Trends in Socioeconomic Disparities in Obesity Across the Life Course, United States, 1976-2008

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Objectives

- To estimate the extent to which socioeconomic disparities in obesity vary across the life course.
- To examine trends in obesity and overweight prevalence among US children, adolescents, and adults by individual, household, & neighborhood socioeconomic status (SES).
Sources of Data

• The 1976-2008 National Health & Nutrition Examination Surveys (NHANES).
• The 1976-2008 National Health Interview Surveys (NHIS).
• The 2003 and 2007 National Survey of Children’s Health (NSCH).
• All surveys are nationally representative and conducted by CDC/NCHS.
• HRSA/MCHB provides funding for NSCH.
Sources of Data (Contd.)

- Since 1999, the NHANES has become a continuous annual survey; sample size \( \approx 10,000 \) children & adults.
- The NHIS, conducted continuously since 1957, is an annual household survey; annual sample size \( \approx 90,000 \) to \( 100,000 \) children & adults.
- The NSCH, the largest child health survey in the US, is conducted every 4 years; sample size \( \approx 100,000 \) children aged \(<18\).
- BMI in NHANES is based on measured height and weight data; BMI in NHIS is based on self-reports; and BMI in NSCH is based on parental reports.
Definitions of Obesity & Overweight

- Child Obesity = BMI ≥ 95th Percentile.
- Child Overweight = BMI ≥ 85th Percentile.
- Age-sex-specific BMI cutoff points available from the 2000 CDC growth charts to define child obesity.
- Adult Obesity = BMI ≥ 30 kg/m².
- Adult Overweight = BMI ≥ 25 kg/m².
- The overweight category includes obese individuals.
Statistical Methods

• To account for complex sample designs, SUDAAN software was used in analyses of all survey data.

• Logistic regression was used to model odds of obesity & overweight and to estimate prevalence after adjusting for covariates.

• Summary measures of disparity (Relative Index of Disparity, Regression Slope) for analyzing changes over time.
Trends in Obesity Prevalence, U.S. Children Aged 6-17, 1976-2008
Measured Height & Weight Data from NHANES

Trends in Age-Adjusted Obesity Prevalence (%) among U.S. Adults Aged 20-74 Years, 1960-2008 (Measured Height & Weight Data from NHANES)

Source: CDC/NCHS. Health, United States, 2009.
Socioeconomic (Family Income/Federal Poverty Level) Disparities in Obesity Prevalence (%) Across the Life Course, United States, 2003-2008 NHANES

Socioeconomic Disparities in Obesity Risks Across the Life Course, United States, 2003-2008 NHANES

Trends in Obesity & Overweight Prevalence (%) among Children Aged 10-17 Years, by Household or Parental Education, United States, 2003-2007 (NSCH)

Trends in Obesity & Overweight Prevalence (%) among U.S. Children Aged 10-17 Years, by Household Income/Federal Poverty Level (NSCH)


Relationship between Neighborhood Socioeconomic Conditions and Obesity Prevalence Among US Children Aged 10-17 (N = 44,101), 2007

Trends in Educational Inequalities in Obesity Prevalence (%) Among Adults Aged 25+ Years, United States, 1976-2008

Trends in Educational Inequalities in Overweight Prevalence (%) Among Adults Aged 25+ Years, United States, 1976-2008

Covariate-Adjusted Relative Risk (Odds) of Obesity by Education, US Adults Aged 18+ years, 1976-2008 (All ORs Statistically Significant)

Covariate-Adjusted Relative Risk (Odds) of Obesity by Family Income, US Adults Aged 18+ years, 1992-2008 (All ORs Statistically Significant)

Socioeconomic Gradients in Obesity Differ by Age

• SES patterns in obesity across the life course appear to be similar to those for health and mortality.

• SES gradients in health decline by age – they are steepest for infants and children and adults in working ages and are least pronounced for the elderly.
SES Trends in Childhood and Adult Obesity Differ

• Decreasing SES gradients in adult obesity over time – with more rapid increases in prevalence among higher SES groups.

• Increasing SES gradients in childhood obesity over time – with faster increases in prevalence among children from lower SES groups.
Rising Social Inequalities in US Childhood Obesity

• Between 2003 & 2007, children from single-parent households and children from lower SES households experienced increases in obesity prevalence at a faster pace than children in two-parent families and children from more affluent households, respectively – This contributed to the widening SES gap.
Possible Reasons for Recent Increases in Childhood Obesity at National Level

• Increase in the proportion of socially disadvantaged populations.

• No marked changes in levels of physical inactivity & other sedentary activities.

• Dietary factors? Mean calorie intake & fat intake among youth have increased consistently over time.
Factors Contributing to SES Trends in Adult Obesity

• Declining physical activity (PA) levels and increasing total energy intake.
• Physical activity does partly account for SES disparities in adult obesity. However, temporal relationship between SES disparities in PA and obesity is not known.
Factors Contributing to SES Trends in Adult Obesity (Contd.)

• Are dietary trends related to SES trends in obesity?

• Higher SES groups have higher calorie and fat intake, but are also less likely to consume lower-quality diets & energy-dense foods.

• SES differences in diet quality have narrowed over time – with higher SES individuals losing their relative advantage.
Policy Implications

• Many aspects of the social environment are potentially modifiable through social policies: neighborhood deprivation, poor housing, crime & safety concerns, inadequate street lighting, inadequate public transportation, and not enough grocery stores that carry healthy, affordable foods.

• Improvements in the social environment have health benefits that extend far beyond those associated with reduced obesity and improved physical activity and dietary outcomes.
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