

# Racial disparities in sudden cardiac death rates cannot be explained by known risk factors

12 November 2018

While it's well reported that black patients are twice as likely as white patients to succumb to sudden cardiac death (SCD), the underlying factors that propel this disparity remain unknown. According to a first-of-its-kind study from Penn Medicine, published online today in the *Journal of the American College of Cardiology*, researchers showed that even after controlling for risk factors like income, education, smoking, exercise, and bad cholesterol, among others, black patients remained at significantly higher risk for SCD.

"While greater public health efforts to identify and decrease health risks in black populations will be a critical step in reducing their higher risk of SCD, our data suggest that it may not eliminate racial disparities entirely," said lead author Rajat Deo, MD, MTR, an associate professor of Cardiovascular Medicine in the Perelman School of Medicine at the University of Pennsylvania. "Our research demonstrates other factors, perhaps genetic, are at play, and we need more exploration to better understand this disparity."

Each year in the United States, there are more than 350,000 out-of-hospital SCDs—the immediate cessation of the heart's ability to function properly. SCD occurs unexpectedly, with little to no warning signs or symptoms, and it strikes most commonly among those in the general population without a history of [cardiovascular disease](#). Past studies have consistently shown [black patients](#) have a higher incidence of SCD compared to white [patients](#), but this study marked the first time a rigorous, prospective population-based analysis adjusting for risk factors.

The researchers evaluated 22,507 participants over the age of 45 (9,416 black patients and 13,091 white patients) without a history of cardiovascular disease using data from the

Reasons for Geographic and Racial Differences in Stroke (REGARDS) study, a prospective, population-based cohort of adults from across the United States. Among that group, there were nearly twice as many SCD events in among black patients over an average of six years of follow-up.

To evaluate whether [racial differences](#) in SCDs were attributable to differences in the prevalence of risk factors or to an underlying susceptibility, the researchers performed analyses that adjusted for various demographics and socioeconomic factors including: lower incomes; cardiovascular risk factors such as blood pressure and diabetes; and behavioral measures of health, such as alcohol use, stress and depression. From the time participants enrolled in the study through about six years of follow up, researchers found the risk of SCD for black patients was still nearly double that of white patients, and it did not appear to be directly impacted by these known [risk factors](#).

"At the end of the day, we just don't have a full understanding of why patients who are black are more likely to succumb to SCD—a clear problem and knowledge gap on many levels," Deo said. "For many in the black community, their first clinical presentation of any cardiovascular issue is a [sudden cardiac death](#) event. Of course, we don't know whether they have ignored symptoms such as chest pain and opted not to seek medical attention, or if this truly is the first indication of cardiovascular disease, perhaps due to a genetic predisposition. Either way, the data are staggering, and represent a pervasive problem in the black community."

The authors suggest that the pathology underlying SCD may differ in each of these groups and could be a contributor to the disparity, the authors noted. For instance, autopsy studies have revealed that

coronary artery disease accounts for a lower percentage of SCDs in black patients, despite their known higher burden of hypertension, diabetes, and chronic kidney disease. Other cardiac issues, such as cardiac hypertrophy—the thickening of the heart muscle—are also more commonly found in autopsies of black patients, whereas autopsies of deceased [white patients](#) are more likely to show coronary plaque rupture.

"Future research is needed to understand the mechanisms underlying these racial differences," the authors wrote. In the interim, Deo emphasizes that "the current findings underscore the critical importance of community-based interventions to increase awareness about SCD, warning symptoms, and improve resuscitation rates from cardiac arrest."

Provided by Perelman School of Medicine at the University of Pennsylvania

APA citation: Racial disparities in sudden cardiac death rates cannot be explained by known risk factors (2018, November 12) retrieved 17 October 2022 from <https://medicalxpress.com/news/2018-11-racial-disparities-sudden-cardiac-death.html>

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