INEQUITY IN PLACE

Obesity Disparities and the Legacy of Racial Residential Segregation and Social Immobility

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INTRODUCTION

Nearly 40 percent of American adults are obese, or have a body mass index (BMI) of 30 or higher.[*5] Nationally, this public health epidemic costs roughly $190 billion each year, and that amount is expected to rise by several billions more by 2030.[6,7] Massive obesity-related spending can be attributed to the direct health care costs required to manage preventable chronic diseases including type 2 diabetes, cardiovascular disease, and some cancers.[1,8-10]

The cost of obesity extends beyond physical health and mental health to include financial complications that levy severe indirect economic costs for overweight and obese members of the workforce. Economic stress attributable to higher medical bill payments, and discriminatory hiring practices that result in lower job acquisition and income allotments by employers is greater for high weight individuals than persons of healthy weight.[11,12]

Obesity disproportionately affects populations along racial lines. Black and Hispanic adults in the U.S. have disproportionately higher rates of obesity (46.8 percent and 47.0 percent, respectively) compared with whites (37.9 percent) as of 2015-2016, and are subsequently affected more by the direct and indirect costs of obesity.[5] Given the relationships between socioeconomic position and access to resources that help prevent and combat obesity (healthy foods, recreation, and weight management), it is also important to explore the relationships between race, social context, and obesity outcomes. This brief will detail the disparities in obesity, discuss reasons why obesity persists, and highlight the role of segregation and discriminatory practices in creating and sustaining those disparities. Finally, the brief will provide recommendations to improve outcomes for those who bear the deepest burden of the obesity epidemic.

THE DEMOGRAPHICS OF OBESITY: RACE, AGE, AND GENDER

Race & Gender among Adults: In the United States, the burden of obesity differs by race, ethnicity, age, and gender. Obesity prevalence has increased for adults, with severe obesity (BMI of at least 40), increasing the most among women (Figure 1).[13] By far, black women are most affected both by overall obesity and severe obesity.[13] Black women have the highest prevalence in 2015-2016 at 54.8 percent, followed by Hispanic (50.6 percent), white (38.0 percent), and Asian women (14.8 percent).[5]

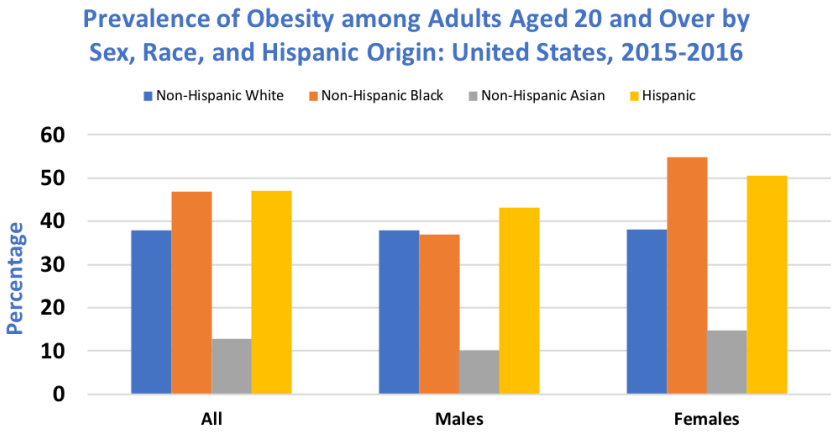

Figure 1. Source: CDC/NCHS 2017. National Health and Nutrition Examination Survey, 2015-2016

[*] BMI is a standard indicator based on height and weight used to approximate total body fat. BMI at or above 30 is associated with various markers of poor health and increased risks of all-cause mortality, cardiovascular disease, and some cancers.[1,2,3,4]

The obesity differences among men, similarly, are as stark as those observed among women (Figure 1).[5] Hispanic men have the highest rate of obesity (43.1 percent), and Asian men have the lowest (10.1 percent).[5] White and black men have very similar obesity prevalence rates at 37.9 percent and 36.9 percent, respectively.[5] Both black and Hispanic women, compared to their same-race male counterparts, are significantly more obese. This signals that black and Hispanic women are most affected by obesity, with black women bearing the greatest consequences.

