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Living in segregated neighborhoods may double heart health risks for Black young adults

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Black people who spent their early adult years in racially segregated neighborhoods were twice as likely to develop coronary artery

calcium—a predictor of heart disease—as those who lived in less segregated neighborhoods, new research shows.

The heart health benefits of living in a more integrated neighborhood persisted among Black adults as they aged, even if they later moved to more segregated neighborhoods in midlife, according to the study published Wednesday in the American Heart Association journal *Circulation: Cardiovascular Quality and Outcomes*.

The findings suggest "where you live from ages 18 to 30 has a stronger impact on cardiovascular health than where you live later in life," said senior study author Kiarri Kershaw, an epidemiologist and associate professor of preventive medicine at the Feinberg School of Medicine at Northwestern University in Chicago.

Residential segregation—the physical separation of people of different races into separate housing areas—was fueled by forms of structural racism such as discriminatory housing and lending practices. A growing body of research links structural racism and residential segregation to health disparities. One such disparity is that Black adults in the U.S. are 30% more likely to die from heart disease than their white counterparts, according to the federal Office of Minority Health.

Previous studies have linked neighborhood-level segregation to heart disease risk factors, such as high blood pressure, for Black adults. But most of that research measured segregation's impact at a single point in time. This study looked at how residential segregation affected heart disease risk for Black people from young adulthood through midlife.

That risk was assessed using the CAC test, which measures levels of coronary artery calcium in the arteries leading to the heart. CAC scores are considered the strongest predictor of impending heart trouble. Higher scores signal more plaque in the arteries, a condition known as

atherosclerosis, which happens as people age but also is influenced by factors such as high cholesterol levels, high blood pressure, cigarette smoking and diabetes.

Researchers analyzed health data for 1,125 Black adults in the Black Coronary Artery Risk Development in Young Adults (CARDIA) investigation, which recruited participants from Chicago; Birmingham, Alabama; Minneapolis; and Oakland, California. Participants were 18 to 30 years old and free of CAC when they enrolled. CAC scores were measured 15, 20 and 25 years following study enrollment. Segregation level was assessed by comparing the racial composition of the neighborhood where they lived to the larger area in which it was located. This was done at the time of enrollment and again 15 years later.

Kershaw and her team found those who lived in neighborhoods with medium to high levels of segregation during early adulthood were twice as likely to later develop CAC as their peers who started out in the least segregated neighborhoods.

The researchers attributed the higher risk to an accumulation of heart health risk factors built up over time as a result of spending formative young adult years in neighborhoods with fewer resources for healthy living.

"These environments that are under-resourced shape your health in a variety of ways," Kershaw said. "Getting that early exposure sets you on this path that will build over your lifetime."

Racially segregated neighborhoods often have less access to health care, fewer grocery stores providing healthy food options and less access to safe spaces for recreation. They can be more stressful places to live, driving unhealthy coping behaviors such as poor eating habits that in turn increase the risk for heart disease, she said.

Solutions have to address the root cause of the problem, said Dr. Fatima Rodriguez, a cardiologist and health disparities researcher at Stanford University School of Medicine in California.

"The real risk factor here is structural racism," she said. "That's what is causing the higher cardiovascular disease risk."

The next question for researchers is whether intervening in segregated neighborhoods can reduce heart health risks for the people who live there, said Rodriguez, who co-authored a 2020 advisory from the AHA that identified structural racism as a fundamental cause of the persistent health disparities found in the U.S. Interventions need to go further than "just treating cardiovascular risk factors" in young adults after they've already grown up in poorly resourced neighborhoods, she said.

"We have to move much more upstream than that," Rodriguez said. "We need to invest in communities, invest in education, invest in children. These kids are living in neighborhoods with higher social vulnerability, and we need to fix that. We need to give them better access to things like green space and good nutrition so we can make healthy lifestyles the default."

More information: Naveen M. Reddy et al, Exposure to Neighborhood-Level Racial Residential Segregation in Young Adulthood to Midlife and Incident Subclinical Atherosclerosis in Black Adults: The Coronary Artery Risk Development in Young Adults Study, *Circulation: Cardiovascular Quality and Outcomes* (2022). DOI: 10.1161/CIRCOUTCOMES.121.007986

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