

Food Insecurity and Obesity: Understanding the Connections

FRAC
Food Research and Action Center

Spring 2011

While all segments of the population are affected, food insecure and low-income people are especially vulnerable to obesity due to the additional risk factors associated with poverty. This article first will highlight research on food insecurity and obesity, and then explore why food insecurity and obesity can co-exist. A previous brief from FRAC, *Do the Data Show a Relationship between Poverty and Obesity?*, addressed the latest research on poverty and obesity.¹

What Does the Research Say About Food Insecurity and Obesity?

While it may seem counterintuitive, food insecurity and obesity can co-exist in the same individual, family, or community. The research on whether there is a relationship, however, provides mixed results.^{2,3} A number of research studies in the U.S. and abroad have found positive associations between food insecurity and overweight/obesity.^{4,5} Other studies have found no relationship, or even a lower risk of obesity, with food insecurity.^{6,7}

Overall, the strongest and most consistent evidence is for a higher risk of overweight/obesity among food insecure women.^{8,9} Although the research for children is not as consistent as it is for women, several studies do find a significant association between food insecurity and overweight/obesity among children.^{10,11}

A selection of the U.S. studies showing a relationship between food insecurity and a greater risk of overweight/obesity is provided below. The vast majority of these studies control for socioeconomic factors (e.g., income, education) as well as demographic characteristics (e.g., age, gender, race-ethnicity).

Research Showing Food Insecure Adults are More Likely to be Overweight/Obese

- Based on a national sample of 4,509 women, those women who were food insecure were more likely to be overweight than women who were food secure.¹²
- A study of more than 5,200 women from across the U.S. found that women living in food insufficient households had higher rates of overweight than those in food sufficient households.¹³
- Another study using national data from 9,698 adults found that women experiencing intermediate levels of food insecurity were more likely to be obese and more likely to have gained five pounds in the previous year than fully food secure women.¹⁴ Similar but smaller effects were seen for men.
- In a study of 810 pregnant women in North Carolina with incomes less than or equal to 400 percent of the income/poverty ratio, living in a food insecure household was associated with being severely obese before pregnancy and with experiencing greater weight gain during pregnancy.¹⁵

Overall, the strongest and most consistent evidence is for a higher risk of overweight/obesity among food insecure women. Although the research for children is not as consistent as it is for women, several studies do find a significant association between food insecurity and overweight/obesity among children.

- Based on a study of 8,169 women in California, food insecure women were at greater risk of obesity than food secure women, with the greatest risk for non-White women.¹⁶
- Food insecure adults in one Connecticut study of 200 people were twice as likely to be obese as those who were food secure.¹⁷
- Obesity and weight-related physical disability were both associated with food insecurity among a sample of 621 older adults in Georgia.¹⁸

Research Showing Food Insecure Children are More Likely to be Overweight/Obese

- A study using national data from almost 6,500 children found that food insecurity was positively associated with overweight and obesity in those 12 to 19 years of age.¹⁹
- In a national sample of almost 7,000 children, childhood food insecurity was associated with overweight.²⁰
- A three-city study (Boston, San Antonio, and Chicago) of 1,011 adolescents found that maternal stress in combination with adolescent food insecurity significantly increased an adolescent's probability of being overweight or obese.²¹
- One study using a national sample of 8,693 infants and toddlers found an indirect association between food insecurity and overweight that operated through parenting practices and infant feeding practices.²²
- Among 2- to 5-year-old girls – but not boys – in Massachusetts participating in WIC, those from food insecure households with hunger had 47 percent higher odds of being obese compared to those from food secure households.²³

Why Can Food Insecurity and Obesity Co-Exist?

The fact that food insecurity and obesity are associated (in many studies) for women and children does not necessarily mean they are causally linked to each other. Both food insecurity and obesity can be consequences of low income and the resulting lack of access to enough nutritious food. More specifically, obesity among food insecure people – as well as among low-income people – occurs in part because they are subject to the same influences as other Americans (e.g., more sedentary lifestyles, increased portion sizes), but also because they face unique challenges in adopting healthful behaviors, as described below.

