

## Theoretical Approaches to Research on the Social Determinants of Obesity



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This article reviews selected theoretical approaches explaining the social determinants of obesity. The significance of this topic for medicine, public health, and other areas of obesity-related research is the growing body of evidence showing that the social environment is often key to understanding the risk of obesity. A review of relevant literature and analysis of empirical evidence linking theory to data in studies of obesity was performed. Several studies show that differences in social behavior and living conditions associated with SES, lifestyles, inequality, and other social variables have important roles in weight gain. Because the social determinants of obesity often begin in childhood, life course theory and its concepts of cumulative advantage/disadvantage and cumulative inequality are initially reviewed, followed by a discussion of how fundamental cause theory, health lifestyle theory, and cultural capital theory can be applied to obesity research. The stress process model and the concepts of social networks and neighborhood disadvantage concerning obesity are also included.

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### INTRODUCTION

The causes of obesity are complex. They are not just genetic, metabolic, and psychological but also social. Although social determinants interact with other determinants, several studies have found examples in which the social is a predominant causal variable for obesity.<sup>1–7</sup> Differences between people in SES (as determined by income, education, and occupation), lifestyles, social inequality, racial/ethnic cultural practices, and living conditions have significant roles in weight gain. Obesity, in turn, can elicit reactions of social stigma and discrimination on the part of society directed toward those who are obese.<sup>8</sup>

The relevance of social determinants for medicine, public health, and other areas of obesity-related research is the growing evidence showing that the social environment is often key to understanding the risk of obesity. Consequently, this review article examines the current research on the social determinants of obesity and how they are explained theoretically. Theories are important in all scientific research because they provide explanatory models of the processes being observed and tested.<sup>9</sup> Although there are several facets of obesity in which sociologically oriented theories can be applied, the focus in this review is on theories and perspectives explaining

the causal contributions of social disparities to excessive body weight.

According to WHO, the social determinants of health are “the conditions in which people are born, grow, work, live, and age, and the set of forces and systems shaping the conditions of daily life.”<sup>10</sup> The social determinants of health include the social practices and living conditions that affect the health of individuals, groups, and communities, either positively or negatively.<sup>11,12</sup> To put it simply, the “social determinants of health are nonmedical factors that can affect a person’s overall

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health and health outcomes.”<sup>13</sup> Social determinants differ from social risks because risks are systematic ways of dealing with harm, whereas determinants either cause harm or provide protection.

Because the social determinants of obesity often begin in childhood, life course theory and its concepts of cumulative advantage/disadvantage and cumulative inequality are initially reviewed, followed by a discussion of how fundamental cause theory, health lifestyle theory, and cultural capital theory can be applied to obesity research. The stress process, social networks, and neighborhood disadvantage, which are not theories but important concepts associated with obesity research, will also be examined. All of these perspectives have an established body of literature supporting their use, and their utilization in studies of obesity depends on the research question being investigated.

## SELECTED SOCIAL DETERMINANTS OF OBESITY THEORIES

### Life Course Theory

Life course theory maintains that people pass through a sequence of age-based stages and social roles within particular social structures over their lifetime that affects their health, including their body mass.<sup>3,6,14–21</sup> The basic premise underlying life course theory is that (1) cohorts of people born during the same time period experience (2) transitions to new roles in the same sequence and (3) life events (in which earlier events condition later events), which together form life trajectories that result in particular outcomes. The focus is on studying the trajectories of the patterns of behavior extending through an individual’s lifespan. The transitions and events that affect the direction of the trajectories are included to determine how later life is affected. The theory is intended to provide an understanding of the processes by which individuals and groups maintain their health advantages or experience increasing disadvantage as they age.<sup>18</sup>

Life course theory is best utilized in studies employing longitudinal data that follows individuals and their health circumstances and behaviors over time. Longitudinal data can determine when changes occur and account for any attrition in a sample because of loss of participants to mortality or other causes. Statistical techniques that can be employed include latent class analysis (LCA), hierarchical linear modeling, structural equation modeling, or linear growth curve models applied to data from the age-based cohort or cohorts under investigation at different stages of the life course. In addition, some studies of the life course and others using different theories combine social data with biomarker measures

to show how social circumstances elicit biological responses.

Life course theory has 2 major theoretical approaches to determining health outcomes, including obesity. The cumulative advantage/disadvantage theory came first, followed by cumulative inequality theory. Not all life course studies on obesity utilize these 2 theories, but most appear to use one or the other. They are not competing or alternative views and are closely related. The cumulative advantage/disadvantage approach holds that socioeconomic and other disadvantages originating in childhood accumulate over the life course to produce obesity (or other health problems and early mortality). Early childhood is a critical period, both biologically and socially. Conversely, socioeconomic and other advantages over a person’s lifetime likewise accumulate but do so to avoid obesity. The accumulation of disadvantages over time is the source of enhanced weight as negative exposures in life experiences build up to increasingly negative outcomes. Children from low SES families are typically found more likely than children in high SES families to be overweight and obese in childhood and/or thereafter with weight increases in subsequent stages of life.<sup>3,6</sup> Low SES, unhealthy parental lifestyles, lack of exercise, poverty, poor nutrition, childhood abuse, and emotional and behavioral problems are significant variables leading to obesity.<sup>3,6,7,19,20</sup>

Research on gender and race have also supported a cumulative advantage/disadvantage explanation in showing that lower SES women are more likely to gain weight over the life course as seen in significantly higher BMI scores than higher SES women and men generally at age 18 years and again at age 54 years.<sup>6</sup> Other data show low-SES Black women in particular with increasingly higher BMI scores over the life course.<sup>3</sup> According to Ferraro et al.,<sup>15</sup> “Whether in sociology or toxicology, a core thesis is that the accumulation of negative exposures raises the risk of subsequent health problems.”

