
Cardiovascular Health Scores for Predicting Mortality Risks



Physician-scientists from the University of Alabama at Birmingham Marnix E. Heersink School of Medicine conducted a nationwide study to evaluate the predictive value of cardiovascular health scores for mortality. Published in the *Journal of the American College of Cardiology: Advances*, the study compares two cardiovascular health metrics developed by the American Heart Association (AHA) — Life's Simple 7 (LS7) and its updated version, Life's Essential 8 (LE8) — to the well-established Pooled Cohort Equations (PCE) recognised by the American College of Cardiology.

In 2022, the AHA recognised sleep as a vital determinant of cardiovascular health, prompting the revision of the LS7 score into the LE8 by incorporating sleep as a critical health component. This marked a significant evolution in the approach to measuring cardiovascular health. This research explores the comparative predictive validity of these tools for mortality.

The study examines whether these cardiovascular health scores should be used for mortality risk prediction by comparing them with the PCE, a validated risk prediction tool.

Researchers utilised extensive national population-level data from the National Health and Nutrition Examination Survey (NHANES) from 2007 to 2018, a biennial survey assessing the health and nutrition status of the U.S. population through a representative sample. This dataset of approximately 22,000 participants allowed the researchers to determine the predictive capacities of these health scores for a population of approximately 157 million individuals.

The researchers found that LE8 and LS7 scores offered similar predictive values for all-cause and cardiovascular mortality. However, the PCE outperformed the LE8 and LS7 scores in mortality risk prediction.

Apart from including cardiovascular risk factors, the PCE integrates demographic factors such as age, sex, and race and provides separate risk estimation algorithms based on sex and race. The PCE also incorporates weights for each cardiovascular risk factor to accurately reflect the increase in risk of cardiovascular outcomes with changes in these factors. Study results underscore the enhanced utility of PCE in clinical environments, where precise risk assessment is critical to effective patient management and treatment planning.

The LE8 and LS7 scores are invaluable for broad public health surveillance and interventions aimed at enhancing community health outcomes. However, when it comes to individual risk assessment in clinical practice, these findings highlight the comprehensive nature of the PCE, making it a superior choice for mortality risk prediction due to its nuanced approach. Study authors call for a shift of research efforts away from assessing the risk prediction value of the LE8 and LS7 scores and focusing on their intended use of characterising and tracking cardiovascular health.

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