weight based on causal attribution to the individual. It is unclear whether obese individuals of different age groups and gender are faced with the same amount of stigmatization. This information is important in order to identify groups of individuals at risk for higher stigmatization and discrimination. A telephone interview was conducted in a representative sample of 3,003 participants. Experimental manipulation was realized by vignettes describing obese and normal-weight children, adults and senior citizens. Stigmatizing attitudes were measured by semantic differential. Causal attribution was assessed. Internal factors were rated with highest agreement rates as a cause for the vignette's obesity. Lack of activity behavior and eating too much are the most supported causes. Importance of causes differed for the different vignettes. For the child, external causes were considered more important. The overweight vignette was rated consistently more negatively. Higher educational attainment and personal obesity were associated with lower stigmatizing attitudes. The vignette of the obese child was rated more negatively compared to that of an adult or senior citizen. Obesity is seen as a controllable condition, but for children external factors are seen as well. Despite this finding, they are faced with higher stigmatizing attitudes in the general public, contradicting attribution theory assumptions. Internal and external attribution were found to be inter-correlated. Obese children are the population most at risk for being confronted with stigmatization, making them a target point in stigma-reduction campaigns.

**43: Guo X, Zheng L, Li Y, Yu S, Sun G, Yang H, Zhou X, Zhang X, Sun Z, Sun Y. Differences in lifestyle behaviors, dietary habits, and familial factors among normal-weight, overweight, and obese Chinese children and adolescents. Int J Behav Nutr Phys Act. 2012 Oct 2;9:120. doi: 10.1186/1479-5868-9-120. PubMed PMID: 23031205; PubMed Central PMCID: PMC3522535.**

Abstract

BACKGROUND:

Pediatric obesity has become a global public health problem. Data on the lifestyle behaviors, dietary habits, and familial factors of overweight and obese children and adolescents are limited. The present study aims to compare health-related factors among normal-weight, overweight, and obese Chinese children and adolescents.

METHODS:

We conducted a cross-sectional study consisted of 4262 children and adolescents aged 5-18 years old from rural areas of the northeast China. Anthropometric measurements and self-reported information on health-related variables, such as physical activities, sleep duration, dietary habits, family income, and recognition of weight status from the views of both children and parents, were collected by trained personnel.

RESULTS:

The prevalence rates of overweight and obesity were 15.3 and 6.4%, respectively. Compared to girls, boys were more commonly overweight (17.5% vs. 12.9%) and obese (9.5% vs. 3.1%). Approximately

half of the parents with an overweight or obese child reported that they failed to recognize their child's excess weight status, and 65% of patients with an overweight child reported that they would not take measures to decrease their child's body weight. Obese children and adolescents were more likely to be nonsnackers [odds ratio (OR): 1.348; 95% confidence interval (CI): 1.039-1.748] and to have a family income of 2000 CNY or more per month (OR: 1.442; 95% CI: 1.045-1.99) and less likely to sleep longer ( $\geq 7.5$  h) (OR: 0.475; 95% CI: 0.31-0.728) than the normal-weight participants.

**CONCLUSIONS:**

Our study revealed a high prevalence of overweight and obesity in a large Chinese pediatric population. Differences in sleep duration, snacking, family income, and parental recognition of children's weight status among participants in different weight categories were observed, which should be considered when planning prevention and treatment programs for pediatric obesity.

**44: Sygit K, Kořątaj W, Gořdziewska M, Sygit M, Kořątaj B, Karwat ID. Lifestyle as an important factor in control of overweight and obesity among schoolchildren from the rural environment. *Ann Agric Environ Med.* 2012;19(3):557-61. PubMed PMID: 23020056.**

**Abstract**

**INTRODUCTION:**

Lifestyle of an individual is responsible for sixty percent of his/her state of health. Many studies of this problem indicate that in the style of life of schoolchildren, anti-health behaviours dominate over health promoting behaviours.

**OBJECTIVE:**

The objective of the presented study was recognition of the lifestyle of the rural adolescents with overweight and obesity.

**MATERIAL AND METHODS:**

The study covered adolescents aged 15-19, living in the rural environments of the West Pomeranian Region. Finally, the analysis covered 2,165 schoolchildren, and was performed with the use of a self-designed questionnaire form and the BMI was applied.

**RESULTS:**

The study showed that overweight occurred more often in the group of examined girls than boys, while obesity was twice as frequent among boys than among girls. Overweight schoolchildren (35.1%) had an adequate diet, while those obese--inadequate (78.3%). In the group of schoolchildren with overweight, passive leisure prevailed over active forms of leisure, 83.8% and 16.2%, respectively. Passive leisure was also dominant among obese respondents. Among as many as 81.8% of schoolchildren with overweight, physical activity was mediocre, while only 8.1% of them were active. The highest percentage of respondents with obesity were totally inactive physically. Obese schoolchildren relatively often experienced stressful situations. It is an alarming fact that both overweight and obese schoolchildren relatively often used psychoactive substances.

**CONCLUSIONS:**

A considerable number of respondents with overweight and obesity applied an adequate diet, preferred passive forms of leisure, experienced stressful situations, were characterized by low physical activity, and systematically used psychoactive substances.

**45: Baragou S, Djibril M, Atta B, Damorou F, Pio M, Balogou A. Prevalence of cardiovascular risk factors in an urban area of Togo: a WHO STEPS-wise approach in Lome, Togo. *Cardiovasc J Afr.* 2012 Jul;23(6):309-12. doi: 10.5830/CVJA-2011-071. PubMed PMID: 22836151; PubMed Central PMCID: PMC3734750.**

Abstract

OBJECTIVE:

To determine the prevalence of hypertension and other cardiovascular risk factors in the general adult population of Lome.

METHODS:

A cross-sectional household survey was conducted in Lome from October 2009 to January 2010, which focused on hypertension and other cardiovascular risk factors in 2 000 subjects 18 years and older. The World Health Organisation's STEPS-wise approach on non-communicable diseases was used. During the first session, blood pressure (BP) was measured on three successive occasions, one minute apart, and the mean was recorded. A second measurement session was done three weeks later in patients with BP  $\geq$  140/90 mmHg during the first session. Hypertension was defined as BP  $>$  140/90 mmHg after the second session, or on antihypertensive treatment. The other risk factors were studied by clinical and blood analysis.

RESULTS:

We found 532 hypertensive patients out of a total of 2 000 subjects. The prevalence of hypertension was 26.6%. The mean age of hypertensive patients was  $45 \pm 10$  years, ranging from 18 to 98 years. The prevalence of other cardiovascular risk factors was: stress (43%), sedentary lifestyle (41%), hypercholesterolaemia (26%), obesity (25.2%), hypertriglyceridaemia (21%), smoking (9.3%), alcohol use (11%) and diabetes (7.3%).

CONCLUSIONS:

The prevalence of hypertension and other cardiovascular risk factors in the population of Lome is high. These findings should draw the attention of authorities to define a national policy to combat hypertension and other cardiovascular risk factors.

**46: Rawlins E, Baker G, Maynard M, Harding S. Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study. *J Hum Nutr Diet.* 2013 Apr;26(2):132-44. doi: 10.1111/j.1365-277X.2012.01280.x. Epub 2012 Jul 25. PubMed PMID: 22827466; PubMed Central PMCID: PMC3618369.**

Abstract

BACKGROUND:

Ethnicity is a consistent correlate of obesity; however, little is known about the perceptions and beliefs that may influence engagement with obesity prevention programmes among ethnic minority children. Barriers to (and facilitators of) healthy lifestyles were examined in the qualitative arm of the London (UK) DiEt and Active Living (DEAL) study.

METHODS:

Children aged 8-13 years and their parents, from diverse ethnic groups, were recruited through schools and through places of worship. Thirteen focus group sessions were held with 70 children (n = 39 girls) and eight focus groups and five interviews with 43 parents (n = 34 mothers).

RESULTS:

Across ethnic groups, dislike of school meals, lack of knowledge of physical activity guidelines for children and negativity towards physical education at school among girls, potentially hindered healthy living. Issues relating to families' wider neighbourhoods (e.g. fast food outlets; lack of safety) illustrated child and parental concerns that environments could thwart intentions for healthy eating and activity. By contrast, there was general awareness of key dietary messages and an emphasis on dietary variety and balance. For ethnic minorities, places of worship were key focal points for social support. Discourse around the retention of traditional practices, family roles and responsibilities, and religion highlighted both potential facilitators (e.g. the importance of family meals) and barriers (reliance on convenience stores for traditional foods). Socio-economic circumstances intersected with key themes, within and between ethnic groups.

#### CONCLUSIONS:

Several barriers to (and facilitators of) healthy lifestyles were common across ethnic groups. Diversity of cultural frameworks not only were more nuanced, but also shaped lifestyles for minority children.

**47: Drake KM, Beach ML, Longacre MR, Mackenzie T, Titus LJ, Rundle AG, Dalton MA. Influence of sports, physical education, and active commuting to school on adolescent weight status. *Pediatrics*. 2012 Aug;130(2):e296-304. doi: 10.1542/peds.2011-2898. Epub 2012 Jul 16. PubMed PMID: 22802608; PubMed Central PMCID: PMC3408684.**

#### Abstract

##### OBJECTIVE:

To compare the associations between weight status and different forms of physical activity among adolescents.

##### METHODS:

We conducted telephone surveys with 1718 New Hampshire and Vermont high school students and their parents as part of a longitudinal study of adolescent health. We surveyed adolescents about their team sports participation, other extracurricular physical activity, active commuting, physical education, recreational activity for fun, screen time, diet quality, and demographics. Overweight/obesity (BMI for age  $\geq$  85th percentile) and obesity (BMI for age  $\geq$  95 percentile) were based on self-reported height and weight.

##### RESULTS:

Overall, 29.0% (n = 498) of the sample was overweight/obese and 13.0% (n = 223) were obese. After adjustments, sports team participation was inversely related to overweight/obesity (relative risk [RR] = 0.73 [95% confidence interval (CI): 0.61, 0.87] for >2 sports teams versus 0) and obesity (RR = 0.61 [95% CI: 0.45, 0.81] for >2 sports teams versus 0). Additionally, active commuting to school was inversely related to obesity (RR = 0.67 [95% CI: 0.45, 0.99] for >3.5 days per week versus 0). Attributable risk estimates suggest obesity prevalence would decrease by 26.1% (95% CI: 9.4%, 42.8%) if all adolescents played on 2 sports teams per year and by 22.1% (95% CI: 0.1%, 43.3%) if all adolescents walked/biked to school at least 4 days per week.

##### CONCLUSIONS:

Team sport participation had the strongest and most consistent inverse association with weight status. Active commuting to school may reduce the risk of obesity, but not necessarily overweight, and should be studied further. Obesity prevention programs should consider strategies to increase team sport participation among all students.

**48: Peña MM, Dixon B, Taveras EM. Are you talking to ME? The importance of ethnicity and culture in childhood obesity prevention and management. *Child Obes.* 2012 Feb;8(1):23-7. doi: 10.1089/chi.2011.0109. PubMed PMID: 22799474; PubMed Central PMCID: PMC3647541.**

Abstract

Childhood obesity is prevalent, is of consequence, and disproportionately affects racial/ethnic minority populations. By the preschool years, racial/ethnic disparities in obesity prevalence and substantial differences in many risk factors for obesity are already present, suggesting that disparities in obesity prevalence have their origins in the earliest stages of life. The reasons for racial/ethnic variation in obesity are complex and may include differences in cultural beliefs and practices, level of acculturation, ethnicity-based differences in body image, and perceptions of media, sleep, and physical activity. In addition, racial/ethnic differences in obesity may evolve as a consequence of the socio- and environmental context in which families live. The primary care setting offers unique opportunities to intervene and alter the subsequent course of health and disease for children at risk for obesity. Regular visits during childhood allow both detection of elevated weight status and offer opportunities for prevention and treatment. Greater awareness of the behavioral, social-cultural, and environmental determinants of obesity among ethnic minority populations could assist clinicians in the treatment of obesity among diverse pediatric populations. Specific strategies include beginning prevention efforts early in life before obesity is present and recognizing and querying about ethnic- and culturally specific beliefs and practices, the role of the extended family in the household, and parents' beliefs of the causative factors related to their child's obesity. Efforts to provide culturally and linguistically appropriate care, family-based treatment programs, and support services that aim to uncouple socioeconomic factors from adverse health outcomes could improve obesity care for racial/ethnic minority children.

**49: Al-Nakeeb Y, Lyons M, Collins P, Al-Nuaim A, Al-Hazzaa H, Duncan MJ, Nevill A. Obesity, physical activity and sedentary behavior amongst British and Saudi youth: a cross-cultural study. *Int J Environ Res Public Health.* 2012 Apr;9(4):1490-506. doi: 10.3390/ijerph9041490. Epub 2012 Apr 16. PubMed PMID: 22690207; PubMed Central PMCID: PMC3366625.**

Abstract

This study explores differences in weight status, obesity and patterns of physical activity (PA) in relation to gender and age of youth from two culturally, environmentally and geographically diverse countries, the United Kingdom (UK) and Saudi Arabia (SA). A total of 2,290 males and females (15-17 years) volunteered to participate in this study. Participants completed a validated self-report questionnaire that contained 47 items relating to patterns of PA, sedentary activity and eating habits. The questionnaire allows the calculation of total energy expenditure in metabolic equivalent (MET-min) values per week. Significant differences in percentage of overweight/obese and levels of PA were evident between the youth from the two countries, with males being generally more physically active than females. Additionally, there were significant associations between Body Mass Index (BMI), PA and sedentary behaviors; the youth with higher BMI reported lower levels of PA and higher amounts of sedentary time. These findings highlight the diverse nature of lifestyle of youth living in different geographical areas of the world and the need for further research to explore the socio-

cultural factors that impact on the prevalence of obesity and patterns of PA of youth in different populations.

**KEYWORDS:**

environment; lifestyle; obesity; physical activity; young people.

**50: Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J, Harris WA, Lowry R, McManus T, Chyen D, Whittle L, Lim C, Wechsler H; Centers for Disease Control and Prevention (CDC). Youth risk behavior surveillance - United States, 2011. MMWR Surveill Summ. 2012 Jun 8;61(4):1-162. PubMed PMID: 22673000.**

**Abstract**

**PROBLEM:**

Priority health-risk behaviors, which are behaviors that contribute to the leading causes of morbidity and mortality among youth and adults, often are established during childhood and adolescence, extend into adulthood, and are interrelated and preventable.

**REPORTING PERIOD COVERED:**

September 2010-December 2011.

**DESCRIPTION OF THE SYSTEM:**

The Youth Risk Behavior Surveillance System (YRBSS) monitors six categories of priority health-risk behaviors among youth and young adults: 1) behaviors that contribute to unintentional injuries and violence; 2) tobacco use; 3) alcohol and other drug use; 4) sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection; 5) unhealthy dietary behaviors; and 6) physical inactivity. In addition, YRBSS monitors the prevalence of obesity and asthma. YRBSS includes a national school-based Youth Risk Behavior Survey (YRBS) conducted by CDC and state and large urban school district school-based YRBSs conducted by state and local education and health agencies. This report summarizes results from the 2011 national survey, 43 state surveys, and 21 large urban school district surveys conducted among students in grades 9-12.

**RESULTS:**

Results from the 2011 national YRBS indicated that many high school students are engaged in priority health-risk behaviors associated with the leading causes of death among persons aged 10-24 years in the United States. During the 30 days before the survey, 32.8% of high school students nationwide had texted or e-mailed while driving, 38.7% had drunk alcohol, and 23.1% had used marijuana. During the 12 months before the survey, 32.8% of students had been in a physical fight, 20.1% had ever been bullied on school property, and 7.8% had attempted suicide. Many high school students nationwide are engaged in sexual risk behaviors associated with unintended pregnancies and STDs, including HIV infection. Nearly half (47.4%) of students had ever had sexual intercourse, 33.7% had had sexual intercourse during the 3 months before the survey (i.e., currently sexually active), and 15.3% had had sexual intercourse with four or more people during their life. Among currently sexually active students, 60.2% had used a condom during their last sexual intercourse. Results from the 2011 national YRBS also indicate many high school students are engaged in behaviors associated with the leading causes of death among adults aged  $\geq 25$  years in the United States. During the 30 days before the survey, 18.1% of high school students had smoked cigarettes and 7.7% had used smokeless tobacco. During the 7 days before the survey, 4.8% of high school students had not eaten fruit or drunk 100% fruit juices and 5.7% had not eaten vegetables. Nearly one-third (31.1%) had played video or computer games for 3 or more hours on an average school day.



#### INTERPRETATION:

Since 1991, the prevalence of many priority health-risk behaviors among high school students nationwide has decreased. However, many high school students continue to engage in behaviors that place them at risk for the leading causes of morbidity and mortality. Variations were observed in many health-risk behaviors by sex, race/ethnicity, and grade. The prevalence of some health-risk behaviors varied substantially among states and large urban school districts.

#### PUBLIC HEALTH ACTION:

YRBS data are used to measure progress toward achieving 20 national health objectives for Healthy People 2020 and one of the 26 leading health indicators; to assess trends in priority health-risk behaviors among high school students; and to evaluate the impact of broad school and community interventions at the national, state, and local levels. More effective school health programs and other policy and programmatic interventions are needed to reduce risk and improve health outcomes among youth.

**51: Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO.**

**Lifestyle factors associated with overweight and obesity among Saudi adolescents.**

**BMC Public Health. 2012 May 16;12:354. doi: 10.1186/1471-2458-12-354. PubMed**

**PMID: 22591544; PubMed Central PMCID: PMC3433359.**

#### Abstract

##### BACKGROUND:

A better understanding of the relationships between obesity and lifestyle factors is necessary for effective prevention and management of obesity in youth. Therefore, the objective of this study was to evaluate the associations between obesity measures and several lifestyle factors, including physical activity, sedentary behaviors and dietary habits among Saudi adolescents aged 14-19 years.

##### METHODS:

This was a school-based cross-sectional study that was conducted in three cities in Saudi Arabia (Al-Khobar, Jeddah and Riyadh). The participants were 2906 secondary school males (1400) and females (1506) aged 14-19 years, who were randomly selected using a multistage stratified cluster sampling technique. Measurements included weight, height, body mass index (BMI), waist circumference, waist/height ratio (WHtR), screen time (television viewing, video games and computer use), physical activity (determined using a validated questionnaire), and dietary habits (intake frequency per week). Logistic regression was used to examine the associations between obesity and lifestyle factors.

##### RESULTS:

Compared with non-obese, obese males and females were significantly less active, especially in terms of vigorous activity, had less favorable dietary habits (e.g., lower intake of breakfast, fruits and milk), but had lower intake of sugar-sweetened drinks and sweets/chocolates. Logistic regression analysis showed that overweight/obesity (based on BMI categories) or abdominal obesity (based on WHtR categories) were significantly and inversely associated with vigorous physical activity levels (aOR for high level = 0.69, 95% CI 0.41-0.92 for BMI and 0.63, 95% CI 0.45-0.89 for WHtR) and frequency of breakfast (aOR for < 3 days/week = 1.44; 95% CI 1.20-1.71 for BMI and 1.47; 95% CI 1.22-1.76 for WHtR) and vegetable (aOR for < 3 days/week = 1.29; 95% CI 1.03-1.59 for WHtR) intakes, and consumption of sugar-sweetened beverages (aOR for < 3 days/week = 1.32; 95% CI 1.08-1.62 for BMI and 1.42; 95% CI 1.16-1.75 for WHtR).

##### CONCLUSIONS:



The present study identified several lifestyle factors associated with obesity that may represent valid targets for the prevention and management of obesity among Saudi adolescents. Primary prevention of obesity by promoting active lifestyles and healthy diets should be a national public health priority.

**52: González Jiménez E, Aguilar Cordero MJ, García García CJ, García López P, Álvarez Ferre J, Padilla López CA, Ocete Hita E. [Influence of family environment of the development of obesity and overweight in a population of school children in Granada (Spain)]. Nutr Hosp. 2012 Jan-Feb;27(1):177-84. doi: 10.1590/S0212-16112012000100021. Spanish. PubMed PMID: 22566318.**

Abstract

According to recent research, eating behaviour should be understood as a cyclical and interactive process in which parental eating habits cause children to develop specific eating strategies as well as their own eating habits. Needless to say, this interactive process is reflected and has a direct impact on the nutritional indicators of the children in a family. The objectives of this study were the following: (i) to verify the existence of a significant association between the educational level of parents and the nutritional state of children in the same family; (ii) to discover if there is a direct relation between the nutritional state of children and the person that decides the menu and/or prepares family meals; (iii) to determine if there is a link between the nutritional state of children and the time that they spend on sedentary leisure activities. The sample population was composed of 718 school children and adolescents, 9-17 years of age, who A descriptive, transversal, and multicentric study was performed that evaluated the nutritional state of the entire sample by using anthropometric techniques to assess weight, height, and body mass index.

**53: Valdés Pizarro J, Royo-Bordonada MA. Prevalence of childhood obesity in Spain: National Health Survey 2006-2007. Nutr Hosp. 2012 Jan-Feb;27(1):154-60. doi: 10.1590/S0212-16112012000100018. PubMed PMID: 22566315.**

Abstract

INTRODUCTION:

Childhood Obesity has become a Public Health priority due to its high prevalence and consequences in health status.

OBJECTIVE:

To estimate prevalence of obesity in the children included in the National Health Survey of 2006-2007 and to determine its association with socioeconomic position and other socio-demographic variables.

METHODS:

Cross-sectional study using data available from 6,139 Spanish children between 2-15 years old, included in the National Health Survey. Parents or guardians reported weight and height to estimate obesity prevalence according to the International Obesity Task Force cut-offs for body mass index.

RESULTS:

Obesity prevalence was 10,3% and overweight prevalence was 18,8%. Obesity was more prevalent in children from 4-5 years age (18,3%) and overweight in the 8-9 years stratus (25,5%). Overweight was more frequent in boys than girls (19,8% versus 17,8%;  $p = 0,04$ ). Canary Islands, Ceuta and Melilla, Valencia and Andalusia were the Autonomous Communities with higher obesity prevalence in contrast with the Basque Country, Galicia and Madrid which showed the lowest prevalence. This

distribution generates a north to south gradient in obesity prevalence. Both, obesity and overweight showed an inverse association with socioeconomic position ( $p < 0,05$ ).

**CONCLUSION:**

Childhood obesity rates in Spain accounts from ones of the highest in Europe, with a strong geographic and socioeconomic gradient. Priority should be given to effective interventions that can reach the most vulnerable groups as identified in this study, like restrictions on TV food advertising and tax reliefs to promote healthy eating.

**54: Shuval K, Leonard T, Murdoch J, Caughy MO, Kohl HW 3rd, Skinner CS. Sedentary behaviors and obesity in a low-income, ethnic-minority population. J Phys Act Health. 2013 Jan;10(1):132-6. Epub 2012 Feb 29. PubMed PMID: 22398752; PubMed Central PMCID: PMC3597085.**

**Abstract**

**BACKGROUND:**

Numerous studies have documented adverse health effects from prolonged sitting and TV viewing. These sedentary pastimes are linked to increased risk for obesity and other cardiometabolic risk factors. No studies, however, have examined these associations specifically in low-income, minority communities in the US.

**METHODS:**

This cross-sectional, community-based study was conducted in South Dallas, TX. Multivariable ordered logistic regression models were used to examine the association between sedentary behaviors (self-report) and measures of objectively assessed obesity (BMI, waist circumference).

**RESULTS:**

Among a low-income, ethnic-minority population, there were independent and significant associations between higher levels of sitting time, computer use, and transit time with elevated BMI ( $P < .05$ ). Elevated waist circumference was also linked to increased sitting time, computer use, and transit time, yet without statistical significance.

**CONCLUSIONS:**

Increased time spent in passive-leisure activities is a risk marker for obesity in this population.

**55: Rodríguez-Hernández A, Cruz-Sánchez Ede L, Feu S, Martínez-Santos R. [Inactivity, obesity and mental health in the Spanish population from 4 to 15 years of age]. Rev Esp Salud Publica. 2011 Aug;85(4):373-82. doi: 10.1590/S1135-57272011000400006. Spanish. PubMed PMID: 22392468.**

**Abstract**

**BACKGROUND:**

An active lifestyle and a good weight status are two major health determinants from a public health perspective.

**AIM:**

To evaluate the degree of association between physical activity, weight status and the emotional and mental health of Spanish schoolchildren.

**METHOD:**

Mental health status was assessed through the Strengths and Difficulties Questionnaire (SDQ), also leisure time physical activity and body mass index (BMI) in a total of 6 803 children from 4 to 15 years

participating in the Spanish National Health Survey 2006. The degree of association between these variables was estimated by a multinomial logistic regression analysis.

**RESULTS:**

Among sedentary schoolchildren are more common mental health problems (OR 2.10), emotional problems (OR 1.84), conduct problems (OR 1.53), problems with peers (OR 2.35) and social relationship difficulties (OR 1.36). Obesity is associated with poor general mental health (OR 1.58), and obese schoolchildren show more often emotional problems (OR 1.52) and problems with peers (OR 2.43).

**CONCLUSIONS:**

In the Spanish schoolchildren, a healthy BMI is associated with increased mental well-being, although an active lifestyle is the best indicator of a good mental health status.

**56: Bremer AA, Mietus-Snyder M, Lustig RH. Toward a unifying hypothesis of metabolic syndrome. *Pediatrics*. 2012 Mar;129(3):557-70. doi: 10.1542/peds.2011-2912. Epub 2012 Feb 20. Review. PubMed PMID: 22351884; PubMed Central PMCID: PMC3289531.**

**Abstract**

Despite a lack of consistent diagnostic criteria, the metabolic syndrome (MetS) is increasingly evident in children and adolescents, portending a tsunami of chronic disease and mortality as this generation ages. The diagnostic criteria for MetS apply absolute cutoffs to continuous variables and fail to take into account aging, pubertal changes, and race/ethnicity. We attempt to define MetS mechanistically to determine its specific etiologies and to identify targets for therapy. Whereas the majority of studies document a relationship of visceral fat to insulin resistance, ectopic liver fat correlates better with dysfunctional insulin dynamics from which the rest of MetS derives. In contrast to the systemic metabolism of glucose, the liver is the primary metabolic clearinghouse for 4 specific foodstuffs that have been associated with the development of MetS: trans-fats, branched-chain amino acids, ethanol, and fructose. These 4 substrates (1) are not insulin regulated and (2) deliver metabolic intermediates to hepatic mitochondria without an appropriate "pop-off" mechanism for excess substrate, enhancing lipogenesis and ectopic adipose storage. Excessive fatty acid derivatives interfere with hepatic insulin signal transduction. Reactive oxygen species accumulate, which cannot be quenched by adjacent peroxisomes; these reactive oxygen species reach the endoplasmic reticulum, leading to a compensatory process termed the "unfolded protein response," driving further insulin resistance and eventually insulin deficiency. No obvious drug target exists in this pathway; thus, the only rational therapeutic approaches remain (1) altering hepatic substrate availability (dietary modification), (2) reducing hepatic substrate flux (high fiber), or (3) increasing mitochondrial efficiency (exercise).

**57: Aounallah-Skhiri H, El Ati J, Traissac P, Ben Romdhane H, Eymard-Duvernay S, Delpuech F, Achour N, Maire B. Blood pressure and associated factors in a North African adolescent population. a national cross-sectional study in Tunisia. BMC Public Health. 2012 Feb 3;12:98. doi: 10.1186/1471-2458-12-98. PubMed PMID: 22305045; PubMed Central PMCID: PMC3331812.**

#### Abstract

##### BACKGROUND:

In southern and eastern Mediterranean countries, changes in lifestyle and the increasing prevalence of excess weight in childhood are risk factors for high blood pressure (BP) during adolescence and adulthood. The aim of this study was to evaluate the BP status of Tunisian adolescents and to identify associated factors.

##### METHODS:

A cross-sectional study in 2005, based on a national, stratified, random cluster sample of 1294 boys and 1576 girls aged 15-19 surveyed in home visits. The socio-economic and behavioral characteristics of the adolescents were recorded. Overweight/obesity were assessed by Body Mass Index (BMI) from measured height and weight (WHO, 2007), abdominal obesity by waist circumference (WC). BP was measured twice during the same visit. Elevated BP was systolic (SBP) or diastolic blood pressure (DBP)  $\geq$  90th of the international reference or  $\geq$  120/80 mm Hg for 15-17 y., and SBP/DBP  $\geq$  120/80 mm Hg for 18-19 y.; hypertension was SBP/DBP  $\geq$  95th for 15-17 y. and  $\geq$  140/90 mm Hg for 18-19 y. Adjusted associations were assessed by logistic regression.

##### RESULTS:

The prevalence of elevated BP was 35.1%[32.9-37.4]: higher among boys (46.1% vs. 33.3%;  $P < 0.0001$ ); 4.7%[3.8-5.9] of adolescents had hypertension. Associations adjusted for all covariates showed independent relationships with BMI and WC: - obesity vs. no excess weight increased elevated BP (boys OR = 2.1[1.0-4.2], girls OR = 2.3[1.3-3.9]) and hypertension (boys OR = 3.5[1.4-8.9], girls OR = 5.4[2.2-13.4]), - abdominal obesity (WC) was also associated with elevated BP in both genders (for boys: 2nd vs. 1st tertile OR = 1.7[1.3-2.3], 3rd vs.1st tertile OR = 2.8[1.9-4.2]; for girls: 2nd vs. 1st tertile OR = 1.6[1.2-2.1], 3rd vs.1st tertile OR = 2.1[1.5-3.0]) but only among boys for hypertension. Associations with other covariates were weaker: for boys, hypertension increased somewhat with sedentary lifestyle, while elevated BP was slightly more prevalent among urban girls and those not attending school.

##### CONCLUSION:

Within the limits of BP measurement on one visit only, these results suggest that Tunisian adolescents of both genders are likely not spared from early elevated BP. Though further assessment is likely needed, the strong association with overweight/obesity observed suggests that interventions aimed at changing lifestyles to reduce this main risk factor may also be appropriate for the prevention of elevated BP.