Cumulative inequality theory likewise maintains that early life disadvantage, beginning even in the womb, increases the later potential for obesity, chronic illness, and the higher probability of a life filled with hardship over time. Stressors during early childhood are considered especially important with respect to a child’s physical development and social functioning, although stressors may also emerge in force during adolescence or later. Ferraro and Shippee<sup>16</sup> suggest 5 axioms that underline cumulative inequality theory: (1) social systems generate inequality (meaning that inequality does not stem from individual choices/actions but macrostructures, such as stratified social hierarchies); (2) disadvantage increases risk and advantage increases opportunity; (3) life course trajectories are shaped by risks,

resources, and choices; (4) present life trajectories influence subsequent trajectories; and (5) cumulative inequality leads to premature death.

Not all of these axioms apply directly to obesity, but when obesity is investigated within this theoretical framework, it is associated with chronic stressors linked to low SES.<sup>16</sup> Obesity results from how people respond to long-term disadvantage and the associated stress on their biological functioning over time. In addition, the cumulative inequality view notes the importance of family (i.e., shared living environment, genetic lineage) and other social relationships (linked lives) in which the trajectory of an individual's life course is linked with the trajectories of other people (family, friends, etc.).<sup>3,16</sup> Thus, events that affect an individual can affect others in their social network and vice versa. Close relationships are reciprocal because all in the network can be affected.

This cumulative inequality approach also recognizes the potential of mid-life resources to prevent or reverse obesity.<sup>15</sup> That is, accumulated advantages/disadvantages may not always accumulate over time but may be turned off at some point and fail to matter, thereby stopping or mediating the direction of outcomes.<sup>19</sup> Possible mediators are higher adult SES, psychological well-being, and physical activity that can offset weight increases in mid and later life.<sup>6,20,21</sup>

In summary, life course theory provides 2 major models for investigating the causal events and transitions occurring during different life stages that explain why some people's trajectories feature excessive weight gain and others do not. Again, age, SES, and chronic stressors are key variables.

### Fundamental Cause Theory

Fundamental cause theory developed by Link and Phelan<sup>22</sup> focuses on disease causation but has been used in studies of obesity. For a social variable to qualify as a fundamental cause of disease, it must (1) influence multiple diseases through, (2) multiple pathways of risk, (3) be reproduced over time, and (4) involve resources that can be used to avoid the risks or minimize the consequences of disease if it occurs. Thus far, Link and Phelan have identified SES, stigma, and racism as fundamental causes of disease.<sup>22–25</sup>

SES meets these criteria because a person's social class position influences their level of risk and outcomes of multiple diseases in multiple ways, higher SES persons have the resources to better avoid health problems (including obesity) or minimize them when they occur, and the relationship between SES and disease has endured for centuries. In addition, SES is related to multiple diseases through multiple pathways that change over time because individuals and groups use their resources (money,

knowledge, status, power, and beneficial social connections) to adapt to the changes, avoid the risks, and adopt protective strategies. Conversely, lower SES persons have fewer such resources in dealing with threats to their health.

For example, the global nutrition transition in the last few decades has shifted less healthy diets, physical inactivity, and obesity away from the rich to the poor.<sup>26,27</sup> Lower SES people are now consuming more animal fat and added sugar in their diets and less cereal and fiber while working in occupations that require less energy than in the past.<sup>26</sup> This change has increased obesity for lower SES groups, including those living in developing countries. Higher SES persons, in contrast, have the knowledge and the means to eat more healthily and are more likely to engage in health-promoting leisure-time exercise and to normatively reject obesity for themselves and others.<sup>3,4,7,11,20</sup>

Fundamental cause theory's basic principle is that a greater assortment of flexible resources permits higher SES persons to avoid disease and early death more easily. This includes obesity. The socioeconomic resources a person has or does not have influence individual health behaviors and lifestyles with respect to whether people know about, have access to, can afford, and are motivated to engage in health-promoting practices as well as determining access to jobs, neighborhoods, and social networks that vary dramatically in the amount of risk and protection they provide. Resources and the ability to use them are most effective for preventable causes and less so or ineffective for those that are not preventable, such as diseases and disabilities associated with growing old.

Numerous studies have confirmed a significant relationship between SES and obesity.<sup>3,4,20</sup> The higher the social class, the lower the obesity; conversely, the lower the class position, the greater the obesity. Fundamental cause theory can be used to explain how the lessened resources and behaviors of lower-SES groups make it more challenging to maintain healthy body weight. For example, investigations of SES disadvantages in childhood utilizing the theory show significant links to heavier body mass in mid-life for lower SES groups, especially women.<sup>6</sup>

Stigma has additionally been indicated as a fundamental cause of health inequalities because it can be a significant source of stress and disadvantage in life.<sup>25</sup> Obesity itself is a stigmatized social status subjecting persons who are obese to discrimination, stereotyping, and constraints such as loss of opportunities, disrespect, and social rejection. The stigma associated with weight predicts future weight gain and a greater likelihood of obesity.<sup>8,28</sup>

Phelan and Link<sup>29</sup> have also argued that racism should be considered a fundamental cause of health inequalities. They observe that (1) racism is a fundamental cause of racial differences in SES, (2) SES is a fundamental cause

of health inequalities, and (3) racism is a fundamental cause of racial differences in health and mortality independent of SES. Consequently, they “conclude that racial inequalities in health endure primarily because racism is a fundamental cause of racial differences in SES and SES is a fundamental cause of health inequalities.”<sup>29</sup> Therefore, racism, SES, and health are all connected.