Race & Gender among Youth: Children who are overweight and obese are more likely to maintain that higher weight into adulthood compare with normal weight children.[14] Obesity among children has risen steadily for more than 20 years, with children ages 12-19 having the highest prevalence (20.6 percent) in 2015-2016 (Figure 2).[5] While the gender difference is negligible for male and female children (ages 6-11) of the same race, there is a notable divergence during adolescence.[15] In a 2018 article, Ogden et al. found the same obesity patterns were apparent among both adolescents and adults.[16] Hispanic boys have the highest prevalence of obesity (26.7 percent), followed by black (22.0 percent), white (16.3 percent), and Asian (9.1 percent) boys.[16] Among girls, young black women had the highest prevalence rate (28.2 percent) followed by Hispanic (25.0 percent), white (18.1 percent), and Asian (8.4 percent) girls.[16] Parallel patterns between adults and adolescents imply that interventions to combat obesity must address factors related to physical activity and nutrition faced during adolescence. Although these comparative patterns by race and gender look similar, it is important to note that youth prevalence, except for that of Asian youth, is about half of the rates for their adult counterparts. An age-driven approach to this epidemic could help to reduce obesity outcomes before adulthood. Moreover, cases of extreme obesity are most prevalent in black and Hispanic children and adolescents, with black girls and Hispanic boys having the highest rates.[15,16]

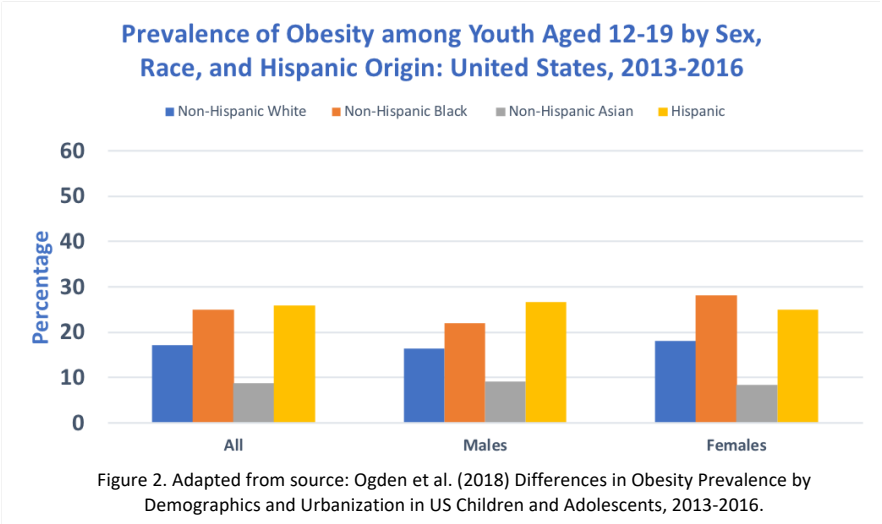

Figure 2. Adapted from source: Ogden et al. (2018) Differences in Obesity Prevalence by Demographics and Urbanization in US Children and Adolescents, 2013-2016.

"PROTECTIVE FACTORS" HAVE NOT RESOLVED THE RACIAL DISPARITY

Protective factors are characteristics or conditions that reduce individuals' risks of harm or negative health outcomes. While income, education, and individuals' abilities to access higher income and education via social mobility all are associated with lower risks for many adverse health outcomes, the extent to which these factors reduce the risks of obesity varies by race, class, and gender.[17-19]

Income: Past research often emphasized an association between race and ethnicity and obesity. Yet, more nuanced studies have shown that a variety of other social factors have a greater correlation with obesity than race. One such study, which explored the relationships between childhood obesity, race, and community-level income, found that low-income status was highly associated strongly with obesity in children when controlling for race.[20] However, when they looked at the relationship between race and obesity while controlling for low-income status, the association was not statistically significant.[20] In this study, the disparity was attributed to community-level income rather than race. ***Although income does serve as a protective factor against obesity in children, higher income is less protective for black children in comparison with white children.***[21]

The protective potential of income also varies by gender. The National Health and Nutrition Examination Survey showed that men in the U.S. had an obesity prevalence that was consistent across income levels, while women's income levels bore an inverse relationship to obesity; for women obesity prevalence decreased as income levels increased.[22] While trends were similar across race, not all of the observed trends were statistically significant. Upon closer examination of the women's data by race, white women were the only group with a significant difference in obesity by income level. The obesity prevalence for white women with incomes at or above 350% of the poverty level was 11.7 percentage points lower than white women with incomes below 130% of the poverty level.[22] Among men, blacks and Mexican-Americans were the only groups to show significant differences in obesity with rising incomes, but their obesity prevalence rose as income levels increased.