**58: Lawman HG, Wilson DK. A review of family and environmental correlates of health behaviors in high-risk youth. *Obesity (Silver Spring)*. 2012 Jun;20(6):1142-57. doi: 10.1038/oby.2011.376. Epub 2012 Jan 26. Review. PubMed PMID: 22282044; PubMed Central PMCID: PMC3360830.**

Abstract

Disparities in the prevalence of obesity in youth place minority and low socioeconomic status youth at increased risk for the development of chronic disease, such as metabolic syndrome and type 2 diabetes. Contributing factors to the increases in obesity include a decline in positive health behaviors, such as making healthy dietary choices, engaging in physical activity, and limiting sedentary behaviors. Family and physical environmental contextual factors related to health behaviors are increasingly the focus of health behavior interventions in line with the bioecological model that encourages a system-focused perspective on understanding health behavior influences. Physical environmental characteristics, such as home and neighborhood characteristics and resources, provide the tangible means to support health behaviors and are important contextual variables to consider that may increase intervention effectiveness. Therefore, the current review seeks to highlight the importance of investigating influences of behavior beyond individual characteristics in understanding factors related to the risk of developing metabolic syndrome and type 2 diabetes in youth at high risk for developing chronic disease. The current study reviews the non-intervention literature on family and physical environmental factors related to health behaviors (i.e., diet, physical activity, and sedentary behavior) in youth who are considered to be at-risk for developing metabolic syndrome and type 2 diabetes. Results on 38 published articles of diet, physical activity, and sedentary behaviors showed support for the role of parenting and physical environmental factors, particularly parental monitoring and neighborhood context, such as social cohesion, as they relate to health behaviors in high-risk youth. Implications and recommendations for future research are discussed.

**59: Willows ND, Hanley AJ, Delormier T. A socioecological framework to understand weight-related issues in Aboriginal children in Canada. *Appl Physiol Nutr Metab*. 2012 Feb;37(1):1-13. doi: 10.1139/h11-128. Epub 2012 Jan 24. Review. PubMed PMID: 22269027.**

Abstract

Obesity prevention efforts in Aboriginal (First Nations, Métis, or Inuit) communities in Canada should focus predominantly on children given their demographic significance and the accelerated time course of occurrence of type 2 diabetes mellitus in the Aboriginal population. A socioecological model to address childhood obesity in Aboriginal populations would focus on the numerous environments at different times in childhood that influence weight status, including prenatal, sociocultural, family, and community environments. Importantly, for Aboriginal children, obesity interventions need to also be situated within the context of a history of colonization and inequities in the social determinants of health. This review therefore advocates for the inclusion of a historical perspective and a life-course approach to obesity prevention in Aboriginal children in addition to developing interventions around the socioecological framework. We emphasize that childhood obesity prevention efforts should focus on promoting maternal health behaviours before and during pregnancy, and on breastfeeding and good infant and child nutrition in the postpartum and early childhood development periods. Ameliorating food insecurity by focusing on improving the

sociodemographic risk factors for it, such as increasing income and educational attainment, are essential. More research is required to understand and measure obesogenic Aboriginal environments, to examine how altering specific environments modifies the foods that children eat and the activities that they do, and to examine how restoring and rebuilding cultural continuity in Aboriginal communities modifies the many determinants of obesity. This research needs to be done with the full participation of Aboriginal communities as partners in the research.

**60: Underwood JM, Townsend JS, Stewart SL, Buchannan N, Ekwueme DU, Hawkins NA, Li J, Peaker B, Pollack LA, Richards TB, Rim SH, Rohan EA, Sabatino SA, Smith JL, Tai E, Townsend GA, White A, Fairley TL; Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC). Surveillance of demographic characteristics and health behaviors among adult cancer survivors--Behavioral Risk Factor Surveillance System, United States, 2009. MMWR Surveill Summ. 2012 Jan 20;61(1):1-23. PubMed PMID: 22258477.**

#### Abstract

##### PROBLEM/CONDITION:

Approximately 12 million people are living with cancer in the United States. Limited information is available on national and state assessments of health behaviors among cancer survivors. Using data from the Behavioral Risk Factor Surveillance System (BRFSS), this report provides a descriptive state-level assessment of demographic characteristics and health behaviors among cancer survivors aged  $\geq 18$  years.

##### REPORTING PERIOD COVERED:

2009

##### DESCRIPTION OF SYSTEM:

BRFSS is an ongoing, state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. population aged  $\geq 18$  years. BRFSS collects information on health risk behaviors and use of preventive health services related to leading causes of death and morbidity. In 2009, BRFSS added questions about previous cancer diagnoses to the core module. The 2009 BRFSS also included an optional cancer survivorship module that assessed cancer treatment history and health insurance coverage for cancer survivors. In 2009, all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands administered the core cancer survivorship questions, and 10 states administered the optional supplemental cancer survivorship module. Five states added questions on mammography and Papanicolaou (Pap) test use, eight states included questions on colorectal screening, and five states included questions on prostate cancer screening.

##### RESULTS:

An estimated 7.2% of the U.S. general population aged  $\geq 18$  years reported having received a previous cancer diagnosis (excluding nonmelanoma skin cancer). A total of 78.8% of cancer survivors were aged  $\geq 50$  years, and 39.2% had received a diagnosis of cancer  $>10$  years previously. A total of 57.8% reported receiving an influenza vaccination during the previous year, and 48.3% reported ever receiving a pneumococcal vaccination. At the time of the interview, 6.8% of cancer survivors had no health insurance, and 12% had been denied health insurance, life insurance, or both because of their cancer diagnosis. The prevalence of cardiovascular disease was higher among male cancer survivors (23.4%) than female cancer survivors (14.3%), as was the prevalence of diabetes (19.6% and 14.7%, respectively). Overall, approximately 15.1% of cancer survivors were current cigarette smokers,

27.5% were obese, and 31.5% had not engaged in any leisure-time physical activity during the past 30 days. Demographic characteristics and health behaviors among cancer survivors varied substantially by state.

**INTERPRETATION:**

Health behaviors and preventive health care practices among cancer survivors vary by state and demographic characteristics. A large proportion of cancer survivors have comorbid conditions, currently smoke, do not participate in any leisure-time physical activity, and are obese. In addition, many are not receiving recommended preventive care, including cancer screening and influenza and pneumococcal vaccinations.

**PUBLIC HEALTH ACTION:**

Health-care providers and patients should be aware of the importance of preventive care, smoking cessation, regular physical activity, and maintaining a healthy weight for cancer survivors. The findings in this report can help public health practitioners, researchers, and comprehensive cancer control programs evaluate the effectiveness of program activities for cancer survivors, assess the needs of cancer survivors at the state level, and allocate appropriate resources to address those needs.

**61: Heo M, Kim RS, Wylie-Rosett J, Allison DB, Heymsfield SB, Faith MS. Inverse association between fruit and vegetable intake and BMI even after controlling for demographic, socioeconomic and lifestyle factors. *Obes Facts*. 2011;4(6):449-55. doi: 10.1159/000335279. Epub 2011 Dec 6. PubMed PMID: 22248995; PubMed Central PMCID: PMC3338984.**

**Abstract**

**OBJECTIVE:**

To estimate fruit and vegetable (FV) intake levels of US adult population and evaluate the association between FV intake and BMI status after controlling for confounding demographic, socioeconomic and lifestyle factors. We also sought to identify moderating factors.

**METHODS:**

We used 2007 Behavior Risk Factors Surveillance System (N > 400,000) data. FV intake was dichotomized as  $\geq 5$  servings (FV5+) versus <5 servings/ day. BMI status was categorized as normal, overweight, and obese. Identification of moderators was performed by testing interactions between BMI status and other variables using bivariate analyses followed by multiple logistic regression analysis incorporating complex survey sampling design features.

**RESULTS:**

Only 24.6% of US adults consumed  $\geq 5$  servings per day and less than 4% consumed 9 or more servings. Overweight (% FV5+ = 23.9%) and obese (21.9%) groups consumed significantly less FV than the normal-weight (27.4%) group ( $p < 0.0001$ ). This inverse association remained significant even after controlling for potential confounding factors. Multivariate analysis identified five significant moderators ( $p < 0.0001$ ) after controlling for all evaluated variables: race, sex, smoking status, health coverage, and physical activity. Notably, physically inactive obese males tended to consume the least FV (% FV5+ = 14.7%).

**CONCLUSION:**

Current US population FV intake level is below recommended levels. The inverse association between FV intake and obesity was significant and was moderated by demographic, socioeconomic status, and

lifestyle factors. These factors should be considered when developing policies and interventions to increase FV intake.

**62: Hoffmann K, Bryl W, Marcinkowski JT, Strażyńska A, Pupek-Musialik D. Estimation of physical activity and prevalence of excessive body mass in rural and urban Polish adolescents. Ann Agric Environ Med. 2011 Dec;18(2):398-403. PubMed PMID: 22216819.**

Abstract

Excessive body mass and sedentary lifestyle are well-known factors for cardiovascular risk, which when present in the young population may have significant health consequences, both in the short- and long-term. The aim of the study was to evaluate the prevalence of overweight, obesity, and sedentary lifestyle in two teenage populations living in an urban or rural area. An additional aim was to compare their physical activity. The study was designed and conducted in 2009. The study population consisted of 116 students aged 15-17 years - 61 males (52.7%) and 55 females (47.3%), randomly selected from public junior grammar schools and secondary schools in the Poznań Region. There were 61 respondents from a rural area - 32 males (52.5%) and 29 females (47.5%), whereas 55 teenagers lived in an urban area - 29 males (47.5%) and 26 females (47.3%). Students were asked to complete a questionnaire, which was especially prepared for the study and contained questions concerning health and lifestyle. A basic physical examination was carried out in all 116 students, including measurements of the anthropometric features. Calculations were performed using the statistical package STATISTICA (data analysis software system), Version. 8.0. When comparing these two populations, no statistically significant differences were detected in the ratio of weight-growth, with the exception of the fact that the urban youths had a larger hip circumference (97.1 v. 94.3 cm,  $p < 0.05$ ). In the group of urban students there were also significantly more subjects with excessive body weight (27.3% v. 24.6%,  $p < 0.05$ ), with a predominant proportion of obese students (60%). There were significantly more male obese individuals (66.7%). In the population of rural teenagers, obesity rate did not differ statistically significantly from the percentage of overweight (11.5% v. 13.1%,  $p > 0.05$ ), the problem of excessive weight affected both sexes in a similar proportion (25% boys and 24.1% girls,  $p > 0.05$ ). In this paper it is shown that there were differences concerning physical activity of teenagers living in urban and rural areas. Urban students much more often declared an active lifestyle (72.7% v. 42.6%,  $p < 0.05$ ), used a variety of additional forms of activity (not counting compulsory physical education classes).

**63: Wang Y. Disparities in pediatric obesity in the United States. Adv Nutr. 2011 Jan;2(1):23-31. doi: 10.3945/an.110.000083. Epub 2011 Jan 10. PubMed PMID: 22211187; PubMed Central PMCID: PMC3042789.**

Abstract

This paper describes the disparities in the U.S. childhood obesity epidemic, mainly based on recent nationally representative data. The prevalence of overweight and obesity has increased since the late 1970s; the over time shifts (changes) in distributions of various body fatness measures indicate that U.S. children have become fatter and the obese groups gained more body fat, especially more central obesity, as indicated by waist circumference. However, considerable between-group and regional disparities exist in the prevalence, fatness measures, and over time trends. The disparities and trends are complex, which reflects the complexity and dynamics in obesity etiology. Clearly, some



population groups are affected more seriously than others. Native American children have the highest prevalence of obesity, whereas Asians have the lowest rate among all ethnic groups. Preschool age children have a lower obesity prevalence than older children. Young people in some states and cities are twice more likely to be overweight or obese than those living in other regions. Low-socioeconomic status is associated with obesity only among some population groups, e.g. white children and adolescents. Vigorous, effective interventions are needed to promote healthy lifestyles among U.S. young people and to reduce disparities in obesity.

**64: Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO. Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region. Int J Behav Nutr Phys Act. 2011 Dec 21;8:140. doi: 10.1186/1479-5868-8-140. PubMed PMID: 22188825; PubMed Central PMCID: PMC3339333.**

Abstract

**BACKGROUND:**

Few lifestyle factors have been simultaneously studied and reported for Saudi adolescents. Therefore, the purpose of the present study was to report on the prevalence of physical activity, sedentary behaviors and dietary habits among Saudi adolescents and to examine the interrelationships among these factors using representative samples drawn from three major cities in Saudi Arabia.

**METHODS:**

This school-based cross-sectional study was conducted during the years 2009-2010 in three cities: Al-Khobar, Jeddah and Riyadh. The participants were 2908 secondary-school males (1401) and females (1507) aged 14-19 years, randomly selected using a multistage stratified sampling technique. Measurements included weight, height, sedentary behaviors (TV viewing, playing video games and computer use), physical activity using a validated questionnaire and dietary habits.

**RESULTS:**

A very high proportion (84% for males and 91.2% for females) of Saudi adolescents spent more than 2 hours on screen time daily and almost half of the males and three-quarters of the females did not meet daily physical activity guidelines. The majority of adolescents did not have a daily intake of breakfast, fruit, vegetables and milk. Females were significantly ( $p < 0.05$ ) more sedentary, much less physically active, especially with vigorous physical activity, and there were fewer days per week when they consumed breakfast, fruit, milk and dairy products, sugar-sweetened drinks, fast foods and energy drinks than did males. However, the females' intake of French fries and potato chips, cakes and donuts, and candy and chocolate was significantly ( $p < 0.05$ ) higher than the males'. Screen time was significantly ( $p < 0.05$ ) correlated inversely with the intake of breakfast, vegetables and fruit. Physical activity had a significant ( $p < 0.05$ ) positive relationship with fruit and vegetable intake but not with sedentary behaviors.

**CONCLUSIONS:**

The high prevalence of sedentary behaviors, physical inactivity and unhealthy dietary habits among Saudi adolescents is a major public health concern. There is an urgent need for national policy promoting active living and healthy eating and reducing sedentary behaviors among children and adolescents in Saudi Arabia.

**65: Green DM, Cox CL, Zhu L, Krull KR, Srivastava DK, Stovall M, Nolan VG, Ness KK, Donaldson SS, Oeffinger KC, Meacham LR, Sklar CA, Armstrong GT, Robison LL. Risk factors for obesity in adult survivors of childhood cancer: a report from the Childhood Cancer Survivor Study. J Clin Oncol. 2012 Jan 20;30(3):246-55. doi: 10.1200/JCO.2010.34.4267. Epub 2011 Dec 19. PubMed PMID: 22184380; PubMed Central PMCID: PMC3269951.**

Abstract

PURPOSE:

Many Childhood Cancer Survivor Study (CCSS) participants are at increased risk for obesity. The etiology of their obesity is likely multifactorial but not well understood.

PATIENTS AND METHODS:

We evaluated the potential contribution of demographic, lifestyle, treatment, and intrapersonal factors and self-reported pharmaceutical use to obesity (body mass index  $\geq 30$  kg/m<sup>2</sup>) among 9,284 adult (> 18 years of age) CCSS participants. Independent predictors were identified using multivariable regression models. Interrelationships were determined using structural equation modeling (SEM).

RESULTS:

Independent risk factors for obesity included cancer diagnosed at 5 to 9 years of age (relative risk [RR], 1.12; 95% CI, 1.01 to 1.24;  $P = .03$ ), abnormal Short Form-36 physical function (RR, 1.19; 95% CI, 1.06 to 1.33;  $P < .001$ ), hypothalamic/pituitary radiation doses of 20 to 30 Gy (RR, 1.17; 95% CI, 1.05 to 1.30;  $P = .01$ ), and paroxetine use (RR, 1.29; 95% CI, 1.08 to 1.54;  $P = .01$ ). Meeting US Centers for Disease Control and Prevention guidelines for vigorous physical activity (RR, 0.90; 95% CI, 0.82 to 0.97;  $P = .01$ ) and a medium amount of anxiety (RR, 0.86; 95% CI, 0.75 to 0.99;  $P = .04$ ) reduced the risk of obesity. Results of SEM ( $N = 8,244$ ; comparative fit index = 0.999; Tucker Lewis index = 0.999; root mean square error of approximation = 0.014; weighted root mean square residual = 0.749) described the hierarchical impact of the direct predictors, moderators, and mediators of obesity.

CONCLUSION:

Treatment, lifestyle, and intrapersonal factors, as well as the use of specific antidepressants, may contribute to obesity among survivors. A multifaceted intervention, including alternative drug and other therapies for depression and anxiety, may be required to reduce risk.

**66: Foley LS, Maddison R, Jiang Y, Olds T, Ridley K. It's not just the television: survey analysis of sedentary behaviour in New Zealand young people. Int J Behav Nutr Phys Act. 2011 Dec 1;8:132. doi: 10.1186/1479-5868-8-132. PubMed PMID: 22133039; PubMed Central PMCID: PMC3247842.**

Abstract

BACKGROUND:

Sedentary behaviour has been linked with adverse health outcomes in young people; however, the nature and context of being sedentary is poorly understood. Accurate quantification and description of sedentary behaviour using population-level data is required. The aim of this research was to describe sedentary behaviour among New Zealand (NZ) youth and examine whether sedentary behaviour differs by Body Mass Index (BMI) status in this population.

METHODS:

A national representative cross-sectional survey of young people aged 5-24 years (n = 2,503) was conducted in 2008-2009. Data from this survey, which included subjectively (recall diary; n = 1,309) and objectively (accelerometry; n = 960) measured sedentary behaviour for participants aged 10-18 years were analysed using survey weighted methods.

**RESULTS:**

Participants self-reported spending on average 521 minutes per day (standard error [SE] 5.29) in total sedentary behaviour, 181 minutes per day (SE 3.91) in screen-based sedentary activities (e.g., television and video games), and 340 minutes per day (SE 5.22) in other non-screen sedentary behaviours (e.g., school, passive transport and self-care). Accelerometer-measured total sedentary behaviour was on average 420 minutes per day (SE 4.26), or 53% (SE 0.42%) of monitored time. There were no statistically significant differences in time spent in sedentary behaviour among overweight, obese and healthy/underweight young people.

**CONCLUSIONS:**

Both subjective and objective methods indicate that NZ youth spend much of their waking time being sedentary. No relationships were found between sedentary behaviour and BMI status. These findings extend previous research by describing engagement in specific sedentary activities, as well as quantifying the behaviour using an objective method. Differences in what aspects of sedentary behaviour the two methods are capturing are discussed. This research highlights the potential for future interventions to target specific sedentary behaviours or demographic groups.

**67: Borys JM, Le Bodo Y, Jebb SA, Seidell JC, Summerbell C, Richard D, De Henauw S, Moreno LA, Romon M, Visscher TL, Raffin S, Swinburn B; EEN Study Group. EPODE approach for childhood obesity prevention: methods, progress and international development. *Obes Rev.* 2012 Apr;13(4):299-315. doi: 10.1111/j.1467-789X.2011.00950.x. Epub 2011 Nov 23. Review. PubMed PMID: 22106871; PubMed Central PMCID: PMC3492853.**

**Abstract**

Childhood obesity is a complex issue and needs multi-stakeholder involvement at all levels to foster healthier lifestyles in a sustainable way. 'Ensemble Prévenons l'Obésité Des Enfants' (EPODE, Together Let's Prevent Childhood Obesity) is a large-scale, coordinated, capacity-building approach for communities to implement effective and sustainable strategies to prevent childhood obesity. This paper describes EPODE methodology and its objective of preventing childhood obesity. At a central level, a coordination team, using social marketing and organizational techniques, trains and coaches a local project manager nominated in each EPODE community by the local authorities. The local project manager is also provided with tools to mobilize local stakeholders through a local steering committee and local networks. The added value of the methodology is to mobilize stakeholders at all levels across the public and the private sectors. Its critical components include political commitment, sustainable resources, support services and a strong scientific input--drawing on the evidence-base--together with evaluation of the programme. Since 2004, EPODE methodology has been implemented in more than 500 communities in six countries. Community-based interventions are integral to childhood obesity prevention. EPODE provides a valuable model to address this challenge.

**68: Troost JP, Rafferty AP, Luo Z, Reeves MJ. Temporal and regional trends in the prevalence of healthy lifestyle characteristics: United States, 1994-2007. Am J Public Health. 2012 Jul;102(7):1392-8. doi: 10.2105/AJPH.2011.300326. Epub 2012 May 21. PubMed PMID: 22095344; PubMed Central PMCID: PMC3478033.**

Abstract

OBJECTIVES:

We examined temporal and regional trends in the prevalence of health lifestyles in the United States.

METHODS:

We used 1994 to 2007 data from the Behavioral Risk Factor Surveillance System to assess 4 healthy lifestyle characteristics: having a healthy weight, not smoking, consuming fruits and vegetables, and engaging in physical activity. The concurrent presence of all 4 characteristics was defined as a healthy overall lifestyle. We used logistic regression to assess temporal and regional trends.

RESULTS:

The percentages of individuals who did not smoke (4% increase) and had a healthy weight (10% decrease) showed the strongest temporal changes from 1994 to 2007. There was little change in fruit and vegetable consumption or physical activity. The prevalence of healthy lifestyles increased minimally over time and varied modestly across regions; in 2007, percentages were higher in the Northeast (6%) and West (6%) than in the South (4%) and Midwest (4%).

CONCLUSIONS:

Because of the large increases in overweight and the declines in smoking, there was little net change in the prevalence of healthy lifestyles. Despite regional differences, the prevalence of healthy lifestyles across the United States remains very low.

**69: Cook S, Kavey RE. Dyslipidemia and pediatric obesity. Pediatr Clin North Am. 2011 Dec;58(6):1363-73, ix. doi: 10.1016/j.pcl.2011.09.003. Review. PubMed PMID: 22093856; PubMed Central PMCID: PMC3220879.**

Abstract

Cardiovascular disease is the leading cause of death in the United States despite a reduction in mortality over the past 4 decades. Much of this success is attributed to public health efforts and more aggressive treatment of clinical disease. The rising rates of obesity and diabetes, especially among adolescents and young adults, raise concern for increases in mortality. National vital statistics have shown a leveling of cardiovascular disease death rates in the fifth decade of life. Public health efforts have begun to address childhood obesity. This article reviews the dyslipidemia associated with obesity in childhood and outlines a proposed approach to management.

**70: Duffy SA, Cohen KA, Choi SH, McCullagh MC, Noonan D. Predictors of obesity in Michigan Operating Engineers. J Community Health. 2012 Jun;37(3):619-25. doi: 10.1007/s10900-011-9492-1. PubMed PMID: 22005801; PubMed Central PMCID: PMC3345034.**

Abstract

Blue collar workers are at risk for obesity. Little is known about obesity in Operating Engineers, a group of blue collar workers, who operate heavy earth-moving equipment in road building and construction. Therefore, 498 Operating Engineers in Michigan were recruited to participate in a cross-

sectional survey to determine variables related to obesity in this group. Bivariate and multivariate analyses were conducted to determine personal, psychological, and behavioral factors predicting obesity. Approximately 45% of the Operating Engineers screened positive for obesity, and another 40% were overweight. Multivariate analysis revealed that younger age, male sex, higher numbers of self-reported co-morbidities, not smoking, and low physical activity levels were significantly associated with obesity among Operating Engineers. Operating Engineers are significantly at risk for obesity, and workplace interventions are needed to address this problem.

**71: Fontaine KR, McCubrey R, Mehta T, Pajewski NM, Keith SW, Bangalore SS, Crespo CJ, Allison DB. Body mass index and mortality rate among Hispanic adults: a pooled analysis of multiple epidemiologic data sets. *Int J Obes (Lond)*. 2012 Aug;36(8):1121-6. doi: 10.1038/ijo.2011.194. Epub 2011 Oct 11. PubMed PMID: 21986709; PubMed Central PMCID: PMC3271144.**

Abstract

OBJECTIVE:

To evaluate the association between body mass index (BMI, kg m<sup>-2</sup>) and mortality rate among Hispanic adults.

METHODS AND PROCEDURES:

Analysis of five data sets (total N=16,798) identified after searching for publicly available, prospective cohort data sets containing relevant information for at least 500 Hispanic respondents (≥18 years at baseline), at least 5 years of mortality follow-up, and measured height and weight. Data sets included the third National Health and Nutrition Examination Survey, the Puerto Rico Heart Health Program (PRHHP), the Hispanic Established Population for Epidemiologic Studies of the Elderly (HEPESE), the San Antonio Heart Study (SAHS) and the Sacramento Area Latino Study on Aging.

RESULTS:

Cox proportional hazards regression models, adjusting for sex and smoking, were fit within three attained-age strata (18 to younger than 60 years, 60 to younger than 70 years, and 70 years and older). We found that underweight was associated with elevated mortality rate for all age groups in the PRHHP (hazard ratios [HRs]=1.38-1.60) and the SAHS (HRs=1.88-2.51). Overweight (HRs=0.38 and 0.84) and obesity grade 2-3 (HRs=0.75 and 0.60) associated with reduced mortality rate in the HEPESE dataset for those in the 60 to younger than 70 years, and 70 years and older attained-age strata. Weighted estimates combining the HRs across the data sets revealed a similar pattern.

CONCLUSION:

Among Hispanic adults, there was no clear evidence that overweight and obesity associate with elevated mortality rate.

**72: Sigmundová D, El Ansari W, Sigmund E, Frömel K. Secular trends: a ten-year comparison of the amount and type of physical activity and inactivity of random samples of adolescents in the Czech Republic. BMC Public Health. 2011 Sep 26;11:731. doi: 10.1186/1471-2458-11-731. PubMed PMID: 21943194; PubMed Central PMCID: PMC3192689.**

Abstract

BACKGROUND:

An optimal level of physical activity (PA) in adolescence influences the level of PA in adulthood. Although PA declines with age have been demonstrated repeatedly, few studies have been carried out on secular trends. The present study assessed levels, types and secular trends of PA and sedentary behaviour of a sample of adolescents in the Czech Republic.

METHODS:

The study comprised two cross-sectional cohorts of adolescents ten years apart. The analysis compared data collected through a week-long monitoring of adolescents' PA in 1998-2000 and 2008-2010. Adolescents wore either Yamax SW-701 or Omron HJ-105 pedometer continuously for 7 days (at least 10 hours per day) excluding sleeping, hygiene and bathing. They also recorded their number of steps per day, the type and duration of PA and sedentary behaviour (in minutes) on record sheets. In total, 902 adolescents (410 boys; 492 girls) aged 14-18 were eligible for analysis.

RESULTS:

Overweight and obesity in Czech adolescents participating in this study increased from 5.5% (older cohort, 1998-2000) to 10.4% (younger cohort, 2008-2010). There were no inter-cohort significant changes in the total amount of sedentary behaviour in boys. However in girls, on weekdays, there was a significant increase in the total duration of sedentary behaviour of the younger cohort (2008-2010) compared with the older one (1998-2000). Studying and screen time (television and computer) were among the main sedentary behaviours in Czech adolescents. The types of sedentary behaviour also changed: watching TV (1998-2000) was replaced by time spent on computers (2008-2010). The Czech health-related criterion (achieving 11,000 steps per day) decreased only in boys from 68% (1998-2000) to 55% (2008-2010). Across both genders, 55%-75% of Czech adolescents met the health-related criterion of recommended steps per day, however less participants in the younger cohort (2008-2010) met this criterion than in the older cohort (1998-2000) ten years ago. Adolescents' PA levels for the monitored periods of 1998-2000 and 2008-2010 suggest a secular decrease in the weekly number of steps achieved by adolescent boys and girls.

CONCLUSION:

In the younger cohort (2008-2010), every tenth adolescent was either overweight or obese; roughly twice the rate when compared to the older cohort (1998-2000). Sedentary behaviour seems relatively stable across the two cohorts as the increased time that the younger cohort (2008-2010) spent on computers is compensated with an equally decreased time spent watching TV or studying. Across both cohorts about half to three quarters of the adolescents met the health-related criterion for achieved number of steps. The findings show a secular decrease in PA amongst adolescents. The significant interaction effects (cohort  $\times$  age; and cohort  $\times$  gender) that this study found suggested that secular trends in PA differ by age and gender.

**73: Drescher AA, Goodwin JL, Silva GE, Quan SF. Caffeine and screen time in adolescence: associations with short sleep and obesity. J Clin Sleep Med. 2011 Aug 15;7(4):337-42. doi: 10.5664/JCSM.1182. PubMed PMID: 21897768; PubMed Central PMCID: PMC3161764.**

Abstract

OBJECTIVE:

To investigate the associations between sleep duration and obesity incidence and risk factors among pre-adolescents and adolescents.

DESIGN:

Cross-sectional study of a community based cohort

SETTING:

The Tucson Children's Assessment of Sleep Apnea follow-up study (TuCASA) cohort.

PARTICIPANTS:

319 Caucasian and Hispanics between 10-17 years.

MAIN OUTCOME:

Parent-reported sleep duration and BMI z-score.

OUTCOME MEASURES:

Surveys of electronic screen time, dietary and caffeine intake, exercise and sleep habits by parents, and anthropometric measures.

RESULTS:

Parent-reported total sleep time (TST) was inversely associated with BMI z-score, but not significantly correlated with any of the examined nutritional variables or exercise components. Hispanic ethnicity was associated with significantly lower parent-reported TST and higher BMI z-score. Parent-reported TST was inversely related to electronic screen time and caffeine use, but these findings were differentially related to age. Caffeine consumption was associated with decreasing parent-reported TST primarily in older adolescents. Electronic screen time was associated with lower parent-reported TST in younger adolescents.

CONCLUSIONS:

Hispanic ethnicity and parental reports of TST were found to be the most closely associated with BMI z-score. Decreased TST and increased caffeine intake and screen time may result in higher obesity risk in the adolescent population.

KEYWORDS:

Hispanic; Obesity; adolescent; caffeine; sleep; video games.

**74: Reyes J M, Díaz B E, Lera M L, Burrows A R. [Intake and energy metabolism in a sample of overweight and obese Chilean adolescents]. Rev Med Chil. 2011 Apr;139(4):425-31. doi: /S0034-98872011000400002. Epub 2011 Aug 25. Spanish. PubMed PMID: 21879179.**

Abstract

BACKGROUND:

In the last decades, a seven to nine fold increase in the prevalence of teenage obesity and overweight has occurred.

AIM:

To assess energy intake and metabolism in a sample of overweight and obese adolescents.

#### MATERIAL AND METHODS:

In a sample of 113 overweight and obese Chilean adolescents (aged 13 to 16 years, 67 females) we studied anthropometry, body composition by deuterium isotope dilution water, resting energy expenditure by indirect calorimetry and 24-h diet and physical activity recalls.

#### RESULTS:

Most participants (87% of men and 67.2% of women) had an intake that was adequate compared to requirements (FAO/WHO 2005). However, 82.6% of men and 83.6% of women showed reduced energy expenditure. The sample was classified as sedentary, with a physical activity level of 1.29.

#### CONCLUSIONS:

In our sample of overweight and obese adolescents there was a sedentary behavior, resulting in low energy expenditure that would explain a sustained caloric retention. Preventive and therapeutic interventions should encourage the increase in physical activity.

**75: Ali MK, Bullard KM, Beckles GL, Stevens MR, Barker L, Narayan KM, Imperatore**

**G. Household income and cardiovascular disease risks in U.S. children and young adults: analyses from NHANES 1999-2008. *Diabetes Care*. 2011 Sep;34(9):1998-2004.**

**doi: 10.2337/dc11-0792. PubMed PMID: 21868776; PubMed Central PMCID: PMC3161277.**

#### Abstract

##### OBJECTIVE:

To assess the cardiovascular risk profile of youths across socioeconomic groups in the U.S.

