

# You Are Where You Live: Food Environment and Obesity in Detroit

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A growing body of research in Detroit, MI, supports the complex relationship between the city's urban food environment and its obesity epidemic. The Detroit Community Health Assessment identified lower life expectancy and increased obesity prevalence among Detroit residents compared to the state of Michigan, spurring ineffective policy that attributes poor health outcomes to factors at the individual level rather than the population level. This article explores inequitable healthy food access in Detroit in relation to obesity, analyzing the city's urban food environment in the context of historical disinvestment. This comprehensive literature review was performed utilizing journal articles from large electronic databases including PubMed. Current research identifies socioeconomic status as a key determinant in equitable healthy food access in urban food environments, suggesting the decision to procure a healthier diet is constrained more so by affordability than preference. The evidence proposes subsidization of healthy foods at farmers' markets or community gardening initiatives as beneficial solutions to addressing the healthy food inequity in Detroit.

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## Keywords

obesity • food swamp • socioeconomic status • healthy food equity

Obesity across the globe has nearly tripled since 1975 (World Health Organization [WHO], 2020). In fact, a majority of the world's population live in nations where overweight and obesity kills more than being underweight (WHO, 2020). The proverb "you are what you eat" refers to a collective acknowledgment of diet's role in maintaining a healthy lifestyle. However, recent research has actually determined the food environment to be equally—if not more—influential. The food environment is the combined physical and social factors that influence how an individual gets their nutrition (Puhl & Heuer, 2010, p. 1025). Typically, this is measured by distance to the nearest grocery store, but a more encompassing definition captures a wide range of elements

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doi: 10.3998/ujph.2315

Conflicts of interest:

The author has no conflicts of interest to disclose.



that influence how we eat: subsidized meal programs at schools, affordability of nearby supermarkets, or the number of fast-food restaurants in a city block (Taylor & Ard, 2015, p. 108). The flight of high-quality grocers to the suburbs in 1980s Detroit, MI, has transformed the city into a food swamp. Food swamps are defined as communities where “large amounts of energy-dense foods sold in venues. . . ‘inundate, or swamp out,’ the ‘relatively few’ healthy food choices residents have” (Taylor & Ard, 2015, p. 103). Consistent, well-funded interventions that address aspects of the food environment at the crux of the obesity problem are preferred to educational efforts reprimanding individual behavior (Puhl & Heuer, 2010, p. 1024). Detroit’s status as a food swamp has critical implications on residents’ health outcomes. The complex relationship between Detroit’s urban food environment and its obesity epidemic will become clearer through the following analysis of food environment models, the obesity crisis, and the influence of socioeconomic status (SES) on food equity, viewed through a lens of the historical deterioration and recent gentrification efforts that characterize the city.

### “Food Desert” versus “Food Swamp” Models

The food desert model views the food environment as devoid of healthy dietary options. The U.S. Department of Agriculture characterizes food deserts as “regions of the country [that] often feature large proportions of households with low incomes, inadequate access to transportation, and a limited number of food retailers providing fresh produce and healthy groceries for affordable prices” (Dutko, Ver Ploeg, & Farrigan, 2012, p. 1). The food desert model describes communities where residents live farther than 10 miles from the nearest supermarket. Indeed, the food desert model is most useful for rural counties in the United States, given they have only 3.8 grocery stores on average (Morton & Blanchard, 2007, p. 7). Therefore, rural counties are food deserts where diet quality is limited most by distance to a grocery store.

