Author’s response to reviews

Title: Factors related to health-related quality of life in older people with multimorbidity and high health care consumption over a two-year period

Authors:

Leonie Klompstra (leonie.klompstra@liu.se)
Anne Ekdahl (anne.ekdahl@lio.se)
Barbro Krevers (barbro.krevers@liu.se)
Anna Milberg (anna.milberg@liu.se)
Jeanette Eckerblad (Jeanette.eckerblad@ki.se)

Version: 1 Date: 23 May 2019

Author’s response to reviews:

Reviewer 1

1. Title: it states you are examining older people with high health care consumption, but this is only the title and then you never mention this again. The methods states how multimorbidity is addressed, but nothing on care consumption. I advocate a change in title.

Re-reading the article, we realize that we could have described our study population more clearly. Because patients were included who had three or more diseases and had high health care consumption, we decided to keep high health care consumption in the title and described the population more in dept.

See title, aim and the description of the population in the method section

2. In the abstract it only mentions longitudinal, but apart from that I think you should state the kind of study - RCT, cohort or other applicable.

We added to the abstract that the study is a secondary analysis of a RCT study and added this also to the method section

Line 30 - 31: This is a secondary analysis of a RCT study conducted in a municipality in southeastern Sweden. The study had a longitudinal design with a two-year follow-up period

Line 91: This is a secondary analysis using data from a RCT study (AGe-FIT)
3. As well known, when using highly selected samples the estimates tend to get inflated in terms of generalizability to the general population and this is not mentioned and I think this need some elaboration from the authors.

We added a separate paragraph to the discussion section and elaborated on the generalizability of the study results. See limitation section in discussion

4. Where is the study conducted? This may introduce bias whether it is done in a big city or in a rural area or maybe both which is not all mentioned in limitations/discussion/method

We added this information in the abstract and elaborated on where the study was conducted in the method section.

Line 30-31: This is a secondary analysis of a RCT study conducted in a municipality in southeastern Sweden. The study had a longitudinal design with a two-year follow-up period

Line 99 - 102: Data were collected between February 2011 and December 2013 in a municipality in south-eastern Sweden, which contains rural and urban areas and had approximately 130,000 inhabitants, 8.3% of whom were 75 years or older.

5. The sentence "Therefore, we aim to investigate factors that are related to HrQoL in older people with multi-morbidity, living at home, and factors that are related to HrQoL" in the abstract seem unfinished, maybe delete the second part.

We changed the aim in the abstract See aim in the abstract

6. In the methods section in both abstract there is nothing about the underlying RCT that is registered. I think the manuscript would benefit from making this clear that this is some secondary analysis made in the framework of a larger project since I as a reader gets a little confused why the registration is in the methods. Further elaborate for clarity.

We elaborate and clarified this in the abstract

Line 30-31: This is a secondary analysis of a RCT study conducted in a municipality in southeastern Sweden. The study had a longitudinal design with a two-year follow-up period

Line 94: This is a secondary analysis using data from a RCT study (AGe-FIT) Page 5 row 23
7. I think there is a missing "this" between "and" and "negative", alternatively put a "which" in there.

Thank you for noticing, we now changed this in the manuscript

8. I have a hard time to understand how the participants where selected, where they consecutively added if they were eligible or how this selection process work? Please clarify.

Rereading the method section we understand the confusion about the selection of participants. We now clarified this in the method section

Line 102 – 105: In the original AGe-Fit study, 382 individuals were included and 252 completed the two year follow up. In this longitudinal study, we excluded older people who were not living at home after two years (n = 14), for this reason, the current analysis included data of 238 older people with multi-morbidity, living at home

9. Consider revising the abbreviations so late in the manuscript and spell them out first time they are written, I find that increasing readability.

We agree and looked at which abbreviation we could leave out of the manuscript. We decided to only keep: HrQoL, Health related Quality of Life; IQR, InterQuartile Range; Mets, Metabolic Equivalent of Task

10. Multi-morbidity and multimorbidity are both used. Choose one and use it consequently. My preference would be multimorbidity

We changed all to multimorbidity

11. In the conclusion the authors state "In order to facilitate better delivery of appropriate health care to this group, symptom burden, activities of daily living and depression should be assessed by health care professionals. Depression and changes in symptom burden over time should be assessed in order to prevent a decline in HrQoL." This might be a overinterpretation that simply measuring this would prevent a decline in HRQoL and in my view I think the conclusion might benefit from rephrasing.

