

Why Low-Income and Food-Insecure People are Vulnerable to Poor Nutrition and Obesity

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Food-insecure and low-income people are subject to the same often challenging influences as other Americans in trying to consume a healthful diet and maintain a healthful weight (e.g., more sedentary lifestyles, increased portion sizes). But those who are food-insecure or low-income also face unique challenges in adopting and maintaining healthful behaviors, as described below.

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 high-quality fruits, vegetables, whole grains, and low-fat dairy products (Beaulac et al., 2009; Larson et al., 2009; Bell et al., 2013). 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. Comprehensive literature reviews examining neighborhood disparities in food access find that neighborhood residents with better access to supermarkets and limited access to convenience stores tend to have healthier diets and reduced risk for obesity (Larson et al., 2009; Bell et al., 2013).
- According to USDA, “vehicle access is perhaps the most important determinant of whether or not a family can access affordable and nutritious food” (Ver Ploeg et al., 2009). Households with fewer resources (e.g., SNAP households, WIC households, food insecure households) are considerably **less likely to have and use their own vehicle for their regular food shopping** than those households with more resources (Ver Ploeg et al., 2015). Food choices and purchases may be constrained by limits on how much can be carried when walking or using public transit (e.g., buying fewer items in bulk or that are heavy), or if consumers are limited to one large shopping trip a month with a friend or family member to buy the majority of their monthly food purchases (e.g., buying fewer perishable items like fresh produce) (Wiig & Smith, 2009; Walker et al., 2012). Transportation costs also cut into the already limited resources of low-income households, and these costs plus travel time can be substantial (Rose et al., 2009; Evans et al., 2015).
- When available, **healthy food may be more expensive** in terms of the monetary cost as well as (for perishable items) the potential for waste, whereas refined grains, added sugars, and fats are generally inexpensive, palatable, and readily available in low-income communities (Aggarwal et al., 2012; Darmon & Drewnowski, 2015; DiSantis et al., 2013; Drewnowski, 2010). 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 (DiSantis et al., 2013; Drewnowski, 2009; Edin et al., 2013). While less expensive, energy-dense foods typically have lower nutritional quality and, because of overconsumption of calories, have been linked to obesity (Kant & Graubard, 2005; Perez-Escamilla et al., 2012).
- 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 (Andreyeva et al., 2008; Evans et al., 2015).
- Low-income communities have **greater availability of fast food restaurants**, especially near schools (Fleischhacker et al., 2011; Hilmers et al., 2012; Kestens & Daniels, 2010). 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 (Larson et al., 2011; Pereira et al., 2005; Powell & Nguyen, 2013).

Cycles of Food Deprivation and Overeating

- Those who are eating less or skipping meals to stretch food budgets may **overeate when food does become available**, resulting in chronic ups and downs in food intake that can contribute to weight gain (Bruening et al., 2012; Dammann & Smith, 2010; Olson et al., 2007). Cycles of food restriction or deprivation also can lead to disordered eating behaviors, an unhealthy preoccupation with food, and metabolic changes that promote fat storage — all the worse when combined with overeating (Bove & Olson, 2006; Finney Rutten et al., 2010; Laraia et al., 2015; Tester et al., 2015). Unfortunately, overconsumption is even easier given the availability of cheap, energy-dense foods in low-income communities (Drewnowski, 2009; Hilmers et al., 2012).
- 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** (Dammann & Smith, 2009; Edin et al., 2013). 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 (Dev et al., 2013; Janjua et al., 2012; Metallinos-Katsaras et al., 2012).