Despite inherent similarities between the two models, urban environments are better characterized as food swamps than food deserts. While food deserts emphasize distance to a grocery store as the main limitation to a healthy diet, residents of a food swamp face complex obstacles more characteristic of a bustling metropolis. These communities become oversaturated in high-calorie, low-cost food selections such that healthy options become scarce (Taylor & Ard, 2015, p. 103). Typically, these unhealthier options are more heavily advertised to demographics in urban environments, populations that had a 12% average poverty rate in the 2016 U.S. Census (Kyzyma, 2018, p. 13). Television ratings measured in a 2014 study found that “child/adolescent exposure to food-related ads . . . was significantly higher in areas with higher proportions of . . . lower-income households” (Powell, Wada, & Kumanyika, 2014, p. 1). With a corner store on every block to satisfy the desires of relentless advertising, it is understandable that a less healthy diet might become the norm in the city. In the context of socioeconomic status, cost becomes a more influential factor in healthy food selection than availability. Detroit boasts of “96 full-line grocery stores; 1,110 small grocers, convenience stores, mini marts, and liquor stores; [and] 279 specialty food stores” (Taylor & Ard, 2015, p. 1). Despite numerous accessible grocers in Detroit, a relatively large proportion of the city’s shoppers face strict financial constraints. A 2019 analysis reported Detroit’s poverty rate of 39.4% as one of the highest among major U.S. cities (Beavers, Atkinson, & Alaimo, 2020, p. 150). Additionally, Detroit leans heavily into federally subsidized food programs—37.7% of residents in 2012 rely on Supplemental Nutrition Assistance Program

(SNAP) benefits to buy their groceries (Taylor & Ard, 2015, p. 116). In examining the interplay of food selection with access, the preponderance of the evidence suggests unhealthy food selection in Detroit is more attributable to the financial barriers of shopping from higher-quality grocers rather than traveling to or accessing one.

While urban food environments are an emergent area of exploration across the nation, research limitations restrict progress for needed action. Indeed, Detroit and other cities are often—and incorrectly—called food deserts due to inconsistent research under the food desert model. Typically, studying urban food environments with the food desert mindset emphasizes distance from healthy food as the point of intervention. This mindset manifests in efforts such as an establishment of a healthier grocer downtown or integration of produce sections in a convenience store (Taylor & Ard, 2015, p. 104). However, the omission of smaller establishments that illustrate the community's agency in determining its unique food environment—namely, community-supported agriculture, food cooperatives, and urban gardens—is a detrimental limitation of prior research efforts (Taylor & Ard, 2015, p. 106). These considerations have the potential to shift the view of the “urban food environment” further from reality and could mean the difference between categorization as a food desert or food swamp. This distinction becomes particularly critical when informing interventions for leadership among urban populations to focus on, keeping in mind that different strategies are more efficacious in food deserts than food swamps (Braveman, 2014). For example, a strategy such as opening a new grocery store in Detroit fails to address the root causes of inaccessible healthy food among low SES individuals in urban environments—namely, affordability. As our understanding of urban food environments continues to increase, more careful consideration of these factors must be taken into account during research.

## History of Detroit's Food Environment

The lasting effects of discriminatory practices in the twentieth century contributed to the shaping of Detroit into a food swamp over the decades. Disproportionate grocery store closings in the cities occurred as the “residential character” of urban environments began to shift (Eisenhauer, 2001, p. 125). Across the nation, urban supermarket closings in the 1980s became more frequent than openings—so much so that by the end of the 1990s “the poorest 20% of urban neighborhoods had 44% less retail supermarket space than the richest 20%” (Eisenhauer, 2001, p. 128). Moreover, discriminatory redlining rooted in federal housing policy contributed to disinvestment in increasingly diverse communities, a consequence of which is observed in the flight of higher quality grocers to the suburbs (Eisenhauer, 2001, p. 126). The occurrence of supermarket flight out of the cities and into suburbia has been coined “supermarket redlining” by food-access researchers, and the “tipping of the scales” toward higher proportions of less healthy corner stores over the years has transformed Detroit into the food swamp it is today (Eisenhauer, 2001, p. 125).

Currently, Detroit residents with the luxury of transportation and time prefer to shop for their groceries outside of the city, whereas residents at or below the poverty line without such advantages are forced to frequent the most convenient—but not necessarily the healthiest—grocery options. Of course, independent of financial considerations, the typical Detroit shopper would prefer a grocer that provides healthy offerings and a positive shopping experience. Indeed, Beavers et al. identified negative perceptions of corner stores among Detroit residents, citing food quality, store cleanliness, and price gouging as the most principal areas of concern (2019, p. 150). The tendency of wealthier residents to migrate outside of the city limits for healthy food only emphasizes the food equity gap

in urban food environments based on socioeconomic status, posing serious health implications for the population of individuals without the means or time to commute for healthier groceries.

