Reviewer's report

**Title**: Distribution and determinants of functioning and disability in aged adults - Results from the German KORA-Age study

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**Reviewer**: Javier Virués-Ortega

Reviewer's report:

Title: Distribution and determinants of functioning and disability in aged adults: Results from the German KORA-age study.

I appreciate the opportunity to review this interesting study. I would recommend publication conditional to the satisfactory response to the comments and suggestions below:

**Introduction**

1. Please clarify the meaning of the concepts “multidimensional functioning” and “deconditioning process”.

2. Please clarify the potential contribution of the present study in the context of recent population-based study on elderly population conducted in Germany.

3. “We wanted to examine the contribution of health status, health-related lifestyle, sex, age, and socioeconomic status on disability and to estimate the disabling impact of chronic diseases”. The introduction provides a very general background to the study. An introduction more relevant to the specific goals described is likely to be more informative to the reader. Please clarify what is meant with “health-related life style” (e.g., physical activity, alcohol intake). The goals of the study are rather unspecific. Did the authors have any specific hypotheses?

4. Authors intend to establish the relevance of their approach to disability assessment in the context of the ICF. However, as Table 1 shows, their measure of disability is a rather traditional one, mainly focused on activities of daily living. I would suggest not presenting the HAQ-DI as an assessment method consistent with the ICF conceptualization of disability. If this suggestion is followed, Table 1 seems unnecessary.

**Methods**

1. The authors provide only cursory information on the epidemiological study upon which the current analysis is based. For example, how were medical conditions evaluated? Also, the fact that individuals included in this study were survivors of that original survey is not sufficiently explained (only mentioned in the abstract). A more thorough discussion of the potential biased derived from
the recruitment and sampling methods is required.

2. How was the decision of proxy assessment made? Were proxies also interviewed over the phone?

3. What type of training did the interviewers had? Were they some health professionals? If so, of what background?

4. Please provide a succinct summary of the HAQ-DI reliability and validity in elderly population. Also, if the scale was not originally developed in German, provide details of the cross-cultural adaptation process.

5. “Alcohol intake was measured as self-reported years of alcohol abstinence. Participants were asked at which age they had stopped drinking alcohol and were classified as "abstinent" or "not abstinent". This approach to the evaluation of alcohol intake seems rather restricted. Please clarify why this particular approach to the assessment of alcohol intake was chosen.

6. Please provide more details on the socioeconomic algorithm used or cite the relevant methodological reference.

7. On page 10. Please provide more details on the relation between the disability model and the HAQ-DI.

8. “This Reduced Rank Regression is more parsimonious than assuming differing age effects per disease” The authors support this statement with a methodological reference. This point should be substantiated by an empirical rather than with a methodological reference. It seems apparent that the incidence of a number of conditions is to some extent a function of age, therefore it is not clear how the impact of age, could be independent from the impact of disease and background disability. A more detailed description of the HAQ-DI and the disability model may be helpful (see earlier comment).

9. “Confidence intervals for the cause-specific disability prevalence were estimated by applying bootstrapping based on 1000 replicate”. Given the sample size it is not immediately apparent why bootstrapping was used. Was bootstrapping implemented for all “causes” of disability or only the low-prevalence cases? Please clarify. Could the authors simply ignore those conditions for which bootstrapping was needed?

10. Replace the term “cause” or “cause-specific” with “factor” or “factor-specific”. The term is more indicative of causality, which should not be assumed or suggested in a cross-sectional design.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

No competing interests.