Because of differential protective effects, higher incomes do not insulate blacks from obesity to the same extent as whites.† **While this can lead some to conclude that the differential protective potential of income across race-gender groups exists because of cultural differences, we urge readers to consider the key social and structural determinants of health preventing the manifestation of similar outcomes.** Put simply, while increased income may simultaneously yield increased access to resources that promote healthy weight maintenance for whites, racism-driven mechanisms often prevent blacks from accessing similar resources.

Educational Attainment: Ogden and colleagues suggests there is no relationship between higher educational attainment and obesity among black and Mexican-American men. For black and Mexican-American men, the obesity prevalence observed among those with less than a high school diploma (31.3 and 29.4 percent, respectively) were lower among those with a college degree (41.2 percent and 34.1 percent, respectively). However, white men with a college degree (27.5 percent) had a lower obesity prevalence compared with other less credentialed white men.[22] But it should not be assumed that lower educational attainment is more protective against obesity for black and Mexican American men. Indeed, for Mexican-American men, the differences observed between each educational group were too small to assume protection at any level. For black men, the trend fluctuated too much between education levels to indicate, accurately, either increased protection or risk.

All women with college degrees, regardless of race and ethnicity, were less likely to be obese compared against those with less education.[22] However, the extent to which obesity prevalence

† Due to limitations in available data and research, we are unsure about how the relationships between socioeconomic status, socioeconomic position, and obesity outcomes is modified when wealth is considered rather than education or income. Since wealth is a superior indicator of economic security than income or education, research that considers wealth may have the potential to better explain the disparity.

was reduced among women college graduates varied by race. The greatest reduction between those who graduated from college and those who had some college education with no degree was observed for Mexican American women (50.1 percent), followed by white women(39.9 percent), and black women (22.3 percent), respectively.[22]

Socioeconomic Position and Social Mobility: Socioeconomic position (SEP)[‡] and individuals' abilities to be socially mobile, or move to a higher (or lower) SEPs, are directly tied to their abilities to acquire and maintain higher incomes. Due to barriers associated with obesity such as lower wages, increased risk of chronic disease development, and increased individual spending on healthcare, obesity imposes financial penalties and limits upward mobility on high weight relative to lower weight persons.

Previous studies that examined the role of social class on obesity outcomes often asserted that outcomes vary by individuals' social statuses and the upward or downward direction of social mobility over their life course. In an article by Bernardi et al., participants that maintained low childhood SEP into adulthood were associated with higher BMI compared to those who transitioned from low to high SEP (11.8 percent higher) or maintained a high SEP throughout the lifespan (10.8 percent higher).[25] In another study by Heraclides and Brunner, low socioeconomic position (SEP), and education, at any point in the life course was associated with high weight and obesity.[26] Longer occupancy in low SEP status over the life course resulted in greater odds of obesity.

The study also examined obesity outcomes for downwardly mobile (higher to lower SEP transition), upwardly mobile (lower to higher SEP transition), and socially stable (no SEP transition) participants. [26] Upwardly mobile participants had similar obesity outcomes to socially stable low-SEP participants and higher prevalence of obesity than those socially stable at high SEP regardless of gender.

Patterns associated with downward mobility varied by gender. Downwardly mobile men had similar obesity outcomes to those who were socially stable at low SEP while downwardly mobile women had a lower obesity prevalence. Thus, for people who start out in a low SEP, having exposure to low SEP during childhood may reduce the protectiveness of higher SEP on obesity outcomes in adulthood. For downwardly mobile people, having exposure to high SEP during childhood only serves as a protective factor for women.

