

Adding psychological health metric to Life's Essential 8 enhances heart health construct for predicting mortality risk

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A cardiovascular health construct based on the American Heart Association's Life's Essential 8 but enhanced with a ninth psychological

health metric strongly predicts all-cause and cardiovascular mortality, according to a new study at Columbia University's Mailman School of Public Health. The findings are published in *JACC: Advances*.

"Psychological health is multidimensional, spanning positive mental states such as optimism and a sense of purpose, which are linked to better heart health, as well as depression, which is linked to higher risk for cardiovascular disease. Although psychological health is foundational for cardiovascular health preservation, it is not currently included as a metric of cardiovascular health in the Life's Essential 8," said Nour Makarem, Ph.D., assistant professor of Epidemiology at Columbia Mailman School and the study's senior author.

A [2022 study](#) led by Makarem had shown that updating the original cardiovascular health construct "Life's Simple 7" to "Life's Essential 8" by including an eighth sleep health metric improves [cardiovascular disease](#) outcomes prediction, and was cited in the AHA's Presidential Advisory on Life's Essential 8. Building on this work, she and her colleagues have now conducted the first study to evaluate whether the inclusion of a ninth metric for psychological health would enhance the Life's Essential 8 score for predicting mortality outcomes over and above the original eight metrics. This study was led by Mailman School of Public Health alumna Vanessa Dinh, MPH.

In a sample of more than 20,000 U.S. adults with an average age of 48 years, the research team investigated the association of a novel cardiovascular health score consisting of the Life's Essential 8 (diet, sleep health, [physical activity](#), nicotine use, BMI, [blood glucose](#), blood lipids, and blood pressure) plus a measure for psychological health and well-being.

The study showed that having a high vs. low cardiovascular health score, enhanced by a psychological health metric based on feasible depression

screening, was associated with up to 70% and 77% lower all-cause and cardiovascular mortality risk, respectively. These associations with mortality were stronger than those observed for the Life's Essential 8 score, which was associated with 65% and 68% lower all-cause and [cardiovascular mortality](#) risk.

A dose-response relationship was observed suggesting that substantial gains in longevity may be achievable with improvement of cardiovascular health, including aspects of psychological health, according to Makarem. Overall, the cardiovascular health score enhanced with a psychological health metric demonstrated excellent performance for predicting mortality outcomes compared to the Life's Essential 8 score.

"We found that even a simple two-question screener of depression symptoms' frequency could enhance the cardiovascular health construct and serve as a feasible measure of psychological health in clinical or public health settings where comprehensive assessments may not be possible," said Makarem.

A higher cardiovascular health score, enhanced by the psychological health metric, was associated with lower mortality risk in both sexes and in Black and white adults, but not in Hispanic adults. Associations of the enhanced cardiovascular health score with mortality were stronger than those observed for the Life's Essential 8 score, particularly among Black and female populations. Notably, the strongest associations were observed among Black adults, such that a high vs. low enhanced cardiovascular health score was associated with a greater than two—fold lower risk of mortality.

"Indeed, a remarkable increase in the strength of associations between cardiovascular health and mortality was observed among Black adults when the cardiovascular health score was updated to include a measure

of psychological health," noted Makarem.

"Our finding that a new enhanced cardiovascular health score that includes a ninth metric for psychological health strongly predicts mortality outcomes in U.S. adults supports a future update to the guidelines from 'Life's Essential 8' to 'Life's Necessary 9,' for example. Screening for depression and addressing psychological health and well-being may have far reaching effects for cardiovascular health equity promotion and population-level reductions in mortality," said Makarem.

The authors acknowledge that additional research is needed to disentangle the association of cardiovascular health scores that utilize more comprehensive definitions of psychological health and well-being with chronic disease and mortality outcomes.

"A psychological health construct that encompasses aspects of psychological well-being such as gratitude, optimism, mindfulness as well as symptoms of depression, anxiety, and stress may better capture the complexity of mental health and its role in shaping cardiovascular health," observes Makarem. "Future studies should test a more comprehensive [psychological health](#) construct that is also pragmatic and could easily be captured, particularly during an annual clinician visit."

The research is accompanied by a commentary by a team of scientists at Johns Hopkins University School of Medicine and Albert Einstein College of Medicine/Jacobi Medical Center, highlighting the novelty and clinical implications of the study's findings.

Co-authors are Vanessa T. Dinh, Rahul Hosalli, Columbia Mailman School of Public Health; Brooke Aggarwal, Columbia Irving Medical Center; Pricila H. Mullachery, Temple University College of Public Health; and Charles A. German, University of Chicago Pritzker School of Medicine.

More information: Vanessa T. Dinh et al, Enhancing the Cardiovascular Health Construct With a Psychological Health Metric for Predicting Mortality Risk, *JACC: Advances* (2024). [DOI: 10.1016/j.jacadv.2024.101112](https://doi.org/10.1016/j.jacadv.2024.101112)

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