## Obesity as a Public Health Problem

An individual is considered “overweight” or “obese” when their weight is higher than what is considered healthy. For adults, weight-to-height ratio called Body Mass Index (BMI) is typically used to screen individuals from underweight ( $\text{BMI} < 18.5 \text{ kg/m}^2$ ) to severe or morbid obesity ( $\text{BMI} \geq 40 \text{ kg/m}^2$ ) (Hruby & Hu, 2015, p. 2). Gender-specific growth charts are used for children and define overweight and obesity in consideration of natural weight fluctuations that occur during development (Hruby & Hu, 2015, p. 2). Regardless of measurement, characterization as “overweight” or “obese” carries serious health implications. Type 2 diabetes, high blood pressure, cardiovascular disease, and some forms of cancer are just a sampling of the major health problems for which excess body fat increases risk (Hruby & Hu, 2015, p. 2). Psychosocial implications include mental health problems such as depression, eating disorders, anxiety, and substance abuse, which are rooted in discrimination that obese individuals often experience because of their weight (Sarwer & Polonsky, 2016).

Prevalence, economic burden, and emphasis on prevention mark obesity as a pressing public health problem. While the prevalence of overweight adults has plateaued from 1960 to 1994, the prevalence of obese adults continued to trend upward from 13% to 23% (Hruby & Hu, 2015, p. 3). The catastrophic interplay between skyrocketing obesity rates and the occurrence of comorbidities is reflected in the analysis of the National Health and Nutrition Examination Survey (NHANES) database, which found “years of life lost were 1 to 9 for those with low BMI compared with 9 to 13 for those with a high BMI” (Pi-Sunyer, 2009, p. 9). In addition, obesity’s economic toll burdens the community as well as the individual. National spending on obesity-related diseases is thought to account for 21% of total U.S. healthcare expenditures (Hruby & Hu, 2015, p. 12). Moreover, cyclical gain and loss of body fat caused by biological barriers to weight loss suggests a specific need for preventative action. Among those “who intentionally achieve weight loss of  $\geq 10\%$  body weight,” 80% will gain that weight back within a year (Mehta, Smith, Muhammad, & Casazza, 2014, p. 1). Given this added difficulty for overweight individuals to lose weight—and keep it off—comprehensive primary prevention efforts that avoid victim-blaming would be most effective overall in addressing the obesity epidemic (Puhl & Heuer, 2010, p. 7).

Obesity is often attributed to poor decision-making; but in reality, the social and environmental factors at play are the true influencers of diet. Prior and current national public health efforts address obesity with legislation that removes consumer autonomy. For instance, the historic New York City soda tax in 2012 spearheaded by Mayor Michael Bloomberg proposed limiting the sizes of sugary drinks. The obesity initiative sparked controversy as New Yorkers questioned “Nanny Bloomberg’s” authority in controlling individual diet choices (Gostin, Reeve, & Ashe, 2014, p. 1). An additional example is Michelle Obama’s “Let’s Move” Campaign, the pinnacle of which implemented new nutritional standards for school meals nationwide. However, such cafeteria interventions—for instance, the 2010 Healthy, Hunger-free Kids Act—focused more on managing student diet decisions than holding food producers responsible. Granted, future research is necessary to determine the true efficacy of Obama’s initiative, but childhood obesity has certainly not decreased to the impressive 5% prevalence rate that the administration projected for 2030 (White House Task Force on Childhood Obesity to the President, 2010). Policies that focus on controlling the