In addition, Scharoun-Lee et al. studied the intergenerational effects of SEP on obesity outcomes by race.[27] In the group of participants who were raised by single parents with low SEP and maintained a similar SEP during adulthood, there was a decreased risk of obesity in adulthood for black, white, and Hispanic males. The risk reduction was similar across race. However, there was some variation in obesity risk by race among female participants from this persistently low-SEP group. While there was a null association for black females, white and Hispanic females in this group had elevated risks of obesity. Given the varied effects of race and gender on obesity risk, we see that both have the potential to moderate the relationship between SEP and adverse obesity outcomes, with white and Hispanic females being more heavily affected by the intergenerational persistence of low SEP.[27]

Since blacks are more likely to experience downward mobility and less likely to experience upwards mobility than whites, there are some implications for racial disparities in obesity

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[‡]Socioeconomic *position*—rather than socioeconomic *status*--is a combined index of individual's relative standing based on income, poverty, deprivation, and wealth.[23,24]

outcomes.[28,29] Based on the findings from Heraclides and Brunner, black men who experience downwards social mobility experience an increase in obesity prevalence while downwardly mobile black women also experience an increase in obesity prevalence, but to a much smaller degree. Scharoun-Lee et al.'s study shows us that black men who are persistently at a low SEP across the lifespan experience a decrease in obesity prevalence, while this persistent stability had no effect on black women's prevalence.[27] This could help explain the racial differences in obesity trends for men and women. While black men experience a decrease in obesity risk at a fixed low SEP, black women never experience a clear decrease in obesity risk.

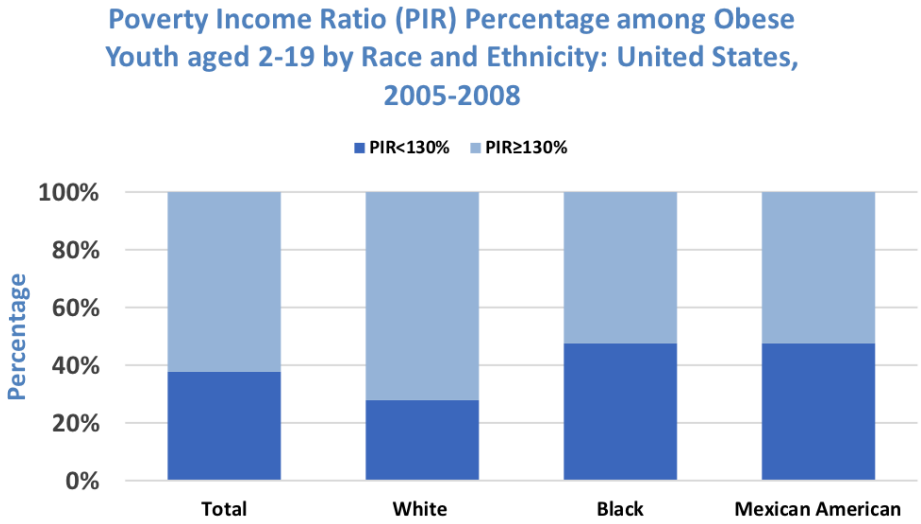

Figure 3. Adapted from source: CDC/NCHS, National Health and Nutrition Examination Survey, 2005-2008.

These findings are extremely disturbing, especially when we consider them in conjunction with the 2010 National Center for Health Statistics Data report that claims the majority of obese children (2-19 years old) are not low-income (Figure 3). Upon disaggregating this data by race, most white obese children are not low-income.[30]

Nearly half of black (47.6 percent) and Mexican-American (47.6 percent) obese children are from low-income families, families that live at 130 percent or less of the poverty income threshold (Figure 3). Again, it is important to note that the protective effect of greater family income is smaller for black children than it is for white children.[21] Even when we focus on children living above the poverty line, there is a weaker association between higher incomes and improved weight outcomes for blacks than whites.[21]

RESIDENTIAL SEGREGATION SHAPES WHERE PEOPLE LIVE AND PLAY

Lack of access to resources that encourage healthy weight maintenance makes people more susceptible to weight gain. In order to discuss the role of neighborhoods and the built environment on obesity disparities, a foundational understanding of how built environments became racialized is necessary. Residential segregation, the separation of population subgroups within residential contexts, is a phenomenon often cited as a fundamental cause of racial health disparities, including obesity and related diseases.[31]

Formal discriminatory rental and sale practices of housing units by race had been enforced and supported by U.S. government policies until it was criminalized through the 1968 Civil Rights Act. Although formal housing discriminatory is now illegal, residential segregation persists today

through modern real estate practices disguised under the mantle of consumer preference. A combination of discriminatory practices in housing selection and mechanisms related to white flight serve as key drivers of racial segregation.

