

Feeling healthy: A good start, but not always a good indicator of heart disease risk

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Most people feel they have a general idea of how healthy they are based on their diet and exercise regimen and how often they get sick. But a new study by Johns Hopkins Medicine researchers adds to evidence that how healthy people think they are isn't always an accurate indicator of their risk for cardiovascular disease.

In a study of medical information gathered on more than 6,800 people in the United States, the researchers found that 10% of those who rated themselves in excellent health had measurable evidence of [cardiovascular disease](#) without symptoms, putting them at higher risk for a heart attack or stroke.

The better news from their analysis, the researchers say, is that when combined with definitive risk tools, such as coronary artery calcium scans to determine plaque buildup in the heart's [arteries](#), self-reported perceptions of health do have value and can complement these tools to

indicate cardiovascular disease risk.

The researchers note that this study wasn't designed to determine cause-and-effect but to identify findings that related to one another.

"Our study suggests an important public health message: that even when people perceive themselves to be healthy they may still have significant cardiovascular disease," says Olusola Orimoloye, M.D., M.P.H., postdoctoral fellow at the Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease. "This means that all adults would benefit from seeing a [health care provider](#) to get a more definitive assessment for their risk of disease, even if they think they're healthy and feel they don't need to visit the doctor."

In a report on the study published in *JAMA Network Open* on Feb. 15, the researchers say the goal was to assess the value of self-reported health status among adults in the context of more established measures of cardiovascular disease risk.

The team used data gathered from 6,814 people enrolled in the federally funded Multi-Ethnic Study of Atherosclerosis (MESA), which recruited participants from Baltimore, Maryland; Chicago, Illinois; Forsyth County, North Carolina; Los Angeles County, California; Manhattan, New York and St. Paul, Minnesota. Participants were enrolled between 2000 and 2002, and were followed through December 2018. At the start of the study, they were an average of 62 years old. About 53% were women, some 39% were white, 28 percent were African American, 22 percent were Hispanic and 12 percent were Chinese.

During the study, each participant was asked to rate his or her health at the beginning of enrollment as excellent, very good, good or poor/fair. Men

were more likely to report being in very good or excellent health (52%), whereas about 41% of African American and Hispanic participants were more likely to report poor/fair health (about 41%).

Additionally, each participant had a coronary artery calcium scan, a computed tomography (CT) scan that detects plaque buildup in the arteries of the heart. Having an artery calcium score of 0 aligns statistically with the lowest cardiovascular disease risk because no buildup of plaque is detected in the arteries, whereas those with scores of more than 100 are considered at the highest risk for cardiovascular disease using this test.

The authors found that while participants' health ratings tracked with health factors such as physical activity, healthy diet and known cardiovascular risk factors such as diabetes, high blood pressure and high triglycerides, there wasn't any correlation between their self-rated health and their coronary artery calcium scores.

After an average follow-up of 13 years, there were 1,161 participant deaths and 637 heart attacks, strokes or deaths due to cardiovascular disease.

Accounting for calcium scores, age, sex and race/ethnicity, the 1,073 participants who self-reported excellent health had at least a 45 percent lower risk of having a cardiovascular disease event compared to the 633 people who self-reported fair/poor health.

The authors also reported that participants with higher calcium artery scores were at increased risk regardless of their self-reported health assessment. Among those who self-reported their health as excellent, participants who had a score more than 0 on their calcium artery scan were more than five times as likely to have a cardiovascular disease event like a [heart attack](#) or stroke than those who had a coronary artery calcium score of 0.

Among the 543 people with a 0 coronary artery calcium score, those who reported excellent health were 80% less likely to have a cardiovascular disease event than those who reported fair/poor health.

Heart disease risk was calculated for each patient using the Atherosclerotic Cardiovascular Disease Risk Calculator from the American Heart Association (AHA). The calculator is routinely used to predict cardiovascular disease risk in clinical settings, and it incorporates factors such as age, sex, race, total cholesterol, "good" cholesterol, blood pressure and whether the person has diabetes, is a smoker or is being treated for high blood pressure.

The authors found that on its own, self-reported health didn't improve the predictive ability of the AHA's risk calculator. However, when the researchers compared the predictive ability of a combination of the coronary artery calcium scan results and self-reported health rating to that of the AHA's risk calculator, they found that the risk prediction was similar.

"Because self-reported health and coronary artery calcium scores only slightly overlap among those in each risk group, by using both of these measures together with traditional risk calculators, we may be able to more accurately capture who is most or least at risk for cardiovascular disease," says senior author Michael Blaha, M.D., M.P.H., professor of medicine at the Johns Hopkins University School of Medicine. "It would be fairly cheap and easy to add a question on health screenings to have someone self-rate their perceived health as a way to more precisely refine disease risk if their coronary artery [calcium](#) score is known."

According to the AHA, cardiovascular disease is the leading cause of death in the U.S., killing more than 800,000 people per year.

"Further refining existing tools to predict cardiovascular disease and to guide preventive therapy is of utmost importance," says Orimoloye.

More information: Olusola A. Orimoloye et al. Association Between Self-rated Health, Coronary Artery Calcium Scores, and Atherosclerotic Cardiovascular Disease Risk, *JAMA Network Open* (2019). [DOI: 10.1001/jamanetworkopen.2018.8023](https://doi.org/10.1001/jamanetworkopen.2018.8023)

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