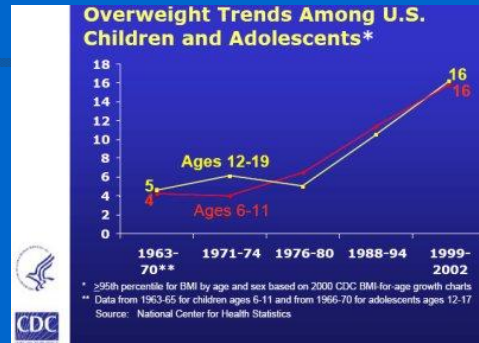


The Relationship Between Socioeconomic Status and Overweight Among US Children and Adolescents: a systematic review of the literature.

By Kristen Harvey
Research Advisor: June Hanks



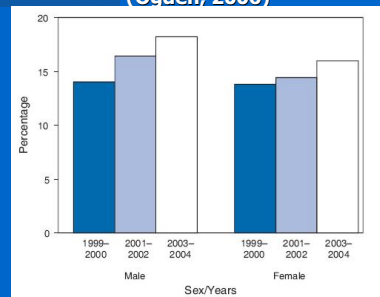
2003-2004 NHANES Survey (Ogden, 2006)



- 13.9% of 2 to 5 year olds
- 18.8% of 6 to 11 year olds
- 17.4% of 12-19 year olds

Photo taken from:
<http://www.rottent.com/library/crime/corporate/mcdonalds/too-many-happy-meals.jpg>

Prevalence of Overweight* Among Persons Aged 2--19 Years, by Sex - NHANES, 1999--2000 Through 2003--2004 (Ogden, 2006)



Taken from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm54a5.htm?s_cid=mm54a5a_e

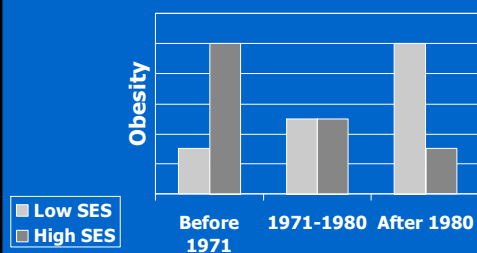
High Risk Populations



- Hispanics (Ogden, 2006)
- African American girls (Ogden, 2006)
- Low socioeconomic status (SES) (Ogden, 2002)

Photo taken from:
<http://graphics.iparenting.com/clipart/kids/food/fo011.jpg>

Obesity and SES (Jones 1985, Ogden 2002)



SES and Obesity Relationship

- Bi-directional (Stunkard)
- May share some causes (Sorenson)
- Both variables can fluctuate (Sorenson)

- Frame of reference: (Sorenson)
 - Obesity is biological
 - SES is psychosocial

Socioeconomic Status: evaluated by

- Education
- Income
 - Poverty income ratio
- Occupation

(Wardle et al, 2002, and Sobal, 1991)

Parental Education

- Education
 - Pros
 - Most accurate (Wardle)
 - Closely related to BMI changes (Flegal 1988 in Stunkard)
 - Cross-cultural relevance (Stunkard)
 - Non-biased between genders (Wardle)
 - Cons
 - Categories have changed in meaning and value (Miech)

Poverty Income Ratio (PIR)

- More sensitive to changes over time
- Revised annually 2^o inflation

- Ratio of $\frac{\text{Total HHI}}{\text{Federal poverty threshold}} < 1 = \text{poverty}$
 - Federal threshold varies by family # and ages

(Miech et al, 2006)

SES & Obesity

Most recent comprehensive review (1989)

- Based on 144 studies from 1940s-80s
 - Adults and children
 - Developing and developed countries
- Outcome in developed countries
 - Inconsistent relationship in children

Sobal, et al (1989)

Purpose

Investigate recent literature on **relationship between SES and overweight** among youth

- In US only
- With SES defined by:
 - education, income/PIR, occupation

Methods: Search Strategies

- Databases
 - PubMed
 - CINAHL
 - PsycInfo
 - Social Work Abstracts
- Reference list from articles

Key Search Terms

- Search dates:
 - 9/10/06, 9/11/06, and 9/13/06
- Sample Terms:
 - Child OR Adolescent OR Infant
 - Overweight OR Obesity
 - Socioeconomic Factors
 - Poverty
 - Home Environment
 - Food OR Nutrition OR Diet
 - Mass Media
 - Lifestyle, Sedentary

Inclusion Criteria

- **Inclusion Criteria**
 - Design:
 - No restrictions except excluded case reports
 - **Define SES by: education, income, occupation, PIR**
 - Primary resources used in studies dated after 1981
 - **Define overweight using CDC growth charts**
 - Published & unpublished literature
 - **Data in USA only**