Racism and Segregation: Racial residential segregation is a historical foundation of present-day obesity disparities. Segregation was achieved through strategic laws, policies, and restrictive covenants. These tactics limited black consumerism, employment and acquisition of property in desirable neighborhoods in order to preserve and increase white property values. Equal opportunity related to home ownership was denied through discriminatory home loan and housing practices by banks and real estate agents.[32,33] Redlining, a common practice in banking, real estate industries, and federal programs that rated racially mixed or mostly minority neighborhoods as "undesirable", prevented black buyers from obtaining home ownership loans.[34] The end result was forced geographical isolation and neighborhood disinvestment, which concentrated poverty in black neighborhoods and negatively affected blacks' abilities to be upwardly socially mobile and amass wealth. These early discriminatory practices have been deeply rooted in U.S. systems and have marked predominantly black neighborhoods as separate and unequal. Differential neighborhood quality manifests as inequitable neighborhood characteristics such as limited access to supermarkets and recreational resources.[35,36] Racial residential segregation has produced structural and systemic inequalities that contribute to the present-day racialized obesity disparities.

Food Deserts and Access to Supermarkets: Access to healthy food partially explains differential obesity rates. *Food deserts* describe neighborhoods or environments with limited access to affordable fresh fruits and vegetables.[37] Classification as a food desert is determined by distance from a large grocery store or supermarket. Food deserts have been defined as having more than 0.5-1 mile between a person's residence and food retail outlets in an urban setting, and more than 10 miles from food retail outlets in rural areas.[37]

Food deserts formed in urban areas due to changes in demographics in larger U.S. cities, especially between 1970 and 1988. During this period, economic segregation became more prominent with more affluent, mostly white, households moving from urban to suburban areas. Supermarkets followed the suburban trend, leaving urban areas. This shift caused the median income in urban areas to decrease and forced nearly one-half of the supermarkets in the three largest U.S. cities to close, disproportionately decreasing access to fresh foods in black communities.[38]

Often, distinctions are made between grocery stores and supermarkets because supermarkets usually offer a wider variety of affordable and healthy foods, which implies greater accessibility to healthy foods for the surrounding areas.[39] In accordance with emigration patterns, a recent study posits that smaller scale grocery stores (less than 50 employees) are more common in predominately black and racially mixed neighborhoods (2.7 and 2.2 times as many grocery stores, respectively) when compared to mostly white neighborhoods.[40] Conversely, supermarkets are less common in predominantly black and mixed race/ethnic neighborhoods (0.5 and 0.7 times as many supermarkets, respectively) compared against mostly white neighborhoods.[40]

Food Swamps and Access to Fast Food: While food deserts are more widely discussed, *food swamps* are more closely associated with obesity.[36] Food swamps are neighborhoods with high access to fast food and other unhealthy food options, unlike food deserts with low access to grocery stores and healthy food options.[41] Classification as a food swamp is based on proximity to fast food restaurants and liquor stores. Generally, greater access to fast food and liquor

stores is positively associated with increased obesity prevalence and both are more concentrated in predominately black or low-income neighborhoods.[35,36,39,42-44]

In a study by Cooksey et al., food swamps' associations with obesity were more pronounced in neighborhoods with greater income inequality.[36] Limited options for healthy eating constrain daily individual choices for people living in these neighborhoods to negative options, thereby promoting poor dietary intake that can lead to obesity.

Access to Opportunities for Physical Activity: Lack of access to sound nutrition and physical recreation, resources that encourage healthy weight maintenance, hinders individuals' abilities to prevent weight gain. Blacks were 20 percent less likely to engage in active physical activity compared to whites.[45] A review of evidence concerning perceptions of the built environment among an all-black population indicated that light traffic, the presence of sidewalks and safety were positively associated with physical activity.[46] Perceived safety has been identified as a notable factor in physical activity and obesity outcomes.[46,47] Among youth, safety concerns disproportionately serve as barriers to participation in recreational activity for girls compared with boys.[48]

Even with a high concentration of parks, safety concerns deter low-income communities from park use and other forms of outdoor recreation.[48-50] In conjunction with safety and access to built environment resources, substandard quality of parks and other recreational spaces explains a large portion of obesity prevalence in low-income neighborhoods.[51] Increasing opportunities for physical activity can take many forms, but requires the creation, maintenance, and improvement of infrastructures where individuals live, work, and play.