Phelan and Link<sup>29</sup> added freedom to their list of flexible socioeconomic resources in relation to race because *freedom* refers to the ability to control one’s actions and circumstances in life, which is curtailed in racist environments. Examples from the past cited by Phelan and Link<sup>29</sup> are slavery and, more recently, the disproportionate arrest and imprisonment of African American men, but constraints on freedom could also apply to situations in which racism acted to limit or deny decision making and opportunities to act freely and participate fully in activities on the basis of race. A particular feature of the harmful effects of racism on health stems from racism’s creation of stressful situations causing adverse physiologic reactions within the body.

Phelan and Link<sup>29</sup> recognize that much of the enduring relationship between race and health is based on inequalities in SES and the resources associated with class position in which racism is a major underlying factor. Although many of the impacts of racism on health are linked to differences in SES, they find that racism does have some independent effects on health that operate through multiple pathways, such as racial discrimination as a stressor, residence in racially segregated neighborhoods with less healthy housing and sources of food and water, and greater exposure in these locales to crime. In addition, there may be fewer opportunities for good jobs and substandard neighborhood schools.

Although fundamental cause theory has not been utilized extensively in studies of obesity, the variables discussed earlier are nevertheless relevant in racially based obesity research. They can help explain why the prevalence of obesity in 2017–2018 (the most recent year available) was highest among non-Hispanic Black women (56.9%) than among all other racial groups and why Hispanics were highest among men (45.7%).<sup>30</sup>

### Health Lifestyle Theory

Obesity is often caused and maintained by a weight-promoting lifestyle. Health lifestyle theory formulated by Cockerham<sup>9,31–35</sup> offers a model of the behavioral practices people adopt that affect their weight and other aspects of their health, either positively or negatively. These practices include eating habits, smoking, drinking, exercising, and similar behaviors that cluster into distinct lifestyle patterns characteristic of

specific groups and social classes. *Health lifestyles* are defined as collective patterns of health-related behavior based on choices from options available to people according to their life chances or circumstances.<sup>31</sup> Although the individual chooses these lifestyle behaviors, the choices are shaped by the norms, values, and material resources consistent with the individual’s living situation or chances in life that align the chooser with others sharing the same SES.

Health lifestyle theory maintains that 4 categories of structural variables—(1) class circumstances; (2) age, gender, and race/ethnicity; (3) collectivities (social networks of kinship, religion, politics and ideology, the workplace, etc.); and (4) living conditions (quality of housing, access to basic utilities, neighborhood facilities, public safety, etc.)—collectively constitute life chances (structure) and provide the social context for socialization and experience that influence choices (agency).

Choices and chances interact dialectically to commission the formation of particular dispositions (a *habitus*) toward acting, leading to practices (action) involving food and calorie consumption, alcohol use, smoking, social distancing, and other health behaviors. Health practices constitute the components of health lifestyles whose reenactment results in their reproduction (or modification) through feedback to the *habitus*. This model is shown in [Figure 1](#).

Although these practices have a general binary character (positive or negative), such practices may not be exclusively healthy or unhealthy in differentiating between lifestyles. Some lifestyles may be a mixture of varying degrees of both good and bad practices that are nevertheless patterned in an SES gradient from low to high. The most healthy practices and least obesity are characteristic of people at the top of the social ladder, and the least healthy practices and most obesity are that of those at the bottom.

For example, Christensen and Carpiano<sup>36</sup> found that social class membership was directly associated with body mass by influencing diet-related values, food preferences, eating behaviors, and exercise in a sample of Danish women. In other research, Daw and colleagues,<sup>37</sup> utilizing LCA, found obesity increasing from 7% to 36% among American adolescents during their transition to adulthood. The highest proportion of persons with obesity had low SES parents and the least healthy lifestyle. Andrews et al.<sup>38</sup> observed that education was a key factor in determining dietary health lifestyles. In other studies, research on a late middle-age sample found that health lifestyles, including dietary practices, remain strongly patterned by SES at this time of life, with change most likely to occur among those with a diagnosed medical condition.<sup>39</sup>

