Peer Review Report

Review Report on Self-reported health as predictor of allostatic load and all-cause mortality: findings from the Lolland-Falster Health Study

Original Article, Int J Public Health

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EVALUATION

Q 1 **Please summarize the main findings of the study.**

This study investigated the relationship between self-reported health (SRH), allostatic load (AL), and mortality. The data arise from over 14,000 participants in Denmark and used a single question to assess SRH and an index of ten biomarkers to measure AL. The results showed that as SRH decreased, the risk of high AL increased, with women and men reporting poor/very poor SRH having higher AL levels compared to those reporting very good SRH. The study also found that decreasing SRH was associated with an increased risk of all-cause mortality, with women and men reporting poor/very poor SRH having higher mortality rates compared to those reporting very good SRH. Overall, this study suggests an association between self-reported health, AL and mortality.
Key points:
1. Self-reported health (SRH) is inversely related to allostatic load (AL), with those reporting poor/very poor SRH having higher AL levels compared to those reporting very good SRH.
2. Decreasing self-reported health is associated with an increased risk of all-cause mortality, with individuals reporting poor/very poor SRH having higher mortality rates compared to those reporting very good SRH.

Q 2 **Please highlight the limitations and strengths.**

Strengths :
- large sample size
- follow up and high number of death
- data on SRH, biomarkers and mortality

Limitations :
- no markers from the neuro-endocrine system
- selection bias (37% of persons invited to LOFUS participated)
- exclusion of participants with missing data
- no consideration of mental health

Q 3 **Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

Minor comments
Introduction
lines 27-28 : “it is based on single question with a four- or five answering scale “ could be nuanced a bit with something like “In survey research studies the most widely used measure of …”
Lines 33-34 : provide references at the end of the sentence and add details on the underlying factor […] search for a causal pathway, studies have explored underlying factors that may influence a person’s subjective health rating”

It's a bit surprising to do not see any literature on the relationship between gender, ethnicity differences in SRH as well as socioeconomic differential .

Major comments
Methods
1. Timing / chronology of data collection : have the AL & SRH been measured at baseline in the LOFUS study?
2. If I am not mistaken; Table 2 gives the results of Cox proportional hazard regression model as follow stratified by sex:
Model 1: Mortality ~ age+ SRH + AL + BMI + education
Model 2: Mortality ~ age+ SRH + AL + BMI + education + smoking status + cardiovascular disease +diabetes + cancer

To better understand the relationships between SRH, AL and mortality, it might be interesting to decline model 1 in
Model 1 A : Mortality ~ age+ SRH
Model 1 B : Mortality ~ age+ AL
Model 1 C : Mortality ~ age+ SRH +AL
So that it is possible to distinguish the effect of SRH only, AL only on mortality and how they are affected by each other.

Once this is done it is also possible to evaluate how coefficients vary when the intermediates variables are added to model 1 (= Model 2).

Results
3. In the results section it seems that the effect estimates of secondary exposures [bmi and education] are presented in the same manner as the primary exposure [which is not very clear to me if it's SHR or AL or both] estimated from the same model which correspond to the Table 2 fallacy.

4. Table 3 gives RR1 and RR2 for 2 different adjustment but in the results section, only RR2 are presented and discussed, it is interesting to see that a large part of the association between AL and SRH is explained by the intermediate's variables included in model 2

5. A better justification of the choice of the intermediate variables might be interesting

PLEASE COMMENT

Q 4 **Is the title appropriate, concise, attractive?**

Yes

Q 5 **Are the keywords appropriate?**

Yes

Q 6 **Is the English language of sufficient quality?**

Yes

Q 7 **Is the quality of the figures and tables satisfactory?**

Yes.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

Yes

QUALITY ASSESSMENT

Q 9 Originality

Q 10 Rigor

Q 11 Significance to the field

Q 12 Interest to a general audience

Q 13 Quality of the writing

Q 14 Overall scientific quality of the study

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.