Premature cardiovascular disease death more likely in 'socially vulnerable' counties

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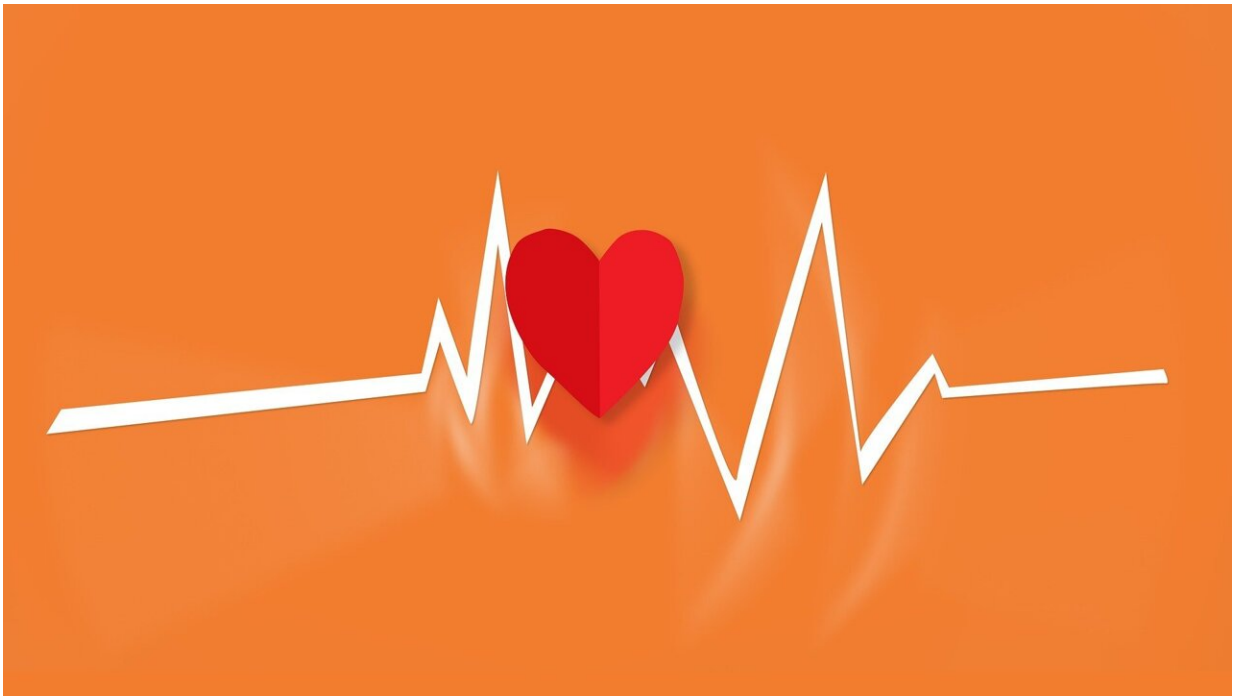

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Americans who live in counties deemed "socially vulnerable" based on census variables are more likely to die from cardiovascular disease before age 65, according to new research published today in the American Heart Association's flagship journal *Circulation*.

Cardiovascular disease accounts for most U.S. deaths overall and most

deaths before the age of 65, according to the study. While traditional cardiovascular disease risk factors, such as smoking, high cholesterol and high blood pressure are known causes of premature death from cardiovascular disease, there is accumulating evidence that social factors may also contribute to increased risk of premature death.

"There is compelling research suggesting that social factors—apart from medical conditions—play a more important role in health than previously thought," said study author Khurram Nasir, M.D., M.P.H., M.Sc., chief of cardiovascular prevention and wellness at Houston Methodist DeBakey Heart and Vascular Center and co-director of the Center for Outcomes Research at Houston Methodist. "Emerging studies suggest that conditions in the places where people live, learn, work and play—called social determinants of health—contribute to higher risk of premature death for people living in socially vulnerable communities."

Previous research has identified social determinants of health as influencing a person's cardiovascular health factors and behaviors. While advances in prevention and treatment have improved cardiovascular health in recent decades, access to those advances has not been equitable across economic, geographic, racial and ethnic groups in the U.S.

To help identify socially vulnerable areas in the U.S., the Centers for Disease Control and Prevention's Social Vulnerability Index (SVI) scale ranks communities based on 15 factors, including:

- Socioeconomic status, which includes households below the national poverty level (as determined annually by the U.S. Department of Health and Human Services with adjustments based on the number of household members), high levels of unemployment and low education level (lacking a high school diploma);
- Household composition and disability, which includes households

with single parents, if anyone in the household serves in the military, individuals with disabilities, elderly adults and children;
- Race/ethnic group and language within the household, including if English is not the first or primary language in the household; and
- Housing type and transportation, which includes multi-unit structures, mobile homes, crowded conditions or group quarters and whether they have a vehicle.