##### RESEARCH DESIGN AND METHODS:

Analysis of 1999-2008 National Health and Nutrition Examination Surveys (NHANES) including 16,085 nonpregnant 6- to 24-year-olds to estimate race/ethnicity-adjusted prevalence of obesity, central obesity, sedentary behaviors, tobacco exposure, elevated systolic blood pressure, glycated hemoglobin, non-HDL cholesterol (non-HDL-C), and high-sensitivity C-reactive protein according to age-group, sex, and poverty-income ratio (PIR) tertiles.

##### RESULTS:

Among boys aged 6-11 years, 19.9% in the lowest PIR tertile were obese and 30.0% were centrally obese compared with 13.2 and 21.6%, respectively, in the highest-income tertile households ( $P(\text{obesity}) < 0.05$  and  $P(\text{central obesity}) < 0.01$ ). Boys aged 12-17 years in lowest-income households were more likely than their wealthiest family peers to be obese (20.6 vs. 15.6%,  $P < 0.05$ ), sedentary (14.8 vs. 9.3%,  $P < 0.05$ ), and exposed to tobacco (19.0 vs. 6.5%,  $P < 0.01$ ). Compared with girls aged 12-17 years in highest-income households, lowest-income household girls had higher prevalence of obesity (17.9 vs. 13.1%,  $P < 0.05$ ), central obesity (41.5 vs. 29.2%,  $P < 0.01$ ), sedentary behaviors (20.4 vs. 9.4%,  $P < 0.01$ ), and tobacco exposure (14.1 vs. 5.9%,  $P < 0.01$ ). Apart from higher prevalence of elevated non-HDL-C among low-income women aged 18-24 years (23.4 vs. 15.8%,  $P < 0.05$ ), no other cardiovascular disease risk factor prevalence differences were observed between lowest- and highest-income background young adults.

##### CONCLUSIONS:

Independent of race/ethnicity, 6- to 17-year-olds from low-income families have higher prevalence of obesity, central obesity, sedentary behavior, and tobacco exposure. Multifaceted cardiovascular health promotion policies are needed to reduce health disparities between income groups.



**76: Sadeghi-Bazargani H, Jafarzadeh H, Fallah M, Hekmat S, Bashiri J, Hosseingolizadeh Gh, Soltanmohammadzadeh MS, Mortezaazadeh A, Shaker A, Danehzan M, Zohouri A, Khosravi O, Nasimidoust R, Malekpour N, Kharazmi E, Babaei M, Nadirmohammadi M, Mashhadi-Abdollahi H. Risk factor investigation for cardiovascular health through WHO STEPS approach in Ardabil, Iran. *Vasc Health Risk Manag.* 2011;7:417-24. doi: 10.2147/VHRM.S22727. Epub 2011 Jul 11. PubMed PMID: 21796256; PubMed Central PMCID: PMC3141914.**

Abstract

OBJECTIVES:

Reliable evidence is the keystone for any noncommunicable disease (NCD) prevention plan to be initiated. In this study we carried out a risk factor investigation based on the WHO Stepwise approach to Surveillance (STEPS).

METHODS:

The study was conducted on 1000 adults between 15 and 64 years of age living in Ardabil province, north-west Iran during 2006, based on the WHO STEPS approach to surveillance of risk factors for NCD. At this stage only the first and second steps were carried out. Data were collected through standard questionnaires and methods analyzed using STATA version 8 statistical software package.

RESULTS:

29.0% of men and 2.6% of women were current daily tobacco smokers. The mean number of manufactured cigarettes smoked per day was 18.9 among current daily smokers. Smoking was most prevalent among men of low-income families and those of lower education. The mean body mass index (BMI) was 26.6 kg/m<sup>2</sup>, and was significantly correlated with systolic blood pressure. 58.9% were overweight or obese; 18.0% had raised blood pressure and 3.7% had isolated systolic hypertension. The mean number of servings of fruit consumed per day was 1.1; 33.1% had low levels of activity. Combined risk factor analysis showed that 4.1% of participants were in the low-risk group (up to 5.1% among men and 3.2% among women). Those in the high-risk group comprised 25.6% in the 25- to 44-year age group and 49.7% in the 45- to 64-year age group. Mean BMI increased by age in both sexes at least at the first three decades of adult life.

CONCLUSION:

Based on observed status of risk for cardiovascular health, burden of cardiovascular diseases is expected to increase if an effective prevention strategy is not undertaken.

KEYWORDS:

WHO STEPS; cardiovascular health; noncommunicable diseases; obesity; physical activity; smoking.

**77: Chen JL, Weiss S, Heyman MB, Cooper B, Lustig RH. The efficacy of the web-based childhood obesity prevention program in Chinese American adolescents (Web ABC study). J Adolesc Health. 2011 Aug;49(2):148-54. doi: 10.1016/j.jadohealth.2010.11.243. Epub 2011 Mar 12. PubMed PMID: 21783046; PubMed Central PMCID: PMC3143380.**

Abstract

PURPOSE:

To examine the feasibility and efficacy of a theory-driven and family-based program delivered online to promote healthy lifestyles and weights in Chinese American adolescents.

METHODS:

A randomized controlled study of a web-based intervention was developed and conducted in 54 Chinese American adolescents (ages, 12-15 years) and their families. Data on anthropometry, blood pressure, dietary intake, physical activity, and knowledge and self-efficacy regarding physical activity and nutrition were collected at baseline and 2, 6, and 8 months after the baseline assessment. Data were analyzed using linear mixed modeling.

RESULTS:

The intervention resulted in significant decreases in waist-to-hip ratio and diastolic blood pressure and increases in vegetable and fruit intake, level of physical activity, and knowledge about physical activity and nutrition.

CONCLUSION:

This web-based behavior program for Chinese American adolescents and their families seems feasible and effective in the short-term. Long-term effects remain to be determined. This type of program can be adapted for other minority ethnic groups who are at high-risk for overweight and obesity and have limited access to programs that promote healthy lifestyles.

**78: Duncan S, Duncan EK, Fernandes RA, Buonani C, Bastos KD, Segatto AF, Codogno JS, Gomes IC, Freitas IF Jr. Modifiable risk factors for overweight and obesity in children and adolescents from São Paulo, Brazil. BMC Public Health. 2011 Jul 22;11:585. doi: 10.1186/1471-2458-11-585. PubMed PMID: 21781313; PubMed Central PMCID: PMC3154175.**

Abstract

BACKGROUND:

Brazil is currently experiencing a nutrition transition: the displacement of traditional diets with foods high in saturated fat, sodium, and cholesterol and an increase in sedentary lifestyles. Despite these trends, our understanding of child obesity in Brazil is limited. Thus, the aims of this study were (1) to investigate the current prevalence of overweight and obesity in a large sample of children and adolescents living in São Paulo, Brazil, and (2) to identify the lifestyle behaviors associated with an increased risk of obesity in young Brazilians.

METHODS:

A total of 3,397 children and adolescents (1,596 male) aged 7-18 years were randomly selected from 22 schools in São Paulo, Brazil. Participants were classified as normal weight, overweight, or obese based on international age- and sex-specific body mass index thresholds. Selected sociodemographic, physical activity, and nutrition behaviors were assessed via questionnaire.

RESULTS:

Overall, 19.4% of boys and 16.1% of girls were overweight while 8.9% and 4.3% were obese. Two-way analysis of variance revealed that the prevalence of overweight and obesity was significantly higher in boys and in younger children when compared to girls and older children, respectively ( $P < 0.05$  for both). Logistic regression analysis revealed that overweight was associated with more computer usage, parental encouragement to be active, and light soft drink consumption after controlling for differences in sex, age, and parental education ( $P < 0.05$  for all). Conversely, overweight was associated with less active transport to school, eating before sleep, and consumption of breakfast, full-sugar soft drinks, fried food and confectionery ( $P < 0.05$  for all).

**CONCLUSIONS:**

Our results show that obesity in São Paulo children and adolescents has reached a level equivalent to that seen in many developed countries. We have also identified three key modifiable factors related to obesity that may be appropriate targets for future intervention in Brazilian youth: transport mode to school, computer usage, and breakfast consumption.

**79: Pradinuk M, Chanoine JP, Goldman RD. Obesity and physical activity in children. *Can Fam Physician*. 2011 Jul;57(7):779-82. PubMed PMID: 21753100; PubMed Central PMCID: PMC3135442.**

**Abstract**

**QUESTION:**

What advice should I give parents of overweight children about physical activity? How can we encourage these children to become more physically active?

**ANSWER:**

The Canadian Paediatrics Society 2002 position statement on healthy living for children and youth, which is currently being revised, recommends that physicians advise children and adolescents to increase the time they spend on physical activities by at least 30 minutes a day, with at least 10 minutes involving vigorous activities, and that goals should be reset to reach at least 90 minutes a day of total physical activity. The extent to which children and youth are physically active is influenced by a multitude of complex, interrelated factors. Addressing physical inactivity and its contribution to childhood obesity requires a comprehensive and holistic approach.

**80: Ying-Xiu Z, Shu-Rong W. Secular trends in body mass index and the prevalence of overweight and obesity among children and adolescents in Shandong, China, from 1985 to 2010. *J Public Health (Oxf)*. 2012 Mar;34(1):131-7. doi: 10.1093/pubmed/fdr053. Epub 2011 Jul 8. PubMed PMID: 21742740.**

**Abstract**

**BACKGROUND:**

There is strong evidence of a positive secular trend in body mass index (BMI) and the prevalence of obesity has increased substantially over the last several decades. However, no studies on this trend have been reported in Shandong Province, China. The present study assessed the decennial change in BMI in Shandong Province during the past 25 years and the prevalence of overweight and obesity among children and adolescents.

**METHODS:**

The BMI of children and adolescents aged 7-18 was calculated using data from five national surveys on students' constitution and health carried out by the government in 1985, 1995, 2000, 2005 and

2010 in Shandong Province, China. The distribution of BMI was reported, and the prevalence of overweight and obesity was obtained according to the screening criteria of overweight and obesity for Chinese students using BMI [Working Group on Obesity in China (WGOC) standard]. Overweight and obesity prevalence were also computed using the International Obesity Task Force (IOTF) cutoffs.  
RESULTS:

In the past 25 years, the P(50) (50th percentile) of BMI increased. The average increments of BMI were 2.18 kg/m<sup>2</sup> for boys and 1.21 kg/m<sup>2</sup> for girls, respectively. The prevalence of overweight and obesity increased rapidly: using WGOC standard, the prevalence of overweight increased from 1.91% for boys and 2.02% for girls in 1985 to 17.34% for boys and 11.97% for girls in 2010, and the prevalence of obesity increased from 0.27% for boys and 0.23% for girls in 1985 to 15.83% for boys and 7.12% for girls in 2010; using IOTF standard, the prevalence of overweight increased from 1.54% for boys and 1.27% for girls in 1985 to 19.06% for boys and 13.42% for girls in 2010, and the prevalence of obesity increased from 0.04% for boys and 0.03% for girls in 1985 to 9.33% for boys and 2.42% for girls in 2010, respectively.

CONCLUSIONS:

The average value of BMI has increased over time; overweight and obesity among children and adolescents have become a serious public health problem. Comprehensive evidence-based strategies of intervention should be introduced, including periodic monitoring.

**81: Tudor-Locke C, Craig CL, Cameron C, Griffiths JM. Canadian children's and youth's pedometer-determined steps/day, parent-reported TV watching time, and overweight/obesity: the CANPLAY Surveillance Study. Int J Behav Nutr Phys Act. 2011 Jun 25;8:66. doi: 10.1186/1479-5868-8-66. PubMed PMID: 21702982; PubMed Central PMCID: PMC3141616.**

Abstract

BACKGROUND:

This study examines associations between pedometer-determined steps/day and parent-reported child's Body Mass Index (BMI) and time typically spent watching television between school and dinner.

METHODS:

Young people (aged 5-19 years) were recruited through their parents by random digit dialling and mailed a data collection package. Information on height and weight and time spent watching television between school and dinner on a typical school day was collected from parents. In total, 5949 boys and 5709 girls reported daily steps. BMI was categorized as overweight or obese using Cole's cut points. Participants wore pedometers for 7 days and logged daily steps. The odds of being overweight and obese by steps/day and parent-reported time spent television watching were estimated using logistic regression for complex samples.

RESULTS:

Girls had a lower median steps/day (10682 versus 11059 for boys) and also a narrower variation in steps/day (interquartile range, 4410 versus 5309 for boys). 11% of children aged 5-19 years were classified as obese; 17% of boys and girls were overweight. Both boys and girls watched, on average, < 40 minutes of television between school and dinner on school days. Adjusting for child's age and sex and parental education, the odds of a child being obese decreased by 20% for every extra 3000 steps/day and increased by 21% for every 30 minutes of television watching. There was no association of being overweight with steps/day, however the odds of being overweight increased by

8% for every 30 minutes of additional time spent watching television between school and dinner on a typical school day.

**DISCUSSION:**

Television viewing is the more prominent factor in terms of predicting overweight, and it contributes to obesity, but steps/day attenuates the association between television viewing and obesity, and therefore can be considered protective against obesity. In addition to replacing opportunities for active alternative behaviours, exposure to television might also impact body weight by promoting excess energy intake.

**CONCLUSIONS:**

In this large nationally representative sample, pedometer-determined steps/day was associated with reduced odds of being obese (but not overweight) whereas each parent-reported hour spent watching television between school and dinner increased the odds of both overweight and obesity.

**82: Smith NR, Kelly YJ, Nazroo JY. The effects of acculturation on obesity rates in ethnic minorities in England: evidence from the Health Survey for England. Eur J Public Health. 2012 Aug;22(4):508-13. doi: 10.1093/eurpub/ckr070. Epub 2011 Jun 22. PubMed PMID: 21697245.**

**Abstract**

**OBJECTIVES:**

To investigate the extent of generational differences in adult health-related lifestyles and socio-economic circumstances, and explore whether these differences might explain changing patterns of obesity in ethnic minorities in England.

**METHODS:**

Seven ethnic minority groups were selected from the ethnically boosted 1999 and 2004 Health Survey for England (Indian n = 1580; Pakistani n = 1858; Bangladeshi n = 1549; Black Caribbean n = 1472; Black African n = 587; Chinese n = 1559; and Irish n = 889). Age and sex adjusted odds of being obese in the second generation when compared with the first were estimated before and after adjusting for generational differences in health-related behaviours (snacking, eating cakes and fried foods, low levels of physical exercise, any drinking, current smoker, etc.) and socio-economic factors (social class, equivalized income and highest qualification).

**RESULTS:**

Indian [OR: 1.76 (1.14-2.71)] and Chinese [OR: 3.65 (1.37-9.78)] groups were more likely to be obese in the second generation than the first after adjusting for age and sex, with no significant differences observed in all other groups. However, the risk of obesity in all groups converged between generations to the risk observed in the White reference group, with exception to the Black Caribbean group. Adjusting independently for the mixed patterns of acculturative changes and the uniform upward social mobility in all groups increased the risk of obesity in the second generation.

**CONCLUSIONS:**

Obesity converged to the risk in the majority population following acculturation. Future research needs to consider generation and trans-cultural identities as a fundamental variable in determining the causes of ethnic health inequalities.

**83: Sola AO, Steven AO, Kayode JA, Olayinka AO. Underweight, overweight and obesity in adults Nigerians living in rural and urban communities of Benue State. Ann Afr Med. 2011 Apr-Jun;10(2):139-43. doi: 10.4103/1596-3519.82081. PubMed PMID: 21691021.**

Abstract

OBJECTIVE:

To assess the prevalence of underweight, overweight and obesity among Nigerians aged 18-45 years, living in urban and rural settlements in one state in Nigeria.

MATERIALS AND METHODS:

Four hundred and thirty-five subjects between 18 and 45 years of age were recruited for height, weight and waist circumference (WC) measurements. Body mass index (BMI) was calculated (weight/height<sup>2</sup>, kg/m<sup>2</sup>); WHO criteria determined BMI and WC categories.

RESULTS:

Based on BMI, about 2% of the study population was underweight, 22% was overweight and 4% was obese. There were more normal weight persons in rural than in urban settlement. About 40 and 30% of females in urban and rural settlement, respectively, were either overweight or obese. Based on WC of the sample population, 10.34% had increased risk for metabolic syndrome [action level I (defined as WC ≥94 cm in men and ≥80 cm in women)] and 2.8% had substantially increased risk [action level II (defined as WC ≥102 cm in men and ≥88 cm in women)]. At action level II, there was no obese male.

CONCLUSION:

This study revealed that underweight, overweight and obesity exist in young adults, but overweight and obesity are more prevalent. Therefore, concerted efforts should be made to control this in young adults for their present well-being and to possibly avoid the risk of disease later in life.

**84: Gustafsson PE, Persson M, Hammarström A. Socio-economic disadvantage and body mass over the life course in women and men: results from the Northern Swedish Cohort. Eur J Public Health. 2012 Jun;22(3):322-7. doi: 10.1093/eurpub/ckr061. Epub 2011 May 26. PubMed PMID: 21616991.**

Abstract

BACKGROUND:

Obesity and body mass in adulthood relate both to current and to childhood socio-economic status, particularly in women, but the underlying life course processes are not known. This study aims at examining whether the life course socio-economic status-body mass association in women and men is explained by the cumulative risk or adolescent sensitive period models whether associations are similar at different life course stages; and whether health behaviours explain the associations.

METHODS:

A total of 476 women and 517 men participated in this 27-year prospective cohort study (participation rate 93%). Body mass index was assessed at the age of 16 and 43 years and self-reported at the age of 21 and 30 years. Information on socio-economic status by own or parental (age 16 years) occupation, smoking, snuff, alcohol, physical activity and diet was collected at each age.

#### RESULTS:

In women, cumulative socio-economic status and socio-economic status in adolescence were related to body mass index at the age of 16, 21, 30 and 43 years and to the 27-year change in body mass, independently of health behaviours and for adolescent socio-economic status also of later socio-economic attainment. Associations were generally stronger for body mass at older age. In men, associations were mostly non-significant, although health behaviours contributed strongly to body mass.

#### CONCLUSIONS:

In women, both the sensitive period (in adolescence) and cumulative risk models explain the socio-economic-body mass link. Efforts to reduce the social inequality in body mass in women should be directed at the early life course, but focusing on unhealthy behaviours might not be a sufficient approach.

**85: Centers for Disease Control and Prevention (CDC). Arthritis as a potential barrier to physical activity among adults with obesity--United States, 2007 and 2009. MMWR Morb Mortal Wkly Rep. 2011 May 20;60(19):614-8. PubMed PMID: 21597454.**

#### Abstract

Adults with obesity are less likely than adults without obesity to follow physical activity recommendations, despite the known benefits of physical activity for weight loss and weight maintenance). Arthritis is a common comorbidity of adults with obesity, and arthritis-related joint pain and functional limitation might contribute substantially to low rates of physical activity among adults with obesity. CDC analyzed combined 2007 and 2009 Behavioral Risk Factor Surveillance System (BRFSS) data for adults aged  $\geq 18$  years to estimate overall and state-specific prevalence of 1) self-reported doctor-diagnosed arthritis among adults with self-reported obesity, and 2) prevalence of self-reported physical inactivity among adults with obesity by arthritis status. This report describes the results of that analysis, which indicated that, overall, arthritis affected 35.6% of adults with obesity. After adjusting for age, sex, race/ethnicity, and education level, adults with obesity and arthritis were 44% more likely to be physically inactive compared with persons with obesity but without arthritis. Among states, the median prevalence of arthritis among adults with obesity was 35.6%. In every state/area except Guam, the prevalence of physical inactivity among adults with obesity was at least 5 percentage points higher (range: 5.4--15.9 percentage points) among persons with arthritis than those without arthritis. Arthritis might be a special barrier to increasing physical activity among many adults with obesity. Safe and effective self-management education and physical activity programs for adults with arthritis exist to address this barrier, are offered in many communities, and can help adults with obesity and arthritis become more physically active.

**86: Baalwa J, Byarugaba BB, Kabagambe EK, Otim AM. Prevalence of overweight and obesity in young adults in Uganda. Afr Health Sci. 2010 Dec;10(4):367-73. Erratum in: Afr Health Sci.2011 Jun; 11(2):150. Kabagambe, KE [corrected to Kabagambe, EK]. PubMed PMID: 21416039; PubMed Central PMCID: PMC3052810.**

Abstract

BACKGROUND:

Obesity in young adults is rising and predicts diabetes and cardiovascular diseases later in life. Data on prevalence and determinants of obesity in developing countries are needed for primary prevention.

OBJECTIVES:

To determine the prevalence of overweight and obesity in young adults in urban (Kampala city) and rural areas (Kamuli District) of Uganda.

METHODS:

Cross-sectional survey of 683 randomly selected young adults aged 18-30 years. Obesity was defined as body mass index (BMI) > 30 kg/m<sup>2</sup> and overweight as BMI > 25 kg/m<sup>2</sup>. Distribution of BMI by socio-demographic characteristics was determined.

RESULTS:

Of the 683 participants, 50.5% were female and 53.2% were from Kampala. The overall prevalence of obesity and overweight was 2.3% and 10.4%, respectively. The prevalence of obesity was 4.4% in Kampala and 0% in Kamuli while the prevalence of overweight was 10.2% and 10.6% in Kampala and Kamuli, respectively. Compared to males, females were more likely to be obese (2.9% vs. 1.8%) or overweight (17.4% vs. 3.3%). Residing in the city, alcohol consumption, smoking, non-engagement in sports activities, commuting to school by taxi or private vehicle and being from a rich family were the main factors significantly associated ( $P < 0.05$ ) with obesity. Being female ( $p = 0.0001$ ) and not engaging in any sports activities ( $P = 0.002$ ) were two factors significantly associated with being overweight.

CONCLUSION:

We observed significant gender differences in the prevalence of obesity among young adults in Uganda. Contrary to expectation, we did not observe significant rural-urban differences in the prevalence of overweight.

KEYWORDS:

Obesity; Uganda; overweight; prevalence; young adults.

**87: Creighton MJ, Goldman N, Teruel G, Rubalcava L. Migrant networks and pathways to child obesity in Mexico. Soc Sci Med. 2011 Mar;72(5):685-93. doi: 10.1016/j.socscimed.2010.12.006. Epub 2010 Dec 16. PubMed PMID: 21277058; PubMed Central PMCID: PMC3057383.**

Abstract

The purpose of this paper is twofold: 1) to assess the link between migrant networks and becoming overweight or obese and 2) to explore the pathways by which migrant networks may contribute to the increasing overweight and obese population of children in Mexico. Using two waves of the Mexican Family Life Survey (MxFLS), we find that children and adolescents (ages 3 to 15) living in households with migrant networks are at an increased risk of becoming overweight or obese over the period of observation, relative to their peers with no migrant networks. Sedentary behavior and



household-level measures of economic wellbeing explain some of the association between networks and changes in weight status, but the role of extended networks remains significant. Community-level characteristics related to migration do not account for any of the observed relationship between household-level networks and becoming overweight or obese.

**88: Jain S, Pant B, Chopra H, Tiwari R. Obesity among adolescents of affluent public schools in Meerut. Indian J Public Health. 2010 Jul-Sep;54(3):158-60. doi: 10.4103/0019-557X.75740. PubMed PMID: 21245587.**

The prevalence of obesity has increased worldwide in all segments of the population due to increased industrialization, urbanization, mechanization, and associated changes in diet and lifestyles. Change in diet habit of consuming more high energy fast foods and shifting to sedentary lifestyle has affected our children and also increased the risk of chronic diseases among adolescents. Childhood obesity has association with increased risk of coronary heart disease, stroke, and cancer in later life. Therefore, its control and prevention is one of the major concerns for all developing nations. The present school-based cross-sectional study was carried out among 2785 affluent adolescents of six public schools in Meerut during the period October 2003 to March 2004. The objective is to assess the magnitude of overweight and obesity in adolescents and associated risk factors, with the help of the ELIZ health pathway based on body mass index criteria. Prevalence of overweight and obesity was found to be 19.7% and 5.3% in girls and 18.36% and 10.82% in boys. Obesity was found to be significantly associated with high intake of junk foods ( $P < 0.05$ ), binge eating, high calorie intake ( $P < 0.05$ ), lower physical activity ( $P < 0.05$ ), and prolonged TV watching ( $P < 0.05$ ).

**89: Silva DA, Pelegrini A, Silva JM, Petroski EL. Epidemiology of abdominal obesity among adolescents from a Brazilian State Capital. J Korean Med Sci. 2011 Jan;26(1):78-84. doi: 10.3346/jkms.2011.26.1.78. Epub 2010 Dec 22. PubMed PMID: 21218034; PubMed Central PMCID: PMC3012854.**

#### Abstract

The objective of this study was to investigate the effects of socioeconomic, demographic and lifestyle factors on abdominal obesity in adolescents from a Brazilian state capital. In this cross-sectional study, 656 high school students (423 girls and 233 boys) from public schools, ranging in age from 14 to 19 yr, were evaluated. Abdominal obesity was identified based on waist circumference. Socioeconomic data (socioeconomic status, household head's education, and school grade), demographic data (gender and age), and information regarding lifestyle (physical activity, eating habits, aerobic fitness, and nutritional status) were collected. Logistic regression was used for multivariate analysis. The prevalence of abdominal obesity was 6.6% (95% confidence interval [CI]: 4.6-8.4). Being in the second (odds ratio [OR] = 0.41; 95% CI: 0.19-0.88) or third year (OR = 0.18; 95% CI: 0.06-0.59) of high school was a protective factor against abdominal obesity. In addition, students presenting low aerobic fitness (OR = 4.10; 95% CI: 1.62-10.4) and those with excess weight (OR = 208.6; 95% CI: 47.7-911.7) had a higher probability of abdominal obesity. In conclusion, demographic factors such as school grade, lifestyle habits, low aerobic fitness and excess weight are associated with central obesity.

#### KEYWORDS:

Abdominal Adiposity; Adolescent; Brazil; Cross-Sectional Studies; Risk Factors; Waist Circumference.

**91: Ashok P, Kharche JS, Joshi AR. Evaluation of risk for type 2 diabetes mellitus in medical students using Indian Diabetes Risk Score. Indian J Med Sci. 2011 Jan;65(1):1-6. doi: 10.4103/0019-5359.103159. PubMed PMID: 23134940.**

Abstract

**BACKGROUND:**

According to World Health Organisation, type 2 diabetes mellitus [type 2 D. M] has recently escalated in all age groups and is now being identified in younger age groups. This underscores the need for mass awareness and screening programs to detect diabetes at an early stage. For this purpose we have used a simplified Indian Diabetes Risk Score (IDRS) for prediction of diabetes in undergraduate medical students.

**OBJECTIVES:**

To screen and to identify 1st MBBS students at risk for developing type 2 D. M using IDRS.

**MATERIALS AND METHODS:**

261 undergraduates (1st MBBS students) were scored using IDRS which includes age, family history of diabetes, exercise status, and waist circumference. After scoring them, we assessed random capillary blood glucose (RCBG) in students with high IDRS score. Students with RCBG  $\geq$  113 mg/dl are followed for definitive tests for diagnosis of prediabetes and diabetes.

**RESULTS AND CONCLUSION:**

We have assessed 261 students till now. It was observed that 5%, 55%, and 38% students in High, Moderate, and Low risk group, respectively, for developing type 2 D. M. The mean abdominal obesity in high risk students was  $101.95 \pm 5.76$  as compared to  $79.17 \pm 11.08$  in moderate and low risk students ( $P < 0.0001$ ). 63% students were having sedentary lifestyle. Family history of diabetes in either or both parents was present in 25% students. Mean RCBG in students having score more than 50 was  $97.33 \pm 9.68$  mg/dl. Also, two students were having RCBG  $> 113$  mg/dl in which one student found to have prediabetic.

**CONCLUSION:**

This underscores the need for further investigations to detect diabetes at an early stage and to overcome the disease burden of diabetes in future. Prevention of obesity and promotion of physical activity have to be the future plan of action which can be suggested in the form of regular exercise and diet planning for the students as part of an integrated approach.

**92: Harmse B, Kruger HS. Significant differences between serum CRP levels in children in different categories of physical activity: the PLAY study. Cardiovasc J Afr. 2010 Nov-Dec;21(6):316-22. PubMed PMID: 21135979; PubMed Central PMCID: PMC3721782.**

Abstract

Low-grade systemic inflammation is emerging as a component of the metabolic syndrome. The purpose of this study was to assess the association between serum C-reactive protein (CRP), physical activity and body composition in 193 black children aged 13 to 18 years from a South African township. Demographic information and anthropometric measurements were taken, and fasting blood samples were analysed for high-sensitivity serum CRP. Body fat was measured by air displacement plethysmography. There was a trend towards higher serum CRP in the boys with a higher percentage body fat. After multiple regression analyses, waist circumference in the girls was significantly associated with serum CRP. In the boys, there was an inverse correlation between

percentage body fat and fitness, and between fitness and serum CRP. Significant differences were found between serum CRP in the different physical activity categories, with lower serum CRP in the girls in the higher physical activity group. Obesity should be prevented in South African children by encouraging physical activity.

**94: Hoyos Cillero I, Jago R. Sociodemographic and home environment predictors of screen viewing among Spanish school children. J Public Health (Oxf). 2011 Sep;33(3):392-402. doi: 10.1093/pubmed/fdq087. Epub 2010 Nov 3. PubMed PMID: 21047871; PubMed Central PMCID: PMC3307230.**

Abstract

BACKGROUND:

Higher screen-viewing levels increase the risk of obesity. Understanding the correlates of screen viewing is an important first step in designing interventions but there is lack of information on the correlates among Spanish children. This study examined associations among environmental, sociocultural, age variables and screen viewing among Spanish children.

METHODS:

Children completed a questionnaire about time spent in screen viewing. BMI was assessed and children were classified into obesity groups using International Obesity Task Force cut-off points. Parents completed a questionnaire about sociodemographic, environmental and sociocultural variables.

RESULTS:

Participants were 247 primary and 256 secondary school-aged children and their parents. Time spent in screen viewing increased with age. Males spent more time than females in screen viewing. Greater access to bedroom media sources was associated with higher screen viewing. Younger children from single-parent households and older children having a younger parent, siblings and a father who was not working were higher screen-viewers on weekends and weekdays, respectively. For older children parental TV viewing time appeared to be a significant correlate, while parental rules was a determinant predictor for younger children on weekdays.

CONCLUSIONS:

Environmental and sociocultural factors influence the time children spend in screen viewing. Parents play a central role in child's screen viewing; therefore, interventions that target environmental and family TV viewing practices are likely to be effective.