High Levels of Stress, Anxiety, and Depression

- Members of low-income families, including children, may **face high levels of stress and poor mental health** (e.g., anxiety, depression) due to the financial and emotional pressures of food insecurity, low-wage work, lack of access to health care, inadequate transportation, poor housing, neighborhood violence, and other factors. A number of recent studies find associations between food insecurity and stress, depression, psychological distress, and other mental disorders (Laraia et al., 2015; Leung et al., 2015; Liu et al., 2014; McLaughlin et al., 2012; Poole-Di Salvo et al., 2016).
- Research has linked stress and poor mental health to obesity in children and adults, including (for adults) stress from job-related demands and difficulty paying bills (Block et al., 2009; Gundersen et al., 2011; Lohman et al., 2009; Moore & Cunningham, 2012). In addition, a number of studies find associations between **maternal stress or depression and child obesity** (Gross et al., 2013; Tate et al., 2015). Emerging evidence also suggests that maternal stress in combination with food insecurity may negatively impact child weight status (Lohman et al., 2009).
- Stress and poor mental health may lead to weight gain through **stress-induced hormonal and metabolic changes as well as unhealthy eating behaviors and physical inactivity** (Adam & Epel, 2007; Stults-Kolehmainen & Sinha, 2014; Torres & Nowson, 2007; Tomiyama et al., 2011). There also is growing evidence that low-income mothers struggling with depression or food insecurity utilize obesogenic child feeding practices and unfavorable parenting practices that could influence child weight status (Bronte-Tinkew et al., 2007; Gross et al., 2012; Gross et al., 2013; Goulding et al., 2014).

Fewer Opportunities for Physical Activity

- Lower income neighborhoods have **fewer physical activity resources** than higher income neighborhoods, including fewer parks, green spaces, and recreational facilities, making it difficult to lead a physically active lifestyle (Mowen, 2010). Research shows that limited access to such resources is a risk factor for obesity (Gordon-Larsen et al., 2006; Sallis & Glanz, 2009; Singh et al., 2010b).
- There is emerging evidence that **food insecurity is associated with less physical activity and greater perceived barriers to physical activity** (e.g., too tired to be physically active) (Fram et al., 2015; To et al., 2014). In addition, many studies find that low-income populations engage in less physical activity and are less physically fit than their higher income peers (Centers for Disease Control and Prevention, 2014; Jin & Jones-Smith, 2015). This is not surprising, given that many environmental barriers to physical activity exist in low-income communities.
- When available, **physical activity resources may not be attractive** places to play or be physically active because low-income neighborhoods often have fewer natural features (e.g., trees), more visible signs of trash and disrepair, and more noise (Bruton & Floyd, 2014; Neckerman et al., 2009).
- **Crime, traffic, and unsafe playground equipment** are common barriers to physical activity in low-income communities (Neckerman et al., 2009; Taylor & Lou, 2011). 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 (Duncan et al., 2009; Lumeng et al., 2006; Singh et al., 2010b).
- Low-income children are **less likely to participate in organized sports** (C.S. Mott Children's Hospital, 2012; Duke et al., 2003). This is consistent with reports by low-income parents that expense and transportation problems are barriers to their children's participation in physical activities (C.S. Mott Children's Hospital, 2012; Duke et al., 2003).
- Students in low-income schools spend **less time being active during physical education classes** and are **less likely to have recess**, both of which are of particular concern given the already limited opportunities for physical activity in their communities (Barros et al., 2009; Milteer & Ginsburg, 2007; UCLA Center to Eliminate Health Disparities & Samuels and

Associates, 2007).

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 unhealthful foods and discourage physical activity (e.g., fast food, sugary beverages, television shows, video games) (Powell et al., 2014; Yancey et al., 2009). Such advertising has a particularly strong influence on the preferences, diets, and purchases of children, who are the targets of many marketing efforts (Institute of Medicine, 2006; Institute of Medicine, 2013).

Limited Access to Health Care

- While the enactment of the Affordable Care Act of 2010 improved health insurance coverage rates in the nation, many low-income people still are **uninsured and lack access to basic health care**, especially in states that have not taken the Medicaid option (Barnett & Vornovitsky, 2016). This results in lack of screening for food insecurity and referrals for food assistance, as well as lack of diagnosis and treatment of emerging chronic health problems like obesity.