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EDITORIAL

Health Consequences of Segregation and Disenfranchisement

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Significant health disparities exist between racial and ethnic groups in the United States, and these disparities were heightened by the COVID-19 pandemic. In 2020, COVID-19 shaved 1.5 years from Americans' life expectancy, disproportionately affecting Black and Hispanic Americans, according to provisional data from the National Center for Health Statistics. The life expectancy of non-Hispanic Black (hereafter, Black) Americans was 5.8 years shorter than that of non-Hispanic White (hereafter, White) Americans (71.8 and 77.6 years, respectively). And Hispanic Americans, who have historically had longer life expectancy, experienced the greatest decline, 3 years, from 81.8 to 78.8 years, largely driven by excess deaths attributable to COVID-19.[1] Although cardiovascular disease remains the leading cause of death in the United States, there are striking differences in its burden between racial and ethnic groups.[2] In 2016, the age-standardized rate of cardiovascular death in adults was highest in Black people (211.6 per 100 000), who experienced significantly higher rates of cardiovascular death than Hispanic (114.9 per 100 000) and White people (160.2 per 100 000), and more than twice the rate of people of Asian descent (92.3 per 100 000).[3] In the United States, Black people also have the highest rates of stroke and heart failure, and Black infants have twice the risk of dying before their first birthday as White infants.[2,4] In addition, Black and Hispanic people have higher rates of obesity and diabetes, and Black Americans have among the highest prevalence of hypertension in the world.[2]

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It is critical to understand the root causes of these inequities to improve the health of all Americans. In 2013, the Institute of Medicine issued the report *U.S. Health in International Perspective: Shorter Lives, Poorer Health*, describing how Americans' health status has declined relative to other high-income countries since the late 20th century, with life expectancy falling to last among comparator nations. The organization examined numerous potential explanations for the US health disadvantage, and what they noted was enlightening. The report noted a disproportionate prevalence of obesity and diabetes, excess deaths from injuries, heart disease, and lung disease, a high prevalence of adverse birth outcomes and adolescent pregnancy, shortcomings in the US health care and educational systems, adverse social and economic conditions, unfavorable patterns of individual health behaviors, such as unhealthy food choices, and, in addition, neighborhood factors, including racial segregation. Although the report did not intend to evaluate racial health disparities, the authors noted striking disparities in health

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and life expectancy across US states, counties, and census tracts and between Americans of different races. For example, 17% of US counties had a male life expectancy that was >30 years less than that of top 10 countries, whereas the same was true for only 2% of Canadian Health areas, 0.2% of British local authorities, and no Japanese municipalities. The lowest life expectancies were seen in Black populations, as well as disadvantaged predominately White counties in Appalachia and the Deep South.[4,5] The authors proposed that the significant health disparities between different Americans may contribute to the country's overall health disadvantage relative to other high-income countries.

In this issue of the *Journal of the American Heart Association* (*JAHA*), Gao and colleagues examine one important environmental factor, living in a racially segregated neighborhood, on a person's risk of developing hypertension.[6] Previous investigation into the association of cardiovascular disease and its risk factors with one's neighborhood of residence has brought insight into the role of environmental factors in health disparities. Neighborhoods are where we spend most of our nonworking lives, and the physical and environmental factors that are found in neighborhoods matter. These factors include things such as access to healthy food, walkability of communities, social cohesion, and neighborhood racial segregation. One study of 2612 participants in the MESA (Multi-Ethnic Study of Atherosclerosis) found that residents of neighborhoods with better walkability, healthy food availability, greater safety, and more social cohesion were less likely to be hypertensive, after adjusting for enrollment site, age, sex, income, and education.[7] In a separate investigation of 5124 MESA participants free of diabetes at baseline, a similar protective association was seen on the risk of developing type 2 diabetes based on one's cumulative neighborhood exposure to healthy food and physical activity resources, but not social environment.[8] In another evaluation of 3382 MESA participants, neighborhood exposure to healthy food availability was associated with a reduction in the risk of incident hypertension, but similar associations did not exist for neighborhoods with favorable scores on walking environment, social cohesion, and safety.[9]

Investigators have also evaluated the effects of living in a racially segregated neighborhood on cardiovascular health. An evaluation of 8071 Black and White participants in the National Health and Nutrition Examination Survey (NHANES) found that, after adjusting for age, sex, education, and income, Black people had 2.74 times higher likelihood of having hypertension than White people (95% CI, 2.32–3.25). This difference was magnified in Black people living in the most segregated areas and attenuated in Black people living in low segregation areas.[10] In a longitudinal assessment of 2280 Black participants in the CARDIA (Coronary Artery Risk Development in Young Adults) study, time-varying exposure to high-segregation neighborhoods was associated with a small increase in systolic blood pressure, whereas decreases in exposure to racial residential segregation were associated with reductions in blood pressure.[11] And in an evaluation of 1595 Black, 2345 White, and 1289 Hispanic participants of MESA, residence in a racially segregated neighborhood was associated with a 12% higher hazard of incident cardiovascular disease in Black participants (95% CI, 1.02–1.23), after adjusting for demographics, neighborhood-level characteristics, individual cardiovascular risk factors, and socioeconomic position, whereas significant associations were not seen in Hispanic and White participants living in segregated neighborhoods, after these same statistical adjustments.[12]