**95: Sonya J, Ranjani H, Pradeepa R, Mohan V. Obesity Reduction and Awareness and Screening of Noncommunicable Diseases through Group Education in children and adolescents (ORANGE): methodology paper (ORANGE-1). J Diabetes Sci Technol. 2010 Sep 1;4(5):1256-64. PubMed PMID: 20920448; PubMed Central PMCID: PMC2956817.**

Abstract

AIM:

Our goal is to estimate the prevalence of obesity, glucose intolerance, hypertension, dyslipidemia, and metabolic syndrome among urban children and adolescents aged 6-19 years and to raise awareness about noncommunicable diseases (NCDs) among school children in Chennai, South India.

METHODS:

The Obesity Reduction and Awareness and Screening of Noncommunicable Diseases through Group Education project plans to reach out to children and adolescents using two approaches: the school and the community approach. The school approach aims to reach out to a representative sample of approximately 20,000 urban school children and adolescents, aged 6-19 years, covering 50 schools from all parts of Chennai. Anthropometric measures will include height, weight, waist, body fat, and blood pressure. Data on demographics, family profile, behavioral aspects, physical activity, and food pattern will be obtained by using a validated questionnaire. Awareness about metabolic NCDs like obesity and diabetes will be increased by educating the children and adolescents about healthy lifestyles. Through the community approach, 2000 children and adolescents from randomly selected residential colonies in Chennai will be screened for obesity, glucose intolerance, hypertension, dyslipidemia, and metabolic syndrome.

**EXPECTED OUTCOMES:**

Awareness about NCDs will be increased among children and their parents in Chennai. This study will also provide valuable epidemiological data on obesity, glucose intolerance, dyslipidemia, hypertension and metabolic syndrome in children and adolescents in urban India.

**96: Samuels SE, Craypo L, Boyle M, Crawford PB, Yancey A, Flores G. The California Endowment's Healthy Eating, Active Communities program: a midpoint review. Am J Public Health. 2010 Nov;100(11):2114-23. doi: 10.2105/AJPH.2010.192781. Epub 2010 Sep 23. PubMed PMID: 20864700; PubMed Central PMCID: PMC2951940.**

**Abstract**

**OBJECTIVES:**

We conducted a midpoint review of The California Endowment's Healthy Eating, Active Communities (HEAC) program, which works in 6 low-income California communities to prevent childhood obesity by changing children's environments. The HEAC program conducts interventions in 5 key childhood environments: schools, after-school programs, neighborhoods, health care, and marketing and advertising.

**METHODS:**

We measured changes in foods and beverages sold at schools and in neighborhoods in HEAC sites; changes in school and after-school physical activity programming and equipment; individual-level changes in children's attitudes and behaviors related to food and physical activity; and HEAC-related awareness and engagement on the part of community members, stakeholders, and policymakers.

**RESULTS:**

Children's environments changed to promote healthier lifestyles across a wide range of domains in all 5 key childhood environments for all 6 HEAC communities. Children in HEAC communities are also engaging in more healthy behaviors than they were before the program's implementation.

**CONCLUSIONS:**

HEAC sites successfully changed children's food and physical activity environments, making a healthy lifestyle a more viable option for low-income children and their families.

**97: Shiely F, Perry IJ, Lutomski J, Harrington J, Kelleher CC, McGee H, Hayes K. Temporal trends in misclassification patterns of measured and self-report based body mass index categories--findings from three population surveys in Ireland. BMC Public Health. 2010 Sep 17;10:560. doi: 10.1186/1471-2458-10-560. PubMed PMID: 20849632; PubMed Central PMCID: PMC2965717.**

Abstract

BACKGROUND:

As the use of self-reported data to classify obesity continues, the temporal change in the accuracy of self-report measurement when compared to clinical measurement remains unclear. The objective of this study was to examine temporal trends in misclassification patterns, as well as sensitivity and specificity, of clinically measured versus self-report based body mass index (BMI) from three national lifestyle surveys over a 10-year period.

METHODS:

The Surveys of Lifestyle Attitudes and Nutrition (SLÁN) were interview based cross-sectional survey/measurements involving nationally representative samples in 1998, 2002 and 2007. Data from a subsample of both self-reported and measured height and weight were available from 66 men and 142 women in 1998, 147 men and 184 women in 2002 and 909 men and 1128 women in 2007. Respondents were classified into the BMI categories normal ( $< 25 \text{ kg m}^{-2}$ ), overweight ( $25 - < 30 \text{ kg m}^{-2}$ ) and obese ( $\geq 30 \text{ kg m}^{-2}$ ).

RESULTS:

Underreporting of BMI increased across the three surveys ( $14\% \rightarrow 21\% \rightarrow 24\%$ ;  $p = 0.002$ ). Sensitivity scores for the normal category exceeded 94% in all three surveys but decreased for the overweight ( $75\% \rightarrow 68\% \rightarrow 66\%$ ) and obese categories ( $80\% \rightarrow 64\% \rightarrow 53\%$ ). Simultaneously, specificity levels remained high.

CONCLUSIONS:

BMI values based on self-reported determinations of height and weight in population samples are underestimating the true prevalence of the obesity epidemic and this underestimation is increasing with time. The decreased sensitivity and consistently high specificity scores in the obese category across time, highlights the limitation of self-report based BMI classifications and the need for simple, readily comprehensible indicators of obesity.

**98: Levy-Marchal C, Arslanian S, Cutfield W, Sinaiko A, Druet C, Marcovecchio ML, Chiarelli F; ESPE-LWPES-ISPAD-APPES-APEG-SLEP-JSPE; Insulin Resistance in Children Consensus Conference Group. Insulin resistance in children: consensus, perspective, and future directions. J Clin Endocrinol Metab. 2010 Dec;95(12):5189-98. doi: 10.1210/jc.2010-1047. Epub 2010 Sep 8. PubMed PMID: 20829185; PubMed Central PMCID: PMC3206517.**

Abstract

OBJECTIVE:

Emerging data indicate that insulin resistance is common among children and adolescents and is related to cardiometabolic risk, therefore requiring consideration early in life. However, there is still confusion on how to define insulin resistance, how to measure it, what its risk factors are, and whether there are effective strategies to prevent and treat it. A consensus conference was organized in order to clarify these points.

#### PARTICIPANTS:

The consensus was internationally supported by all the major scientific societies in pediatric endocrinology and 37 participants.

#### EVIDENCE:

An independent and systematic search of the literature was conducted to identify key articles relating to insulin resistance in children.

#### CONSENSUS PROCESS:

The conference was divided into five themes and working groups: background and definition; methods of measurement and screening; risk factors and consequences; prevention; and treatment. Each group selected key issues, searched the literature, and developed a draft document. During a 3-d meeting, these papers were debated and finalized by each group before presenting them to the full forum for further discussion and agreement.

#### CONCLUSIONS:

Given the current childhood obesity epidemic, insulin resistance in children is an important issue confronting health care professionals. There are no clear criteria to define insulin resistance in children, and surrogate markers such as fasting insulin are poor measures of insulin sensitivity. Based on current screening criteria and methodology, there is no justification for screening children for insulin resistance. Lifestyle interventions including diet and exercise can improve insulin sensitivity, whereas drugs should be implemented only in selected cases.

**99: Nascente FM, Jardim PC, Peixoto Mdo R, Monego ET, Moreira HG, Vitorino PV, Souza WK, Scala LN. [Arterial hypertension and its correlation with some risk factors in a small brazilian town]. Arq Bras Cardiol. 2010 Oct;95(4):502-8. Epub 2010 Aug 27. Multiple languages. PubMed PMID: 20802968.**

#### Abstract

##### BACKGROUND:

arterial hypertension (AH) is a health problem that affects a large number of undiagnosed or inadequately treated hypertensive individuals and presents a high rate of treatment nonadherence.

##### OBJECTIVE:

to estimate the prevalence of AH and its correlation with some cardiovascular risk factors among the adult population of the town of Firminópolis, state of Goiás, Brazil.

##### METHODS:

descriptive, observational and cross-sectional population-based study of a simple random sample (age > 18 years): standardized questionnaires with blood pressure (BP) measurements (AH criterion: BP > 140 x 90 mmHg), weight, height, Body Mass Index (BMI) and waist circumference (WC). Data were stored (Microsoft Access) and analyzed using Epi-info software.

##### RESULTS:

we evaluated 1,168 individuals, with a predominance of the female sex - 63.2% and a mean age of 43.2 ± 14.9 years. There was a prevalence of overweight in 33.7% of the individuals and obesity in 16.0% of the individuals. There was a prevalence of altered WC in 51.8% demand of smoking in 23.2%. A sedentary life style at work and leisure activities was present in 67.6% and 64.8% of the individuals, respectively, with a higher proportion seen among the women. Alcohol consumption was observed in 33.3% of the sample. The prevalence of AH was 32.7%, higher among the men (35.8%) than among the women (30.9%). A positive correlation with AH was identified with BMI, WC and age

range. A negative correlation was observed between AH and level of schooling, with 18.2% of hypertensive individuals with 9 or more years of schooling.

**CONCLUSION:**

a high prevalence of AH, overweight and WC alteration was identified. The female sex represented a protective factor for the risk of AH. A positive correlation was found between AH and BMI, WC and age range; a negative correlation was identified between AH and level of schooling.

**100: Norman GJ, Adams MA, Kerr J, Ryan S, Frank LD, Roesch SC. A latent profile analysis of neighborhood recreation environments in relation to adolescent physical activity, sedentary time, and obesity. J Public Health Manag Pract. 2010 Sep-Oct;16(5):411-9. doi: 10.1097/PHH.0b013e3181c60e92. PubMed PMID: 20689390; PubMed Central PMCID: PMC3222690.**

**Abstract**

**OBJECTIVE:** This study examined whether multivariate profiles of the neighborhood recreation environment were associated with adolescent physical activity, sedentary time, and obesity.

**DESIGN:**

Residential addresses of 871 adolescents in San Diego County (53% female, mean age = 12.8 years) were geocoded to create 1-mile network buffers.

**MEASURES:**

Geographic information systems calculated neighborhood environmental variables. Accelerometers (worn 3-7 days) estimated daily moderate to vigorous physical activity (MVPA) and sedentary time. Height and weight were directly measured.

**RESULTS:**

Latent profile analysis, using 7 environmental variables, resulted in 3 neighborhood profiles characterized as "open space" (OS), "residential with cul-de-sacs" (RWC), and "housing & facility dense" (HFD). These were named Adolescent Recreation Environment Accessibility (AREA) profiles. Multiple regression models stratified by gender tested associations between the AREA profiles and outcomes. Boys were less sedentary in the OS and RWC neighborhoods (7 hours per day) compared with the HFD neighborhoods (8 hours per day) ( $P < .01$ ), and boys were more likely to be obese in the HFD neighborhoods (55%) compared with the OS group (24%) ( $P < .05$ ). Girls in the RWC neighborhoods had lower MVPA levels (70 minutes per day) and were more likely to be obese (31%) than those in the OS neighborhoods (79 minutes per day MVPA, 21% obese) ( $P < .05$ ). No differences were found for boys' MVPA or girls' sedentary time by the AREA profiles.

**CONCLUSIONS:**

These findings highlight the complex relationships among environmental factors, activity levels, and obesity.

**101: Enes CC, Slater B. [Obesity in adolescence and its main determinants]. Rev Bras Epidemiol. 2010 Mar;13(1):163-71. Review. Portuguese. PubMed PMID: 20683564.**

**Abstract**

The objective of this paper was to discuss the main environmental factors determining overweight and obesity in adolescents, based on a critical review of the subject. The main national and international health databases, Medline/PubMed, Web of Science, SciELO, and Lilacs were searched including publications from 1975 to 2009. The following key-words and respective MeSH terms were

used: "overweight", "obesity", "adolescence", "adolescents", "physical activity", "food intake". The findings showed that changes in dietary patterns in recent decades as the increased consumption of simple sugars, processed foods, and inadequate intake of fruits and vegetables have contributed directly to the weight gain in this population. In addition, the progressive reduction in physical activity associated with increased time spent with low-intensity activities like television viewing, playing computer and video games has contributed to the weight gain of adolescents. In conclusion, variables related to dietary pattern and physical activity should be prioritized interventions directed toward the prevention of obesity among adolescents.

**102: Taanila H, Suni J, Pihlajamäki H, Mattila VM, Ohrankämnen O, Vuorinen P, Parkkari J. Aetiology and risk factors of musculoskeletal disorders in physically active conscripts: a follow-up study in the Finnish Defence Forces. BMC Musculoskelet Disord. 2010 Jul 5;11:146. doi: 10.1186/1471-2474-11-146. PubMed PMID: 20602765; PubMed Central PMCID: PMC2911403.**

Abstract

BACKGROUND:

Musculoskeletal disorders (MSDs) are the main reason for morbidity during military training. MSDs commonly result in functional impairment leading to premature discharge from military service and disabilities requiring long-term rehabilitation. The purpose of the study was to examine associations between various risk factors and MSDs with special attention to the physical fitness of the conscripts.

METHODS:

Two successive cohorts of 18 to 28-year-old male conscripts (N = 944, median age 19) were followed for six months. MSDs, including overuse and acute injuries, treated at the garrison clinic were identified and analysed. Associations between MSDs and risk factors were examined by multivariate Cox's proportional hazard models.

RESULTS:

During the six-month follow-up of two successive cohorts there were 1629 MSDs and 2879 health clinic visits due to MSDs in 944 persons. The event-based incidence rate for MSD was 10.5 (95% confidence interval (CI): 10.0-11.1) per 1000 person-days. Most MSDs were in the lower extremities (65%) followed by the back (18%). The strongest baseline factors associated with MSDs were poor result in the combined outcome of a 12-minute running test and back lift test (hazard ratio (HR) 2.9; 95% CI: 1.9-4.6), high waist circumference (HR 1.7; 95% CI: 1.3-2.2), high body mass index (HR 1.8; 95% CI: 1.3-2.4), poor result in a 12-minute running test (HR 1.6; 95% CI: 1.2-2.2), earlier musculoskeletal symptoms (HR 1.7; 95% CI: 1.3-2.1) and poor school success (educational level and grades combined; HR 2.0; 95% CI: 1.3-3.0). In addition, risk factors of long-term MSDs ( $\geq 10$  service days lost due to one or several MSDs) were analysed: poor result in a 12-minute running test, earlier musculoskeletal symptoms, high waist circumference, high body mass index, not belonging to a sports club and poor result in the combined outcome of the 12-minute running test and standing long jump test were strongly associated with long-term MSDs.

CONCLUSIONS:

The majority of the observed risk factors are modifiable and favourable for future interventions. An appropriate intervention based on the present study would improve both aerobic and muscular fitness prior to conscript training. Attention to appropriate waist circumference and body mass index would strengthen the intervention. Effective results from well-planned randomised controlled studies are needed before initiating large-scale prevention programmes in a military environment.



**103: Rivera IR, Silva MA, Silva RD, Oliveira BA, Carvalho AC. Physical inactivity, TV-watching hours and body composition in children and adolescents. Arq Bras Cardiol. 2010 Aug;95(2):159-65. Epub 2010 Jun 11. English, Portuguese. PubMed PMID: 20563518.**

Abstract

BACKGROUND:

Physical inactivity is a predisposing factor to the onset/worsening of other cardiovascular risk factors, particularly obesity.

OBJECTIVE:

To determine physical activity level (PAL) and daily number of hours of TV (HTV) and the association and/or correlation of these variables with age, gender, economic class, public/private school, overweight and obesity in children and adolescents.

METHODS:

Cross sectional study, school-based population, public and private education, primary and secondary education. The sample was calculated based on the minimum expected prevalence of several variables, including physical inactivity. Cluster sampling.

PROTOCOL:

structured questionnaire, including Physical Activity for Older Children Questionnaire (PAQ-C) measurements of weight, height, body mass index (BMI) and triceps skinfold (TSF).

STATISTICAL ANALYSIS:

Chi-square, linear correlation.

RESULTS:

Among the 1,253 students, averaging  $12.4 \pm 2.9$  years old, of which 549 were male, there was a prevalence of inactivity in 93.5%, more commonly found in female adolescents and there was no association between PAL and excess weight or body fat, soccer and dance were the most frequent activities in boys and girls, respectively; 60% of students did not have physical education classes. Average and median HTV were respectively 3.6 and 3 hours; there was a significant association between HTV and obesity and significant correlation between PAL and age (negative) and between BMI and TSF (positive).

CONCLUSION:

Physical inactivity is present in 93.5% of children and adolescents from Maceió. It is more commonly found among teenagers and females, with no association or correlation of this variable with excess weight or body fat; obesity was associated with  $\geq 3$  HTV.

**104: Martins Mdo C, Ricarte IF, Rocha CH, Maia RB, Silva VB, Veras AB, Filho MD.**

**Blood pressure, excess weight and level of physical activity in students of a public university. Arq Bras Cardiol. 2010 Aug;95(2):192-9. Epub 2010 Jun 18. English, Portuguese. PubMed PMID: 20549132.**

Abstract

BACKGROUND:

High blood pressure, excess weight and sedentary lifestyle are important risk factors for cardiovascular diseases, and they are closely associated.

OBJECTIVE:

To evaluate the nutritional status, level of physical activity and blood pressure levels of students of Universidade Federal do Piauí, Teresina, Brazil.

METHODS:

Cross-sectional study with a sample of 605 students (46.1% males and 53.9% females), with a mean age of  $21.7 \pm 3.7$  years. The nutritional status was classified according to body mass index (BMI), and central adiposity according to waist circumference (WC). The level of physical activity was evaluated using the short version of the International Physical Activity Questionnaire (IPAQ). Elevated blood pressure was defined as systolic blood pressure  $> 140$  mmHg and/or diastolic blood pressure  $\geq 90$  mmHg.

RESULTS:

The prevalence of elevated blood pressure was 9.7%, and was higher among men. Excess weight (BMI  $> 25$  kg/m<sup>2</sup>) was found in 18.2% of the students, with overweight and obesity rates of 15.2% and 3%, respectively. Abdominal obesity was found in 2.4% of the students regardless of gender, and sedentary lifestyle in 52%. The mean blood pressure increased with increasing BMI and WC. No association was found between the levels of physical activity and blood pressure.

CONCLUSION:

An association of increased body weight and waist circumference with higher blood pressure levels was observed among the participants. Instruments for an early assessment of the cardiovascular risk and preventive advice should be established for these young individuals.

**105: Omuemu VO, Omuemu CE. The prevalence of overweight and its risk factors among adolescents in an urban city in Edo State. Niger J Clin Pract. 2010 Jun;13(2):128-33. PubMed PMID: 20499742.**

Abstract

INTRODUCTION:

The prevalence of overweight is rising even in countries with significant rates of undernutrition. This is exacerbated by westernization of lifestyles and the image of prosperity associated with overweight. Children are not spared and the health consequences may become apparent in the near future. This study assessed the prevalence of overweight among adolescents in an urban city in a developing country.

METHODOLOGY:

This cross-sectional study conducted from September to December 2005 involved 300 adolescents selected by cluster sampling in Benin-city, Nigeria. Overweight and risk of overweight were defined as Body mass index (BMI)-for-age  $> \text{or} = 95$ th percentile and BMI-for-age 85th to  $< 95$ th percentile respectively.

#### RESULTS:

Of the participants, 5.7% were overweight while 52.7% were at risk of overweight. Risk factors of overweight identified were consumption of snacks (64.3%), soft drinks (85.7%) and physical inactivity (69.7%). Being overweight was significantly associated with consumption of snacks, soft drinks, physical inactivity and positive family history of obesity, ( $p < 0.05$ ).

#### CONCLUSION:

The high prevalence of risk factors for overweight suggests that the already high prevalence of overweight will increase in the near future. Preventive measures are required to forestall this increase.

**106: Esquivel M, González C. Excess weight and adiposity in children and adolescents in Havana, Cuba: prevalence and trends, 1972 to 2005. MEDICC Rev. 2010 Spring;12(2):13-8. PubMed PMID: 20486409.**

#### Abstract

##### INTRODUCTION:

Rising prevalence of excess weight in children and adolescents is a serious public health problem in both developed and developing countries, associated with a growing burden of chronic non-communicable diseases in youth and adults. In Cuba, population-based growth and development surveys have been conducted since the 1970s, the latest in 2005.

##### OBJECTIVE:

Estimate prevalence of overweight, obesity and high adiposity in children and adolescents aged <19 years in Havana, Cuba, in 1972, 1993 and 2005, and describe secular trends in these conditions in the periods observed.

##### METHODS:

A retrospective, descriptive study examined data from growth and development surveys conducted in Havana in 1972, 1993 and 2005, which obtained Body Mass Index (BMI) and left mid-arm fat area (MAFA) in the population aged < or =19 years using probabilistic sampling and comparable methods of anthropometric measurement and data verification, processing and analysis. Age- and sex-specific percentiles were used as cutoff points for diagnosing overweight, obesity and high adiposity in 3 age groups (early childhood: <5 years; childhood: 5-9 years; and adolescence: 10-19 years). Descriptive statistics were used to calculate prevalence, expressed as a percentage of the population surveyed in each nutritional status category, by sex, age group and survey year. Trends were established by comparing prevalence in 3 periods: 1972-1993, 1993-2005 and 1972-2005. Statistical significance of the percentage differences between survey years in each period was calculated using 95% confidence intervals (CI).

##### RESULTS:

Prevalence of excess weight (overweight + obesity) in the study population was 15.3% in 1972, 9.6% in 1993, and 16.4% in 2005, and was more frequent in males but varied by age group and survey year. Prevalence of high adiposity decreased from 13.3% in 1972 to 12.7% in 1993, increasing significantly to 28.8% in 2005. High adiposity was more frequent in males and decreased as age increased, except in children aged <5 years, who had lowest adiposity in 1972. While excess weight predominated over high adiposity in 1972 (15.3% and 13.3%, respectively), this relationship was reversed in 1993 (9.6% excess weight vs 12.7% high adiposity) and continued as a growing trend in 2005 (16.4% excess weight vs 28.8% high adiposity).

#### CONCLUSIONS:

Prevalence of excess weight and high adiposity generally declined during economic crisis and scarcity, and rose as the economy improved. Continued monitoring is required to detect sustained or rising prevalence of these conditions and to develop interventions to reduce health risks.

**107: Burgos MS, Reuter CP, Burgos LT, Pohl HH, Pauli LT, Horta JA, Reckziegel MB, Franke SI, Prá D, Camargo M. [Comparison analysis of blood pressure, obesity, and cardio-respiratory fitness in schoolchildren]. Arq Bras Cardiol. 2010 Jun;94(6):788-93. Epub 2010 May 7. English, Portuguese. PubMed PMID: 20464272.**

#### Abstract

##### BACKGROUND:

During childhood and adolescence, physical inactivity, excess weight, and poor nutrition are risk factors for chronic diseases, especially obesity, hypertension, and diabetes mellitus. Early intervention can prevent the development of these complications.

##### OBJECTIVE:

To determine the presence of cardiovascular risk (obesity and hypertension) in schoolchildren and its potential interactions with cardio-respiratory fitness.

##### METHODS:

This was a cross-sectional study conducted in a stratified cluster sample of 1,666 schoolchildren, aged between 7 and 17 years, 873 (52.4%) of them male and 793 (47.6%) of them female. The following variables were evaluated: systolic blood pressure (SBP), diastolic blood pressure (DBP), body mass index (BMI), body fat percentage (BF %), and cardio-respiratory fitness. SBP and DBP were correlated with waist circumference (WC), waist-hip ratio (WHR), sum of skin folds (SigmaSF), and cardio-respiratory fitness.

##### RESULTS:

A BMI assessment of the students showed that 26.7% of them were overweight or obese, and 35.9% had body fat percentage over moderately high. As to blood pressure, we found that 13.9% and 12.1% of the students were borderline or hypertensive, for SBP and DBP, respectively. There was an association among hypertension, obesity, and cardio-respiratory fitness. There was a significant correlation of SBP and DBP with all variables, and also a weak to moderate correlation with age, weight, height, BMI, and waist circumference.

##### CONCLUSION:

The presence of hypertension associated with obesity and its effects on cardio-respiratory fitness stress the importance of recommending, since childhood, a more active and healthy lifestyle.

**108: Duggins M, Cherven P, Carrithers J, Messamore J, Harvey A. Impact of family YMCA membership on childhood obesity: a randomized controlled effectiveness trial. J Am Board Fam Med. 2010 May-Jun;23(3):323-33. doi: 10.3122/jabfm.2010.03.080266. PubMed PMID: 20453178.**

#### Abstract

##### BACKGROUND:

Treatment studies about childhood obesity in primary care are lacking. We hypothesized that providing a paid family membership to the YMCA would be effective in reducing weight.

**METHODS:**

Patients 5 to 17 years old in at least the 85th body mass index (BMI) percentile were eligible. All participants were scheduled to attend 4 nutrition classes and to return for evaluation at 2, 4, 6, 9, and 12 months. Participants were randomized to nutrition classes only (n = 39) or nutrition classes and family YMCA membership (n = 44). The primary outcome measure was year change in BMI-for-age percentile.

**RESULTS:**

Median BMI percentile at baseline was 99. Only 27 of 36 evaluable participants in the treatment group visited the YMCA. Four participants in the control group and one in the treatment group achieved the target reduction of 2 BMI percentile points (Fisher's exact, P = .17). Within the treatment group, YMCA attendees had a mean increase of 0.30 BMI points compared with an increase of 0.60 BMI points in nonattendees (P = .28).

**CONCLUSION:**

In very obese children, eliminating financial barriers to YMCA membership is insufficient to induce more weight loss during 1 year compared with nutrition classes alone. Improvements in nutrition intake were reported by both groups.

**109: Tremblay MS, Shields M, Laviolette M, Craig CL, Janssen I, Connor Gorber S. Fitness of Canadian children and youth: results from the 2007-2009 Canadian Health Measures Survey. Health Rep. 2010 Mar;21(1):7-20. PubMed PMID: 20426223.**

**Abstract**

**BACKGROUND:**

The fitness of Canadian children and youth has not been measured in more than two decades, a period during which childhood obesity and sedentary behaviours have increased. This paper provides up-to-date estimates of the fitness of Canadians aged 6 to 19 years.

**DATA AND METHODS:**

Data are from the 2007-2009 Canadian Health Measures Survey (CHMS), the most comprehensive direct health measures survey ever conducted on a nationally representative sample of Canadians. Descriptive statistics for indicators of body composition, aerobic fitness and musculoskeletal fitness are provided by sex and age group, and comparisons are made with the 1981 Canada Fitness Survey (CFS).

**RESULTS:**

Fitness levels of children and youth have declined significantly and meaningfully since 1981, regardless of age or sex. Significant sex differences exist for most fitness measures. Fitness levels change substantially between ages 6 and 19 years. Youth aged 15 to 19 years generally have better aerobic fitness and body composition indicators than 20- to 39-year-olds.

**INTERPRETATION:**

This decline in fitness may result in accelerated chronic disease development, higher health care costs, and loss of future productivity.

**110: Depallens SD, Puelma MJ, Krähenbühl JD, Gehri M. The health status of children without resident permit consulting the Children's Hospital of Lausanne. Swiss Med Wkly. 2010 Jul 15;140:w13048. doi: 10.4414/smw.2010.13048. PubMed PMID: 20373177.**

Abstract

OBJECTIVE:

To assess social, economic and medical data concerning children without a resident permit taken into care by the Children's Hospital of Lausanne (HEL) in order to evaluate their specific needs.

METHODS:

Prospective exploratory study by a questionnaire including the socio-demographic, medical and education data of 103 children without a resident permit, who consulted the HEL for the first time between August 2003 and March 2006. These children were then recalled for a second check-up one year later in order to allow a regular monitoring.

RESULTS:

Eighty-seven percent of the children were native of Latin America, 36% being less than two years old. This population of children lived in precarious conditions with a family income lower than the poverty level (89% of the families with less than 3100 CHF/month). Forty-five percent of the children had a health insurance. The main reasons for consultation were infectious diseases, a check-up requested by the school or a check-up concerning newborn children. Most of them were in good health and the others were affected by illnesses similar to those found in other children of the same age. At least 13% of the children were obese and 27% were overweight. All children who were of educational age went to school during the year after the first check-up and 48% were affiliated to a health insurance.

CONCLUSIONS:

The majority of the children from Latin America lived in very precarious conditions. Their general health status was good and most of them could benefit from regular check-ups. Prevention, focused on a healthier life style, was particularly important among this population characterised by a high incidence of overweight and obesity.

**111: Haines J, Kleinman KP, Rifas-Shiman SL, Field AE, Austin SB. Examination of shared risk and protective factors for overweight and disordered eating among adolescents. Arch Pediatr Adolesc Med. 2010 Apr;164(4):336-43. doi: 10.1001/archpediatrics.2010.19. PubMed PMID: 20368486; PubMed Central PMCID: PMC3093706.**

Abstract

OBJECTIVE:

To identify shared risk and protective factors for purging, binge eating, and overweight.

DESIGN:

Prospective cohort study.

SETTING:

Population-based questionnaires of children and adolescents residing across the United States.

PARTICIPANTS:

Girls (n = 6022) and boys (n = 4518), aged 11 to 17 years in 1998, in the ongoing Growing Up Today Study.

MAIN EXPOSURES:

Putative risk and protective factors within the psychological, behavioral, and socioenvironmental domains.

**MAIN OUTCOME MEASURES:**

Overweight, use of laxatives or purging (vomiting), and binge eating. Because of the low prevalence of purging, we did not examine shared factors for this behavior among boys.

**RESULTS:**

In 1998, a total of 219 girls (3.7%) and 30 boys (0.7%) reported purging behaviors, 426 girls (7.1%) and 90 boys (2.0%) reported binge eating, and 1019 girls (17.4%) and 1040 boys (24.6%) were overweight. From 1999 through 2001, 331 girls (7.8%) initiated purging behaviors, 503 girls (11.8%) and 132 boys (4.5%) initiated binge eating behaviors, and 424 girls (10.0%) and 382 boys (13.6%) became overweight. Concern for weight was directly associated with all 3 weight-related problems among boys and girls. Among girls, dieting, parental weight-related teasing, and family meal frequency had a shared effect on the weight-related problems examined.

**CONCLUSIONS:**

Factors within the psychological, behavioral, and socioenvironmental domains may have a shared effect on purging, binge eating, and overweight. Further research is needed to determine if an intervention designed to address these shared risk and protective factors is effective in simultaneously reducing these weight-related problems.

**112: Hairston KG, Bryer-Ash M, Norris JM, Haffner S, Bowden DW, Wagenknecht LE. Sleep duration and five-year abdominal fat accumulation in a minority cohort: the IRAS family study. Sleep. 2010 Mar;33(3):289-95. PubMed PMID: 20337186; PubMed Central PMCID: PMC2831422.**

**Abstract**

**STUDY OBJECTIVES:**

To study 5-year change in computed tomography (CT)-derived visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) associated with sleep duration in 2 minority groups.