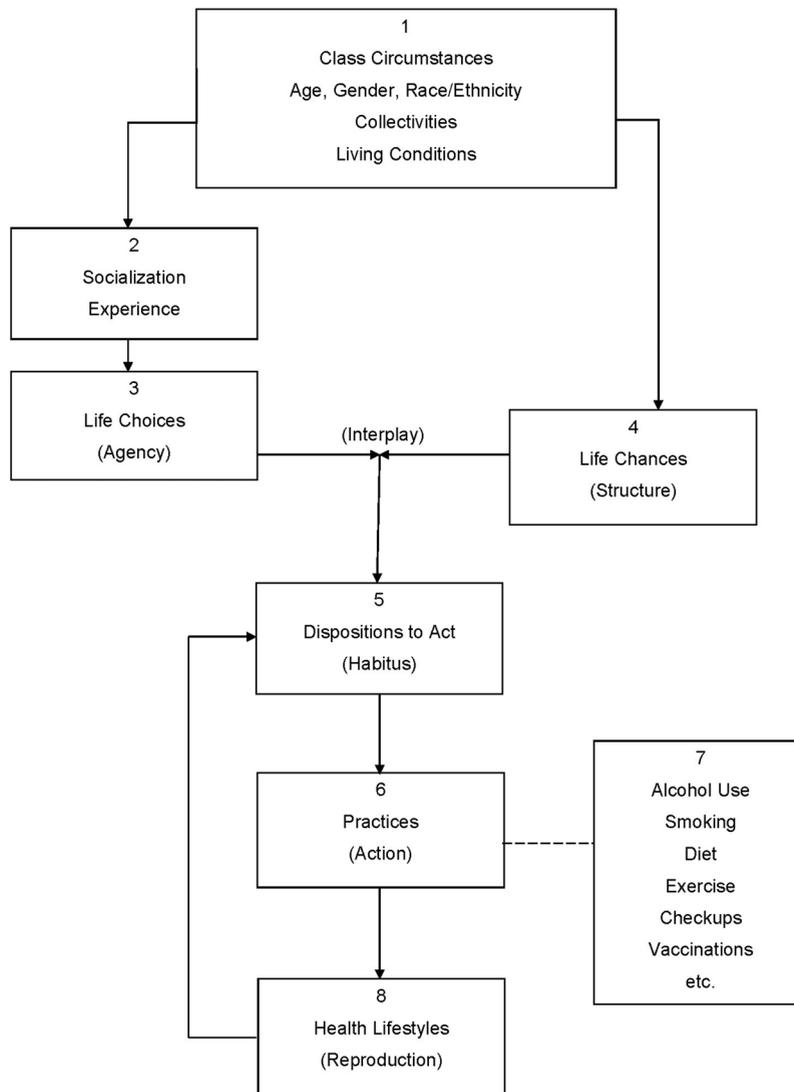


Figure 1. Health lifestyles.

Several other studies use LCA and combine life course and health lifestyle theories to analyze health lifestyle practices, SES, and gender from childhood on to early adulthood and later that include behaviors related to obesity.<sup>40–44</sup> This research finds that social background predicts childhood, adolescent, and adult health lifestyles. Those in disadvantaged households are likely to have lifestyles with more significant health risks whose effects are carried over into the next and successive stages of the life course. The influence of peers and schools can also be substantial.<sup>44</sup> Mollborn and colleagues<sup>43</sup> note the relevance of the life course perspective for researching health lifestyles in childhood by observing that children begin life with a received health lifestyle from their parents and/or other caretakers and gradually

transition to an achieved health lifestyle by adolescence. Age is an important variable in health lifestyle theory, which can be successfully combined with life course theory to explain obesity-related health lifestyles and how they evolve in different stages of life.<sup>38–44</sup>

In related work, Burgard et al.<sup>45</sup> examined health lifestyle practices using latent transition analysis in 5 waves of the Americans' Changing Lives Study that spanned a period of 25 years across the middle and late-middle ages of the participants. They found stability to be more common than a change in health behaviors, and participants in the obese profile were least likely to change their lifestyle practices. In addition, Dumas and colleagues<sup>46</sup> employed qualitative methods to examine the association of poverty with obesity. They found that the

obesity-related health lifestyle behaviors of young underprivileged women were determined more by family norms, ill health, and financial responsibilities than the calculated avoidance of obesity.

As for race, an investigation of Black-White differences in health lifestyles by Cockerham et al.<sup>47</sup> and cardiovascular disease found that members of both races engaged in a combination of healthy and unhealthy lifestyles, with those having predominantly unhealthy lifestyles showing an elevated risk of coronary heart disease. However, a significant difference was that Blacks showed a higher probability of excessive caloric intake than Whites in each of the 4 lifestyle configurations, including the most healthy.

### Cultural Capital Theory

Another theoretical approach seen in the social determinants of obesity literature is cultural capital theory. This theory is based on the work of Bourdieu,<sup>48</sup> whose view of habitus and social class distinctions influenced health lifestyle theory. Bourdieu<sup>48</sup> identified 3 types of capital: (1) social, which consists of social obligations (social connections), convertible in certain conditions to economic capital and institutionalized in formal titles (like doctor, general, president/prime minister, or those of the nobility); (2) economic, which can be converted into money and institutionalized in property rights; and (3) cultural, which exists in an embodied state (dispositions of mind and body), an objectified state (i.e., cultural goods), and an institutionalized state (i.e., schooling), which can be converted, in certain situations, into economic capital and institutionalized in educational credentials.

Food and culture are closely related. Different social classes and national, racial, and ethnic groups have distinctive foods signifying an expression of their identity and food tastes. In his seminal work, *Distinction*,<sup>48</sup> Bourdieu compared the preferences of French professionals (upper-middle class) who opted for light, healthy, nonfattening, and tasty food with those of the working class who preferred meals that were hardy, filling, cheap, and nutritious. The working-class meal was characterized as abundant, especially for adult males. Professionals also preferred fine wines, and the working class preferred beer. In these and other instances, the different classes showed distinct preferences or tastes in food and drink, indicative of their respective class-based cultures.

This outcome is seen in research in Italy that showed that children's food tastes and dietary compliance in school cafeterias are primarily influenced by their family's cultural background and resources.<sup>49</sup> Other studies of obesity using cultural capital theory include research in Brazil among mothers who were overweight and

obese.<sup>50</sup> Dietary preferences favored traditional foodstuffs common in childhood and modern-day fast food; both were high in fat. Although traditional foods were likely healthier than fast foods, they were consumed in a living environment that no longer required high energy for manual labor. Cultural tastes from the past were being preserved in the present. Consequently, cultural capital theory can explain obesity when food tastes reflect a distinct culture featuring either fattening or nonfattening foods.

## OTHER SOCIAL DETERMINANTS CONCEPTS

### Stress Process

We know that the impact of stress on obesity is substantial.<sup>28</sup> Overeating, consuming foods high in calories, fat, and sugar, along with little or no exercise and loss of sleep, are common ways people respond to stress.<sup>28</sup> A widely used concept to explain stress that originated in studies of mental health is the stress process model of Pearlin<sup>51</sup> consisting of (1) stressors (any condition having the potential to arouse the adaptive capacity of the individual), (2) moderators (coping abilities, sense of mastery, and sources of social support that mitigate stress), and (3) outcomes.