"Social vulnerabilities, related primarily to living in a low socioeconomic community, may exert independent and cumulative effects on health and can be measured at the individual or community level," Nasir said.

The CDC's SVI, calculated every two years, was created in 2011 mainly to guide public health officials and other planners in identifying at-risk communities before, during and after natural disasters and public health crises. Nasir said the same measure may also highlight social risks that lead to cardiovascular and other health problems including death.

In this analysis, researchers linked the CDC's Social Vulnerability Index score for 3,143 U.S. counties from 2014-2018 with county-level information on causes of death from the CDC's Wide Ranging Online Data for Epidemiologic Research (WONDER) database from 2014-2018. They divided counties into four groups, from the least vulnerable (the first quartile) to the most vulnerable (the fourth quartile). They then evaluated rates of death in each quartile from cardiovascular disease in general, as well as heart disease, stroke, high blood pressure and heart failure among young adults ages 18 to 44 years and middle-aged adults 45 to 64 years old.

When the community SVI scores and WONDER database were analyzed together the results indicate:

- U.S. counties with more households classified as socioeconomically disadvantaged had higher rates of premature death from cardiovascular disease, including heart disease, stroke, high blood pressure and heart failure.
- The largest concentration of counties with more socially vulnerable households resulting in higher death rates from cardiovascular disease were in the Southwestern and Southeastern U.S.
- Compared to counties with households ranked as the least socioeconomically disadvantaged, counties with the most households ranked as socioeconomically disadvantaged had an average 84% greater risk of premature death from cardiovascular disease; 52% increased risk of death from heart disease; about two times the risk of death from stroke; more than 2.7 times the risk of death from high blood pressure; and nearly 3.4 times the risk of death from heart failure.
- Non-Hispanic Black adults who lived in the most socially vulnerable counties had double the risk of heart failure-related death and a 65% higher rate for stroke compared to Black adults in the least socially vulnerable counties.
- Young adults and women in the most socially vulnerable counties had about double the risk of death from cardiovascular disease versus the those in the least vulnerable counties.
- Rural counties with more social vulnerabilities had 2- to 5-fold higher risk of premature death from cardiovascular disease, heart disease, stroke, high blood pressure and heart failure.

"There is an urgent need for everyone to realize the importance of these social risks and their potential impact on health, as well as for health systems and doctors to ensure that we incorporate these assessments into our routine care. This will allow us to develop more tailored interventions, such as supporting cost-related barriers via community resources, addressing transportation barriers and other relevant social

risks can be developed," Nasir said. "As the link between social risk and health outcomes is more clearly defined and detailed, future policy and practice models should ensure appropriate resources are allocated to address excessive risk in socially vulnerable communities."

The CDC's Social Vulnerability Index score broadly measures census level social risk and does not capture individual risk, nor does it capture additional social factors that could impact health such as food insecurity and health access barriers.

Recognizing the toll of health inequities, the American Heart Association committed to invest $100 million in research focusing on solutions to health inequities and structural racism. It also pledged another $100 million to community-led solutions to address barriers to health equity such as increasing affordable housing, improving school systems, developing safe streets and providing access to healthy foods for under-resourced and rural communities.

"Without access to quality care, nutritious foods, stable housing or other basic health needs, people often get sicker and die younger," said Elizabeth A. Jackson, M.D., M.P.H., chair of the Association's Committee on Social Determinants of Health. "Unfortunately, these data are not surprising but rather support prior evidence suggesting health disparities are disproportionately experienced in areas where higher degrees of social vulnerability exist. This study also highlights the impact of social vulnerabilities on racial/ethnic groups and rural residents in the U.S.

"The data can inform public health policies and programs that target social factors in communities and help develop programs for counties and populations with the greatest need of cardiovascular preventive care," said Jackson, also a professor and interim director of the Division of Cardiovascular Disease at University of Alabama at Birmingham.

While this study was not focused on the root cause of the health disparities and social determinants of health, the American Heart Association's 2020 Presidential Advisory, "Call to Action: Structural Racism as a Fundamental Driver of Health Disparities," specifically identifies structural racism as a cause, both in the past and presently, for persistent health disparities in the U.S. Structural racism is defined as the normalization and legitimization of an array of dynamics–historical, cultural, institutional and interpersonal–that routinely advantage white people while producing cumulative and chronic adverse outcomes for people of color.

More information: Safi U. Khan et al, Social Vulnerability and Premature Cardiovascular Mortality Among US Counties, 2014 to 2018, *Circulation* (2021). DOI: 10.1161/CIRCULATIONAHA.121.054516

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