

EDITOR'S NOTE

JAHA Spotlight on Racial and Ethnic Disparities in Cardiovascular Disease

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Cardiovascular diseases (CVD), principally ischemic heart disease and stroke, are the leading cause of death in the United States.¹ Although management of CVD has led to improved mortality over the years, striking disparities in outcomes have persisted and widened among racial and ethnic groups.^{2,3} These disparities segregate along the lines of race and ethnicity, socioeconomic status, and geography.⁴ Health disparities, as defined by the World Health Organization, are “systematic, socially produced (and therefore modifiable) and unfair”⁵ conditions that disproportionately affect historically underrepresented racial and ethnic groups.⁶ For example, the burden of cardiovascular disease in Black communities remains disproportionately high and is a primary cause of disparities in life expectancy between Black and White individuals.⁷ Approximately 30% of the mortality difference between Black and White men and 40% of the difference between Black and White women is driven by disparities in CVD outcomes.⁸

In this issue of the *Journal of the American Heart Association (JAHA)*, we feature a compendium of articles highlighting health disparities across a spectrum of CVD conditions. These disparities are principally attributable to social determinants of health and the complex interplay of structural racism on the health of people from underrepresented communities.⁹ These pervasive societal ills negatively influence health outcomes across the lifespan.¹⁰

Several articles in this spotlight examine the prevalence and outcomes of cardiovascular risk factors, with some focusing on prepregnancy and pregnancy related

risk factors. In a large cross-sectional study, Zheng et al highlight racial, ethnic and geographic disparities in cardiovascular health among women of childbearing age using data from the 2011–2019 Behavioral Risk Factor Surveillance survey.¹¹ Using the American Heart Association’s Life Simple 7 (blood pressure, glucose, total cholesterol, smoking, body mass index, physical activity, and diet) to determine ideal cardiovascular metrics in over 269 000 participants, the authors found large racial, ethnic, and geographical disparities in cardiovascular health, with the disparities being most pronounced among non-Hispanic Black women, with regional clustering (most prominent in southern states). Wang et al also highlight concerning findings of the increasing prevalence of prepregnancy obesity across all major ethnic groups in the United States as well as the attendant increase in pregnancy-associated adverse outcomes (preterm birth, low birth weight, and pregnancy-associated hypertension).¹² Experimental studies¹³ support causal effects of maternal obesity on offspring outcomes, which are mediated at least partly through changes in epigenetic processes. Malek and colleagues also examine the association of hypertensive disorders of pregnancy and prepregnancy hypertension with maternal incident heart failure within 5 years of delivery.¹⁴ They also investigated differential outcomes of these exposures based on race and ethnicity. The authors demonstrate higher incident heart failure in non-Hispanic Black women than non-Hispanic White women. These findings underscore the troubling, disproportionately high burden of increased cardiovascular risk factors among people of childbearing

Key Words: cardiovascular disease ■ disparities ■ race/ethnicity

The opinions expressed in this article are not necessarily those of the American Heart Association.

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age who are part of underrepresented racial or ethnic groups (especially Black women). The implications of this heightened cardiovascular risk factor burden in women of childbearing age on both maternal and offspring outcomes can have far reaching impact beyond the proximate postpartum period (resulting in premature onset of CVD downstream).^{15,16} In addition to the articles focusing on prepregnancy and pregnancy related risk factors, Agarwala and colleagues evaluated racial differences in predictors of CVD among patients with familial hypercholesterolemia.¹⁷ They found that Black patients had a higher prevalence of modifiable risk factors and that hypertension and smoking were particularly strong predictors of CVD. Thus, the preponderance of CVD risk factors among people from underrepresented racial and ethnic groups is not only restricted to women of childbearing age, but in all segments of the population and across a wide spectrum of disease conditions.^{7,18}