**DESIGN:**

Longitudinal epidemiologic study.

**SETTING:**

Three US communities.

**PARTICIPANTS:**

African Americans (N = 332) and Hispanic Americans (N = 775), aged 18-81 years, participating in the IRAS Family Study.

**INTERVENTIONS:**

none

**MEASUREMENTS AND RESULTS:**

Abdominal CT scans and BMI obtained at a 5-year interval. Sleep duration was assessed by questionnaire at baseline and categorized as < or = 5 h, 6-7 h, and > or = 8 h. Generalized estimating equations assessed the association between sleep duration and 5-year fat accumulation with adjustment for age, race, gender, study site, baseline fat measure, physical activity, total calories, smoking status, and education. Age interacted with sleep duration to predict change in fat measures (P < 0.01). In those younger than 40 years, < or = 5 h of sleep was related to a greater accumulation of BMI (1.8 kg/m<sup>2</sup>, P < 0.001), SAT (42 cm<sup>2</sup>, P < 0.0001), and VAT (13 cm<sup>2</sup>, P > 0.01), compared to sleep duration between 6 and 7 h. Eight hours or more of sleep was also significantly related to a greater

accumulation of BMI (0.8 kg/m<sup>2</sup>, P < 0.001), SAT (20 cm<sup>2</sup>, P < 0.01) and VAT (6 cm<sup>2</sup>, P < 0.05) compared to sleep duration between 6 and 7 h. No significant relationship existed between sleep duration and fat depot change in participants older than 40 years old.

**CONCLUSIONS:**

In this minority cohort, extremes of sleep duration are related to increases in BMI, SAT, and VAT in persons younger than 40 years old.

**113: Ma J, Strub P, Camargo CA Jr, Xiao L, Ayala E, Gardner CD, Buist AS, Haskell WL, Lavori PW, Wilson SR. The Breathe Easier through Weight Loss Lifestyle (BE WELL) Intervention: a randomized controlled trial. BMC Pulm Med. 2010 Mar 24;10:16. doi: 10.1186/1471-2466-10-16. PubMed PMID: 20334686; PubMed Central PMCID: PMC2860346.**

**Abstract**

**BACKGROUND:**

Obesity and asthma have reached epidemic proportions in the US. Their concurrent rise over the last 30 years suggests that they may be connected. Numerous observational studies support a temporally-correct, dose-response relationship between body mass index (BMI) and incident asthma. Weight loss, either induced by surgery or caloric restriction, has been reported to improve asthma symptoms and lung function. Due to methodological shortcomings of previous studies, however, well-controlled trials are needed to investigate the efficacy of weight loss strategies to improve asthma control in obese individuals.

**METHODS/DESIGN:**

BE WELL is a 2-arm parallel randomized clinical trial (RCT) of the efficacy of an evidence-based, comprehensive, behavioral weight loss intervention, focusing on diet, physical activity, and behavioral therapy, as adjunct therapy to usual care in the management of asthma in obese adults. Trial participants (n = 324) are patients aged 18 to 70 years who have suboptimally controlled, persistent asthma, BMI between 30.0 and 44.9 kg/m<sup>2</sup>, and who do not have serious comorbidities (e.g., diabetes, heart disease, stroke). The 12-month weight loss intervention to be studied is based on the principles of the highly successful Diabetes Prevention Program lifestyle intervention. Intervention participants will attend 13 weekly group sessions over a four-month period, followed by two monthly individual sessions, and will then receive individualized counseling primarily by phone, at least bi-monthly, for the remainder of the intervention. Follow-up assessment will occur at six and 12 months. The primary outcome variable is the overall score on the Juniper Asthma Control Questionnaire measured at 12 months. Secondary outcomes include lung function, asthma-specific and general quality of life, asthma medication use, asthma-related and total health care utilization. Potential mediators (e.g., weight loss and change in physical activity level and nutrient intake) and moderators (e.g., socio-demographic characteristics and comorbidities) of the intervention effects also will be examined.

**DISCUSSION:**

This RCT holds considerable potential for illuminating the nature of the obesity-asthma relationship and advancing current guidelines for treating obese adults with asthma, which may lead to reduced morbidity and mortality related to the comorbidity of the two disorders.

**TRIAL REGISTRATION:**

NCT00901095.



**114: Finkelstein EA, Strombotne KL. The economics of obesity. Am J Clin Nutr. 2010 May;91(5):1520S-1524S. doi: 10.3945/ajcn.2010.28701E. Epub 2010 Mar 17. PubMed PMID: 20237140.**

Abstract

The rise in obesity rates, both nationally and internationally, is a result of changes in the environment that have simultaneously lowered the cost of food production, lowered the time and monetary cost of food consumption, increased the real cost of being physically active at work and at home, and decreased the health consequences that result from obesity by bringing a host of new drugs and devices to the market to better manage the adverse health effects that obesity promotes. This changing environment is in response to consumers' demand for labor-saving technology and convenient, affordable food. To be successful, efforts to combat obesity therefore need to recognize and address these realities.

**115: Sundquist J, Johansson SE, Sundquist K. Levelling off of prevalence of obesity in the adult population of Sweden between 2000/01 and 2004/05. BMC Public Health. 2010 Mar 9;10:119. doi: 10.1186/1471-2458-10-119. PubMed PMID: 20214805; PubMed Central PMCID: PMC2847975.**

Abstract

BACKGROUND:

The escalating global epidemic of obesity is of worldwide concern because of its association with several chronic diseases and premature mortality. Some subgroups seem to be more affected than others. The aim of this study was to examine whether the mean BMI (adjusted for age) and the prevalence of obesity (adjusted for all the explanatory variables) changed between 2000/01 and 2004/05 in different subgroups of the Swedish population.

METHODS:

This study compared two cross-sectional, nationwide random samples of persons aged 16 to 84 years: the first from 2000/01 (5515 men, 5838 women) and the second from 2004/05 (4681 men, 4821 women). After stratification by gender, a logistic regression model was applied to analyse possible changes in mean BMI and the prevalence of obesity between 2000/01 and 2004/05.

RESULTS:

Total mean BMI remained almost unchanged between 2000/01 and 2004/05 for both men and women. The prevalence of obesity increased slightly in both men and women, but not significantly (from 9.7 to 10.8% and from 9.6 to 10.2%, respectively). The prevalence of obesity in 2004/05 was especially high in some subgroups: men aged 45-54 (14.3%) or 55-64 (16.5%), women aged 65-74 (15.9%) or 75-84 (16.8%), men and women of middle educational level (15.6% and 14.4%, respectively), male former smokers (13.4%), and men from small towns or rural areas (13.1%).

CONCLUSIONS:

Although the mean BMI and obesity were almost unchanged in the Swedish adult population between 2000/01 and 2004/05, obesity levels in Sweden remained unacceptably high, especially in certain subgroups. Primary and secondary intervention actions should strive to decrease the prevalence of obesity in Sweden.

**116: Maddah M, Nikooyeh B. Obesity among Iranian adolescent girls: location of residence and parental obesity. J Health Popul Nutr. 2010 Feb;28(1):61-6. PubMed PMID: 20214087; PubMed Central PMCID: PMC2975847.**

Abstract

This cross-sectional study was conducted to investigate the prevalence and predictors of overweight and obesity by location of residence among randomly-selected 2,577 urban school girls aged 12-17 years in Rasht, Iran. Data on age, frequency of skipping breakfast per week, physical activity, hours of television viewing, self-perception about body condition, and home address were collected. Birthweight of the girls, educational levels of parents, weights and heights of parents, and employment status of mothers were asked to the parents using a self-administrated questionnaire. The overall prevalence of overweight and obesity in this population was 18.6% and 5.9% respectively. Overweight or obesity was more common among girls from low-income areas compared to high-income areas (21.6% vs 17.1%,  $p < 0.001$ ). Maternal education was positively related to overweight/obesity of the girls. Results of logistic regression analysis showed that risk of overweight/obesity was higher in girls whose either parent was overweight or obese. Furthermore, living in low-income areas and skipping breakfast were independently related to overweight/obesity. These data suggest that overweight and obesity are a public-health concern among school girls, especially in low-income areas in Rasht. Knowing risk factors in population subgroups is important for planners in the country because it helps target interventions.

**117: Fett CA, Fett WC, Marchini JS, Ribeiro RP. [Lifestyle and risk factors associated to body fat increase in women]. Cien Saude Colet. 2010 Jan;15(1):131-40. Portuguese. PubMed PMID: 20169240.**

Abstract

The objectives were to describe the association between body mass index (BMI, kg/m<sup>2</sup>), body composition and risk factors to metabolic diseases; observe the prevalence of metabolic syndrome and list the characteristics of overweight and obese women. Voluntaries (n=50; BMI=31+/-6; age=36+/-11 years old), were evaluated regarding clinical examination, anthropometrics measurements, samples of blood and urine, resting energy expenditure and food register. Phases in which they become obese in descending order: adulthood, pregnancy, adolescence, over 40 years old and after marriage. The odds to have one or more obese family members were 316%. They were anxious (60%), depressives (12%), compulsives (34%) and had sleep disturbance (32%). The odds to dyslipidemia was 28%, to hypertension was 25% and to glucose over 100 mg/dL 35%. They were in caloric deficit, but, nitrogen balance was positive. The metabolic syndrome was present in 25% of these women and was positively correlated with body fat indicators and age. The obesity of these women seems to be multifactorial with a family influence that could be caused by genetics and environment contributions. The emotional/physical balance should be influenced on this process.

**118: Lampert T. Smoking, physical inactivity, and obesity: associations with social status. Dtsch Arztebl Int. 2010 Jan;107(1-2):1-7. doi: 10.3238/arztebl.2010.0001. Epub 2010 Jan 7. PubMed PMID: 20090874; PubMed Central PMCID: PMC2807643.**

Abstract

BACKGROUND:

The author analyzed social-status-specific differences in tobacco smoking, physical inactivity, and obesity among men and women aged 18 years and above in Germany.

METHODS:

The 2003 Telephone Health Survey carried out by the Robert Koch Institute from September 2002 to May 2003 (n = 8318) provided the data for this study. The subjects' current smoking status, physical inactivity, and obesity were assessed. Their social status was judged on the basis of the information they gave about their education and professional training, occupational position, and net household income.

RESULTS:

Men of low social status were found to be more likely to smoke (OR = 1.89, 95% CI = 1.53-2.34), to be physically inactive (OR = 2.30, 95% CI = 1.87-2.84), and to be obese (OR = 1.34, 95% CI = 1.02-1.77) than men of high social status. For women, social status had just as large an effect on smoking and physical inactivity as it did in men (OR = 1.63, 95% CI = 1.30-2.09; and OR = 1.91, 95% CI = 1.58-2.33, respectively), while its effect on obesity was even greater than in men (OR = 3.20, 95% CI = 2.46-4.18).

CONCLUSION:

These results imply that persons of low social status should be an important target group for preventive and health-promoting measures, both in health policy and in medical practice.

**119: Larrañaga Vidal A, García-Mayor RV. [High frequency of non-specific eating disorders in obese persons]. Nutr Hosp. 2009 Nov-Dec;24(6):661-6. Spanish. PubMed PMID: 20049368.**

Abstract

OBJECTIVES:

Determine frequency of Eating Disorders and Non-Specific Eating Disorders and pathological behaviour in obese patients.

SUBJECTS AND METHODS:

The study includes fifty-four obese patients (BMI > or = 30) consecutively attended at the Nutrition Section of the University Hospital of Vigo. Aged 37.5 +/- 11.1. Range 18-58, 45 female and 9 male.

CONTROL GROUP:

15 adult normal-weight subjects (11 female, 4 male), aged 35,3 +/- 9,2 años. Frequency of Eating Disorders was determined by a lifestyle clinical interview and the following questionnaires: Eating Attitudes Test 26 (EAT26), Bulimic Investigatory Test Edimburgh (BITE) and Questionnaire Eating Weight Patterns Revised (QEWP-R).

RESULTS:

Twelve out of 54 (20.6%) patients showed Pathological Behavior, while 5 (4.1%) and 3 (2.5%) had Non-Specific Eating Disorders and Classic Eating Disorders respectively, whereas in the control group

non subjects showed psychological anomalies. When we divided obese patients by the degree of obesity, differences in the frequencies of the Eating Disorders was no observed.

**CONCLUSIONS:**

In our obese patients, Pathological Behavior was the most frequent finding followed for Non-Specific Eating Disorders and Classic Eating Disorders.

**120: Robinson WR, Stevens J, Kaufman JS, Gordon-Larsen P. The role of adolescent behaviors in the female-male disparity in obesity incidence in US black and white young adults. *Obesity (Silver Spring)*. 2010 Jul;18(7):1429-36. doi: 10.1038/oby.2009.362. Epub 2009 Oct 29. PubMed PMID: 19875993; PubMed Central PMCID: PMC2888698.**

**Abstract**

In the United States, black women are at much greater risk for obesity than black men. We explored whether adolescent behaviors (family dinners, hours of television, playing sports with mother, playing sports with father, bouts of physical activity) were associated with gender disparity in 6-year obesity incidence in young adulthood. We used data from the nationally representative National Longitudinal Study of Adolescent Health to examine adolescent behaviors in nonimmigrant black (n = 1,503) and white (n = 4,452) youths in 1994-95 (aged 11-19 years) and 1995-96 (aged 12-20). We assessed gender disparity in obesity incidence (female incidence minus male incidence) during young adulthood (2001-02; aged 18-26). Standardized gender disparities were calculated using race- and gender-stratified, covariate-adjusted logistic regression models in which males and females were set to the same distributions of adolescent behaviors. In adolescence, black females reported less leisure-time physical activity and lower likelihood of playing sports with either parent compared with black males. Setting adolescent behaviors equal for black males and females did not reduce the estimated gender disparity in obesity incidence (nonstandardized: 9.8 percentage points (95% confidence interval (CI): 4.5, 15.1); fully standardized: 10.2 percentage points (5.2, 15.2)). There was little gender disparity in whites before or after adjustments. To our knowledge, this is the first study to examine to what extent behavioral differences during adolescence might account for gender disparity in obesity incidence in black young adults. Male-female differences in these adolescent behaviors did not appear to underlie the gender gap in young adult obesity.

**121: Lytle LA. Examining the etiology of childhood obesity: The IDEA study. *Am J Community Psychol*. 2009 Dec;44(3-4):338-49. doi: 10.1007/s10464-009-9269-1. PubMed PMID: 19838791; PubMed Central PMCID: PMC2819263.**

**Abstract**

The prevalence of childhood obesity is of great public health concern. A social ecological framework that is transdisciplinary and multilevel by nature is recognized as the most promising approach for studying this problem. The purpose of this paper is to describe longitudinal research using a social ecological framework to study the etiology of childhood obesity. Individual and contextual factors are assessed in a cohort of youth and their parents including psychosocial factors, and home, school and neighborhood environments. The conceptual model guiding the research and the study design and measures used to operationalize the factors in the model and the descriptive characteristics of the baseline sample of youth and parents enrolled in the research are presented. The use of a conceptual

model to guide the research, a transdisciplinary approach, a longitudinal cohort design and state-of-the-art measures of the individual and the environment are strengths of this research.

**122: Sun Y, Sekine M, Kagamimori S. Lifestyle and overweight among Japanese adolescents: the Toyama Birth Cohort Study. J Epidemiol. 2009;19(6):303-10. Epub 2009 Sep 19. PubMed PMID: 19776497; PubMed Central PMCID: PMC3924099.**

Abstract

OBJECTIVE:

To investigate the effects of lifestyle factors on overweight among Japanese adolescents.

METHODS:

We studied 5753 junior high school students (2842 boys and 2911 girls) aged 12 to 13 years. The students were residents of Toyama prefecture, Japan and completed a questionnaire about their height, weight, and lifestyle factors, in June and July 2002. Subjects with a body-mass index (BMI) higher than age- and sex-specific cut-off points were defined as obese. Parental overweight was defined as a BMI of 25 or higher. Logistic regression analysis was used to examine associations between lifestyle factors and overweight.

RESULTS:

Skipping breakfast, eating quickly, excessive eating, physical inactivity, and long hours of TV watching were positively and significantly associated with overweight in both sexes. There was a negative association between snacking and overweight in girls ( $P < 0.001$ ); no such association was found in boys ( $P > 0.05$ ). Nighttime snacking was negatively associated with overweight in boys and girls ( $P < 0.05$ ). Extended video game playing ( $> \text{or} = 2$  hours;  $\text{OR} = 2.00$ ,  $P = 0.012$ ) and short sleep duration ( $< 7$  hours;  $\text{OR} = 1.81$ ,  $P = 0.004$ ) were significantly associated with overweight in girls only. The respective risks of overweight that derived from the subjects' fathers and mothers were 2.0 and 2.5 times, respectively, in boys and 1.9 and 3.0 times in girls.

CONCLUSIONS:

Parental overweight, skipping breakfast, eating quickly, excessive eating, long hours of TV watching, long hours of video game playing, physical inactivity, and short sleep duration were associated with adolescent overweight. Furthermore, there were significant negative associations between adolescent overweight and snacking in girls and nighttime snacking in both sexes.

**123: Thompson JW, Card-Higginson P. Arkansas' experience: statewide surveillance and parental information on the child obesity epidemic. Pediatrics. 2009 Sep;124 Suppl 1:S73-82. doi: 10.1542/peds.2008-3586J. PubMed PMID: 19720670.**

Abstract

Parents, clinicians, public health officials, and policy makers need readily available information on the extent of the childhood obesity epidemic. As in any epidemic, the strategies and tools used to combat the imminent threat are frequently based on scientific rationale and experience but applied in areas in which we lack complete understanding. The urgent need for information requires execution of decisions that are not risk-free--such is the case of BMI screening obesity. Use of BMI percentiles to classify weight status among youth and quantify the epidemic can inform and engage parents and other key stakeholders. Arkansas has completed its sixth year of BMI screenings for public school students. Through a groundbreaking legislative mandate that requires BMI assessments in public schools, the state has achieved both enhanced awareness among parents and their children and

increased engagement by school, clinical, public health, and community leaders in response to the epidemic. External evaluations conducted since institution of BMI assessments have revealed none of the initially feared negative consequences of BMI measurements such as teasing, use of diet pills, or excessive concerns about weight. In the face of this epidemic, the risks of using BMI assessments in clinical or school-based settings must be recognized but can be managed. Arkansas' Act 1220 and BMI-reporting efforts have not only afforded parents detailed information about their children's health but also provided longitudinal data needed to fully understand the scope of childhood and adolescent obesity in the state and to track progress made in combating this epidemic.

**124: Amarasinghe A, D'Souza G, Brown C, Oh H, Borisova T. The influence of socioeconomic and environmental determinants on health and obesity: a West Virginia case study. *Int J Environ Res Public Health*. 2009 Aug;6(8):2271-87. doi: 10.3390/ijerph6082271. Epub 2009 Aug 19. PubMed PMID: 19742160; PubMed Central PMCID: PMC2738887.**

Abstract

A recursive system of ordered self assessed health together with BRFSS data were used to investigate health and obesity in the Appalachian state of West Virginia. Implications of unobserved heterogeneity and endogeneity of lifestyle outcomes on health were investigated. Obesity was found to be an endogenous lifestyle outcome associated with impaired health status. Risk of obesity is found to increase at a decreasing rate with per capita income and age. Intervention measures which stimulate human capital development, diet-disease knowledge and careful land use planning may improve health and obesity outcomes in Appalachia in particular and rural America in general.

KEYWORDS:

Appalachia; endogeneity; health; human capital; land use; obesity.

**125: Kattelman KK, Conti K, Ren C. The medicine wheel nutrition intervention: a diabetes education study with the Cheyenne River Sioux Tribe. *J Am Diet Assoc*. 2009 Sep;109(9):1532-9. doi: 10.1016/j.jada.2009.06.362. PubMed PMID: 19699832; PubMed Central PMCID: PMC2765410.**

Abstract

OBJECTIVE:

The Northern Plains Indians of the Cheyenne River Sioux Tribe have experienced significant lifestyle and dietary changes over the past seven generations that have resulted in increased rates of diabetes and obesity. The objective of this study was to determine if Northern Plains Indians with type 2 diabetes mellitus who are randomized to receive culturally adapted educational lessons based on the Medicine Wheel Model for Nutrition in addition to their usual dietary education will have better control of their type 2 diabetes than a nonintervention, usual care group who received only the usual dietary education from their personal providers.

DESIGN:

A 6-month, randomized, controlled trial was conducted January 2005 through December 2005, with participants randomized to the education intervention or usual care control group. The education group received six nutrition lessons based on the Medicine Wheel Model for Nutrition. The usual care group received the usual dietary education from their personal providers.

PARTICIPANTS:

One hundred fourteen Northern Plains Indians from Cheyenne River Sioux Tribe aged 18 to 65 years, with type 2 diabetes.

**METHODS:**

Weight, body mass index (BMI), hemoglobin A1c, fasting serum glucose and lipid parameters, circulating insulin, and blood pressure were measured at the beginning and completion. Diet histories, physical activity, and dietary satiety surveys were measured at baseline and monthly through completion. Differences were determined using Student t tests, chi(2) tests, and analysis of variance.

**RESULTS:**

The education group had a significant weight loss (1.4+/-0.4 kg, P<or=0.05) and decrease in BMI (1.0+/-0.1, P<or=0.05) from baseline to completion. The usual care group had no change in weight (0.5+/-0.5 kg) or BMI (0.5+/-0.2). There were no between group differences due to intervention in energy, carbohydrate, protein, and fat intake and physical activity.

**CONCLUSIONS:**

The culturally based nutrition intervention promoted small but positive changes in weight. Greater frequency and longer duration of educational support may be needed to influence blood glucose and lipid parameters.

**126: Ujcic-Voortman JK, Schram MT, Jacobs-van der Bruggen MA, Verhoeff AP, Baan CA. Diabetes prevalence and risk factors among ethnic minorities. Eur J Public Health. 2009 Oct;19(5):511-5. doi: 10.1093/eurpub/ckp096. Epub 2009 Jul 8. PubMed PMID: 19587231.**

**Abstract**

**BACKGROUND:**

Ethnic minorities living in Western societies may have a higher prevalence of diabetes. We investigated whether the prevalence of diabetes among Turkish and Moroccan migrants differs from the indigenous urban population in the Netherlands, and whether these differences can be explained by differences in risk factors.

**METHODS:**

In 2004 a general health survey, stratified by ethnicity and age, was carried out among the population of Amsterdam. The current study included 375 Turkish, 314 Moroccan and 417 Dutch individuals aged 18-70 years. Participants underwent a physical examination and a health interview. Diabetes was based on self-report, the use of anti-diabetic medicine, blood glucose levels and HbA1c.

**RESULTS:**

The prevalence of diabetes in the Amsterdam population was significantly higher in Turkish (5.6%) and Moroccan (8.0%), compared to Dutch individuals (3.1%). These differences, which were much larger after adjustment for age, were only partly explained by the lower socioeconomic status and higher frequency of obesity among ethnic minorities. The difference between Dutch and Moroccan individuals remained significant even after adjustments for multiple risk factors. The typical age of onset of diabetes in both Turks and Moroccans is respectively one and two decades younger than in the indigenous population.

**CONCLUSION:**

Diabetes is more prevalent among Turkish and Moroccan migrants as compared to the indigenous population. Only part of this difference can be explained by differences in demographic and lifestyle risk factors.

**127: Harrington J, Perry IJ, Lutomski J, Fitzgerald AP, Shiely F, McGee H, Barry MM, Van Lente E, Morgan K, Shelley E. Living longer and feeling better: healthy lifestyle, self-rated health, obesity and depression in Ireland. Eur J Public Health. 2010 Feb;20(1):91-5. doi: 10.1093/eurpub/ckp102. Epub 2009 Jul 8. PubMed PMID: 19587230.**

Abstract

BACKGROUND:

The combination of four protective lifestyle behaviours (being physically active, a non-smoker, a moderate alcohol consumer and having adequate fruit and vegetable intake) has been estimated to increase life expectancy by 14 years. However, the effect of adopting these lifestyle behaviours on general health, obesity and mental health is less defined. We examined the combined effect of these behaviours on self-rated health, overweight/obesity and depression.

METHODS:

Using data from the Survey of Lifestyle Attitudes and Nutrition (SLAN) 2007 (), a protective lifestyle behaviour (PLB) score was constructed for 10,364 men and women (>18 years), and representative of the Republic of Ireland adult population (response rate 62%). Respondents scored a maximum of four points, one point each for being physically active, consuming five or more fruit and vegetable servings daily, a non-smoker and a moderate drinker.

RESULTS:

One-fifth of respondents (20%) adopted four PLBs, 35% adopted three, 29% two, 13% one and 2% adopted none. Compared to those with zero PLBs, those with four were seven times more likely to rate their general health as excellent/very good [OR 6.8 95% CI (3.64-12.82)] and four times more likely to have better mental health [OR 4.4 95% CI (2.34-8.22)].

CONCLUSIONS:

Adoption of core protective lifestyle factors known to increase life expectancy is associated with positive self-rated health, healthier weight and better mental health. These lifestyles have the potential to add quality and quantity to life.

**128: Tikkinen KA, Auvinen A, Johnson TM 2nd, Weiss JP, Keränen T, Tiitinen A, Polo O, Partinen M, Tammela TL. A systematic evaluation of factors associated with nocturia--the population-based FINNO study. Am J Epidemiol. 2009 Aug 1;170(3):361-8. doi: 10.1093/aje/kwp133. Epub 2009 Jun 10. PubMed PMID: 19515794; PubMed Central PMCID: PMC2714949.**

Abstract

In a case-control study with prevalence sampling, the authors explored the correlates for nocturia and their population-level impact. In 2003-2004, questionnaires were mailed to 6,000 subjects (aged 18-79 years) randomly identified from the Finnish Population Register (62.4% participated; 53.7% were female). Questionnaires contained items on medical conditions, medications, lifestyle, sociodemographic and reproductive factors, urinary symptoms, and snoring. Nocturia was defined as > or =2 voids/night. In age-adjusted analyses, factors associated with nocturia were entered into a multivariate model. Backward elimination was used to select variables for the final model, with adjustment for confounding. Although numerous correlates were identified, none affected > or =50% of nocturia cases of both sexes. The factors with the greatest impact at the population level were (urinary) urgency (attributable number/1,000 subjects (AN) = 24), benign prostatic hyperplasia (AN =



19), and snoring (AN = 16) for men and overweight and obesity (AN = 40), urgency (AN = 24), and snoring (AN = 17) for women. Moreover, correlates included prostate cancer and antidepressant use for men, coronary artery disease and diabetes for women, and restless legs syndrome and obesity for both sexes. Although several correlates were identified, none accounted for a substantial proportion of the population burden, highlighting the multifactorial etiology of nocturia.

**129: Falkner B. Hypertension in children and adolescents: epidemiology and natural history. *Pediatr Nephrol.* 2010 Jul;25(7):1219-24. doi: 10.1007/s00467-009-1200-3. Epub 2009 May 7. Review. PubMed PMID: 19421783; PubMed Central PMCID: PMC2874036.**

Abstract

Primary hypertension is detectable in children and adolescents and, as in adults, is associated with a positive family history of hypertension, obesity, and life-style factors. Owing to the well-established childhood obesity epidemic, the population prevalence of high blood pressure (BP) in the young is increasing. Hypertension in childhood is commonly associated with other cardiovascular risk factors as well as obesity. Although death and cardiovascular disability do not occur in hypertensive children, intermediate markers of target organ damage, such as left ventricular hypertrophy, thickening of the carotid vessel wall, retinal vascular changes, and even subtle cognitive changes, are detectable in children and adolescents with high BP. Considering the rates of verified hypertension (>3%) and pre-hypertension (>3%) in asymptomatic children and adolescents, high BP should be considered a common long-term health problem in childhood.

PMID: 19421783 [PubMed - indexed for MEDLINE] PMCID: PMC2874036 Free PMC Article.

**130: Thunfors P, Collins BN, Hanlon AL. Health behavior interests of adolescents with unhealthy diet and exercise: implications for weight management. *Health Educ Res.* 2009 Aug;24(4):634-45. doi: 10.1093/her/cyn064. Epub 2009 Jan 30. PubMed PMID: 19181908.**

Abstract

This study sought to determine individual factors that may influence adolescents' interests in various health behaviors and, by extension, their potential interest in programs that promote healthy lifestyles and reduce obesity. The sample consisted of 737 rural Pennsylvania (United States) middle and high school students not involved in either healthy exercise or dietary behaviors (a target group for health-promoting interventions). Participants completed a self-report measure of their general health functioning, including their interests in sports programs, outdoor recreation programs, weightlifting, weight loss and healthy eating/cooking. Nurses measured body mass indices (BMIs). The vast majority of the sample endorsed self-efficacy in healthy eating and physical activity, and this self-efficacy was associated with interest in a healthy diet and outdoor recreation. Interest in healthy activities was consistently higher among 7th graders (age mean = 12.6 years) than 11th graders (age mean = 16.3 years). Females were more interested in weight loss and healthy eating/cooking, whereas males were more interested in weightlifting. Higher BMI only predicted interest in weight loss. These results indicate that adolescent health interests vary on the basis of their gender, grade level, BMI and self-efficacy. These trends are potentially important to consider when seeking to match intervention programs to adolescent interests.

