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Editorial comment

Value of the Life's Essential 8 score in cardiovascular health and mortality

Valor del índice *Life's Essential 8* en la salud cardiovascular y la mortalidad

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The *Life's Essential 8* (LE8) score, proposed by the American Heart Association (AHA) in 2022,[1] is composed of 8 metrics: 4 lifestyle habits (diet, physical activity, nicotine exposure, and sleep) and 4 cardiovascular (CV) risk factors (body mass index, blood glucose, blood lipids, and blood pressure). Each metric is scored on a range of 0 to 100 points, and the LE8 score is the average of the points assigned to all 8 components (100 points indicates optimal CV health). The score is categorized according to the points obtained: < 50, 50 to 79, and ≥ 80 points indicate low, moderate, and high CV health, respectively. The LE8 is an update of the *Life's Simple 7* (LS7) score, proposed in 2010 by the AHA as a paradigm shift aiming to reduce CV disease mortality by 20% over a 10-year period through improved CV health.[2] The spirit of the LS7, and later the LE8, is to convey a positive health message, moving away from the classic terminology of risk factors with negative connotations, and replacing it with concepts that reflect optimal or ideal CV health (lifestyle habits with potential for improvement). The main difference between the LE8 and LS7, apart from a change in the previous scoring system, is incorporation of the metric *sleep duration*, which has proven to have an impact on CV health in other studies, such as the PESA cohort (Progression of Early Subclinical Atherosclerosis).[3,4]

The recent article by Hernández-Martínez et al.[5] published in *Revista Española de Cardiología* describes the distribution of LE8 scores in a cohort of patients from the prospective, observational ENRICA study (Nutrition and Cardiovascular Risk in Spain),[6] and examines the associations between LE8 scores and both all-cause mortality and CV mortality. Previously, in 2019, *Revista Española de Cardiología* published an article reporting an association between LS7 scores and CV mortality in the PREDIMED (Prevention with Mediterranean Diet) cohort.[7]

Hernández-Martínez et al.[5] assessed 11 616 adults enrolled from 2008 to 2010. The median follow-up period was 12.9 years for the analysis of all-cause mortality (908 episodes) and 11.8 years for CV mortality (207 episodes). Overall, 13.2% of participants had low CV health (LE8 < 50), and the distribution of scores was similar to that described in other countries.[8,9] An inversely proportional relationship was observed between LE8 results and all-cause mortality ($r = -0.72$; $P < .001$), as well as CV mortality ($r = -0.66$; $P < .001$). However, the relationship between LE8 score and mortality did not follow a linear pattern. The association was stronger at scores below 60 to 70 points for all-cause mortality and below 50 points for CV mortality. At higher scores, differences in mortality were less evident. Beyond the authors' main conclusions, some aspects of the study deserve to be discussed.

First, the risk of CV disease has been traditionally stratified using tools that incorporate objective, easily measured predictors based on mathematical models (regressions). The precision and validity of these models has been determined in terms of calibration, discrimination, and external validation. In this line, numerous tools have been designed to estimate CV risk (eg, QRISK3, Framingham score, SCORE2, SCORE2-OP, Reynolds score).[10] These risk estimation scales do not necessarily include modifiable factors, but rather focus on variables with high predictive value that are objective, easily collected, and user-friendly. The LE8 stands apart from this group of risk scales, as it may not be as practical for clinical application. Although the AHA has provided the My Life Check app to facilitate its use and interpretation,[11] certain patient-administered questionnaires, such as the DASH (Dietary Approaches to Stop Hypertension) questionnaire assessing dietary habits, can be relatively complex. Therefore, the LE8 should not be used for the same purposes as scales predicting CV risk, but instead should be seen as a complementary tool. Its aim is to provide an overview of the potential effects of interventions in lifestyle habits and modifiable risk factors on the prognosis of apparently healthy populations. Rather than estimating risk, its purpose is to identify areas that can be improved. Nonreversible factors such as age, generally the most potent predictor on risk scales,[10] are not included in the LE8, as they do not represent modifiable aspects of CV health.

Second, the study indicates a stronger association between LE8 scores and all-cause mortality in the youngest age group (18-44 years) than in the older groups (interaction test: $P = .013$). This finding has a dual interpretation. An intervention would seemingly have a smaller impact in this segment of the population, where fewer episodes occur (lower mortality). However, considering the longitudinal nature of risk exposure, it can be inferred that the earlier the age, the more effective a possible intervention would be.

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CV risk factors have a cumulative risk over time: the greater and more prolonged the exposure, the higher the risk of a later CV event. The modifying effect of age (ie, the interaction) in the association between LE8 scores and mortality is highly informative. It positions the youngest population as potentially deriving the greatest benefit (in terms of both time and magnitude) from a change in habits and greater control over CV risk factors.

Third, the frequency of fatal episodes draws our attention, in particular the CV events. From the article it can be inferred that CV mortality is not the primary cause of death in the study population, which is unexpected considering the data in reports from our neighboring countries.[12,13] One likely explanation is that the analysis of CV mortality excluded patients with a history of cancer or prior CV disease (n = 346), as well as those whose cause of death was unknown (n = 125). The findings may also be attributable to a competing risks phenomenon.[14,15] It is important to note that due to the use of different exclusion criteria, the results related to all-cause mortality seem more broadly applicable than those obtained for CV mortality.

Finally, the study describes diverse results between the Spanish autonomous communities, including variations in the distribution of LE8 components and their association with all-cause and CV mortality. These findings should be interpreted with caution, as they are derived from a stratified exploratory analysis with a limited number of episodes in the smaller communities (resulting in high random error). Nonetheless, the results can be used as a point of reference for administrators in our health care system. Primary prevention programs should have common goals across autonomous communities, but they can be partially individualized based on the deficiencies described in each region. For example, improving dietary habits in Andalusia and the Canary Islands could take priority over other interventions. Both these regions, which exhibited poorer results for the dietary variable, had higher all-cause and CV mortality compared with autonomous communities with higher diet scores and similarly low overall LE8 scores (eg, Asturias).

In conclusion, the study by Hernández-Martínez et al.[5] has described the distribution of the AHA LE8 scores in the Spanish population and the prognostic implications of the outcomes for all-cause and CV mortality. The findings may prove useful for shaping future primary prevention policies in each autonomous community of the National Health System. The LE8 can be used to convey a positive health message, highlighting modifiable CV habits and risk factors. However, its applicability and routine use in daily clinical practice are yet to be demonstrated.

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CONFLICTS OF INTEREST

None.

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