Reviewer's report

Title: Long-term prediction of changes in health status, frailty, nursing care and mortality in community-dwelling senior citizens - results from the Longitudinal Urban Cohort Ageing Study (LUCAS)

Version: 2

Date: 8 November 2014

Reviewer: Joan Vermeulen

Reviewer's report:

Thank you for letting me review this manuscript about the Functional Ability Index and its ability to predict adverse health outcomes in community-dwelling older adults, which is an important topic in geriatrics. I have read the manuscript and unfortunately I have some major concerns based on which I would advise the editor to reject the manuscript for publication in BMC Geriatrics.

Major concerns:

1. Introduction: A major concern I have is that the (expected) added value of the Functional Ability Index over other available frailty screening instruments such as the TFI, GFI, SPQ, and TMIG is not described clearly in the introduction. I would advise the authors to emphasize the (expected) added value of the F index in the introduction to emphasize the relevance of their study.

2. Introduction, research questions: I think that the readers understanding of the manuscript could be improved by specifying the research questions (e.g. add to research question 1 to what criteria you will compare the FA index to determine whether it differentiates between robust, pre-frail, and frail people, add to research question 2 which health measures you are focusing on, add the timeframe for predictive value to research question 3)

3. Methods, description of FA index: The authors state that they operationalized the frailty phenotype and added several resources to create the FA index. When I look at the FA index in table 1 I do not understand how the five criteria of the frailty phenotype were incorporated (e.g. which items in the FA index represent exhaustion and weakness?). In addition risk factor 5 and recourse factor 2 of the FA index seem to be measuring the same thing. This seems strange and the authors only report on it in the discussion (where they present new spearman rank results regarding this factor which should be presented in the results instead of the discussion section). In addition, the authors explain that disability was not incorporated in the FA index but when I look at the items that it consists of it seems that several items relate to mobility disability or IADL activities. It would help if the authors would add a definition of disability to the manuscript. The authors have classified participants into categories: robust, prefrail 1, prefrail 2, and frail. The purpose and meaning of differentiating between prefrail 1 and 2 is difficult to understand.

4. Methods, statistical analyses: The authors do not describe in the methods how
the health measures/outcomes/end points were operationalized which makes it difficult to interpret the outcomes. In addition no information is provided on the handling of missing data.

5. Results, a) mortality & Stability and transitions: The authors differentiate between preFrail 1 and preFrail 2 in the paragraph a) mortality and combine these 2 in the stability and transitions paragraph. I think this is somewhat confusing and the underlying reason for splitting/combining is not really clear.

6. Discussion, first paragraph: the authors state here that the aim of this study was to develop a workable self-administered FA index which was not stated as a goal or research question in the introduction. If this was the aim, this should be clearly described in the introduction.

7. Discussion: I think readability of the discussion could be improved by briefly stating the purpose of the study followed by a short summary of the major results and after that start relating these finding to earlier work. Now, the results of this study and previous work are somewhat intertwined.

8. Discussion, paragraph 5: The authors state that the FA index is hardly comparable to other frailty indices and models because resources are integrated in the index. However, the predictive value of the FA index can still be compared to the predictive value of other frailty screening instruments and therefore I do not understand this statement. The authors could make try to provide some insight in this issue by comparing their work to the paper by Daniels et al that they refer to (REF nr 21).

9. Conclusions: the main conclusions (especially 1 & 2) presented in the paper do not relate to the research questions that were studied in the manuscript and are therefore not supported by the data and analyses presented in the paper.

Minor:
1. Structure: In the methods section the authors refer to several figures which show results of the analyses. This information should be moved to the results section. In addition the tables and figures are not numbered in order of appearance.
2. Language: I think that the paper could benefit from using proof reading services.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests