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Perspective

Covid-19 and Disparities in Nutrition and Obesity

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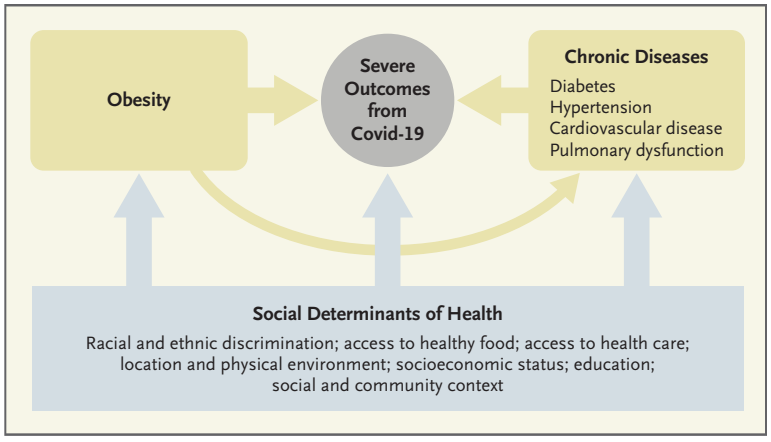
Black, Latinx, and Native Americans are experiencing disproportionate burdens of infections, hospitalizations, and deaths from SARS-CoV-2 (Covid-19).[1] Similar disparities are observed in other countries where minority groups face hurdles in accessing health, education, and social services as well as affordable, healthy food. These stark manifestations of health inequities have emerged in the wake of a body of evidence linking obesity and obesity-related chronic diseases, such as hypertension, diabetes, and cardiovascular disease — conditions that disproportionately affect disadvantaged populations — with severe outcomes from Covid-19. Though the factors underlying racial and ethnic disparities in Covid-19 in the United States are multifaceted and complex, long-standing disparities in nutrition and obesity play a crucial role in the health inequities unfolding during the pandemic.

A healthy diet, rich in fruits and vegetables and low in sugar and calorie-dense processed foods, is essential to health. The ability to eat a healthy diet is largely determined by one's access to affordable, healthy foods — a consequence of the conditions and environment in which one lives. In the United States, poor diet is the leading underlying cause of death, having surpassed tobacco use in related mortality.[2] A study of dietary trends among U.S. adults between 1999 and 2012 showed overall improvement in the American diet, with the proportion of people who reported having a poor-quality diet decreasing from 55.9% to 45.6%; additional analyses, however, revealed persistent or worsening disparities in nutrition based on race or ethnicity, education, and income level.[3]

These disparities in nutrition are driven by the socioeconomic, educational, and environmental disadvantages that have historically beset vulnerable communities and that persist today. For example, food insecurity affects approximately 11% of U.S. households but is more common in Black, Latinx, and Native American households (www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx). People experiencing food insecurity and living in food deserts may predominantly have access to low-cost, energy-dense processed foods. Barriers to accessing high-quality, nutritious food, in turn, are major factors in people's body-mass index. The overall prevalence of obesity among U.S. adults is 42.4%, but Black (49.6%), Native American (48.1%), and Latinx (44.8%) adults



Social Determinants of Health as the Root Cause of Racial and Ethnic Health Disparities, Including Severe Negative Outcomes from Covid-19.

Social determinants of health, obesity, chronic diseases, and severe negative outcomes from Covid-19 are all interrelated.

are disproportionately affected, according to the Centers for Disease Control and Prevention. Obesity, in turn, is linked to numerous chronic diseases, including cardiovascular disease and diabetes — conditions that significantly contribute to mortality and disability-adjusted life-years in the United States[2] and that also disproportionately affect underserved racial and ethnic populations.

The health disparities in nutrition and obesity correlate closely with the alarming racial and ethnic disparities related to Covid-19. The age-adjusted hospitalization rates for Covid-19 among Native Americans and Black Americans are approximately five and four and a half times that of White Americans, respectively. Latinx Americans have been hospitalized at a rate approximately four times that of White Americans. Reports from numerous cities and states — such as Chicago and Michigan — indicate that Black Americans account for a proportion of Covid-19 mortality that is more than twice as high as the proportion of Black residents in their geographic area.