#### *D. Artículos con resumen con la estrategia de búsqueda: Seguridad alimentaria en adolescentes.*

**1.-Pedraza DF. Seguridad Alimentaria Familiar. RESPYN. [En línea].2003 [Consultado el 2014 Oct 14]; 4(2):1-9. Disponible en:**  
[file:///C:/Users/Admin/Desktop/Seguridad%20Alimentaria%20Coral/Seguridad\\_alimentaria\\_2.pdf](file:///C:/Users/Admin/Desktop/Seguridad%20Alimentaria%20Coral/Seguridad_alimentaria_2.pdf)

##### **Resumen**

Entre los más difíciles problemas confrontados por la humanidad está la escasez de alimentos y las dietas deficitarias. La producción de alimentos ha crecido en muchos países; sin embargo, el número de personas hambrientas ha aumentado debido al rápido crecimiento de la población y la carencia de una distribución efectiva de alimentos; a todo esto se suma que la cadena alimentaria es más vulnerable a la contaminación ambiental. A medida que la población mundial aumenta, nos persigue cada vez con mayor insistencia la imagen de los pobres y hambrientos.(1)

Hoy en día hay más de 800 millones de personas que padecen desnutrición crónica y no pueden disfrutar de una vida saludable y activa; entre ellos más de 200 millones de niños menores de cinco años que se acuestan todas las noches con hambre sin disponer de las calorías y proteínas esenciales que necesita su cuerpo para crecer. Estas personas llevan una vida miserable y se ven privadas del derecho más fundamental del ser humano: el derecho de la alimentación. La mayoría de esas personas viven en los países de bajos ingresos con déficit de alimentos porque no producen suficientes alimentos para sustentar a sus gentes y no tienen recursos para cubrir el déficit con importaciones

**2.-Bolzan A, Mercer R. Seguridad alimentaria y retardo crónico del crecimiento en niños pobres del norte argentino. Arch Argent Pediatr. [en línea] 2009 [Consultado el 2014 Oct 14]; 107(3):221-228. Disponible en :** [file:///C:/Users/Admin/Downloads/Seguridad\\_alimentaria\\_3.pdf](file:///C:/Users/Admin/Downloads/Seguridad_alimentaria_3.pdf)

##### **Resumen**

Introducción. La situación nutricional infantil es expresión no sólo del balance alimentario sino también de las condiciones de vida. La disponibilidad de alimentos adecuados en forma y cantidad constituyen aspectos de la seguridad alimentaria. Objetivos. Mostrar la relación entre percepción de hambre –reflejo de la inseguridad alimentaria– y el retardo de crecimiento en talla –reflejo de procesos crónicos de carencias. Método. Muestreo probabilístico, estratificado, multietápico y transversal en nueve provincias del norte argentino, en el año 2003, de niños de 6 meses a 6 años, bajo la línea de pobreza. Se efectuó una encuesta al familiar a cargo y se exploró la percepción de hambre según la metodología del Servicio de Investigación Económica del Departamento de Agricultura de los EE.UU. Se realizó la evaluación antropométrica del niño. Los datos crudos se convirtieron en puntaje z y se compararon con el estándar nacional. Se calculó la prevalencia estandarizada de baja talla así como el sector por debajo de la curva de -2DE. Resultados. En el 69,5% de los hogares encuestados, algún miembro adulto o niño ha experimentado hambre y el hambre severa varía de un 38,0 a 48,0%, según las provincias. La prevalencia de acortamiento (menor a -2DE) varió entre 10-15%. Hubo asociación de la percepción de hambre con la distribución de la talla y la prevalencia estandarizada de baja talla. No hubo asociación entre jurisdicción y percepción de hambre.

Conclusión. Las condiciones de inseguridad alimentaria, en hogares bajo condiciones estructurales de pobreza, se asocian con acortamiento o baja talla en los niños.

Palabras clave: desnutrición, percepción de hambre, seguridad alimentaria, pobreza.

**3.- Suárez J, Martín G. Producción de agro energía a partir de biomasa en sistemas agroforestales integrados: una alternativa para lograr la seguridad alimentaria y la protección ambiental. Pastos y Forrajes. [en línea] 2010 [Consultado el 2014 Oct 14]; 33(3):1-19. Disponible en: [file:///C:/Users/Admin/Downloads/Seguridad\\_alimentaria\\_4.pdf](file:///C:/Users/Admin/Downloads/Seguridad_alimentaria_4.pdf).**

Resumen

El objetivo del presente artículo es ofrecer consideraciones acerca de la producción de agro energía a partir de la biomasa en sistemas agroforestales integrados. En la actualidad a nivel global, marcado por un conjunto de peligros que amenazan la existencia de la especie humana, existe un reto principalmente en el contexto rural: ¿cómo hacer coexistir la agro energía, la seguridad alimentaria y la protección del medio ambiente?, en presencia de cambios climáticos, degradación ambiental, crisis alimentarias y la creciente contradicción biocombustibles vs alimentos, generada por una insensata política para obtener agro combustibles de primera generación a partir de grandes extensiones de monocultivos alimentarios, lo que es moralmente rechazable.

También los biocombustibles son considerados como una alternativa ecológica a los combustibles fósiles, por su capacidad de reducción en la emisión de gases de efecto invernadero y por promover el desarrollo de comunidades rurales en los países del Sur; ello se potencia en los sistemas agroforestales integrados, en los que se pueden producir biocombustibles, tanto de primera como de segunda generación, sobre todo con la aplicación del concepto de biorrefinería que posibilita convertir la biomasa en múltiples productos, cuyo valor agregado total puede ser mayor que el generado por los combustibles fósiles. A este propósito contribuyen los proyectos internacionales, que promueven la producción integrada y sostenible de alimentos y energía en el contexto de sistemas agroforestales integrados, a escala local. Los autores consideran que la ejecución de proyectos y experiencias sobre agroenergía tiene el propósito principal de lograr la sostenibilidad energética y la seguridad alimentaria a escala local, en el medio rural, teniendo en cuenta la protección del ambiente.

Palabras clave: Agroenergía, biomasa, sistemas agroforestales

**4.-Suárez J, Martín G. Producción de agro energía a partir de biomasa en sistemas agroforestales integrados: una alternativa para lograr la seguridad alimentaria y la protección ambiental. Pastos y Forrajes. [en línea] 2010 [Consultado el 2014 Oct 14]; 33(3):1-19. Disponible en: [file:///C:/Users/Admin/Downloads/Seguridad\\_alimentaria\\_4.pdf](file:///C:/Users/Admin/Downloads/Seguridad_alimentaria_4.pdf).**

Resumen

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Palabras clave: Agroenergía, biomasa, sistemas agroforestales

**5.- Jiménez AZ, Esparza Prada G, Herrán FO. Escalas para medir la seguridad alimentaria en Colombia ¿Son válidas?. Rev Chil Nutr. [En línea]. 2012 [consultada el 2014 10 14]; 39(1):8-17. Disponible en: [file:///C:/Users/Admin/Downloads/Seguridad\\_alimentaria\\_5.pdf](file:///C:/Users/Admin/Downloads/Seguridad_alimentaria_5.pdf)**

Resumen

El objetivo de este estudio fue evaluar la reproducibilidad en cuatro ciudades colombianas de los resultados obtenidos en la inseguridad alimentaria (INSA) comparándola con la validez factorial y el criterio de la escala de Percepción de Seguridad Alimentaria (EPSA) y los métodos en los hogares de la zona urbana y rural basado en la costumbre de América Latina y el Caribe (ELCSA) el consumo de energía para todos los miembros del hogar. La reproducibilidad fue de 0,51 y 0,56 para EPSA para ELCSA. La sensibilidad de la EPSA fue entre 39,6% y 40,5% y para el ELCSA entre 62,6% y 62,2%. La acuerdo contra la referencia para la EPSA fue entre 0.10 y 0.18, para ELCSA fue de entre 0,09 y 0,13. La la eficiencia de las dos pruebas como una medida global de la fiabilidad es mayor que la probabilidad de un lanzamiento de moneda. Los resultados de estas escalas se deben utilizar de forma conservadora.

Palabras clave: la seguridad alimentaria, la reproducibilidad de los resultados, la validez de la prueba, el hambre, Colombia.

**6.- Herrán OF, Quintero DC, Prada GE. Seguridad alimentaria; un método alterno frente a uno clásico. Rev. Salud pública. [en línea] 2010 [consultada el 2014 Oct 14]; 12(4):546-557. Disponible en: [file:///C:/Users/Admin/Downloads/Seguridad\\_alimentaria\\_6%20\(1\).pdf](file:///C:/Users/Admin/Downloads/Seguridad_alimentaria_6%20(1).pdf)**

Objetivos Evaluar durante 2007-2008 el desempeño la Escala de Percepción de Seguridad Alimentaria (EPSA) frente a la inseguridad alimentaria (IA) determinada con base en la energía usualmente consumida.

Métodos Participaron 211 hogares. El responsable de la preparación de los alimentos contestó la EPSA, otro integrante del hogar contestó dos veces un recordatorio del consumo de veinticuatro horas (R24H). El referente fue la IA por el R24H y la prueba la EPSA.

Resultados La IA por el R24H fue del 48,8 %, con la EPSA de 19,4 %. La sensibilidad de la EPSA fue de 16,5 %, la especificidad de 77,8 %. El acuerdo según la Kappa fue de -0,06 (IC; -0,20 a -0,03).

Conclusiones Bajo el supuesto de equivalencia de métodos, la EPSA subestima la inseguridad alimentaria en el hogar. Los resultados de la EPSA comparados con los del R24H no son coherentes. Palabras Clave: Seguridad alimentaria, hambre, socorro alimentario, clasificación, validez de las pruebas, Colombia (*fuentes: DeCS, BIREME*).

**7.- Acosta O, Chaparro-Giraldo, A. Biocombustibles, Seguridad Alimentaria y Cultivos Transgénicos. Rev. Salud pública. [en línea] 2009 [consultada el 2014 Oct 14]; 11(2):290-300. Disponible en: [file:///C:/Users/Admin/Downloads/seguridad\\_alimentaria\\_9%20\(1\).pdf](file:///C:/Users/Admin/Downloads/seguridad_alimentaria_9%20(1).pdf).**

#### Resumen

El alza mundial de precios de los alimentos está amenazando con precipitar más pobres bajo la línea de pobreza, esto probablemente se agravará por el desafío que la creciente población y el cambio climático están presentando a la seguridad alimentaria.

Existe evidencia de que las actividades humanas que consumen combustibles fósiles y usan tierras están contribuyendo a las emisiones de gases de invernadero y al cambio climático global. La naturaleza agotable de las reservas de combustibles fósiles y el cambio climático están suscitando preocupaciones sobre la seguridad energética, generando interés en la utilización de energías renovables como los biocombustibles. Existen preocupaciones por la producción de biocombustibles a partir de cultivos alimenticios por la posible competencia con su utilización para alimento humano y animal. Pero los biocombustibles pueden ser producidos de otras materias primas como lignocelulosa de pastos perennes, forestales y desechos vegetales. El contenido energético de los biocombustibles no debe exceder la energía de los combustibles fósiles utilizados en su producción, para asegurar su sostenibilidad energética, competitividad económica y aceptación ambiental. El cambio climático y los biocombustibles están desafiando los esfuerzos de la FAO para erradicar la hambruna del mundo en la próxima década. Los cultivos utilizados actualmente en la producción de biocombustibles no han sido domesticados para este fin; la tecnología transgénica de plantas puede ofrecer una enorme contribución al mejoramiento económico y ambiental de los cultivos para biocombustibles. En el presente artículo se presentan críticamente algunas de las relaciones entre biocombustibles, seguridad alimentaria y tecnología transgénica de plantas.

Palabras Clave: Biocombustibles, cambio climático, plantas modificadas genéticamente, seguridad alimentaria (*fuentes: DeCS, BIREME*).

**8.- Ortiz-Hernández L, Rodríguez-Magallanes M, Melgar-Quirón H. Obesidad, conducta alimentaria e inseguridad alimentaria en adolescentes de la Ciudad de México. Bol Med Hosp Infant Mex. [En línea]. 2012. [consultada el 2014 10 14]; 69(6):431-441. Disponible en: [file:///C:/Users/Admin/Downloads/seguridad\\_alimentaria\\_10.pdf](file:///C:/Users/Admin/Downloads/seguridad_alimentaria_10.pdf).**

#### Resumen

La inseguridad alimentaria se presenta cuando existe disponibilidad limitada de alimentos nutricionalmente adecuados. La desinhibición alimentaria se refiere al consumo excesivo de alimentos en ausencia de hambre. El objetivo de este trabajo fue analizar la relación de la inseguridad alimentaria, la desinhibición alimentaria, el consumo de alimentos y la obesidad en adolescentes de la Ciudad de México.

**9.- Hernández Hernández RA, Herrera Mogollón HA, Pérez Guillén A, Bernal J. Estado nutricional y seguridad alimentaria del hogar en niños y jóvenes de zonas suburbanas de Caracas. An Venez Nutr. [En Línea]. 2011. [consultada el 2014 10 14];24(1):21-26. Disponible en : [file:///C:/Users/Admin/Downloads/seguridad\\_alimentaria\\_11.pdf](file:///C:/Users/Admin/Downloads/seguridad_alimentaria_11.pdf)**

#### **Resumen**

Las condiciones de vida y salud tienen un efecto sobre el estado nutricional de niños y jóvenes que crecen y se desarrollan en ambientes desfavorables. El objetivo de este trabajo fue evaluar la asociación entre seguridad alimentaria en el hogar con estado nutricional. El estudio es de tipo transversal. La muestra estuvo constituida por 112 niños y jóvenes entre 3 y 16 años de edad de uno y otro sexo, perteneciente a comunidades suburbanas de los Municipios Baruta y el Hatillo, que forman parte de una submuestra del macro proyecto "Evaluación del Estado Nutricional y Seguridad Alimentaria en comunidades suburbana de los Municipios Baruta y el Hatillo" del Estado Miranda. Se utilizaron talla para la edad (TE) y peso para la edad (PE) e indicadores de composición corporal. La seguridad alimentaria en el hogar se midió con la escala de Lorenzana y Sanjur. Se calcularon valores Z para diagnóstico nutricional. Se aplicó una correlación de Spearman ( $p < 0,05$ ) entre las categorías de los indicadores. El 70,53 % de los hogares presentaron algún grado de inseguridad alimentaria. Para el estado nutricional por el indicador TE 46.43% presentaron valores de déficit. Se encontraron sujetos con estado nutricional deficitarios en hogares seguros (26.92%) y con estado nutricional adecuado en hogares inseguros (70.17%). Este trabajo no demostró una asociación significativa ( $p > 0.05$ ) entre la inseguridad alimentaria en el hogar y estado nutricional. An Venez Nutr 2011; 24(1): 21-26.

Palabras clave: Estado nutricional, seguridad alimentaria en el hogar, indicadores, niños, peso, estatura, antropométricos.

**10.- Sámano R, Zelonka R, Martínez-Rojano H, Sánchez-Jiménez, B, Ramírez C, Ovando G. Asociación del índice de masa corporal y conductas de riesgo en el desarrollo de trastornos de la conducta alimentaria en adolescentes mexicanos. ALAN. [En línea]. 2012. [2014 10 14]; 62(2):145-154. Disponible en: [file:///C:/Users/Admin/Downloads/seguridad\\_alimentaria\\_12.pdf](file:///C:/Users/Admin/Downloads/seguridad_alimentaria_12.pdf).**

#### **Resumen**

La percepción corporal y su insatisfacción se relaciona con las conductas alimentarias de riesgo (CAR), pudiendo desarrollar trastornos de conducta alimentaria (TAC) frecuentemente identificados en los adolescentes. El objetivo fue describir la asociación del índice de masa corporal (IMC) con los hábitos y las CAR en un grupo de adolescentes. Fue un estudio transversal, descriptivo realizado con 671 adolescentes de 12 a 15 años de edad, ambos sexos. Se aplicó una encuesta validada en población mexicana que identificó las CAR para el desarrollo de los TAC. Se obtuvo el Índice de Masa Corporal, además sobre prácticas y conocimiento del consumo de alimentos.

**11.-Quintero Tabares R, Muñoz Astudillo N, Álvarez Sierra LE, Medina Perea GA. Estado nutricional y seguridad alimentaria en gestantes adolescentes. Pereira, Colombia ,2009. Investigación y Educación en Enfermería. [En Línea]. 2010 [2014 10 14]; 28(2)204-213. Disponible en: [file:///C:/Users/Admin/Downloads/Dialnet-EstadoNutricionalYSeguridadAlimentariaEnGestantesA-3260577%20\(3\).pdf](file:///C:/Users/Admin/Downloads/Dialnet-EstadoNutricionalYSeguridadAlimentariaEnGestantesA-3260577%20(3).pdf)**

#### **Resumen**

Valorar el estado nutricional y percepción de seguridad alimentaria, de gestantes adolescentes consultantes en Instituciones de la ESE Salud Pereira durante el año 2009. Metodología. Estudio descriptivo de corte transversal. Con un 95% de nivel de confianza, se selecciono una muestra de 150 gestantes entre las asistentes de control prenatal. Se aplicó una encuesta y la Escala Latinoamericana y Caribeña de Seguridad Alimentaria. Se realizó valoración nutricional a partir de los registros en la historia clínica de biomarcadores e indicadores antropométricos y obstétricos.

**12.- Fonseca C Zulma Yanira, Patiño B Gonzalo Alberto, Herrán F Oscar Fernando. Malnutrición y seguridad alimentaria: un estudio multinivel. Rev. chil. nutr. [En línea]. 2013 [Consultado el 2014 Oct 14] ; 40( 3 ): 206-215. Disponible en:**

**[http://www.scielo.cl/scielo.php?script=sci\\_arttext&pid=S0717-](http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0717-75182013000300001&lng=es)**

**[75182013000300001&lng=es. http://dx.doi.org/10.4067/S0717-75182013000300001.](http://dx.doi.org/10.4067/S0717-75182013000300001)**

Resumen

En 1488 sujetos y 432 hogares se establecieron las variables asociadas al estado de nutrición (EN) de los sujetos y malnutrición del hogar, y el efecto de la inseguridad alimentaria (INSA) sobre estos estados. El EN se estableció mediante antropometría. La malnutrición del hogar con base en el EN. La INSA con base en el consumo de calorías durante 24 horas además de la percepción del jefe del hogar. Mediante regresiones logística multinomial y binomial se establecieron razones de prevalencia (RP) para las variables y el EN y la malnutrición. En sujetos el riesgo de déficit de peso es 3,9 veces mayor en el ámbito rural, y 4,4 veces más en los que apenas han cursado primaria o menos. Las mujeres tienen 1,4 más riesgo de exceso de peso, por cada cinco años de edad el exceso de peso aumenta en 30%, en los sujetos sin apoyo alimentario 1,7 veces. En hogares el nivel socioeconómico bajo tiene 1,9 veces más riesgo de malnutrición, los hogares sin menores de edad 3,1 y los urbanos 1,6 veces más riesgo. La INSA no está asociada al EN, ni a la malnutrición. El apoyo alimentario a sujetos aparentemente protege contra el exceso de peso. Sujetos y hogares urbanos tienen mayor riesgo de exceso y malnutrición.

**Palabras clave:** Desnutrición; obesidad; seguridad alimentaria; pobreza; ingestión de energía; desigualdades en la salud; política social; Colombia.

**13.-López-Cano LA, Restrepo-Mesa SL. La gestación en medio de la inseguridad alimentaria: Percepciones de un grupo de adolescentes embarazadas. Rev. salud pública. [En línea]. 2014 [Consultada el 2014 Oct 14]; 16(1):76-87. Disponible en:**

**[file:///C:/Users/Admin/Downloads/seguridad\\_alimentaria\\_18.pdf](file:///C:/Users/Admin/Downloads/seguridad_alimentaria_18.pdf)**

Resumen

Objetivo Describir las percepciones de las adolescentes embarazadas frente a su situación de inseguridad alimentaria en el hogar. Método Se realizó un estudio cualitativo bajo la perspectiva de etnografía focalizada, se entrevistaron 17 adolescentes en tercer trimestre de gestación, inscritas en el programa de control prenatal en la red pública hospitalaria de Medellín, quienes presentaban inseguridad alimentaria. Resultados Algunas adolescentes expresaron que al principio no aceptaron el embarazo, pero sentir al bebé en el vientre se convirtió en un acto de aprobación y de amor del hijo por nacer. Sobresalió la conformación de familias con jefatura femenina y el antecedente de embarazo adolescente de las madres, de las mujeres participantes. Aunque las gestantes reconocieron los alimentos que deben consumir de acuerdo a su

periodo fisiológico, sus creencias y preferencias, la difícil situación económica, limita el acceso a los alimentos, lo que hace que los alimentos más valorados, sean los menos consumidos.

Conclusiones La pobreza propaga en el hogar la experiencia de la inseguridad alimentaria y el hambre y genera en las futuras madres preocupación por la nutrición del hijo por nacer, sentimientos de intenso dolor, impotencia y desesperanza frente al futuro.

Palabras Clave: Percepción, adolescente, embarazo, nutrición, salud pública  
(fuente: DeCS, BIREME).



## 2. CONGRESOS

**18th Annual Hypertension, Diabetes and Dyslipidemia Conference (endorsed by the American Society of Hypertension)**

Charleston, (Estados Unidos), del 27 al 29 de junio de 2014

**Professor Khalida Ismail's Inaugural Lecture at the Institute of Psychiatry: "The mind in diabetes: the final frontier"**

London, (Reino Unido), 30 de junio de 2014

**10º Jornadas FEPREVA Riesgo Vascular y Riesgo Metabólico. Prevención y Tratamiento**

Buenos Aires, (Argentina), Del 02 al 03 de julio de 2014

**Advanced Practice Module: Hormone**

Denver, (Estados Unidos), del 11 al 13 de julio de 2014

**Advanced Practice Module: Detox**

Denver, (Estados Unidos), del 11 al 13 de julio de 2014

**TRENDO 2014 Mid-term conference of Endocrine Society of India & 2nd annual conference of Endocrine Society of Tamilnadu and Puducherry**

Chennai, (India), del 19 al 20 de julio de 2014

**Endocrinology and Obesity for Primary Care**

Oahu, (Estados Unidos), del 24 al 26 de julio de 2014

**Endocrinology and Diabetes for Primary Care**

Vermont, (Estados Unidos), del 14 al 16 de agosto de 2014

**XIII Congreso Centroamericano y del Caribe de Endocrinología**

San José, (Costa Rica), del 28 al 30 de agosto de 2014

**5th International Course in Nutritional Epidemiology 2014**

London, (Reino Unido), del 01 al 12 de septiembre de 2014

**38th Annual Meeting of the European Thyroid Association**

Santiago de Compostela, (España), del 06 al 10 de septiembre de 2014

**36th ESPEN Congress 2014**

Ginebra, (Suiza), del 06 al 09 de septiembre de 2014

**XXIX Congreso Científico Internacional FELSOCM 2014**

Córdoba, (Argentina), del 09 al 13 de septiembre de 2014

**16th Congress of the European Neuroendocrine Association**

Sofia, (Bulgaria), del 10 al 13 de septiembre de 2014

**International Plant-based Nutrition Healthcare Conference**

San Diego, (Estados Unidos), del 17 al 20 de septiembre de 2014

**Diabetes: An Overview**

London, (Reino Unido), 07 de octubre de 2014

**8th DIETS-EFAD Conference**

Athens, (Grecia), del 09 al 12 de octubre de 2014

**Diabetes Asia 2014 "Conference"**

Kuala Lumpur, (Malasia), del 16 al 19 de octubre de 2014

**MENACTRIMS**

Dubai, (Emiratos Arabes Unidos), del 17 al 18 de octubre de 2014

**Second Annual Clinical Congress and Gulf Chapter Annual Meeting**

Abu Dhabi, (Emiratos Arabes Unidos), del 23 al 25 de octubre de 2014

**2nd Annual World Congress of Nutrition and Health**

Taiyuan, (China), del 24 al 26 de octubre de 2014

**SKMC Multispecialty Conference 2014**

Abu Dhabi, (Emiratos Arabes Unidos), del 28 de octubre al 01 de noviembre de 2014

**24º Congreso de la Sociedad Andaluza de Hipertensión Arterial y Riesgo Vascular (SAHTA) 12as**

**Jornadas de Enfermería y 9as Jornadas de Farmacéuticos**

Jerez de la Frontera, (España), del 06 al 08 de noviembre de 2014

**The 24th Annual Renfrew Foundation Conference for Professionals**

Philadelphia, (Estados Unidos), del 14 al 16 de noviembre de 2014

**10th International Diabetes Federation-Western Pacific Region Congress**

Suntec City, (Singapur), del 21 al 24 de noviembre de 2014

**II CONVENCIÓN LATINOAMERICANA DE ESTUDIANTES DE MEDICINA**

MARGARITA, (Venezuela), del 27 al 30 de noviembre de 2014

**The 2nd World Congress on Clinical Lipidology**

Vienna, (Austria), del 05 al 07 de diciembre de 2014

**Controlando a la diabetes y a sus complicaciones más severas**

Matanzas, (Cuba), del 08 al 12 de diciembre de 2014

**The 5th World Congress on Controversies to Consensus in Diabetes, Obesity and Hypertension (CODHy)**

Istanbul, (Turquía), del 12 al 14 de marzo de 2015

**8th International DIP Symposium on Diabetes, Hypertension, Metabolic Syndrome & Pregnancy**

Berlin, (Alemania), del 15 al 18 de abril de 2015

**7th International Symposium on The Diabetic Foot**

The Hague, (Países Bajos), del 20 al 23 de mayo de 2015

### 3. ENCUESTAS

#### **Construcción y validación de un cuestionario para medir conductas y hábitos alimentarios en usuarios de la atención primaria de salud.**

En base a la encuesta validada por Pardo (2004), un grupo de estudiantes de 3º año de nutrición y Dietética elaboró una encuesta de 48 ítems, la cual se aplicó a una muestra de 402 personas de todos los grupos etarios (220 mujeres y 180 varones), cuya edad promedio fue de  $30,24 \pm 24,75$  años. El cuestionario revela una confiabilidad aceptable ( $\alpha$ -Cronbach=0,792), estableciendo 11 dimensiones con 38 preguntas. Las mujeres presentaron un puntaje total promedio significativamente superior en comparación a los varones ( $p < 0,001$ ). La aplicación y validación del cuestionario permite contribuir como una herramienta de bajo costo que permita conocer aspectos más íntimos de las conductas que asisten a centros de salud públicos.

Dirigido a: centros de salud públicos, profesionales de nutrición y Dietética.

#### **Hábitos alimentarios de la población escolar Cuestionario para los/as niños/as Exploración física Análisis de la ingesta alimentaria**

Cuestionario que contiene datos básicos del niño/a (Nombre, Nombre del(a) profesor(a), Número de colegio, Número de clase, Número de serie, Fecha). Tablas del índice de masa corporal respecto a los kg y edad del niño. Exploración antropométrica y signos de interés nutricional. Preguntas sobre lo que se consumió el día anterior (en la mañana, a media mañana y a la hora de comer, en la merienda, en la cena y después de cenar); preguntas sobre la actividad física y el deporte y sobre la actividad física del día anterior.

Dirigido a: Personal de Salud.

#### **Hábitos alimentarios de la familia**

Cuestionario que contiene datos básicos, preguntas sobre el padre e hijo/a, sobre lo que comió un día anterior, (por la mañana y a media mañana, en la comida y por la tarde, en la cena y después de cenar); sobre lo que suele comer habitualmente. Preguntas sobre las frutas, verduras y hortalizas; para concluir con preguntas sobre la actividad física y el deporte.

Dirigido a: Familias en general.

## **Hábitos alimentarios de la población escolar**

### **Cuestionario para la familia**

Cuestionario que contiene datos básicos, preguntas sobre el padre e hijo/a, sobre la salud del hijo/a, sobre lo que el hijo/a suele comer habitualmente. Preguntas sobre las frutas (las frutas en casa y el colegio), verduras (en casa y el colegio). Sobre los alimentos que le gustan al hijo/a, las comidas, la actividad física, el deporte y el hijo/a; la situación laboral y estudios realizados del padre, sobre la situación laboral y estudios realizados por el esposo/a o la pareja.

Dirigido a: Padres de familia.

### **Hábitos alimentarios de la población escolar Cuestionario para los/as niños/as (1º y 2º)**

Contiene preguntas básicas sobre el alumno, lo que hacen los padres, lo que ha comido el día actual. Preguntas sobre las frutas y verduras; los alimentos que le gustan, la comida, el desayuno; la televisión y finalmente, sobre el deporte en casa.

Dirigido a: Niños/as (1º y 2º).

### **Hábitos alimentarios de la población escolar Cuestionario para los/as niños/as (3º y 4º)**

Contiene preguntas básicas sobre el alumno, lo que hacen los padres y lo que ha comido el día actual. Preguntas sobre las frutas (en casa y el colegio), verduras (en casa y el colegio), los pastelitos y bollería; las comidas, el desayuno, la televisión y los anuncios.

Dirigido a: Niños/as (3º y 4º)

### **Programa PERSEO. Observación en el comedor escolar**

Cuestionario que contiene datos básicos del comedor, preguntas sobre el menú del día (Cualidades organolépticas del menú, pesos y medidas de la vajilla y servicio, etc.) personal laborando y recetas.

Dirigido a: Personal del comedor escolar.

## **Programa PERSEO**

### **Cuestionario sobre el Comedor Escolar**

Cuestionario que contiene datos básicos del comedor (nombre, nivel/es de enseñanza que imparte), preguntas sobre la organización del servicio, el menú que se sirve, la participación de niños/as y familias en el servicio, sobre el servicio y el recinto del comedor y características demográficas.

Dirigido a: Personal del comedor escolar.

### **Hábitos alimentarios de la población escolar**

#### **Cuestionario para la dirección del centro**

Contiene datos básicos del centro, preguntas sobre el tiempo destinado para comer, los alimentos disponibles en el colegio, las tiendas en los alrededores, las normas y políticas de alimentación; incentivos, premios y recaudación de fondos. Preguntas sobre la actividad física y deporte y las características de dicho colegio.

Dirigido a: Directivos de los Centros Educativos.

#### **Planilla de pesada en el comedor escolar**

Cuestionario en el que se toman los datos básicos de cada alumno. Contiene preguntas sobre si con la comida del día se sintió servido, dejó o repitió; cuando no comió todo lo que le sirven, ¿cuál es la razón principal?, ¿Qué le parece la cantidad que le sirven de primer plato?, ¿Qué le parece la cantidad que le sirven de segundo plato? y ¿Qué le parece la cantidad que le sirven de postre?.

Dirigido a: Alumnos de los centros educativos.

## 4. INSTRUMENTOS DE MEDICION DE PESO

Instrumentos portátiles de medición de peso corporal.

**Calculador de índice de masa corporal (IMC):** Es una fórmula que se utiliza para evaluar el peso corporal en relación con la estatura. La fórmula permite medir la composición corporal y ha demostrado ser una manera eficaz de determinar la grasa corporal. Se calcula dividiendo los kilogramos de peso por el cuadrado de la estatura en metros ( $IMC = \text{peso [kg]} / \text{estatura [m]}^2$ ).

**Balanzas pesapersonas:** son aparatos que permiten medir y determinar el peso corporal. El rango de medición usual en balanzas pesa personas suele ser de 0 kg a 150 kg, ocasionalmente hasta 200 kg. Balanzas para personas muy obesas tienen rangos de medición de hasta 300 kg. Las balanzas pesapersonas no deberían faltar en ningún hogar. El uso regular de las balanzas pesa personas permite controlar el peso y, en caso de sobrepeso o delgadez, tomar las medidas oportunas.