The stress universe consists of a continuum with sudden traumas beyond anyone's control (i.e., natural disasters) and life events anchoring on one end and chronic strain and chronic traumatic conditions on the other end. Life events generate stress associated with an event, whereas chronic strain involves relatively enduring conflicts, problems, and threats that people face daily. Chronic strains include conflict-laden social roles, role overload, or captivity in a role (i.e., a bad marriage). Conflict in such roles can be highly stressful. Chronic strain may be a more negative source of stress than life events because incumbency in social roles persists over time; strain is repeated; and other people are involved in complementary roles, forming a role set around which personal relationships are formed and structured. Stress proliferation occurs when a stressor (primary) causes additional stressors (secondary), which may be even more stressful.<sup>52</sup>

The stress process model holds that not all people respond to stressors the same way because of differences in moderators, which influence different outcomes. The use of biomarkers and genetic measures are commonly used indicators of stress, along with life event inventories and social psychological measures. Various studies have associated obesity with the stress of childhood adversity,<sup>20</sup> weight stigma,<sup>28</sup> negative life satisfaction,<sup>53</sup> racism,<sup>54</sup> and financial debt.<sup>55</sup> The stress process is also a central component of life course theory. As people move

through the life course, their statuses and roles change, along with the stressors they experience and their available moderators. Responses to stressors may involve weight gain during the transition to old age.<sup>16,18</sup>

### Social Networks

The concept of social networks is also relevant for explaining obesity. A social network consists of the social relationships a person has during day-to-day interaction that serve as an avenue for exchanging information, opinions, ideas, and affection.<sup>56</sup> In medical sociology, a social network is seen as a structure of relationships connecting individuals, resources, ideas, and information.<sup>11</sup> Such relationships are not just face-to-face but can also exist in multiple locations and electronically online.<sup>57</sup> Social networks represent linkages between individuals in families, groups, and communities. Such networks influence, advise, suggest, or coerce individuals into taking or not taking courses of action involving their health. Social networks also provide social support and resources to network members. Network influence ensues when a person who is linked to other people who engage in a particular behavior persuade that person to adopt the behavior.<sup>56</sup>

A seminal study of social networks and obesity is that of Christakis and Fowler.<sup>2</sup> They investigated the influence of social networks on the spread of obesity with BMI data from 12,067 adults assessed regularly from 1971 to 2003 as part of the Framingham Heart Study. The focus was to examine the extent to which close networks of family and friends influenced weight gain. Their findings showed that individuals had a 57% chance of becoming obese if they had a good friend who also became obese, a 40% chance if a sibling became obese, and a 37% chance if it was their spouse. Weight gains of neighbors made no difference. Christakis and Fowler thus concluded that the nature of personal ties within a social network is important for a person's weight, with friendship groups having the most significant influence on body mass.

A similar outcome is seen in research showing that overweight girls are more likely to try to lose weight if other overweight girls in their school are doing the same thing.<sup>5</sup> The influence of a social network on obesity can be either positive or negative, depending on the network's characteristics, norms, values, and goals.

### Neighborhood Disadvantage

Another area of social determinants research predictive of obesity is neighborhood disadvantage. In this case, the focus is on unhealthy urban living conditions. Research on this topic examines the impacts of the structural characteristics of neighborhoods on the physical and mental health of the people who live in them. Cities

contain the best that society offers in terms of jobs, amenities, arts and entertainment, and health care, but they also include pockets of the worst social and living environments. Neighborhoods contribute to good health or, conversely, harm it in ways that promote obesity.<sup>58–65</sup>

Health-promoting neighborhoods are clean and safe, houses and buildings are well maintained, and residents are respectful of each other and each other's property. These neighborhoods have healthier living conditions and significantly better access to health care. However, health-harmful neighborhoods reflect a breakdown in social order with litter, poorly maintained houses and buildings, noise, vandalism, graffiti, fear, and crime. There can be a lack of safe places to exercise and buy healthy food (i.e., food deserts), resulting in more significant obesity and poor nutrition. Food deserts are found in socially disadvantaged neighborhoods lacking healthy affordable food, leading to unhealthy eating habits among people who live there.<sup>62</sup>

For example, Lippert<sup>60</sup> finds that adolescents transitioning to adulthood in poor neighborhoods are more likely to become obese than those in nonpoor areas. Interestingly, those who exit poor neighborhoods are more likely to curtail their weight gain than those who remain behind. Other studies likewise show that neighborhoods with higher levels of poverty have higher levels of obesity.<sup>61</sup> In addition, Burdette and Hill<sup>58</sup> suggest a theoretical model of the process by which perceptions of neighborhood disorder increase the risk of obesity by causing psychological distress resulting in the chronic activation of physiologic stress, poor diet quality, and irregular exercise.

Race is also significant because neighborhoods with higher proportions of Black residents are associated with a greater risk of obesity than those in which the majority are White.<sup>58,63</sup> In addition to the structural impacts of neighborhoods, areas with high race-related stressors (i.e., opposition to the Black Lives Matter Movement) have been associated with high BMI scores and the prevalence of obesity among Blacks.<sup>54</sup> Consequently, it is not just the physical and built environments of neighborhoods that are important, but the social environment (i.e., SES, norms, social networks, lifestyles, stressors, perceptions of disorder) within neighborhoods also affects body mass. A recent review of studies on the impacts of neighborhoods on health in the U.S. shows research on BMI and obesity to be the most common topic investigated.<sup>64</sup>

Studies of neighborhood disadvantage and obesity have been linked to life course theory<sup>59</sup> and the concept of neighborhoods as vital places.<sup>61</sup> There is also nonrepresentational theory<sup>65,66</sup> in geography that focuses on practices in everyday life that shape the conduct of people toward one another in particular sites that can be applied to obesity.

## CONCLUSIONS

The selected theories and concepts presented in this review show the relevance of social disparities for a person's weight and explain the processes involved. First, life course theory and its subcategories of cumulative advantage/disadvantage and cumulative inequality were reviewed. This theory finds the origin of obesity usually beginning in childhood and tracks its development through the subsequent stages of life. Next was a review of fundamental cause theory, emphasizing SES as a primary cause of social differences in the levels of obesity. Stigma and racism are also identified as fundamental causes and help to explain weight stigma and Black–White differences in obesity.