Access to high quality healthcare is an important fundamental driver underlying healthcare disparities.¹⁹ Patients who belong to underrepresented racial and ethnic groups confront more barriers to CVD diagnosis and care, receive less optimal care, and experience worse adverse outcomes than White patients.⁴ Chouairi et al²⁰ with an accompanying editorial by Lewsey and Breathett,²¹ highlight contemporary trends in adult heart transplant outcomes among patients from different racial and ethnic groups in the United States. Compared with White patients, Black patients were still less likely to undergo transplantation and had a higher risk of posttransplant death despite recent amendments to the United Network for Organ Sharing (UNOS). These vexing trends of differential access to and receipt of quality healthcare are not only confined to adult heart transplant patients; they are also reflected in studies highlighted in this issue of patients with other CVD conditions, including post cardiac arrest, as described by Moeller et al²²; postacute myocardial infarction among young and middle age adults as described by Raparelli et al²³ and Garcia et al²⁴; receipt of anticoagulation after electrical cardioversion for atrial fibrillation and flutter as described by Mentias et al²⁵; severity of pulmonary embolism and likelihood of receipt of interventional therapies as described by Phillips et al²⁶; and lower extremity amputations among Black patients living in metropolitan areas with close proximity to centers with specialty care for peripheral artery disease as described by Fanaroff et al.²⁷ These disparities may be driven by factors such as bias, stereotyping, and prejudice against underrepresented minority populations.²⁸ The differential access to quality health care is pervasive and occurs in the broader context of historic and contemporary social and economic practices and policies that have led to inequalities across many US healthcare systems.

Ascertainment of disease and outcomes, especially among patients from racial or ethnic minority groups, may also be an important driver of health care disparities.²⁹ For example, adverse outcomes associated with atrial fibrillation have predominantly been investigated in White cohorts. In one study with diverse patient representation, the prospective ARIC (Atherosclerosis Risk in Communities) study of patients with atrial fibrillation, the rates of stroke, heart failure, coronary heart disease, and mortality were higher in Black individuals than White individuals.³⁰ In this sense, increased representation of underrepresented racial or ethnic groups is critical to enhancing provider understanding of CVD risk in order to inform nuanced optimal care to people who belong to those groups. Prasanna et al³¹ and the accompanying editorial by Lakdawala³² underscore a ubiquitous problem of racial and ethnic underrepresentation in clinical trials. Again, Arabadjian et al,³³ with editorial remarks by Lakdawala,³² point to important differences in hypertrophic cardiomyopathy disease presentation and adverse outcomes and the urgent need for inclusion of Black populations in clinical trials. Similarly, Walker et al³⁴ demonstrate a signal for potential association of white matter disease and amyloid deposition in the pathogenesis of Alzheimer's disease. Berglund et al³⁵ also report genetic variations in the interaction of lipoprotein (a), oxidized phospholipids alleles specific expression, and heritability differences in cohorts of Black patients. It is important to note that race is a social construct and not a biological determinant of disease and that race and ethnicity are a proxy of socioeconomic status.³⁶ The biological differences in disease expression in diverse populations underscore the promise of precision medicine through polygenic risk scores for better disease phenotype and risk stratification. However, many racial and ethnic groups are still grossly underrepresented in genome-wide association studies that have hitherto been focused primarily on populations of European ancestry.³⁷ Falcone and colleagues report from *All of Us*, a program that aims to accelerate research in populations traditionally underrepresented in biomedical research.³⁸ They found an increased burden of CVD among participants who were Black, older age, disabled, and of lower income. *All of Us* is a national program in which participants agree to share their electronic health record data, complete surveys, and provide biospecimens. This is a promising resource to advance research in health disparities.

We hope that this *JAHA* Spotlight will reinforce the American Heart Association's recent Presidential Advisory urging all stakeholders to a "committed path towards transforming the conditions of historically marginalized communities, improving the quality of housing and neighborhood environments of these populations,

advocating for policies that eliminate inequities in access to economic opportunities, quality education, and health care, and enhancing allyship among racial and ethnic groups.”⁶ As David Livingstone once said, “Sympathy is no substitute for action.” Concerted action among all stakeholders will be needed to ensure progress toward health equity for all people.

ARTICLE INFORMATION

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Disclosures

None.

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