Among the five New York City boroughs, the rate of hospitalizations and death related to Covid-19 is highest in the Bronx.[4] As compared with the other boroughs, the Bronx has higher rates of obesity and chronic diseases due to the disproportionate amount of poverty and food insecurity; these disparities make the borough's predominantly Black and Latinx residents more vulnerable to the devastating effects of Covid-19.

In the current pandemic, the intersection between communicable and noncommunicable diseases has resulted in a public health emergency. Several pathophysiological mechanisms may explain the enhanced virulence of Covid-19 in patients with obesity. Obesity is a state of chronic, low-grade systemic inflammation, which may predispose patients to the "cytokine storm" characteristic of severe Covid-19. In addition, adipose tissue may serve as a reservoir for SARS-CoV-2 owing to its high levels of expression of angiotensin-converting enzyme 2, perpetuating spread to other organs. Furthermore, obesity may be a common denominator of associated coexisting conditions and underlying socioeconomic factors linked to worse outcomes from Covid-19. These underlying mechanisms require further investigation to inform prevention and treatment. But to address this urgent public health issue, the confluence of obesity, severe Covid-19 outcomes, and health disparities based on race and ethnicity must be examined in the context of the social determinants of health (see diagram).

The nonmedical factors and conditions that influence health include economic stability, physical environment, racism and ethnic discrimination, education, access to nutritious food, social and community context, and access to health services.[5] These factors have contributed in real time to disparities in the Covid-19 pandemic, as the risk of infection has been increased by overcrowded living conditions and the inability to work from home — both barriers to social distancing. Upstream forces, including a lack of access to healthy foods, a preponderance of low-quality nutrition, and higher rates of food insecurity, result in a higher prevalence of obesity and chronic diseases and so are ultimately responsible for the increased morbidity and mortality from Covid-19 in disadvantaged populations.

Racial and ethnic health disparities often derive from structural racism. Inequitable policies, practices, and systems that stem from historical injustices reverberate in affected communities; discrimination in employment

and education, substandard housing, barriers to receiving high-quality health care, and neighborhood designs that limit physical activity all lead to adverse health effects and are shaped by structural racism. At the same time, unconscious biases of health care professionals can have unintentional detrimental effects on the quality of care that Black, Latinx, and Native American patients receive, which may be further amplified by the challenges of the pandemic.

Observational studies and randomized trials addressing the factors underlying the severe presentations of Covid-19 in persons with obesity and metabolic dysfunction need to be prioritized and to include Black, Latinx, and Native American populations. In addition, to minimize the risk of Covid-19 infection among people living in disadvantaged communities with high rates of obesity and chronic diseases, public health policies and social support services should be swiftly coordinated. The current crisis warrants creation of a national organization dedicated to addressing Covid-19 racial and ethnic health disparities, to elucidate the challenges and mobilize necessary resources.[1]

Over the long term, comprehensive interventions that address the social determinants of health and structural racism, and policies that ensure universal access to high-quality, affordable health care for all Americans are imperative. The American College of Physicians has outlined a multidisciplinary approach to addressing the social determinants of health,[5] which advocates for the reduction of socioeconomic inequalities, the integration of social determinants of health into medical education, local and federal funding of social services, and expanded research efforts. Uniting behind these principles and bringing vigilant attention to unconscious biases can engender real change.

The U.S. health care system needs a renewed and increased focus on health inequities, inclusiveness, resilience, and chronic-disease prevention. Public health policies and legislative initiatives that reduce food insecurity and food deserts in vulnerable communities are urgently needed to address the upstream determinants of health. The 2018 U.S. Farm Bill, which devotes nearly $90 billion annually to food and agricultural programs, includes provisions for disparities in nutrition, but we require more innovative strategies and a greater commitment to eliminating racial and ethnic inequities within the U.S. food system. The toll of the Covid-19 pandemic cannot be undone, but the recognition of these disparities offers an opportunity to rise to the public health challenge of health inequity and to unite in a vision for a more healthy, just, and equitable nation.

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