Another approach is health lifestyle theory that models the social variables (class circumstances, age, gender, race/ethnicity, collectivities, and living conditions) influencing lifestyle practices, including those that cause weight gain. In addition, cultural capital theory was briefly reviewed, showing the relevance of culture on food selection and obesity. Finally, the concepts of the stress process, social networks, neighborhood disadvantage, and their association with obesity are also covered. For example, people often cope with socially induced stress by excessive caloric intake, social networks of family and friends influence an individual's weight either positively or negatively, and both the built and perceptual environments within which people live promote healthy or unhealthy eating. The causal features of stress, social networks, and neighborhood environments can also be incorporated into life course, fundamental cause, and health lifestyle theories. These theories and concepts provide a broad background for understanding social disparities and the social determinants of obesity.

The social determinants of obesity are not the entire story of excessive weight gain but are key variables in the process, sometimes acting independently of biological causes and sometimes acting together to cause people to become obese. Consequently, biomarkers are increasingly being utilized in sociologic studies of weight gain, as is the use of social variables in gene–environment studies, to provide more thorough assessments of the causes of obesity.<sup>4,67,68</sup> Future developments in theories of obesity in the social sciences will likely incorporate both biological and genetic views of the causal factors of obesity into their models where feasible.

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## REFERENCES

- Banwell C, Broom D, Davies A, Dixon J. *Weight of Modernity: an Intergenerational Study of the Rise of Obesity*. Dordrecht, The Netherlands: Springer, 2012.
- Christakis NA, Fowler JH. The spread of obesity in a large social network over 32 years. *N Engl J Med*. 2007;357(4):370–379. <https://doi.org/10.1056/NEJMsa066082>.
- Hargrove TW. Intersecting social inequalities and body mass index trajectories from adolescence to early adulthood. *J Health Soc Behav*. 2018;59(1):56–73. <https://doi.org/10.1177/0022146517746672>.
- Liu H, Guo G. Lifetime socioeconomic status, historical context, and genetic inheritance in shaping body mass in middle and late adulthood. *Am Sociol Rev*. 2015;80(4):705–737. <https://doi.org/10.1177/0003122415590627>.
- Mueller AS, Pearson J, Muller C, Frank K, Turner A. Sizing up peers: adolescent girls' weight control and social comparison in the school context. *J Health Soc Behav*. 2010;51(1):64–78. <https://doi.org/10.1177/0022146509361191>.
- Pudrovska T, Reither EN, Logan ES, Sherman-Wilkins KJ. Gender and reinforcing associations between socioeconomic disadvantage and body mass over the life course. *J Health Soc Behav*. 2014;55(3):283–301. <https://doi.org/10.1177/0022146514544525>.
- Schmeer KK. Household income during childhood and young adult weight status: evidence from a nutrition transition setting. *J Health Soc Behav*. 2010;51(1):79–91. <https://doi.org/10.1177/0022146509361178>.
- Jackson SE, Beeken RJ, Wardle J. Perceived weight discrimination and changes in weight, waist circumference, and weight status. *Obesity (Silver Spring)*. 2014;22(12):2485–2488. <https://doi.org/10.1002/oby.20891>.
- Cockerham WC. *Sociological Theories of Health and Illness*. New York, NY: Routledge, 2021.
- Solar O, Irwin A. *A conceptual framework for action on the social determinants of health*. Geneva, Switzerland: WHO; 2010. <http://hdl.handle.net/1903/23135>. Published 2010. Accessed March 3, 2022.
- Cockerham WC. *Medical Sociology*. 15th ed. New York, NY: Routledge, 2022.
- Cockerham WC, Hamby BW, Oates GR. The social determinants of chronic disease. *Am J Prev Med*. 2017;52(1S1):S5–S12. <https://doi.org/10.1016/j.amepre.2016.09.010>.
- Daniel H, Bornstein SS, Kane GC, et al. Addressing social determinants to improve patient care and promote health equity: an American College of Physicians position paper. *Ann Intern Med*. 2018;168(8):577–578. <https://doi.org/10.7326/M17-2441>.