**Báscula:** Instrumentos que tienen como objetivo pesar y medir cantidades de masa.

**Tipos de básculas médicas:**

- **Báscula de diagnóstico BF66**
- **Báscula de diagnóstico, con pantalla desmontable BG63**
- **Báscula de diagnóstico, con pantalla desmontable USB BG64**
- Báscula de diagnóstico BF-100 (impedancia eléctrica), pantalla desmontable y Conexión PC
- Báscula Digital con altímetro GS49
- Báscula de vidrio Tamaño XXL Beurer GSXXL
- **Básculas de bioimpedancia eléctrica**

**Cinta antropométrica:** es una cinta métrica utilizada para medición del cuerpo humano. Típicamente tiene las siguientes características:

- Espacio blanco ante el cero (6-8cm)
- Cinta delgada y flexible de acero (6mm de ancho ideal)
- 2m de longitud

## 5. LIBROS

### **Guía de práctica clínica. Prevención y diagnóstico de sobrepeso y obesidad en niños y adolescentes en el primer nivel de atención.**

La guía de práctica clínica: Prevención y diagnóstico de sobrepeso y obesidad en niños y adolescentes en el primer nivel de atención forma parte de las guías que integrarán el Catálogo Maestro de Guías de Práctica Clínica, el cual se instrumentará a través del Programa de Acción Específico: Desarrollo de guías de Práctica Clínica, de acuerdo con las estrategias y líneas de Acción que considera el Programa Sectorial de Salud 2007-2012.

La finalidad de este catálogo es establecer un referente nacional para orientar la toma de decisiones clínicas basadas en recomendaciones sustentadas en la mejor evidencia posible.

Esta guía pone a disposición del personal del primer y segundo grado de niveles de atención, las recomendaciones basadas en la mejor evidencia disponible con la intención de estandarizar las acciones nacionales sobre:

- Disminuir las tasas de incidencia y prevalencia de sobrepeso y obesidad.
- Incrementar la tasa de diagnóstico temprano
- Identificación oportuna de comorbilidades
- Reducción de tasas de las comorbilidades
- Referencia oportuna

Lo anterior favorecerá la mejora en la efectividad, seguridad y calidad de la atención médica, contribuyendo de esta manera al bienestar de las personas y de las comunidades, que contribuyen el objetivo central y la razón de ser de los Servicios de Salud.

### **Encuesta Nacional de Salud y nutrición: resultados por entidad federativa 2012.**

Desde hace más de 25 años la Secretaría de Salud inició un esfuerzo sistemático por generar un conjunto de datos fidedignos que permitieran conocer las condiciones de salud de la población y sus tendencias, así como la utilización y percepción sobre los servicios de salud. El Instituto Nacional de Salud Pública (INSP) se sumó a esta labor desde una óptica académica y científica con el propósito de desarrollar el abordaje metodológico y las herramientas apropiadas para el desarrollo de encuestas en el ámbito de la salud en el país.

Como parte de la responsabilidad social asumida por el INSP para el estudio científico de los problemas de salud pública, la Encuesta Nacional de Salud y Nutrición 2012 (ENSANUT 2012), observación más reciente del eje del Sistema Nacional de Encuestas de Salud, permite contar con información actualizada y detallada sobre el estado de salud y nutrición de la población, a partir de una muestra representativa de los mexicanos, tanto en lo que se refiere a su distribución geográfica, como por niveles socioeconómicos.



La ENSANUT 2012 permite contar con información de base poblacional y probabilística sobre la cobertura de programas de salud en áreas básicas como las inmunizaciones, la atención a los niños, la salud reproductiva o la atención a padecimientos crónicos, lo mismo que sobre los retos en salud como el control de la hipertensión arterial, la diabetes, el sobrepeso y la obesidad, los accidentes y la violencia, entre otros. Permite asimismo analizar la protección en salud en México, y el desempeño de los proveedores de servicios de salud.

Siguiendo la presentación y difusión del reporte nacional, y motivados con el interés de proporcionar a los estados información útil para informar las decisiones sobre salud, se han elaborado los reportes específicos de las 32 entidades.

El tamaño de la muestra efectiva de la ENSANUT 2012, 50 528 hogares de las 32 entidades en los que se aplicaron 96 031 cuestionarios individuales, permite contar con estimaciones precisas en un conjunto amplio de indicadores. Asimismo, como es el caso de este documento, ofrece información sobre la situación particular en las entidades federativas del país para los ámbitos urbano y rural, y para el conjunto de población en rezago social, lo que permite generar indicadores de salud para los mexicanos en condiciones de pobreza. La información recolectada incluye entrevistas a utilizadores de servicios de salud, lo que permite analizar la experiencia en los servicios y el grado de satisfacción con los mismos.

De forma general para el país, y también para cada estado, la ENSANUT 2012 resalta el innegable incremento en la cobertura de protección en salud que ha vivido México en los 12 años recientes, con una clara progresividad en la cobertura del Sistema de Protección Social en Salud, a la vez que resalta el reto de incrementar la cobertura entre los jóvenes. Asimismo, destacan los avances en la atención de los padecimientos crónicos, si bien es claro que siguen representando un reto importante. Se ha avanzado en el control de los mexicanos con diabetes, por ejemplo, pero un porcentaje elevado de los mismos aún presenta indicadores que señalan falta de control en el padecimiento. Por otra parte, se ha avanzado en asegurar la atención perinatal, en donde ya la gran mayoría de los mexicanos nacen con la asistencia de personal capacitado, pero se han incrementado de forma importante los partos por cesárea. El descenso de la desnutrición en menores de cinco años, observado a partir de la Encuesta Nacional de Nutrición de 1988, ha continuado durante el periodo 2006-2012, aunque a menor velocidad que en el periodo previo. Asimismo, la anemia disminuyó entre 2006 y 2012 en todos los grupos de edad. Finalmente, la velocidad en el crecimiento de la prevalencia combinada de sobrepeso y obesidad que se había venido observando a partir de 1988 disminuyó notablemente entre 2006 y 2012 en adolescentes y adultos y se contuvo en niños en edad escolar, aunque los niveles actuales distan mucho de ser aceptables.

Este documento presenta los principales indicadores de la ENSANUT 2012 para nivel estatal, ofreciendo un panorama detallado de la entidad, de forma comparativa en el tiempo, y con el país.

La encuesta sienta las bases para afrontar los rezagos en salud y nutrición de los mexicanos y los retos que plantea el acceso a la salud y la protección social en salud. La solidez de la información que provee permite considerarla como base para la conformación del Plan Nacional de Desarrollo y el Programa Sectorial de Salud del gobierno entrante, así como para la planeación estatal. Los resultados por entidad federativa permiten observar la heterogeneidad del país, y ofrecen una visión más cercana a los retos y necesidades de cada entidad.

## **Manual para la realización de encuestas de salud.**

Este manual nace del interés de compartir la experiencia del Instituto Nacional de Salud Pública (INSP) en la realización de encuestas nacionales de salud con los interesados en el tema de otras instituciones. Es, asimismo, resultado de la reflexión realizada para presentar esta experiencia en el Taller Técnico para la Realización de Encuestas de Salud Reproductiva, llevado a cabo en el INSP en mayo de 2011, con la organización de los Centers for Disease Control and Prevention (CDC), y que tuvo como objetivo compartir las herramientas de esta institución para la realización de encuestas con las organizaciones responsables de las mismas en países de Centroamérica y Sudamérica.

En el programa del taller, el equipo de la Dirección de Encuestas Nacionales de Salud del INSP presentó el abordaje en encuestas nacionales, que es resultado de la experiencia acumulada en su realización.

La elaboración de este manual a partir de la experiencia del INSP busca ofrecer a las personas a cargo de la realización de encuestas de salud algunos de los elementos que resultan relevantes para la planeación y ejecución de encuestas complejas en temáticas de salud. En particular, se abordan aspectos de presupuestación, de mediciones biológicas que se incluyen en encuestas de salud y del uso de la tecnología para la recolección de la información y para el monitoreo y aseguramiento de calidad de las encuestas.

En el primer capítulo se discute la relevancia de las encuestas para la toma de decisiones en salud, se relata la experiencia del Sistema Nacional de Encuestas en Salud en México y se documenta la experiencia del INSP en el trabajo operativo.

En el segundo capítulo se describe la importancia de la planeación en las encuestas de salud. Se explica el equilibrio que debe existir entre calidad y oportunidad en la obtención de datos primarios y el uso óptimo de los recursos necesarios para la ejecución eficaz de las encuestas. Se detallan los criterios y elementos que deben presupuestarse considerando los factores claves en cuanto a consumo de recursos y su interrelación con el diseño de la muestra (tamaño y dispersión). Se explican también los temas siguientes: cuestionarios y tasa de respuesta, elementos de control de calidad, tramos de control, supervisión central, monitoreo y, por último, elaboración de la logística de campo y del documento metodológico de campo.

En el tercer capítulo se describe, de manera general, el desarrollo de los instrumentos de captación de información (cuestionarios). Se resalta la aplicación asistida por computadora (CAPI, CASI y ACASI), el empleo de cuestionarios electrónicos en encuestas de salud y las ventajas y limitantes de su uso, y el diseño y aplicación del cuestionario. También se explica la detección de errores en campo, la simplificación en el manejo de datos y la oportunidad de la información. Se finaliza explicando los criterios y características deseables de la programación en el desarrollo de cuestionarios electrónicos.

El cuarto capítulo contiene el sistema de seguimiento en línea y su contribución a la calidad de los datos, además de los elementos necesarios para desarrollar un sistema de seguimiento en línea, la importancia del monitoreo en el trabajo operativo de campo y la importancia de contar con personal especializado y capacitado. Se cierra con la descripción de los elementos de control de calidad en el sistema de seguridad.

En el quinto y último capítulo se explica el uso de marcadores biológicos en encuestas de salud y su relevancia para la medición de la salud. Se definen y clasifican los marcadores biológicos. También se explica la importancia de la antropometría, las ventajas y desventajas de integrar indicadores antropométricos en las encuestas de salud y las pruebas rápidas. El capítulo termina con el abordaje de la importancia de la ética en las encuestas de salud, la selección y capacitación del personal operativo, los aspectos básicos de laboratorio y la red de frío.

### **Guía de Práctica Clínica GPC. Prevención, Diagnóstico y Tratamiento del Sobrepeso y la Obesidad Exógena.**

La Guía de Práctica Clínica: Diagnóstico y Tratamiento del Sobrepeso y la Obesidad, forma parte de las guías que integran el catálogo maestro de guías de práctica clínica, el cual se instrumentará a través del Programa de Acción Específico: Desarrollo de guías de Práctica Clínica, de acuerdo con las estrategias y líneas de Acción que considera el Programa Sectorial de Salud 2007-2012.

La finalidad de este catálogo es establecer un referente nacional para orientar la toma de decisiones clínicas basadas en recomendaciones sustentadas en la mejor evidencia posible.

Esta guía pone a disposición del personal del primer nivel de atención las recomendaciones basadas en la mejor evidencia disponible con la intención de estandarizar las acciones nacionales sobre:

- Diagnosticar e intervenir en la prevención y tratamiento del sobrepeso y obesidad.
- Establecer los parámetros dietéticos, clínicos, bioquímicos, antropométricos y de composición corporal que permiten integrar el diagnóstico y seguimiento del tratamiento de la obesidad.
- Conocer las actividades de cada uno de los miembros del equipo multidisciplinario e integrar las acciones específicas para establecer un plan en el tratamiento y seguimiento del sobrepeso y la obesidad.
- Identificar los factores de riesgo y comorbilidad asociados con el sobrepeso y la obesidad.
- Describir los beneficios de la reducción del exceso de peso en la población con sobrepeso y obesidad.
- Clasificar el sobrepeso y la obesidad utilizando indicadores antropométricos.
- Determinar la efectividad de los cambios en el estilo de vida para adquirir y mantener hábitos alimentarios saludables, aumentar la actividad física y mantener un peso adecuado en la población con normopeso.
- Determinar la efectividad de las intervenciones no farmacológicas para promover la alimentación saludable, aumentar la actividad física y lograr la pérdida o mantenimiento del peso en la población con sobrepeso y obesidad.
- Conocer la indicación, eficacia y la seguridad del tratamiento farmacológico del paciente con sobrepeso y obesidad.
- Establecer los criterios de referencia a atención médica del segundo y tercer nivel de atención en el paciente con sobrepeso y obesidad.

Lo anterior favorecerá la mejora en la efectividad, seguridad y calidad de la atención médica, contribuyendo de esta manera al bienestar de las personas y de las comunidades, que constituye el objetivo central y la razón de ser de los servicios de salud.

## 6. TESIS

### **Correlación clínico - radiológica de las alteraciones observadas en pacientes con nutrición parenteral total / Javier Ramírez Diez Gutiérrez.**

La nutrición parenteral total (NPT) se refiere a la administración intravenosa de un soporte nutricional completo en pacientes que son incapaces de ingerir o absorber nutrientes esenciales. Los pacientes reciben cantidades cuidadosamente monitorizadas de proteínas, glucosa, ácidos grasos, electrolitos, vitaminas y oligoelementos, usualmente administrado a través de un catéter venoso subclavio.

Este protocolo trata de analizar los patrones de alteración de la señal que en la literatura se aprecian a nivel de los ganglios basales así como una correlación clínica para establecer una relación causa-efecto. Se ha establecido que la secuencia ideal para demostrar esta alteración es la RM potenciada a T1, tanto la Tomografía Axial así como imágenes tanto en T2, densidad de protones no proveen información para el diagnóstico.

### **Eficacia del uso temprano de eritropoyetina en recién nacidos pretermino de muy bajo peso, críticamente enfermos : ensayo clínico controlado / Carolina Villegas Álvarez.**

Trabajo que evalúa la eficacia de la utilización temprana de la Eritropoyetina recombinante humana (r-HuEPO) a dosis de 100 U/Kg cada tercer día durante 6 semanas, en neonatos de pretérmino de muy bajo peso, críticamente enfermos con y sin ventilación asistida, en términos de nivel de hemoglobina, hematocrito y número de transfusiones por un lado y de leucopenia trombocitopenia y reacciones locales por el otro.

### **Comparacion de costos y estancia hospitalaria entre pacientes desnutridos y no desnutridos en los servicios de medicina interna y cirugía de un hospital de 3er nivel / Jorge Alberto Marquez Juarez.**

La prevalencia de la desnutrición en pacientes hospitalizados se ha reportado en un rango variable, pero alta, desde el 30% hasta el 55%.

Un estudio efectuado en EUA, determinó que el 40% de los pacientes adultos hospitalizados en un Hospital general tenían desnutrición y el 16% se encontraba en estado nutricional limítrofe. Este último grupo de pacientes tuvieron un riesgo alto de desarrollar desnutrición durante su estancia hospitalaria debido al ayuno, procedimientos quirúrgicos, infecciones y otros factores que incrementan el catabolismo.

Esta investigación evalúa el impacto de la desnutrición en la estancia y el costo de hospitalización en pacientes de edad adulta en países desarrollados.

### **Percepcion y grado de satisfaccion con la imagen corporal correlacion con el indice de masa muscular en mujeres de dos centros educativos / Georgina A. Tinoco Olguin.**

Un estudio efectuado en Canadá muestra que el 80% de las mujeres de 18 años de edad a pesar de tener peso adecuado, deseaban perder peso y se sentían insatisfechas con su figura. La insatisfacción con la imagen corporal se ha relacionado a mayor riesgo de sufrir trastornos de la alimentación, como la bulimia o anorexia, y a mayor riesgo de adicciones.

Antecedentes como este permiten realizar la Investigación en la que participaron 450 mujeres entre

los 15 y 30 años de edad, de dos centros educativos de San Luis Potosí para detectar las conductas alimentarias anormales, así como el grado de satisfacción con su imagen corporal.

**Estudio realizado en 130 R. N. a termino con peso normal y 130 R. N. pretermino y a termino con peso subnormal para comparar algunos factores que pudieran tener relacion con la prematurez / Maria Elena Calderon Chavez ... [et al.].**

Se investigan los factores a los que se le ha dado más importancia como condicionantes de prematurez, reportados en otros trabajos realizados tanto en el extranjero como en el país. Tomando como muestra a pacientes atendidos en el área de pos-parto, sala de cuneros y neonatos de la Clínica Hospital T-I, No. 1 de Pediatría y Gineco-Obstetricia de San Luis Potosí, durante los meses de Octubre de 1977 a Junio de 1978. Se estudia R.N a término de peso subnormal y de pretérmino, se compara con 130 R.N a término de peso normal para constatar si es significativa la diferencia para tomarla en cuenta durante el control prenatal a nivel medicina familiar.

**Nutrición y rendimiento escolar en estudiantes de 4 escuelas primarias, San Luis Potosí, S.L.P. / Zacarías Quijano Coronado.**

Investigación en donde se compara el grado de nutrición con el nivel de rendimiento escolar en niños de 6 a 12 años, en escuelas primarias de San Luis Potosí, de diferente grado de aprovechamiento, según evaluación de la Secretaria de Educación Pública. Se utilizó el estudio cross sectional, con muestreo estratificado, dividiéndose los planteles en 2 de alto aprovechamiento y 2 de bajo aprovechamiento, donde se obtuvo de un total de 480 niños, en cuanto a su rendimiento escolar 1.9% tuvieron excelente; 19.0% muy bueno; 35.6% bueno; 30.4% regular y 14.2% deficiente. Al relacionar rendimiento y aprovechamiento escolar se encuentra asociación estadísticamente significativa. Al determinar estado nutricional por medio del IMC se encontraron en la categoría de emaciado 1.3%; en bajo peso 21.0% estudiantes; en sobrepeso 30.0% y obesos 26.7% escolares.

**Desordenes nutricionales / Teresa de Jesus Urbina Espinosa.**

Recopilación completa y precisa de los aspectos relacionados a los Desórdenes Nutricionales en el ser humano, que tienen particular importancia en los campos de la medicina y la Odontología moderna. Se da a conocer la etiología y patología de las enfermedades nutricionales y sus manifestaciones en la Cavidad Bucal, para que el Cirujano Dentista tome conciencia de la importancia de que el paciente debe ser tratado como una unidad biológica.

**Participación de la vitamina C en la síntesis de Colágeno / Maria Elsa Franco Perez.**

Trabajo que da a conocer la influencia de la vitamina C en la síntesis de Colágeno y las manifestaciones clínicas a nivel oral causadas por una deficiencia de dicha vitamina. Se contempla la acción enzimática de las colágenos y otras enzimas cuyo mecanismo de acción afecta la integridad de la estructura dental ocasionado caries dental y/o gingivitis y/o periodontitis.

**Correlacion entre la ecuacion de regresion multiple (percentila, edad, peso y talla) y el estado nutricional / Ma. Guadalupe Alvarado Rodriguez.**

Ensayo corto en el que se mide el nivel somatométrico, mediante un percentil que engloba la edad, el peso y la talla en forma conjunta y que permite predecir el tipo de alimentación de los niños de 3-6 años de edad del Dr. Rafael Ramos Galván, de tres niveles de estrato socioeconómico; mediante la creación de una ecuación de regresión múltiple, generada en las tablas de peso y talla para dichos niños, englobando a dichas percentilas y que permita dar las percentilas de crecimiento en función del peso, la talla y la edad.

**Alteraciones metabólicas en niños con obesidad y sobrepeso en niños adscritos al hospital general de zona con medicina familiar num. 1. / Norma Angelica Arriaga Carrizales.**

Investigación que determina las alteraciones metabólicas que se presentan en los niños con obesidad y sobrepeso adscritos al Hospital General de Zona No. 1. Trabajo que se realiza debido a la falta de estudios que abarquen la población rural y a los preescolares, lo que resulta difícil para establecer con claridad si la obesidad infantil en México es un problema tan importante como lo ha llegado a hacer en otros países como EE.UU, y en caso de serlo si estas alteraciones metabólicas son lo suficientemente importantes como para emprender acciones preventivas y/o curativas en los casos que ya presenten la patología.

**Asociación entre autoestima, depresión, percepción y satisfacción corporal con el índice de masa corporal en adolescentes. / Dra. Martha Valeria Gien López**

En el presente trabajo se investiga la situación que viven los adolescentes con bajo peso, peso normal, sobrepeso u obesidad; realidad que aqueja a un sector de la población que constantemente se enfrenta a la falta de apoyo de una sociedad indiferente que empeora la situación en la que viven. Se facilita el proceso de adquirir conciencia sobre el arduo proceso que vive este tipo de adolescentes e incrementa las fuentes de apoyo que pueden recibir. Además de ser de utilidad para los trabajadores de la salud que estén en contacto con dichos adolescentes y que presenten síntomas depresivos, baja autoestima y una percepción negativa de la imagen corporal al adoptar una visión integral y proporcionar los elementos para brindar una atención pertinente y un tratamiento más adecuado para el paciente, determinando con ello si existe asociación entre la autoestima, depresión, percepción y satisfacción corporal con el índice de masa corporal.

**Predictor de intubación difícil en obesidad sometidos a cirugía electiva (Circunferencia del Cuello) / Dr. José Guillermo López Méndez**

El presente trabajo valora la circunferencia del cuello como predictor de intubación difícil en pacientes obesos en comparación con los predictores clásicos de vía aérea tomando como estándar de oro el IDS score, se realiza por medio de un estudio prospectivo, comparativo en 82 pacientes programados para cirugía electiva bajo anestesia general, en donde se realizaron 2 grupos: obesos con 26 pacientes y no obesos con 56. Se evaluó sensibilidad, especificidad, valor predictivo positivo y negativo, determinando que la circunferencia del cuello resultó ser mejor predictor de intubación difícil en el paciente con obesidad. No así en aquellos sin obesidad.

**Índice de masa corporal para valorar el estado nutricional en niños de 6-8 años / Ma. del Carmen Loredó M. ... [et al.].**

Trabajo en el que se proponen tablas de valores de IMC en niños de 6-8 años de edad, ambos sexos, en escolares de la Ciudad de San Luis Potosí, donde para ello se estudiaron 353 escolares de 6, 7 y 8 años de edad, de los cuales 175 son varones y 178 niñas, pertenecientes a tres escuelas primarias de la ciudad, artículo 123, Rosario Castellanos y Francisco I Madero. Se utilizó una báscula con estadal para hacer la medición de los niños en cuanto peso y talla. Encontrando como hallazgo más relevante y que puede servir de sustento para iniciar estudios de seguimiento, que la distribución normal que se encuentra con los valores que se están proponiendo y que dejan una fuerte

insinuación de que los valores corregidos de IMC que se proponen, pueden servir para valoraciones sencillas y rápidas del tejido adiposo.

**Prevalencia de obesidad en niños en tratamiento y sobrevivientes de leucemia linfoblástica aguda / Graciela Silos Briones.**

Estudio en donde se determina la prevalencia de obesidad en niños con leucemia linfoblástica aguda que se encuentran en tratamiento y vigilancia. Este trabajo se desarrolla debido a que en la actualidad este tratamiento alcanza elevadas tasas de supervivencia, lo que ha traído como consecuencia encontrar secuelas tardías del tratamiento recibido como son la obesidad, que inicia desde que el paciente está en tratamiento, y alteraciones endocrinas que afectan el desarrollo y la calidad de vida del sobreviviente.

**Prevalencia de malnutrición en pacientes oncológicos que reciben tratamiento de quimioterapia en el servicio de oncología de la Unidad Médica de Alta Especialidad número 25 / José Luis Martínez Lira.**

Investigación que estima la prevalencia de malnutrición entre los pacientes que son sometidos a tratamiento de quimioterapia en la Unidad de Quimioterapia Ambulatoria de la UMAE número 25. Para ello se utilizó un estudio transversal descriptivo observacional; para determinar el tamaño muestral se tomó en cuenta un índice de confianza del 95 % y un índice de error del 3%. Con una prevalencia estimada de malnutrición del 10% (dentro del rango descrito en la literatura).

**Interrelación entre los índices de masa corporal y ansiedad en residentes del Hospital Central "Dr. Ignacio Morones Prieto" / Sara Emilia Ondarza Range**

Investigación que mediante un estudio transversal, observacional da a conocer la interrelación entre los índices de ansiedad y sobrepeso y/u obesidad en residentes del Hospital Central "Dr. Ignacio Morones Prieto". Se hace una revisión histórica y teórica para conocer cómo ha ido cambiando el concepto de obesidad, y que cada vez se han ideado estrategias más certeras para controlar esta epidemia; se señala que, al ser el médico un instructor y consejero de salud, es importante determinar el grado de obesidad existente en este personal. En base a los resultados obtenidos se elabora una serie de indicadores para ser tomados en cuenta en los programas de prevención de la obesidad.

**Validación de un método para evaluar el estado nutricional en pacientes quirúrgicos / Pablo Roberto Castro Casillas.**

Trabajo en el que se valida la aplicabilidad y correlación de MUTS como herramienta práctica y reproducible para la detección de desnutrición en medio comparada contra la VGS la cual es considerada el estándar de oro para identificar y clasificar pacientes que padecen desnutrición. Así los cirujanos identifiquen a aquellos pacientes que padecen algún grado de desnutrición o están en riesgo de padecerla, apliquen estrategias y acortar la fase de recuperación, disminuya las complicaciones y aumente la tasa de éxito y con ello aminorar los costos en la atención de los pacientes quirúrgicos.

**Estudio piloto de prevalencia de alteraciones nutricias en pacientes con EPOC / Adriana Martínez Terrazas.**

La Enfermedad Pulmonar Obstructiva Crónica (EPOC) es un problema de salud pública con gran prevalencia. Se conocen tanto los factores condicionantes como el curso y pronóstico de la

enfermedad, así como su fisiopatología y limitaciones funcionales no sólo a nivel pulmonar, también sistémicas.

La impedancia bioeléctrica y más específicamente el análisis por vectores de la composición corporal ofrecen una forma sencilla y confiable para la determinación de la composición corporal en EPOC.

Se realizó un estudio prospectivo, consecutivo de composición corporal, con pacientes con diagnóstico clínico de EPOC de la consulta externa del Hospital Central Dr. Ignacio Morones Prieto, a quienes se sometió a espirometría e impedancia bioeléctrica (IBE). Se encontró disminución de masa libre de grasa y su índice, así como aumento en cantidad de grasa. Este hallazgo traduce elevada prevalencia de alteraciones nutricias en pacientes con EPOC, así como que métodos usados de rutina como el IMC es útil más no refleja las alteraciones en composición corporal por lo que se debe estudiar la composición corporal de todos los pacientes con EPOC con métodos como la BIA, preferentemente con análisis vectorial.

**Eficacia del maleato de citrulina para incrementar la masa muscular en pacientes pediátricos con parálisis cerebral infantil cuadriparesis espástica / Mario Aquilino Moreno Terrones.**

La citrulina (CIT) es un aminoácido no esencial, porque es formado por otros aminoácidos en el hígado, y por lo tanto, no se tiene que obtener directamente de la dieta, es un aminoácido que interviene en el ciclo de la urea. Es formado por transferencia del grupo carbamil fosfato, proveniente del anhídrido del ácido fosfórico al grupo d-amino de la ornitina. La enzima ornitina transcarbimalasa es mitocondrial, la CIT no es metabolizada por el hígado. Se ha visto que ayuda a la producción de hormonas anabólicas, a síntesis de óxido nítrico, a la proliferación celular, en la proliferación linfocitaria para la inmunidad y una importancia es que no tiene ningún efecto secundario que se haya atribuido.

La importancia de la síntesis por el intestino de CIT fue resaltado por Hooghenraad et al. Al evaluar la importancia a nivel de todo el cuerpo de la producción de CIT en intestino. Se realizó un estudio en ratas donde se observa que al disminuir la ingesta de citrulina y al inhibir la enzima clave OCT (ornitina transcarbimalasa) disminuyó su crecimiento revirtiéndolo completamente al proporcionar citrulina de manera enteral. No hay ningún estudio en humanos.

Se realizó el estudio en pacientes con parálisis cerebral infantil cuadriparesis espástica por el estado de desnutrición en que se encuentran y su patología es no progresiva.

Los resultados muestran una tendencia al aumento de masa muscular en el grupo que recibió maleato de citrulina (MC). En cuanto al peso no se observó ningún cambio al igual que en la talla.

**Seroproteínas en el niño desnutrido método electroforético / Arturo Zarate Treviño.**

Se hizo investigación de proteínas séricas determinando los valores totales y sus fracciones, en particular gamma globulina, de veinte sueros de niños desnutridos (grado III) y reciente ingreso al nosocomio.

Se encontró una constante inversión A/G con aumento importante de las gamma globulinas siendo el valor promedio de éstas superior al de la albúmina.

Como dato original, se establecen los valores de alfa1 y alfa2 para desnutrido.



**Variación en el nivel de creatinina del recién nacido pretermino y de bajo peso al nacer y su relación con los niveles de creatinina materna y ácido úrico en cordón umbilical / Claudia Adriana Barba Covarrubias.**

Investigación observacional en donde se determina la variación que existe en los niveles de creatinina del recién nacido en las primeras 24 hrs y cómo influye en ésta la creatinina materna y el ácido úrico de cordón umbilical. Se realizó en dos hospitales, Hospital Central "Ignacio Morones Prieto" y Hospital General de Ciudad Valles, S.L.P., con 20 pacientes, 14 pretérmino (70%), 6 de término con bajo peso al nacer (30%) y un pretérmino con bajo peso al nacer (5%, de éstos el 65% fueron mujeres y el 35% hombres. Once pacientes (55%) sin ninguna patología, por lo cual se egresaron con la madre, ocho (40%) requirieron hospitalización y uno (5%) falleció a las 24 horas de hospitalización.

El peso de los recién nacidos osciló entre 1040 grs y 2750grs, y le edad gestacional fue entre 29 y 38.2 SDG.

Las creatinas iniciales, tomadas de cordón umbilical se encontraron en un rango de 0.5 a 0.92 mg/dl, y las de control, realizadas a las 24 hrs, con rango de 0.5 a 1.04 g/dl, con una diferencia en promedio de 0.08. Las creatininas maternas con rango de 0.5 a 1.1. en el 45 % de los casos se observa disminución de los valores de creatinina del RN. No se encontraron pacientes que cumplan con la definición operacional de asfixia.

**Hábitos alimenticios e índice de masa corporal en pacientes usuarios de la Unidad de Medicina Familiar N° 47 en el IMSS delegación San Luis Potosí / Francisco Javier Morales Díaz.**

El creciente aumento de la obesidad a nivel mundial y en nuestro país es evidente, en México según la Ensanut la prevalencia de sobrepeso fue más alta en hombres (42.5%) que en mujeres (37.4%, 5 puntos porcentuales mayor); en cambio, la prevalencia de obesidad fue mayor en mujeres (34.5%) que en hombres (24.2%, 10 pp mayor). Al sumar las prevalencias de sobrepeso y de obesidad, 71.9% de las mujeres mayores de 20 años de edad y 66% de los hombres tienen prevalencias combinadas de sobrepeso y obesidad.

Se evalúan los hábitos alimenticios en pacientes con diferentes índices de masa corporal, desde bajo peso hasta pacientes con sobrepeso y obesidad en la unidad de medicina familiar N°47 del IMSS en la delegación de San Luis Potosí, poniendo énfasis en estos últimos dos grupos como parte importante de medidas preventivas iniciales para promover una concientización de una adecuada alimentación. Se encontró como predominante el sobrepeso incluso más que la misma obesidad en sus 3 diferentes grados.