consumer emphasize the looming presence of weight stigma in legislation (Puhl & Heuer, 2010, p. 1024). Claiming to approach the issue through a lens of personal accountability, Mississippi legislators attempted to tackle obesity through a 2008 State House Bill that “proposed to prohibit restaurants from serving food to any person who is obese” (Puhl & Heuer, 2010, p. 1024). Rather, societal factors such as availability of healthy food—or oversaturation of *unhealthy* food—impact obesity risk, as illustrated in a national study that found a positive association between food swamp prevalence and obesity rates (Cooksey-Stowers, Schwartz, & Brownell, 2017, p. 8). An additional factor, socioeconomic status, plays a role along with race or ethnicity (Eisenhauer, 2001, p. 131). Clearly, the higher-level spheres of influence, rather than just intrapersonal behaviors, impact obesity risk more substantially than the Bloomberg and Obama initiatives suggest.

## Detroit’s Food Swamp and the Obesity Epidemic

Critical implications of Detroit’s food environment are higher obesity rates, lowering life expectancy, and increasing prevalence of obesity-related illness. Analysis conducted by the Detroit Community Health Assessment in 2018 found that the obesity epidemic hit Detroit harder compared to the state as a whole: 37% of Detroit adults were obese (compared to 31% of Michigan adults), and Detroit life expectancy at birth was 72 years (compared to 78 years at the state level) (Coulter, Reyes, Taylor, Adams, & Larsosa, 2018, p. 6, 9). These statistics might contrast public knowledge regarding the obesity epidemic—with increasing efforts to promote healthy food equity in Detroit, why are obesity rates increasing? The answer lies in the interplay between Detroit’s food swamp environment and a key social determinant of health: socioeconomic status.

Recent movements to bridge food environment quality between Detroit’s poorest to that of the rest of the city typically culminate in gentrification practices, such as the installment of high-end grocers downtown. However, despite the “public relations flurries” that depict urban supermarket openings as “trendy” once again, this is not the reality—national grocery store closings still outnumber openings in the city (Eisenhauer, 2001, p. 125). A recent example of one such gentrification effort was the opening of Whole Foods in Detroit’s Midtown neighborhood in 2013. Whole Foods–Detroit’s goals were to appeal to middle-upper-class shoppers and outreach to lower-income shoppers through nutrition classes and offering space for community gatherings (Jung & Newman, 2014, p. 25). However, “community-focused” branding failed to hide the obvious price increases experienced when shopping at Whole Foods—dubbed “Whole Paycheck” by critics—versus lower-end supermarkets. Ethnographic research by Jung and Newman delved into this stereotype further, sharing commentary from business stakeholders who danced around the crux of the issue: affordability. Despite public perception as financially unattainable, Whole Foods–Detroit’s manager, John Smith, claimed Whole Foods “prices were actually competitive because they offered the highest quality food for the most competitive price” (Jung & Newman, 2014, p. 28). As much as Whole Foods claims to want to bridge the gap in healthy food equity among Detroiters, higher prices raise questions of whether low-income shoppers will actually make this trade-off between food quality and cost.

Therefore, merely opening another grocery store will not improve Detroit’s obesity epidemic since this solution neglects three constraints faced by individuals of a low SES that, in conjunction with the food environment, play a critical role in obesity prevalence: affordability, norms, and time. As illustrated with the Whole Foods case study, the increased cost of higher-quality or organic

foods presents a challenge for low-income individuals to make the most of their dollar. More often than not, the most economic choice for individuals below the poverty line is to purchase the cheapest food with the highest caloric density—often, fast food (Cooksey-Stowers et al., 2017, p. 12). Additionally, community norms strongly influence shopping behavior. Powell et al. demonstrate a higher frequency of unhealthy food advertisements in areas with proportionally higher low-income households (2014, p. 6). When influenced by such advertisements, it becomes easier to fall into that community norm of shopping from the nearest corner store or fast-food restaurant (Powell et al., 2014, p. 10). Finally, the time required to shop from higher-quality grocers is more expendable for individuals of a higher SES. Low-paying jobs typically require more time and energy out of the day. Moreover, accessible transportation indicates less time sacrifice for a high SES shopper to commute to the grocery store (Cooksey-Stowers et al., 2017, p. 12). Transportation poses a significant barrier for low SES people; most people shop within two miles of their home, yet between 10% and 50% of the urban poor do not have access to a car (Eisenhauer, 2001, p. 130). This leaves public transportation as a viable means of commute; although this option is accessible, it lacks efficiency. Indeed, declining investment in public transport from the city to suburban grocery stores has left the urban shopper with an inefficient, time-consuming system (Eisenhauer, 2001, p. 130). A comprehensive solution to obesity in Detroit should address its food swamp environment considering all three barriers faced by low SES individuals.