14. Elder GH Jr., Johnson MK, Crosnoe R. The emergence and development of life course theory. In: Mortimer J, Shanahan M, eds. *Handbook of the Life Course*. New York, NY: Springer, 2006:3–19.
15. Ferraro KF, Schafer MH, Wilkinson LR. Childhood disadvantage and health problems in middle and later life: early imprints on physical health? *Am Sociol Rev*. 2016;81(1):107–133. <https://doi.org/10.1177/0003122415619617>.
16. Ferraro KF, Shippee TP. Aging and cumulative inequality: how does inequality get under the skin? *Gerontologist*. 2009;49(3):333–343. <https://doi.org/10.1093/geront/gnp034>.
17. Halfon N, Forrest CB, Lerner RM, Faustman EM. *Handbook of Life Course Health Development*. New York, NY: Springer, 2018.
18. Shuey KM, Willson AE. The life course perspective. In: Cockerham WC, editor. *The Wiley Blackwell Companion to Medical Sociology*. Oxford, United Kingdom: Wiley-Blackwell, 2021:171–191.
19. Sharman MJ, Jose KA, Tian J, et al. Childhood factors related to diverging body mass index trajectories from childhood into mid-adulthood: a mixed methods study. *Soc Sci Med*. 2021;270:113460. <https://doi.org/10.1016/j.socscimed.2020.113460>.
20. Mustillo SA, Li M, Morton P, Ferraro KF. Early origins of body mass in later life: examining childhood risks and adult pathways. *J Health Soc Behav*. 2021;62(2):152–169. <https://doi.org/10.1177/00221465211005419>.
21. Diprete TA, Eirich GM. Cumulative advantage as a mechanism for inequality: a review of theoretical and empirical developments. *Annu Rev Sociol*. 2006;32(1):271–297. <https://doi.org/10.1146/annurev.soc.32.061604.123127>.
22. Link BG, Phelan JC. Social conditions as fundamental causes of disease. *J Health Soc Behav*. 1995;36:80–94. <https://doi.org/10.2307/2626958>.
23. Phelan JC, Link BG, Tehranifar P. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J Health Soc Behav*. 2010;5(1):S28–S40 (suppl). <https://doi.org/10.1177/0022146510383498>.
24. Phelan JC, Link BG. Fundamental cause theory. In: Cockerham WC, editor. *Medical Sociology on the Move: New Directions in Theory*. Dordrecht, The Netherlands: Springer, 2013:105–126.
25. Hatzenbuehler ML, Phelan JC, Link BG. Stigma as a fundamental cause of population health inequalities. *Am J Public Health*. 2013;103(5):813–821. <https://doi.org/10.2105/AJPH.2012.301069>.
26. Popkin BM. The nutrition transition and obesity in the developing world. *J Nutr*. 2001;131(3):871S–873S. <https://doi.org/10.1093/jn/131.3.871S>.
27. Popkin BM. The nutrition transition: an overview of world patterns of change. *Nutr Rev*. 2004;62(7):S140–S143 pt 2. <https://doi.org/10.1111/j.1753-4887.2004.tb00084.x>.
28. Tomiyama AJ. Stress and obesity. *Annu Rev Psychol*. 2019;70:703–718. <https://doi.org/10.1146/annurev-psych-010418-102936>.
29. Phelan JC, Link BG. Is racism a fundamental cause of inequalities in health? *Annu Rev Sociol*. 2015;41(1):311–330. <https://doi.org/10.1146/annurev-soc-073014-112305>.
30. Fryar CD, Carroll MD, Afful J. *Prevalence of overweight, obesity, and severe obesity among adults aged 20 and over: United States, 1960–1962 through 2017–2018*. NCHS Health E-STATS. Atlanta, GA: National Center for Health Statistics, Centers for Disease Control and Prevention; 2020. Accessed March 3, 2022. <https://www.cdc.gov/nchs/data/hestat/obesity-adult-17-18/obesity-adult.htm#Citation>.
31. Cockerham WC. Health lifestyle theory and the convergence of agency and structure. *J Health Soc Behav*. 2005;46(1):51–67. <https://doi.org/10.1177/002214650504600105>.
32. Cockerham WC. Bourdieu and an update of health lifestyle theory. In: Cockerham WC, editor. *Medical Sociology on the Move: New Directions in Theory*. Dordrecht, The Netherlands: Springer, 2013:127–154.
33. Cockerham WC. *Social Causes of Health and Disease*. 3rd ed. Cambridge, United Kingdom: Polity, 2021.
34. Cockerham WC. Health lifestyles: bringing structure back. In: Cockerham WC, editor. *The Wiley Blackwell Companion to Medical Sociology*. Oxford, United Kingdom: Wiley-Blackwell, 2021:150–170.
35. Mollborn S, Lawrence EM, Saint Onge JM. Contributions and challenges in health lifestyles research. *J Health Soc Behav*. 2021;62(3):388–403. <https://doi.org/10.1177/0022146521997813>.
36. Christensen VT, Carpiano RM. Social class differences in BMI among Danish women: applying Cockerham’s health lifestyles approach and Bourdieu’s theory of lifestyle. *Soc Sci Med*. 2014;112:12–21. <https://doi.org/10.1016/j.socscimed.2014.04.017>.
37. Daw J, Margolis R, Wright L. Emerging adulthood, emergent health lifestyles: sociodemographic determinants of trajectories of smoking, binge drinking, obesity, and sedentary behavior. *J Health Soc Behav*. 2017;58(2):181–197. <https://doi.org/10.1177/0022146517702421>.
38. Andrews H, Hill TD, Cockerham WC. *Educational attainment and dietary lifestyles*. Advances in Medical Sociology 18 (Food Systems and Health). Bingley, United Kingdom: Emerald, 2017:101–120. <https://doi.org/10.1108/S1057-62902017000018005>.
39. Cockerham WC, D Wolfe J, Bauldry S. Health lifestyles in late middle age. *Res Aging*. 2020;42(1):34–46. <https://doi.org/10.1177/0164027519884760>.
40. Burdette AM, Needham BL, Taylor MG, Hill TD. Health lifestyles in adolescence and self-rated health into adulthood. *J Health Soc Behav*. 2017;58(4):520–536. <https://doi.org/10.1177/0022146517735313>.
41. Lawrence EM, Mollborn S, Hummer RA. Health lifestyles across the transition to adulthood: implications for health. *Soc Sci Med*. 2017;193:23–32. <https://doi.org/10.1016/j.socscimed.2017.09.041>.
42. Mize TD. Profiles in health: multiple roles and health lifestyles in early adulthood. *Soc Sci Med*. 2017;178:196–205. <https://doi.org/10.1016/j.socscimed.2017.02.017>.
43. Mollborn S, James-Hawkins L, Lawrence E, Fomby P. Health lifestyles in early childhood. *J Health Soc Behav*. 2014;55(4):386–402. <https://doi.org/10.1177/0022146514555981>.
44. Mollborn S, Lawrence E. Family, peer, and school influences on children’s developing health lifestyles. *J Health Soc Behav*. 2018;59(1):133–150. <https://doi.org/10.1177/0022146517750637>.
45. Burgard SA, Lin KYP, Segal BD, Elliott MR, Seelye S. Stability and change in health behavior profiles of U.S. adults. *J Gerontol B Psychol Sci Soc Sci*. 2020;75(3):674–683. <https://doi.org/10.1093/geronb/gby088>.
46. Dumas A, Robitaille J, Jette SL. Lifestyle as a choice of necessity: young women, health and obesity. *Soc Theory Health*. 2014;12(2):138–158. <https://doi.org/10.1057/sth.2013.25>.
47. Cockerham WC, Bauldry S, Hamby BW, Shikany JM, Bae S. A comparison of black and white racial differences in health lifestyles and cardiovascular disease. *Am J Prev Med*. 2017;52(1):S56–S62 (suppl 1). <https://doi.org/10.1016/j.amepre.2016.09.019>.
48. Bourdieu P. *Distinction: A Social Critique of the Judgement of Taste*. Cambridge, United Kingdom: Harvard University Press, 1984.
49. Oncini F, Guetto R. Determinants of dietary compliance among Italian children: disentangling the effect of social origins using Bourdieu’s cultural capital theory. *Social Health Illn*. 2017;39(1):47–62. <https://doi.org/10.1111/1467-9566.12482>.
50. de Moraes Sato P, Dimitrov Ulian M, Fernandez Unsain R, Baeza Scagliusi F. Eating practices among low-income overweight/obese Brazilian mothers: a Bourdieusian approach. *Social Health Illn*. 2018;40(7):1172–1185. <https://doi.org/10.1111/1467-9566.12748>.
51. Pearlin LI. The sociological study of stress. *J Health Soc Behav*. 1989;30(3):241–256. <https://doi.org/10.2307/2136956>.
52. Pearlin LI, Bierman A. Current issues and future directions in research into the stress process. In: Aneshensel CS, Phelan JC, Bierman A, eds. *Handbook of the Sociology of Mental Health*. 2nd ed. Dordrecht, The Netherlands: Springer, 2013:325–340. [https://doi.org/10.1007/978-94-007-4276-5\\_16](https://doi.org/10.1007/978-94-007-4276-5_16).