**Relación entre ablactación y sobrepeso en niños de 1 a 3 años de edad que acuden al servicio de enfermera materno infantil del hospital general de zona no. 2 con Medicina Familiar del Instituto Mexicano del Seguro Social de San Luis Potosí / Azuany**

La epidemiología considera que la obesidad a nivel mundial tiene una magnitud de epidemia por el alto índice de individuos que la padecen, esta enfermedad muestra diferentes repercusiones según la edad, presentándose con mayor incidencia en la niñez, aunque predomina en la etapa adulta; el sobrepeso se asocia con diversas enfermedades crónicas y degenerativas que constituyen las primeras causas pudiendo provocar hasta la muerte.

El abordaje clínico de esta enfermedad se ha convertido en un desafío, porque el verdadero tratamiento de prevención es que la familia modifique sus hábitos de vida, lo cual a su vez requiere de cambios en el ambiente obesogénico en el que se vive.

Se analiza la relación entre la ablactación y el sobrepeso en niños de 1 a 3 años de edad DEL Hospital General de Zona No. 2 con Medicina Familiar del Instituto Mexicano del Seguro Social de San Luis Potosí, en control de niño sano durante el periodo de Julio 2011 a Mayo 2012. Encontrando alta prevalencia de sobrepeso y obesidad.

**Efecto del ejercicio físico escolar sobre la reducción del perfil de lípidos en adolescentes con sobrepeso y obesidad de una preparatoria en un periodo de 20 semanas / Gad Gamed Zavala Cruz.**

Estudio que pretende demostrar que incrementando la frecuencia de clases de educación física bien estructurada, existe la posibilidad de reducir el perfil de lípidos en pacientes con sobrepeso u obesidad independientemente de que posean dislipidemia. Se realizó con adolescentes con sobrepeso y obesidad de una preparatoria pública en un periodo de 20 semanas continuas comprendido de agosto 2011 a enero de 2012. Concluyendo que de los 170 sujetos en estudio, el 16.1 % presentó sobrepeso y 7% obesidad, dando un total de 23.1%, porcentaje que fue distribuido posteriormente en el grupo experimental y control.

El grupo experimental tuvo cambios positivos de manera general e impidió el incremento de riesgo cardiovascular en los sujetos estudiados en comparación con el grupo de control. El análisis de correlación múltiple demostró que no se puede hacer a un lado la dieta, el género, el IMC, variables que tuvieron una correlación aún mayor que el ejercicio físico escolar como tratamiento no farmacológico.

**Obesidad y su asociación al uso de medios electrónicos de entretenimiento, en escolares de la ciudad de San Luis Potosí / Liliana Cortes Piña.**

El problema de la obesidad era un problema que aparentemente se encontraba a partir de la edad adulta, con el paso del tiempo se ha encontrado que se presenta a partir de la niñez y, que a más temprana edad y más grave aparezca, mayor será probabilidad de padecerla en edad adulta con el riesgo de un 40% para el niño de convertirse en adulto con sobrepeso y si la presentan durante la adolescencia el riesgo aumenta hasta 80%.

En este estudio se da a conocer si existe una asociación significativa entre el uso de los medios electrónicos de entretenimiento y el desarrollo de obesidad en escolares. Se realizó con 366 alumnos de 6 a 12 años de 4 escuelas primarias públicas y 2 escuelas primarias privadas, turnos matutino y vespertino en las escuelas primarias públicas de la Cd. De San Luis Potosí, que contaran en sus casa con computadoras, televisión y videojuegos.

Se encontró que la prevalencia en cuanto a obesidad y sobrepeso son de similar porcentaje a los encontrados a nivel nacional e internacional, por parte de la ENSANUT en los años 2006 y 2012 y los publicados por la Organización Mundial de la Salud, lo cual traduce al presente trabajo a una aproximación confiable. Se determinó que si existe relación entre la obesidad y los medios electrónicos de entretenimiento de acuerdo a las pruebas no paramétricas aplicadas; la relación y asociación son moderadas, pero los niños obesos sí que pasan mucho tiempo ocupando los mismos en vez de realizar alguna actividad física.

**Nivel de ansiedad y depresión en pacientes con obesidad en la Unidad de Medicina Familiar no. 47 del Instituto Mexicano del Seguro Social / Gabriela Martínez Zavala.**

Investigación en la cual se determina el nivel de ansiedad y depresión en los pacientes con obesidad en la Unidad de Medicina Familiar No. 47 del Instituto Mexicano del Seguro Social, los resultados de dicha investigación arrojan que el grado de obesidad más frecuente fue la obesidad I, teniendo mayor porcentaje en pacientes del género femenino, predominio de obesidad se da en el grupo de los pacientes de 41 a 50 años. Se determinó una alta frecuencia de depresión en los pacientes con obesidad de 78.5%, registrándose mayor porcentaje en el nivel leve perturbación del estado de ánimo.

De los pacientes con diagnóstico de depresión, predominó el género masculino. Se encontró mayor depresión en el grupo de edad de 31 a 40 años.

En cuanto a ansiedad, se encontró una frecuencia del 4.3% de ansiedad leve; no se encontraron pacientes con ansiedad moderada, siendo predominante el género masculino.

**Interrelación de sobrepeso y obesidad, conductas alimentarias de riesgo y sintomatología de tipo depresiva en una muestra del personal de enfermería del Hospital Central "Dr. Ignacio Morones Prieto" / José Domingo Martínez Lun**

El sobrepeso y obesidad, sintomatología tipo depresiva y las conductas alimentarias de riesgo en la población están íntimamente ligadas, lo que puede afectar directamente la existencia del ser humano como unidad biopsicosocial y esto a su vez, si vida familiar, social y laboral.

Trabajo de investigación en donde se explora uno de los principales factores desencadenantes de enfermedades crónicas como el sobrepeso y obesidad, y su relación con una de las enfermedades psicológicas afectivas más frecuentes como la depresión, en el personal del Hospital Central "Dr. Ignacio Morones Prieto", aunando a otros elementos tales como los trastornos de conducta alimentaria que son frecuentes de encontrar en la sociedad actual, así como el personal que ya tiene diagnóstico de las enfermedades relacionadas con la misma ( Diabetes Mellitus, Hipertensión Arterial Sistémica y Dislipidemia).

Se determinó que el personal de enfermería se encuentra inmerso en el triángulo empírico patológico planteado, una de las vertientes que componen este triángulo es el sobrepeso y la obesidad. La sintomatología de tipo depresiva en su clasificación como leve, esté presente en mayor porcentaje en el personal de enfermería. Se estima que el personal estudiado se encuentra en riesgo.

**Prevalencia de obesidad y factores de riesgo asociados en escolares / Angélica Román Díaz.**

Investigación que da a conocer como se encuentra el estado de San Luis Potosí en cuanto a la población infantil con sobrepeso y obesidad. Se estudió a niños (as), que se encuentran entre las edades de 6 a 11 años y que forman parte de 40 escuelas primarias públicas y privadas de la capital de San Luis Potosí y que fueron seleccionados al azar.

Se obtuvo una muestra de 377 niños de estos el sexo masculino fue más participativo con 193 y 184 el femenino, de estos la prevalencia de obesidad fue de 36.07% similar a países como Jamaica y Chile. La prevalencia de sobrepeso es del 13.79%, lo que indica que se está a un paso de convertirse en obesos elevando aún más la prevalencia.

### **Factores asociados a la obesidad y sobrepeso en estudiantes universitarios / Ana Sofía Romo Baez.**

Se determina la prevalencia de obesidad, sobrepeso y sus factores asociados en estudiantes del área de la Salud de la Universidad Autónoma de SLP (UASLP), mediante un estudio epidemiológico, descriptivo y transversal. Mediante muestreo aleatorio se seleccionaron 290 estudiantes del área de la salud de la UASLP. Se aplicó un cuestionario para identificar factores asociados a la obesidad. Se determinó la prevalencia de obesidad y sobrepeso, calculándose el índice de masa corporal mediante medición antropométrica. Se midió la fuerza de asociación entre variables aplicando pruebas de Chi2 y OR. Se encontró que la proporción de estudiantes con sobrepeso u obesidad fue de 28.3%, mayor en hombres (17.2%) que en mujeres (4.9%), con diferencia estadísticamente significativa ( $p=0.007$ ). Se identificó mayor obesidad o sobrepeso en estudiantes de psicología ( $p=0.008$ ) y en aquellos que refirieron una escala media de apetito (79.3%), ( $p=0.015$ ). Un 66.6% de estudiantes disminuyendo su actividad física al incorporarse a la universidad, factor asociado significativamente con la prevalencia de obesidad y sobrepeso (0.035).

Los hallazgos muestran que el entorno escolar puede ser condicionante para el desarrollo de obesidad y sobrepeso en los estudiantes. Se recomienda la implementación de un programas para prevenir y controlar tales problemas.

### **Relación de depresión y obesidad en adolescentes comparados con un grupo de eutróficos en dos escuelas secundarias del municipio de San Luis Potosí / María de los Ángeles Varela Guerrero.**

Para el 2020, la depresión se habrá convertido en la segunda causa de discapacidad mundial. Existe evidencia que el trastorno depresivo que inicia en la adolescencia se prolonga a la adultez. Aunadas a las consecuencias para la salud, la obesidad en adolescentes tiene efectos psicosociales.

Las dimensiones de los sucesos vitales estresantes se asocian a los síntomas de depresión, esto sugiere que el estado del peso podría considerarse un factor para el desarrollo de la depresión en adolescentes.

Se determina la relación de depresión y obesidad en adolescentes comparados con un grupo de eutróficos en dos escuelas secundarias del municipio de San Luis Potosí (S.L.P), mediante un estudio observacional, transversal, bajo muestreo no probalístico por conveniencia en adolescentes obesos comparados con adolescentes eutróficos inscritos en el ciclo escolar 2013-2014. Entre los criterios de selección se incluyen adolescentes de 11 a 15 años, que acepten ser parte del estudio por percentil mayor a 95 y entre percentiles 5 a 84.

Los resultados arrojaron que 78% de los adolescentes obesos cursan con depresión a diferencia de 50.5% de los adolescentes eutróficos, 40% de los adolescentes obesos con depresión se encuentran a los 13 años, encontrando en el sexo masculino la mayor concentración. Concluyendo que la obesidad es uno de los factores asociados a la presencia de depresión en adolescentes, la depresión aparece más en los adolescentes con obesidad que en los eutróficos a los 13 años.

### **Correlación de índice de masa corporal y bullying en dos escuelas primarias de la zona escolar 158 en San Luis Potosí de marzo 2012 a febrero 2013 / Norma Angélica González Martínez.**

El sobrepeso y la obesidad están aumentando a nivel mundial y tienen consecuencias para la salud física y psicológica en niños. La exposición al bullying se ha relacionado con el sobrepeso en los niños, los expuestos tienen mayores riesgos de problemas de salud, que se perpetúan hasta la edad adulta.

Se correlaciona el índice de masa corporal y bullying en dos escuelas primarias. Mediante un estudio observacional, transversal, de correlación, en dos escuelas primarias de San Luis Potosí, de marzo 2012 a febrero 2013, se pesó y midió a los niños y se les aplicó el CURMIC-P. Se incluyó a alumnos ambos géneros, inscritos en las escuelas, cursando 4° a 6° grado, excluyendo a alumnos que no acudieron el día de recolección de datos, eliminado a los niños que no contestaron el cuestionario de manera adecuada y a los no pesados y medidos.

De 260 alumnos estudiados, 56.2% fueron del género femenino 43.8% masculino; con desnutrición 5.8%. Eutróficos 53.1%, sobrepeso 21.5%, obesidad 19.6%, involucrados en bullying 89.6%, no involucrados 10.4%, víctimas 26.2%, víctimas-agresor 23.8%, agresores 5.8%, neutros 33.8%, la correlación de Spearman fue fuerte para las víctimas con desnutrición, moderada para las víctimas con obesidad, mínima para las víctimas con sobrepeso, agresores eutróficos, para víctimas-agresores con obesidad y neutros con obesidad.

Se concluye que la correlación de índice de masa corporal y bullying existe, por lo que es importante mantener a los niños dentro de la eutrofia para disminuir la exposición al bullying.

#### **Obesidad mórbida como factor de riesgo para regularización en el postoperatorio / Ricardo Amos Perez Serrato.**

Obesidad significa tener un exceso de grasa en el cuerpo, es una enfermedad crónica. Según la OMS obesidad mórbida es tener  $IMC > 40 \text{ kg/m}^2$ . Desde el punto de vista anestésico, tienen desventaja, por comorbilidades asociadas a este problema. La reoxygenación es presencia de signos o síntomas de debilidad muscular en el periodo postoperatorio. La reoxygenación aumenta la movilidad postoperatoria, ya que altera la función respiratoria. Un paciente sin reoxygenación debería mantener su vía aérea permeable, toser, tragar, sonreír y hablar.

Se evalúa si la obesidad mórbida es un factor de riesgo para regularización en el postoperatorio. Se incluyeron pacientes sometidos a cirugía en el periodo de Julio-Noviembre de 2013 con anestesia general, de ambos sexos, con o sin obesidad mórbida que presentaron (casos) o no presentaron (controles) reoxygenación. Se registraron las variables de obesidad mórbida, reoxygenación, comorbilidades y dificultad respiratoria. Se calculó la RM para las variables no categóricas.

Se incluyeron en el estudio 30 pacientes, de los cuales 33.3% fueron los casos y 66.6% los controles, solo el 20% presentaron obesidad mórbida, el 80% del total de pacientes presentaron algún tipo de dificultad respiratoria, y un 50% presentaban comorbilidades. Respecto a las asociaciones: la RM para obesidad fue de 1, la RM de presencia de comorbilidades fue de 3.5.

Se concluye que la obesidad mórbida no es un factor de riesgo para presentar reoxygenación en el postoperatorio.

#### **Tratamiento quirúrgico de la obesidad mórbida bypass gástrico abierto experiencia de 12 años / Juan Almeraya Ortega.**

A causa del incremento que se ha presentado en cuanto a la obesidad y su asociación con una alta tasa de morbilidad en México, considerándose como una epidemia mundial y en la actualidad un padecimiento universal; el cual es debido a la incidencia de obesidad grave, que ha aumentado en

forma considerada en los últimos años como consecuencia de un medio ambiente que favorece un balance energético positivo.

Por lo cual se requiere la detección oportuna e intervención adecuada para la selección cuidadosa de personas con obesidad patológica y complicaciones posteriores a cirugía bariátrica (Bypass Gástrico Abierto), en un subgrupo de pacientes con obesidad en los que el sobrepeso es excesivo y en quienes existe una mayor frecuencia de complicaciones que se asocian a una reducción en la esperanza de vida. No solo el descenso del peso corporal y mejora en el índice de masa corporal, sino la mejoría en las alteraciones clínicas y químicas.

Objetivo: Conocer la evolución, casuística, los criterios en la selección de candidatos a cirugías, frecuencia y gravedad de las complicaciones de la cirugía de la obesidad (Bypass Gástrico Abierto), con el fin de ofrecer una oportuna intervención en el diagnóstico y tratamiento para los pacientes con obesidad mórbida en el servicio de cirugía digestiva y endocrina de la unidad médica de alta especialidad No. 25, Centro Médico del Noreste, Instituto Mexicano del Seguro Social, Monterrey, Nuevo León.

Se concluye que la cirugía es confiable, reproducible y razonablemente segura, el esfuerzo está encaminado a mejorar la calidad de vida y evaluar los resultados no solo en términos de exceso de peso perdido, sino de bienestar del enfermo operado.

#### **Factores relacionados con obesidad, diabetes mellitus, hipertensión arterial y dislipidemias en escolares.**

Objetivo: Analizar factores asociados a diabetes mellitus tipo 2, hipertensión arterial sistémica, dislipidemias y obesidad en los escolares de cuarto a sexto de primaria en Villa de Arriaga, México, durante 2009-2010.

Material y métodos: se realizó estudio transversal a 178 escolares, se les efectuó somatometría completa, mediciones de presión arterial, glicemia, colesterol y triglicéridos capilares, se valoró sedentarismo y antecedentes heredo familiares de obesidad, diabetes mellitus, hipertensión arterial y dislipidemias. Para el análisis se aplicaron medidas de estadística descriptiva y pruebas de asociación.

Resultados: Estudiantes entre los 10 y los 12 años, con igual proporción de mujeres y hombres; en el estado nutricional sobresale sobrepeso y obesidad en el 30%, antecedentes de hipertensión arterial, seguido de diabetes mellitus; el sedentarismo tiene la mayor frecuencia, al igual que la hipertrigliceridemia, seguida de hipertensión arterial.

Conclusiones: los resultados obtenidos en el estudio fueron semejantes a investigaciones previas y reportados en la ENSANUT 2006, el factor relacionado con la mayoría de las patologías estudiadas fue el sedentarismo, por lo que es importante desarrollar programas que incrementen el nivel de actividad física.

#### **Percepción de los adolescentes sobre su peso corporal en una institución educativa media básica**

Entre los adolescentes, el peso corporal los ha llevado a generar una serie de sentimientos que de manera importante influyen en la percepción de su peso, adquiriendo nuevos patrones de

alimentación y de actividad física con la única finalidad de alcanzar el peso ideal según sus expectativas. Asimismo el entorno familiar y social en el que se desenvuelven hacen permisible esa adquisición de nuevas conductas que hoy en día representan un reto para los profesionales de enfermería ya que la identificación oportuna de dichas alteraciones en el peso se consideran la base para la formulación de programas preventivos en la aparición de los trastornos de la alimentación; para ello se llevó a cabo una investigación cualitativa, para analizar las percepciones de los adolescentes sobre su peso corporal, utilizando la entrevista semiestructurada y una serie de imágenes por edad y sexo. Asimismo se obtuvo el IMC para comparar la realidad de su peso con sus percepciones verbales y por imágenes; se seleccionaron a 22 adolescentes de ambos sexos de una secundaria privada, utilizando el muestreo teórico y el análisis temático de los datos. Se identificaron 12 adolescentes con peso normal, 2 con peso bajo, 2 con riesgo de sobrepeso y 6 con sobrepeso. Se encontraron 5 núcleos de sentido en las entrevistas y se encontró que los adolescentes con peso normal les gustaría verse en imagen con un peso menor al actual. Se concluye que los adolescentes tienen una percepción adecuada de su peso actual, sin embargo hacen su control de peso para alcanzar el ideal.

## 7. INFORMACION DE PUBLICACIONES PERIODICAS PARA PUBLICAR

TEMA: EPIDEMIOLOGIA					
N°	TITULO	FACTOR DE IMPACTO SCOPUS ACTUALIZACION 13 JUN	FACTOR DE IMPACTO ISI WEB OF KNOWLEDGE ACTUALIZA		INFORMACION PARA EL AUTOR
1	American Journal of Epidemiology	2.971	4.78		<a href="http://uuu.oxfordjournals.org/author/journals/ajep/author/general.html">http://uuu.oxfordjournals.org/author/journals/ajep/author/general.html</a>
2	Annals of Epidemiology	1.301	2.479		<a href="http://uuu.elsevier.com/locate/journaldescription.cur_hame/505746?gqonatorpdf=true">http://uuu.elsevier.com/locate/journaldescription.cur_hame/505746?gqonatorpdf=true</a>
3	Arian Journal of Epidemiology	0.132			<a href="http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz">http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz</a>
4	Cancer Epidemiology	0.984	2.232		<a href="http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz">http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz</a>
5	Cancer Epidemiology, Biomarkers & Prevention (CEBP)	2.774	4.559		<a href="http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz">http://uuu.elsevier.com/journal/cancer-epidemiology/1877-7821/quide-far-athaz</a>
6	Clinical Epidemiology	1.721			<a href="http://uuu.dovepress.com/journal/pricing_bands.php?journal_id=43">http://uuu.dovepress.com/journal/pricing_bands.php?journal_id=43</a>
7	Clinical Practice on Epidemiology in Mental Health	0.774			<a href="http://benthamscience.com/apocpmh/MSandI.htm">http://benthamscience.com/apocpmh/MSandI.htm</a>
8	Community Dentistry and Oral Epidemiology	0.963	1.797		<a href="http://anlinelibrary.wiley.com/journal/10.1111/(ISSN)1600-0528/hamepageoffarAuthor.html">http://anlinelibrary.wiley.com/journal/10.1111/(ISSN)1600-0528/hamepageoffarAuthor.html</a>
9	Emerging Themes in Epidemiology	1.035			<a href="http://uuu.eto-online.com/author/instructions">http://uuu.eto-online.com/author/instructions</a>
10	Epidemiology	2.697			<a href="http://dmqr.avid.com/epid/counter/auth.htm">http://dmqr.avid.com/epid/counter/auth.htm</a>
11	Epidemiology and Infection Instructions for Contributors (HYG)	1.29	2.867		<a href="http://journal.cambridge.org/action/displaySpecialPage?pageId=5908">http://journal.cambridge.org/action/displaySpecialPage?pageId=5908</a>
12	Epidemiology and Psychiatric Science	1.129	2.938		<a href="http://azoxr.cambridge.org/EPS/EPS_ifc.pdf">http://azoxr.cambridge.org/EPS/EPS_ifc.pdf</a>
13	European Journal of Epidemiology	2.046	5.118		<a href="http://link.springer.com/article/10.1023/A:3A1017102914700#page-1">http://link.springer.com/article/10.1023/A:3A1017102914700#page-1</a>
14	Genetic Epidemiology	2.711	4.015		<a href="http://anlinelibrary.wiley.com/journal/10.1002/(ISSN)1098-2272">http://anlinelibrary.wiley.com/journal/10.1002/(ISSN)1098-2272</a>
15	Infection Central and Hospital Epidemiology	2.413	4.02		<a href="http://uuu.itar.org/page/journalinfo/canharpageid/right.html">http://uuu.itar.org/page/journalinfo/canharpageid/right.html</a>
16	Infection Genetic and Evaluation	1.538			<a href="http://uuu.elsevier.com/journal/infection-genetic-and-evaluation/1567-1348/quide-far-athaz">http://uuu.elsevier.com/journal/infection-genetic-and-evaluation/1567-1348/quide-far-athaz</a>
17	International Journal of Epidemiology	4.074	6.982		<a href="http://uuu.oxfordjournals.org/author/journals/ijep/author/general.html">http://uuu.oxfordjournals.org/author/journals/ijep/author/general.html</a>
18	International Journal of Molecular Epidemiology and Genetic	0.76			<a href="http://uuu.ijmeq.org/farAuthor.html">http://uuu.ijmeq.org/farAuthor.html</a>
19	Iran Journal of Epidemiology	0.102			<a href="http://ijph.ir/hame.php?instruction">http://ijph.ir/hame.php?instruction</a>
20	Journal of Cancer	0.756			<a href="http://uuu.hindawi.com/journal/ijc/author/quide-linear">http://uuu.hindawi.com/journal/ijc/author/quide-linear</a>
21	Journal Clinical Epidemiology	3.105	5.332		<a href="http://uuu.elsevier.com/locate/journaldescription.cur_hame/525472?gqonatorpdf=true">http://uuu.elsevier.com/locate/journaldescription.cur_hame/525472?gqonatorpdf=true</a>
22	Journal Epidemiology and Global Health	0.142			<a href="http://uuu.elsevier.com/locate/journaldescription.cur_hame/725490?gqonatorpdf=true">http://uuu.elsevier.com/locate/journaldescription.cur_hame/725490?gqonatorpdf=true</a>
23	Journal of Epidemiology	1.217	2.113		<a href="http://journals.iospress.com/journal/author/instruction.html">http://journals.iospress.com/journal/author/instruction.html</a>
24	Journal of Epidemiology and Community Health	1.838	3.392		<a href="http://joch.bmj.com/site/about/quide-linear.xhtml">http://joch.bmj.com/site/about/quide-linear.xhtml</a>
25	Journal of Exposure Science and Environmental Epidemiology	1.29	3.187		<a href="http://uuu.nature.com/journal/author.html">http://uuu.nature.com/journal/author.html</a>
26	Neuroepidemiology	1.254			<a href="http://uuu.karger.com/Journal/Guidelines/224263">http://uuu.karger.com/Journal/Guidelines/224263</a>
27	Ophthalmic Epidemiology	1.254	2.182		<a href="http://uuu.tandf.co.uk/journal/author/nape-auth.pdf">http://uuu.tandf.co.uk/journal/author/nape-auth.pdf</a>
28	Pediatric and Perinatal Epidemiology	1.429	2.157		<a href="http://anlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3016/hamepageoffarAuthor.html">http://anlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3016/hamepageoffarAuthor.html</a>
29	Pharmacoepidemiology and Drug Safety	1.621			<a href="http://anlinelibrary.wiley.com/journal/10.1002/(ISSN)291099-1557/hamepageoffarAuthor.html">http://anlinelibrary.wiley.com/journal/10.1002/(ISSN)291099-1557/hamepageoffarAuthor.html</a>
30	Revista Brasileira de Epidemiologia	0.576			<a href="http://uuu.ciola.br/revista/rtbepid/instruc.htm">http://uuu.ciola.br/revista/rtbepid/instruc.htm</a>
31	Social Psychiatric and Psychiatric Epidemiology	1.336	2.861		<a href="http://uuu.springer.com/medicines/psychiatry/journal/127">http://uuu.springer.com/medicines/psychiatry/journal/127</a>
32	Spatial and Spatiotemporal Epidemiology	0.721			<a href="http://uuu.elsevier.com/locate/journaldescription.cur_hame/719813?gqonatorpdf=true">http://uuu.elsevier.com/locate/journaldescription.cur_hame/719813?gqonatorpdf=true</a>



TEMA: SALUD PUBLICA					
No.	Título	FACTOR DE IMPACTO JCR 2012	FACTOR DE IMPACTO ULTIMOS 5 AÑOS		INFORMACION PARA EL AUTOR
1	American Journal of Public Health	3.93	4.826		<a href="http://ajph.aphapublications.org/userimages/ContentEditor/1318438422261/Instructions_for_Authors.pdf">http://ajph.aphapublications.org/userimages/ContentEditor/1318438422261/Instructions_for_Authors.pdf</a>
2	Annual Review of Public Health	3.268	8.903		<a href="http://www.annualreviews.org/page/authors/author-instructions">http://www.annualreviews.org/page/authors/author-instructions</a>
3	BMC PUBLIC HEALTH	2.076	2.623		<a href="http://www.biomedcentral.com/bmcpublichealth/authors/instructions">http://www.biomedcentral.com/bmcpublichealth/authors/instructions</a>
4	Disaster Medicine and Public Health Preparedness	1.141	1.178		<a href="http://journals.cambridge.org/images/fileUpload/documents/Instructions_for_Authors_DMP.pdf">http://journals.cambridge.org/images/fileUpload/documents/Instructions_for_Authors_DMP.pdf</a>
5	European Journal of Public Health	2.516	2.928		<a href="http://www.oxfordjournals.org/our_journals/eurpub/for_authors/instructions_to_authors.html">http://www.oxfordjournals.org/our_journals/eurpub/for_authors/instructions_to_authors.html</a>
6	International Journal of Environmental Research	1.998			<a href="http://www.ijer.ir/journal/authors.note">http://www.ijer.ir/journal/authors.note</a>
7	International Journal of Public Health	1.993	2.34		<a href="http://www.elsevier.com/wps/find/journaldescription.cws_home/645727?generatepdf=true">http://www.elsevier.com/wps/find/journaldescription.cws_home/645727?generatepdf=true</a>
8	Journal of Public Health Policy	1.478	2.039		<a href="http://www.palgrave-journals.com/jphp/author_instructions.html">http://www.palgrave-journals.com/jphp/author_instructions.html</a>
9	Journal of Public Health	1.993	2.177		<a href="http://www.oxfordjournals.org/our_journals/pubmed/for_authors/general.html">http://www.oxfordjournals.org/our_journals/pubmed/for_authors/general.html</a>
10	Public Health	1.35	1.605		<a href="http://www.elsevier.com/wps/find/journaldescription.cws_home/645727?generatepdf=true">http://www.elsevier.com/wps/find/journaldescription.cws_home/645727?generatepdf=true</a>
11	Public Health Genomics	2.57	2.667		<a href="http://www.karger.com/Journal/Guidelines/24224">http://www.karger.com/Journal/Guidelines/24224</a>
12	Public Health Nursing	0.78	1.065		<a href="http://www.blackwellpublishing.com/pdf/PHN_AGs_1009.pdf">http://www.blackwellpublishing.com/pdf/PHN_AGs_1009.pdf</a>
13	Public Health Nutrition	2.25	2.753		<a href="http://journals.cambridge.org/action/displayMoreInfo?id=PHN&amp;type=ifc">http://journals.cambridge.org/action/displayMoreInfo?id=PHN&amp;type=ifc</a>
14	Public Health Reports	1.421	1.731		<a href="http://www.publichealthreports.org/Authors.cfm">http://www.publichealthreports.org/Authors.cfm</a>
15	Scandinavian Journal of Public Health	1.966	2.132		<a href="http://www.tandf.co.uk/journals/authors/spubauth.pdf">http://www.tandf.co.uk/journals/authors/spubauth.pdf</a>
16	Zoonoses and Public Health	2.086	2.183		<a href="http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291863-2378/homepage/ForAuthors.html">http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291863-2378/homepage/ForAuthors.html</a>

N°	TITULO	FACTOR DE IMPACTO SCOPUS 2013	FACTOR DE IMPACTO WEB OF SCIENCE 2013	FACTOR DE IMPACTO SCIELO 2013	INFORMACION PARA EL AUTOR
1	Revista Salud Pública de México	0.755	1.034	0.4094	<a href="http://bvs.insp.mx/rsp/info_aut_es/">http://bvs.insp.mx/rsp/info_aut_es/</a>
2	Revista Panamericana de la Salud Pública/ Pan American Journal of Public Health	0.658	0.723	0.1748	<a href="http://www.paho.org/journal/index.php?option=com_content&amp;view=article&amp;id=35&amp;Itemid=155&amp;lang=es">http://www.paho.org/journal/index.php?option=com_content&amp;view=article&amp;id=35&amp;Itemid=155&amp;lang=es</a>
3	Revista Cubana de Higiene y Epidemiología	0.187		0.1839	<a href="http://scielo.sld.cu/scielo.php?script=sci_serial&amp;lng=es&amp;pid=1561-3003&amp;nrm=iso">http://scielo.sld.cu/scielo.php?script=sci_serial&amp;lng=es&amp;pid=1561-3003&amp;nrm=iso</a>
4	Revista Brasileira de Epidemiologia	0.725		0.5723	<a href="http://www.scielo.br/revistas/rbepid/instruc.htm">http://www.scielo.br/revistas/rbepid/instruc.htm</a>