## Future of Food Equity in Detroit

Policy has the potential to produce meaningful change in food swamps by promoting healthier food options in the city and urban agriculture practices. Food swamps are plagued by the oversaturation of unhealthy corner stores that crowd out healthier grocers. A shift away from “restriction” policy could manifest in the implementation of “monetary incentives to existing food stores to stock healthy food items [or] the . . . subsidization of farmers’ markets . . . to facilitate access to fresh fruits and vegetables” (Chen & Florax, 2010, p. 2). Either avenue is a step in the direction of ensuring equitable access to healthy foods regardless of SES or location. Moreover, community-maintained urban agriculture has become increasingly important in redefining Detroit’s food system. This is reflected in a 2013 amendment to the local zoning code made by Detroit’s City Council. The new policy resulted in the recognition and standardization of Detroit’s various agricultural practices, in essence streamlining the legal process for community gardening initiatives (Taylor & Ard, 2015, p. 126).

A qualitative analysis by Beavers et al. sought to investigate the effectiveness of Detroit’s community gardening movement by assessing study participants’ perceptions of a local gardening program’s influence on diet. The study’s primary investigators utilized a community-based participatory research approach through which decision-making power was distributed equally among researchers and community stakeholders (Beavers et al., 2020 p. 152). Data were collected in the form of semi-structured interviews with 26 members of Keep Growing Detroit’s Garden Resource Program (Beavers et al., 2020, p. 154). Through this program, members gain access to gardening resources—such as seeds and plants—as well as a wealth of educational support from community leaders (Beavers et al., 2020, p. 150). A consistent theme across the interview series was a noticeable shift in diet after joining the Garden Resource Program. Following enrollment, the majority of participants observed a noticeable increase in vegetable uptake (Beavers et al., 2020, p. 155). In

fact, some interviewees reported having access to higher-quality produce than what was typically accessible in a typical Detroit grocery store (Beavers et al., 2020, p. 157). Additionally, participant responses regarding food security after joining the garden program are a testament to these initiatives' impact on healthy food selection for low SES individuals. Most interviewees agreed that gardening saves money on food, with some reporting financial benefits as sparking their initial interest in agricultural practices (Beavers et al., 2020, p. 159). This study is limited in that participants' perceptions, while powerful, will remain just that until they are validated quantitatively (Beavers et al., 2020, p. 165). Without a doubt, further research conducted in tandem with community stakeholders is necessary to fully assess the efficacy of urban agriculture in bridging Detroit's food equity gap.

## Conclusion

Detroit's complex obesity epidemic is the culmination of socioecological factors—namely, its food swamp environment—rather than human behavior, creating healthy food inequity among more economically disadvantaged groups in the city. Comorbidities associated with obesity undoubtedly impact the city's health—Detroit citizens currently experience a life expectancy six years shorter than that of the average Michigander. These detrimental health effects are the result of historical disinvestment in Detroit's infrastructure, which has created a food swamp system difficult to navigate as a low SES individual. Initiatives that blame decisions at the individual level miss incredible opportunity for large-scale change that could be initiated by addressing issues such as healthy food affordability. Subsidization of farmers' markets serves as a great opportunity for low SES community members to support local vendors and access healthier groceries. Additionally, urban agriculture opportunities in Detroit further the food equity movement toward a future where healthy, affordable food is equally accessible. Comprehensive, prevention-based public health efforts in Detroit's urban landscape are necessary to make strides against obesity by narrowing the healthy food equity gap.

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