53. Wadsworth T, Pendergast PM. Obesity (sometimes) matters: the importance of context in the relationship between obesity and life satisfaction. *J Health Soc Behav.* 2014;55(2):196–214. <https://doi.org/10.1177/0022146514533347>.
54. Park HJ, Francisco SC, Pang MR, Peng L, Chi G. Exposure to anti-Black Lives Matter movement and obesity of the Black population. *Soc Sci Med.* 2021 In press. Online July 28. <https://doi.org/10.1016/j.socscimed.2021.114265>.
55. Guariglia A, Monahan M, Pickering K, Roberts T. Financial health and obesity. *Soc Sci Med.* 2021;276:113665. <https://doi.org/10.1016/j.socscimed.2020.113665>.
56. Valente TW, Pitts SR. An appraisal of social network theory and analysis as applied to public health: challenges and opportunities. *Annu Rev Public Health.* 2017;38:103–118. <https://doi.org/10.1146/annurev-publhealth-031816-044528>.
57. Zhang J, Centola D. Social networks and health: new developments in diffusion, online and offline. *Annu Rev Sociol.* 2019;45(1):91–109. <https://doi.org/10.1146/annurev-soc-073117-041421>.
58. Burdette AM, Hill TD. An examination of processes linking perceived neighborhood disorder and obesity. *Soc Sci Med.* 2008;67(1):38–46. <https://doi.org/10.1016/j.socscimed.2008.03.029>.
59. Kimbro RT, Denney JT. Neighborhood context and racial/ethnic differences in young children's obesity: structural barriers to interventions. *Soc Sci Med.* 2013;95:97–105. <https://doi.org/10.1016/j.socscimed.2012.09.032>.
60. Lippert AM. Stuck in unhealthy places: how entering, exiting, and remaining in poor and nonpoor neighborhoods is associated with obesity during the transition to adulthood. *J Health Soc Behav.* 2016;57(1):1–21. <https://doi.org/10.1177/0022146515627682>.
61. Walton E. Vital places: facilitators of behavioral and social health mechanisms in low-income neighborhoods. *Soc Sci Med.* 2014;122:1–12. <https://doi.org/10.1016/j.socscimed.2014.10.011>.
62. Ross CE. Neighborhood disadvantage and adult depression. *J Health Soc Behav.* 2000;41(2):177–187. <https://doi.org/10.2307/2676304>.
63. Agovino M, Crociata A, Sacco PL. Proximity effects in obesity rates in the U.S.: a Spatial Markov Chains approach. *Soc Sci Med.* 2019;220:301–311. <https://doi.org/10.1016/j.socscimed.2018.11.013>.
64. Boardman JD, Saint Onge JM, Rogers RG, Denney JT. Race differentials in obesity: the impact of place. *J Health Soc Behav.* 2005;46(3):229–243. <https://doi.org/10.1177/002214650504600302>.
65. Arcaya MC, Tucker-Seeley RD, Kim R, Schnake-Mahl A, So M, Subramanian SV. Research on neighborhood effects on health in the United States: a systematic review of study characteristics. *Soc Sci Med.* 2016;168:16–29. <https://doi.org/10.1016/j.socscimed.2016.08.047>.
66. Thrift N. *Non-Representational Theory: Space, Politics, Affect.* London, United Kingdom: Routledge, 2007.
67. Owen G, Jones K, Harris R. Does neighbourhood deprivation affect the genetic influence on body mass? *Soc Sci Med.* 2017;185:38–45. <https://doi.org/10.1016/j.socscimed.2017.05.041>.
68. Davidson T, Vinneau-Palarino J, Goode JA, Boardman JD. Utilizing genome wide data to highlight the social behavioral pathways to health: the case of obesity and cardiovascular health among older adults. *Soc Sci Med.* 2021;273:113766. <https://doi.org/10.1016/j.socscimed.2021.113766>.