Exclusion Criteria

- Exclusion Criteria
 - Studies that do not differentiate between data collected in USA and other countries

Data Analysis

- Agreement between two reviewers on:
 - inclusion/exclusion criteria
 - quality of descriptive studies (Caret, 2005)
 - Clear description of data collection methodology
 - **Current, credible, reasonable, applicable, justifiable**

Results

- **15 descriptive studies**
 - Household Income/PIR
 - 12 studies
 - Education
 - 9 studies
 - Occupation
 - 2 studies
- Most studies used ≥ 2 SES variables

Household Income

- Miech (2006) = A
- Wang (2006) = A
- Alaimo (2001) = B
- Goodman (2003) = B
- Haas (2003) = B
- Strauss (1999) = B
- Lin (2004) = B
- Lee (2006) = C
- Rappaport (2005) = C
- Anderson (2003) = C
- Burdette (2003) = C
- Gable (2000) = C

HHI: Study Outcomes Inverse Relationship (n=10)

- Children and adolescents
- Children 6-11 y.o.
- Children 1-<5 y.o.
- Children 0-8 y.o.
- Only in Caucasian girls, 10-18 y.o.
- 8-16 y.o. Caucasian youth
- 15-17 y.o. adolescents
- 5th, 7th, and 9th graders in Los Angeles
- Adolescents in 7th to 12th grade

HHI: Study Outcomes

No inverse relationship in some subgroups of same studies (n=10)

- **2-7 y.o. children**
- **12-14 y.o. adolescents**
- **non-Caucasian male adolescent grades 7-12**
- **Hispanic children**

HHI: Study Outcomes Positive Relationship (n=4)

- Adolescents, 12-17 y.o.
- Overweight children, 36-59 mos.
- African American girls, 10-18 y.o.
- African American adolescents, 12-14 y.o.

Parental Education

- Goodman, E (2003) = B
- Haas, JS (2003) = B
- Lumeng, JC (2006) = B
- Strauss, RS (1999) = B
- Anderson, PM (2003) = C
- Dennison, BA (2002) = C
- Gable, S (2000) = C
- McMurray, RG (2000) = C
- Rappaport, EB (2005) = C

Parental Education Outcomes Inverse relationship (n=7)

- Children, 3-11 y.o.
- Children, 6-11 y.o.
- Children, 0-8 y.o.
- Children and adolescents, 2-17 y.o.
- 1st graders
- Adolescents, 10-16 y.o.
- Adolescents in 7th-12th grade, except non-Caucasian males

Parental Education Outcomes

No association (n=2)

- Children, 1-<5 y.o.
- Children, 6-10 y.o.

Parental Occupation

- Strauss, RS (1999) = B
- Gable, S (2000) = C

Parental Occupation Outcomes

- **Inverse relationship (n=1)**
 - Children, 0-8 y.o.
- **No Association (n=1)**
 - Children, 1-<5 y.o.

Summary: HHI

- Household income (HHI)
 - No conclusion (HHI/Overweight)
 - Mixed outcomes
 - Inconsistency
 - Ages
 - Racial/Ethnic groups
 - Inverse relationship (HHI/Overweight)
 - Strongest among Caucasian population
 - Especially girls
 - Weakening (Wang)
 - Positive relationship (HHI/Overweight)
 - African American girls and adolescents

Summary: Parental Education

- Parental Education (PE)
 - Strongest variable assoc. w/ overweight in children
 - Lack of data on adolescents
 - Inverse relationship (PE/overweight) does appear to exist
 - Inadequate representation of minorities
 - Adolescents from racial/ethnic minorities

Summary: Parental Occupation

- Parental Occupation (PO)
 - No conclusion (PO/overweight)
 - Lack of data
 - Inconsistency of measures

Limitations

- Risk factors (Burdette, 2005)
 - Hard to measure
 - Interact with other variables
 - Account for small portion of overweight

Limitations

- Studies had poor:
 - Construct validity
 - Internal validity
 - External validity
 - Statistical validity

Other Factors to Consider

- Feeding practices
- Dietary behaviors
- Fruit and Vegetable Consumption
- Food insufficiency
- Television/video games
- Physical activity
- Home environment
- Neighborhood safety
- Local food environment
- Parental BMI
- Health Insurance Status

Implications for Research

- Education
 - Adolescents
 - Racial/ethnic minorities
- Education and Household Income
- Other risk factors
 - Home environment, parental BMI, soft drink beverage consumption, etc.

Any Questions?



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