SOCIAL CONTEXT LEADS TO PERSISTENT DISPARITIES

Social context, a term used to describe the geographical location in which people live and the institutions surrounding them, is primarily employed to describe residential segregation. Two groups living in the same social context reside in the same exact neighborhoods, meaning that they have equal access to the same resources. As previously discussed, residential segregation has led to patterns of blacks and whites living in separate social contexts and having differential access to resources. When examining obesity outcomes in similar social contexts, the myth is dispelled that higher rates of obesity are attributable to cultural and genetic traits of black Americans.

Bleich et al. found that black and white women living in the same neighborhoods had similar odds of obesity once other key factors (age, income, education, marital status, smoking status, physical inactivity and number of chronic conditions) are taken into account.[52] ***This implies that individuals' social contexts, not genetic or cultural factors ostensibly associated with their race, are the driving forces of obesity outcomes.***

Although similar social contexts yield similar outcomes for blacks and whites, it is important to acknowledge that, due to residential segregation, most blacks and whites live in different social environments. As a result, on average, blacks and whites have different levels of access to health promoting resources. In turn, this produces differential outcomes, and the disparate obesity prevalence persists even for blacks and whites with similar socioeconomic statuses. The black disparity in obesity is indicative of the direct and indirect effects of formal systemic residential segregation efforts established early in United States history and presently maintained under the guise of mechanisms related to housing choice.

POLICY RECOMMENDATIONS

In order to decrease racial disparities in obesity from youth to adulthood for black and low-SEP populations, economic, structural and systemic factors that contribute them must be prioritized and addressed. We offer the following recommendations to reduce the racial obesity disparity:

Invest in the quality and safety of neighborhood parks and recreation centers. In order to address residents' concerns regarding quality and safety of neighborhood recreational spaces, neighborhoods should adopt a multipronged approach that prioritizes safety and improvement without calling for increased policing or residential displacement. Through an approach called Crime Prevention through Environmental Design, modifications to the built environment are used to reduce crime and improve neighborhood perceptions of safety.[53] While this strategy involves the police, it does not solely rely on policing or endorse militarization of or harassment by police. Under this premise, various community stakeholders including residents, community organizations, and businesses, work alongside local police departments to revitalize their neighborhoods. Not only does this approach allow for a multidisciplinary approach to neighborhood improvement, but also promotes police accountability to various neighborhood stakeholders. According to the Local Initiatives Support Corporation (LISC), this multisector solution has achieved up to a 41 percent greater decline in crime vis-á-vis areas that used traditional policing practices.[54] Improvements in the built environment through public recreational space renovation, affordable housing construction, and non-violent police tactic endorsement can make daily physical activity goal attainment more tangible for people in low-income communities.

Reduce the weight loss requirement for obesity treatment covered by Medicare and Medicaid. At present, insurance coverage from the Centers for Medicare and Medicaid Services allows for 22 visits annually for obesity treatment, formally known as Intensive Behavioral Treatment (IBT). IBT patients must lose 3kg (6.6lbs) by the 6-month visit to remain eligible for the remainder of the year.[55] Since evidence from behavioral weight loss interventions indicates that blacks often lose less weight than their white counterparts even when they have the same eating and physical activity adherence, the weight criterion for obesity greatly limits black beneficiaries' access to the year-long treatment.[56,57]

Promote use of registered dietitians in weight control and obesity treatment. Registered dietitians and registered dietitian nutritionists (RD/RDN) are credentialed food and nutrition professionals trained to address obesity and related chronic diseases. Since RD/RDNs possess more specialized training in nutrition and weight management compared to physicians, they are the ideal care providers in obesity treatment and should be utilized to a greater extent in clinical, community, and research interventions.

Implement federal job guarantee and baby bonds programs to decrease financial barriers to healthy lifestyle decisions for current and future generations. The federal job guarantee is a policy solution that addresses joblessness and reduces barriers to economic success for current generations by offering employment as a guaranteed right. Conversely, Baby Bonds address the wealth gap for future generations by granting child trust accounts based on parental wealth. In sum, children born into lower wealth families would be granted a greater dollar amount than those born into higher wealth families. As suggested in The Color *of Wealth in the Nation's Capital,* these strategies can be employed to enable current and future generations to accumulate assets in an equitable manner.[58] The financial incentives provided can be used to invest in neighborhood resources that promote healthy weight management.