In the present study, Gao and colleagues evaluated the association between residence in racially segregated neighborhoods and the development of incident hypertension in 1937 Black, Hispanic, and Chinese American MESA participants over an average follow-up of 7.35 years. They found that Black and Hispanic participants living in segregated neighborhoods were 33% more likely to develop hypertension, after adjusting for age, sex, education, non-US birthplace, health insurance status, income, smoking status, physical activity, and body mass index. No significant association was seen in participants of Chinese origin living in segregated neighborhoods. After adjusting for participants' scores on surveys assessing their neighborhood physical environments (eg, access to healthy foods and neighborhood walkability) and neighborhood social environments (eg, aesthetic quality, safety, and social cohesion), the association between neighborhood segregation and incident hypertension persisted in Black participants but was attenuated in Hispanic participants. Finally, using the more recent 2017 American College of Cardiology/American Heart Association Guidelines' definition of hypertension, the association of racial residential segregation and incident hypertension was smaller and only statistically significant in Hispanic participants (Black hazard ratio [HR], 1.12 [95% CI, 0.95–1.33]; Hispanic HR, 1.22 [95% CI, 1.01–1.46]; Chinese HR, 1.21 [95% CI, 0.88–1.65]). The investigators note that there was no association with scores of neighborhood physical environments and incident hypertension. Favorable scores of neighborhood social environments appeared to be beneficial in Black participants but had nonsignificant associations in the opposite direction for Hispanic and Chinese participants.

Taken together, these findings add to the evidence that Black Americans residing in socially disadvantaged, racially segregated neighborhoods face greater

adversity in health outcomes. In addition, similar associations between racial clustering and adverse health outcomes appear to exist for Hispanic Americans. In this study, investigators took care to thoughtfully adjust for numerous measurable variables to gauge the effect of racial residential segregation on incident hypertension. Important distinctions between participants residing in segregated and nonsegregated neighborhoods should be noted. Black and Hispanic participants living in segregated neighborhoods were less likely to have an advanced educational degree (bachelor's degree or above), were less likely to have health insurance, and had lower per capita adjusted income, consistent with the relative disadvantage of these neighborhoods. In contrast, Chinese participants, all of whom were recruited in Chicago, IL, or Los Angeles, CA, and 77.9% of whom resided in segregated neighborhoods, had similar levels of educational attainment, insurance status, and income, irrespective of segregation status, which was not associated with incident hypertension in multivariate analyses. This may suggest varying effects of own-group racial segregation based on whether the neighborhood in question is disproportionately Black, Hispanic, or Chinese.

The groups studied are not monoliths, and thus, the detail shown by Gao and colleagues in evaluating country of origin is appreciated. For example, although Black people in the United States have among the highest prevalence of hypertension in the world, in an analysis of adult NHANES participants, foreign-born Black people (n=522) had significantly lower adjusted odds of having hypertension than US-born Black people (n=4511; odds ratio, 0.61; 95% CI, 0.49–0.77).[13] In an evaluation of National Vital Statistics data, foreign-born Black people had a 34% lower risk of cardiovascular disease mortality and 9.4 and 7.8 years longer life expectancy relative to their US-born counterparts (men and women, respectively).[14] Although Asian Americans have comparatively less heart disease than other racial groups, among Asian groups in the United States, it is known that people of South Asian origin have the highest rates of cardiovascular death, whereas people of Korean and Vietnamese origin have the lowest rates and Chinese in between.[15] In the present study, a far greater proportion of foreign-born Black participants resided in nonsegregated neighborhoods. As Hispanic people are a widely heterogeneous population with varying risk factors and comorbidities between them, additional specificity about Hispanic origin may also be helpful.

In the United States, racial residential segregation, the physical separation of racial groups into different neighborhoods, occurs for myriad reasons. Historically, it arose in part from discriminatory housing practices by government and private entities at the federal, state, and local levels (ie, institutional racism). Examples include exclusionary zoning, discrimination in mortgage lending and homebuilding, and neighborhood disinvestment. Although discriminatory housing policies have long been illegal, they have had lasting effects on where many families live today. In the modern era, gentrification, individual attitudes and preferences, and wide inequities in income and wealth have contributed greatly to racial clustering. Although examination of census data shows the degree of racial segregation and income inequity in American neighborhoods decreased substantially between 1980 and 2010, significant segregation and inequity remain.[16]

The finding that racial residential segregation is associated with harms for Black and Hispanic people adds to our understanding of social determinants of health (ie, all of the nonmedical factors that influence health in positive and negative ways); these include, for example, income, education, employment, health care access, housing, food insecurity, and social inclusion. With the growing interest in health disparities in recent years, we are hopeful that researchers will continue to develop innovative methods such as these for identifying and better characterizing other important social determinants of health.

For now, the policy implications for stakeholders in the government, health care, education, and finance sectors are that additional emphasis should be placed on improving conditions in disadvantaged, racially segregated neighborhoods. Ultimately, expanding opportunities and facilitating upward mobility for residents in these communities is not only fair, it may be good for the health.

ARTICLE INFORMATION

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Disclosures

None.

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