Food insecure and low-income people are especially vulnerable to obesity due to the additional risk factors associated with poverty, including:

- Limited resources
- Lack of access to healthy, affordable foods
- Fewer opportunities for physical activity
- Cycles of food deprivation and overeating
- High levels of stress
- Greater exposure to marketing of obesity-promoting products
- Limited access to health care

Limited Resources and Lack of Access to Healthy, Affordable Foods

- Low-income neighborhoods frequently lack full-service grocery stores and farmers' markets where residents can buy a variety of fruits, vegetables, whole grains, and low-fat dairy products.^{24,25} Instead, residents – especially those without reliable transportation – may be limited to shopping at small neighborhood convenience and corner stores, where fresh produce and low-fat items are limited, if available at all. One of the most comprehensive reviews of U.S. studies examining neighborhood disparities in food access found that neighborhood residents with better access to supermarkets and limited access to convenience stores tend to have healthier diets and reduced risk for obesity.²⁶
- When available, healthy food is often more expensive, whereas refined grains, added sugars, and fats are generally inexpensive and readily available in low-income communities.^{27,28,29,30,31} Households with limited resources to buy enough food often try to stretch their food budgets by purchasing cheap, energy-dense foods that are filling – that is, they try to maximize their calories per dollar in order to stave off hunger.^{32,33,34} While less expensive, energy-dense foods typically have lower nutritional quality and, because of overconsumption of calories, have been linked to obesity.^{35,36,37}
- When available, healthy food – especially fresh produce – is often of poorer quality in lower income neighborhoods, which diminishes the appeal of these items to buyers.³⁸
- Low-income communities have greater availability of fast food restaurants, especially near schools.^{39,40,41} These restaurants serve many energy-dense, nutrient-poor foods at relatively low prices. Fast food consumption is associated with a diet high in calories and low in nutrients, and frequent consumption may lead to weight gain.^{42,43}

Fewer Opportunities for Physical Activity

- Lower income neighborhoods have fewer physical activity resources than higher income neighborhoods, including fewer parks, green spaces, bike paths, and recreational facilities, making it difficult to lead a physically active lifestyle.^{44,45,46} Research shows that limited access to such resources is a risk factor for obesity.^{47,48}
- When available, physical activity resources may not be attractive places to play or be physically active because poor neighborhoods often have fewer natural features (e.g., trees), more visible signs of trash and disrepair, and more noise.⁴⁹
- Crime, traffic, and unsafe playground equipment are common barriers to physical activity in low-income communities.^{50,51,52,53} Because of these and other safety concerns, children and adults alike are more likely to stay indoors and engage in sedentary activities, such as watching television or playing video games. Not surprisingly, those living in unsafe neighborhoods are at greater risk for obesity.^{54,55}
- Low-income children are less likely to participate in organized sports.⁵⁶ This is consistent with reports by low-income parents that expense and transportation problems are barriers to their children's participation in physical activities.⁵⁷
- Students in low-income schools spend less time being active during PE classes and are less likely to have recess, both of which are of great concern given the already limited opportunities for physical activity in their communities.^{58,59}

Cycles of Food Deprivation and Overeating

- Those who are eating less or skipping meals to stretch food budgets may overeat when food does become available, resulting in chronic ups and downs in food intake that can contribute to weight gain.^{60,61,62,63} Cycles of food restriction or deprivation also can lead to an unhealthy preoccupation with food and metabolic changes that promote fat storage – all the worse when combined with overeating.^{64,65,66} Unfortunately, overconsumption is even easier given the availability of cheap, energy-dense foods in low-income communities.^{67,68}
- The “feast or famine” situation is especially a problem for low-income parents, particularly mothers, who often restrict their food intake and sacrifice their own nutrition in order to protect their children from hunger.^{69,70,71,72} Such a coping mechanism puts them at risk for obesity – and research shows that parental obesity, especially maternal obesity, is in turn a strong predictor of childhood obesity.^{73,74}

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High Levels of Stress

- Members of low-income families, including children, may face high levels of stress due to the financial and emotional pressures of food insecurity, low-wage work, lack of access to health care, inadequate and long-distance transportation, poor housing, neighborhood violence, and other factors. Research has linked stress to obesity in youth and adults, including (for adults) stress from job-related demands and difficulty paying bills.^{75,76,77} Stress may lead to weight gain through stress-induced hormonal and metabolic changes as well as unhealthy eating behaviors.^{78,79} Stress, particularly chronic stress, also may trigger anxiety and depression, which are both associated with child and adult obesity.^{80,81}

Greater Exposure to Marketing of Obesity-Promoting Products

- Low-income youth and adults are exposed to disproportionately more marketing and advertising for obesity-promoting products that encourage the consumption of unhealthy foods and discourage physical activity (e.g., fast food, sugary beverages, television shows, video games).^{82,83,84} Such advertising has a particularly strong influence on the preferences, diets, and purchases of children, who are the targets of many marketing efforts.⁸⁵

Limited Access to Health Care

- Many low-income people lack access to basic health care, or if health care is available, it is lower quality. This results in lack of diagnosis and treatment of emerging chronic health problems like obesity.

For more information on food insecurity and obesity, go to: www.frac.org.

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Endnotes

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