Promote initiatives that increase access to affordable housing options in neighborhoods that do not promote poor nutrition, physical activity, or weight management. Tax incentives, abatements, and vouchers for mixed and low-income housing quotas in new developments can be employed to mitigate housing barriers for low-SEP people and enable them to gain access to housing located in neighborhoods that promote healthy lifestyle choices and behaviors related to weight management.[58]

Reduce hiring practices that enable discriminatory practices on the basis of weight. It has been documented that obese people are less likely to gain employment and are often paid less than their healthy weight counterparts.[11,12,59] Greater enforcement of anti-discriminatory policies during the hiring and salary negotiation processes is needed to mitigate this issue.

Employ zoning legislation to mitigate food desert and food swamp prevalence. In order to reduce the abundance of fast food establishments and increase the presence of grocery stores and supermarkets in neighborhoods, zoning laws must be enacted. Not only can zoning laws be used to filter the types of healthy resources made available, but also to designate the locations in which they are established. This tool could promote the equitable geographic placement of grocery stores in food deserts as opposed to further saturating non-food desert areas.

Increase research initiatives for transgender youth and adults. Considering that approximately 1.4 million (.6 percent) of Americans identify as transgender (current gender identity is not the same as gender assigned at birth), the discussions on health outcomes must consider differential outcomes for this group.[60] While obesity research on this group is limited, it should be noted that transgender populations are at increased risk of poor physical and mental health when compared with cisgender (current gender identity is the same as gender assigned at birth) populations.[61] Multiple studies examining obesity outcomes among transgender populations claim they are more likely to be obese compared against their cisgender counterparts.[62,63] Yet, one study that specifically examined racial disparities among transgender adults concluded that black transgender participants had lower odds (.76) of being obese relative to white transgender participants, further illustrating that health risks vary by race and gender identity.[64] Further research is needed improve inclusion of this group in healthy weight interventions and initiatives.

Increase funding for more nuanced health and obesity research. While obesity is commonly associated with diabetes, hypertension, and heart disease, all cases do not lead to these chronic illnesses. In fact, common comorbidities of obesity are also present in lower weight individuals. Despite the prevalence of these chronic illnesses in across weight, obesity research has become oversaturated with papers that simply link obesity to poor health outcomes. Researchers have a critical role to play in improving our understanding of the link between obesity and negative health outcomes. Only through uncovering similarities between cases that are actually associated with chronic illnesses, rather than attributing it exclusively to the state of being obese, will practitioners be able to develop and implement more effective diet and physical activity interventions to manage chronic disease.

Prioritize regulations that ensure respect for people of all sizes and make accommodations for individuals with bodies outside of what is deemed "healthy weight." Recently, we have seen personal accounts of the maltreatment of obese individuals (or "fat-shaming") and a number of body-positive beauty campaigns as means of combatting such stigma. Research shows that discrimination negatively affects individual health, with weight discrimination being associated with the decreased ability to fight inflammation, metabolize foods, and regulate blood sugar.[65] Given the racial disparity in obesity outcomes and chronic

stress measures, added racial discrimination experienced by blacks has the potential to further amplify the physiological impacts of weight discrimination. While this report examines structural levers of racial obesity disparities, there are biological, medical, and psychological factors, as well as reasons related to food preference and disability, that drive weight outcomes. All people, regardless of size or the means by which they acquired their size, are deserving of the right to exist free of shame and discrimination. Policymakers need to endorse regulations that provide resources for people actively seeking weight loss strategies instead of policies that require weight loss in order to fully participate in society.

ABOUT THE SAMUEL DUBOIS COOK CENTER ON SOCIAL EQUITY

The Samuel DuBois Cook Center on Social Equity at Duke University is a scholarly collaborative engaged in the study of the causes and consequences of inequality and in the assessment and redesign of remedies for inequality and its adverse effects. Concerned with the economic, political, social and cultural dimensions of uneven and inequitable access to resources, opportunity and capabilities, Cook Center researchers take a cross-national comparative approach to the study of human difference and disparity. Ranging from the global to the local, Cook Center scholars not only address the overarching social problem of general inequality, but they also explore social problems associated with gender, race, ethnicity and religious affiliation. For more information, visit: https://socialequity.duke.edu/.

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