

Do the Data Show A Relationship between Obesity and Poverty?

FALL 2010

While all segments of the U.S. population are affected by obesity, one of the common myths that exists is that all or virtually all low-income people are far more likely to be obese. In this generalization, two facts commonly are overlooked: (1) the relationship between income and weight can vary by gender, race-ethnicity, or age and (2) disparities by income seem to be weakening with time. In this analysis, we do not look at the causal links (if any) between obesity and poverty. Rather, we seek to “unpack” the data and elucidate where low-income groups are more likely to be obese, and where they are not.

The studies below highlight some of the more recent research on this complicated relationship. The first set of studies focuses on general trends in obesity and income or socioeconomic status (SES) across all categories of people. The second set of studies describes the relationship by demographic characteristics (e.g., age, gender, race-ethnicity), showing some important differences in sub-groups that are otherwise lost. The final set of studies examines how the relationship between obesity and poverty has changed over time since the 1970's.

Overall, the research for a greater risk of obesity is more consistent for women and children (especially White women and children) of low-income or low-SES than for men. In addition, there is evidence that where there are gaps between high- and low-income groups, they have been closing with time as those with higher incomes become more obese.

Adult Poverty and Obesity

The Relationship Based on General Trends

- Based on a large national study, body mass index (or BMI, an indicator of excess body fat) was higher every year between 1986 and 2002 among adults in the lowest income group and the lowest education group than among those in the highest income and education groups, respectively.¹
- Wages were inversely related to BMI and obesity in a nationally representative sample of more than 6,000 adults – meaning, those with low wages had increased BMI as well as increased chance of being obese.²

How the Relationship Varies by Demographic Characteristic

- In a recent review of the scientific literature published between 1988 and 2004, 63 percent of reviewed studies of women in industrialized countries found that women with lower SES were more likely to have a larger body size.³ Such a relationship was less consistent for men.
- A national study using 1999-2004 data also observed higher obesity rates at lower income levels among all women and White women, but higher obesity rates at higher income levels among Mexican-American men.⁴ No significant trends emerged among all men, Black women, or other gender-racial sub-groups.
- Pooling national data from more than 30 years, White and Black women consistently experienced higher BMI at lower income levels, although this association was more modest at some time points than others.⁵ In recent years, and in contrast to women and White men, Black and Mexican-American men experienced higher BMI's with higher incomes. For Black men, this relationship represented a shift in direction over time.

How the Relationship Has Changed since the 1970's

- National data indicate that obesity rates increased at all income levels between 1971 and 2002, but the poor did not necessarily experience the largest increases during this time period.⁶ For example, between the 1971-1974 and 1999-2002 surveys, the absolute increase in obesity was greater for middle income Black women (27.0 percent) than for lower income Black women (14.5 percent), and greater for higher income Black men (21.1 percent) than for lower income Black men (5.4 percent). (Additional changes over time identified with this dataset are highlighted in the previous bullet.)
- In one of the first national studies to examine SES (based on educational level) and obesity disparities over time (1971 to 2000), the association between higher BMI and lower SES – as well as greater obesity and lower SES – weakened over three decades among most gender and ethnic groups, especially among women, even though overall obesity prevalence increased substantially.⁷ In addition, across gender-racial categories, the high-SES group experienced the highest rates of increase in obesity over time.

Childhood Poverty and Obesity

The Relationship Based on General Trends

- Obesity rates increased by 10 percent for all U.S. children 10- to 17-years old between 2003 and 2007, but by 23 percent during the same time period for low-income children.⁸ This national study of more than 40,000 children also found that in 2007, children from lower income households had more than two times higher odds of being obese than children from higher income households.
- Rates of severe obesity were approximately 1.7 times higher among poor children and adolescents in a nationally representative sample of more than 12,000 children aged 2 to 19 years.⁹
- In California, higher community poverty rates were strongly associated with higher childhood overweight rates.¹⁰

How the Relationship Varies by Demographic Characteristic

- Using NHANES data from 1999-2004, one study of children 6 to 19 years of age found greater obesity at lower family income levels among White and Mexican-American children, but greater obesity with higher family income levels among Black children that was most evident among Black girls.¹¹ Using different analyses with NHANES 1999-2004 data in another study, researchers found no significant trends for income and obesity among children except for a strong inverse trend (i.e., greater obesity at lower income levels) among White girls.¹²
- Obesity rates did not differ significantly by poverty status for 12- to 14-year old adolescents based on a large national survey from 1999-2004, but rates were over 50 percent higher among 15- to 17-year-old adolescents in poor families compared to non-poor families.¹³
- National data from 1999-2002 revealed that only one significant association emerged between SES (based on the poverty income ratio) and obesity rates among 10- to 18-year olds when examining associations by gender and gender-ethnicity.¹⁴ The one significant association: Black adolescent girls with a high SES were twice as likely to be obese as their counterparts with a medium SES.

How the Relationship Has Changed since the 1970's

- National data from over three decades (1971 to 2002) suggests a weakening association between SES (based on the poverty income ratio) and child obesity over time, especially among adolescents.¹⁵ For example, between the 1988-1994 and 1999-2002 surveys, the ratio in the prevalence of obesity for adolescents with a low- versus high-SES decreased dramatically for girls and even more so for boys: the ratio started at 2.5:1.0 for boys and fell to 1.1:1.0; for girls it started at 3.1:1.0 and fell to 1.6:1.0.

Endnotes

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- ⁵ Chang, V. W. & Lauderdale, D. S. (2005). Income disparities in body mass index and obesity in the United States, 1971-2002. *Archives of Internal Medicine*, 165, 2122-2128.
- ⁶ Chang & Lauderdale, 2005.
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- ⁸ Singh, G. K., Siahpush, M., & Kogan, M. D. (2010). Rising social inequalities in U.S. childhood obesity, 2003-2007. *Annals of Epidemiology*, 20(1), 40-52.
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- ¹⁰ Drewnowski, A., Rehm, C., Kao, C., & Goldstein, H. (2009). Poverty and childhood overweight in California Assembly districts. *Health and Place*, 15, 631-635.
- ¹¹ Freedman, D. S., Ogden, C. L., Flegal, K. M., Khan, L. K., Serdula, M. K., & Dietz, W. H. (2007). Childhood overweight and family income. *Medical Care*, 45(2), 26.
- ¹² Ogden et al., 2007.
- ¹³ Miech, R. A., Kumanyika, S. K., Stettler, N., Link, B. G., Phelan, J. C., & Chang, V. W. (2006). Trends in the association of poverty with overweight among U.S. adolescents, 1971-2004. *Journal of the American Medical Association*, 295(20), 2385-2393.
- ¹⁴ Wang, Y. & Zhang, Q. (2006). Are American children and adolescents of low socioeconomic status at increased risk of obesity? Changes in the association between overweight and family income between 1971 and 2002. *American Journal of Clinical Nutrition*, 84, 707-716.
- ¹⁵ Wang & Zhang, 2006.