We rephrased the conclusion

See conclusion
12. I find the meaning hard to understand and I think it needs clarification "Next to inclusion of older people in research, it is important to look at this group living at home, considering the shift from residential to home-based care as a potentially more effective and financially sustainable approach to meeting the health…"

We agree that this sentence was not clear and revised this sentence

Line 79 – 82: There is a shift from residential to home-based care as a potentially more effective and financially sustainable approach to meeting the health and social care needs of older people. Therefore, it is important to assess the needs of older people living at home.

13. In the aim the authors state "… in this population…” Please write the population so you can read the aim as a "stand-alone".

We rewritten this sentence

Line 85 – 86: Therefore, we aim to investigate factors that are related to HrQoL in older people living at home

14. First time Mets are mentioned the reader have not got a chance of knowing what it is and it needs some clarification.

We change this in the manuscript

Line 142 – 143: Physical activity was assessed by the Short form International Physical Activity Questionnaire in Metabolic Equivalent of Task (Mets).
15. The sample has a relatively high mean age and a reasonable assumption is that a fair proportion of participants suffer from some cognitive decline or even dementia. This is known to decrease HRQoL and since you have the MMSE-examination it would be good to include this measure into a regression model to explore this. Also if one lives alone heavily decreases HRQoL and the analyses would greatly benefit from including this, if, of course, the data is obtained within the project.

We included cognition as a background variable, and took cognition into the analyses. See table 1, 2 and 4.

The sample is older adults above 75 years old. We added this in our limitations.

We added MMSE in our method section and analyses (although we found no correlations with HrQoL)

All the older people in the study were living at home, we made this now clearer in our aim and the method section.

See method section and table 1, 2 and 4.

16. "daily living and more depressive symptoms explained 64% of negative changes in HRQoL (Table 3)." It is, as you write elsewhere, the variability that is explained, please rephrase.

We rephrased this sentence

Line 203 – 205: Taking these variables out of the regression analyses, a higher symptom burden, lower ability in activities of daily living and more depressive symptoms explained 64% of the variability in negative changes in HrQoL

17. In pp12 and 13 please use only P instead of p Value=xx.

We changed this in the manuscript

18. P7, row 20 use participate instead of participation.

We changed this in the manuscript
19. "Taking these variables out of the regression analyses, a negative change in symptom burden (experiencing higher symptoms burden) at 2 years compared to baseline, and higher experience of depressive symptoms at baseline, explained 28% of a decrease in HrQoL at 2 years compared to baseline (Table 5)." I think this sentence would benefit from becoming two, as reader I have a hard time to follow temporal and symptoms change at the same time.

We changed this sentence into two sentences

20. Make a paragraph on its own for limitations (if possible for the publishers) for increased clarity.

We added a separate paragraph for limitations

21. P15, row 3 The first three sentences in my view are repetitions of result and not conclusions. Consider revising.

We changed our conclusion See conclusion

22. In funding p15 row 3 I think there has snuck in a "y" too much.

Thank you for noticing, we changed this in the manuscript

23. In Table 1 please put the values outside the brackets and the % in the legend as you done for the actual values.

We changed table 1

24. In table 1, smoking is included, but never mentioned at all in the introduction, results or discussion and if it is a significant contributor it can be included, but since never mentioned I think the ms does not increase in quality due to it why my recommendation would be to omit this or properly introduce it and make use of it.

We omitted smoking
25. In table 2 there is a legend telling the reader how the scale is used in terms of higher numbers. This is not necessary with a correlation matrix and my suggestion would be to remove.

   We deleted this

26. Table 3 and 5 would benefit greatly from further information in the heading if the models have controlled for any confounders (for example, sex, living alone et.c). The table should be able to be read as stand alone.

   We changed the headings of table 3 and 5   See table 3 and 5

27. "Multiple regression models were built by entering those variables that had were statistical significance with a p < 0.05 in the correlation and retaining variables in the final regression with a significant level of p < 0.05. " -> Stated in methods, but where are those variables when reporting? I think you should either, report all variables in the table, or state which one did not make it to the models instead of stating the above.

   We added this in the headings of the tables and the results section

Reviewer 2

1. The abstract while helpful needs some amendment: The final sentence of the background contains repetition of 'factors that are related to HrQoL'.

   We changed this in the abstract

2. The results part should presumably refer to 'higher limitations in activities in daily living' (rather than higher ability).

   Thank you for noticing. We changed this to lower ability   See abstract
3. Also in the results part there is a redundant word 'variability' at the end of the penultimate sentence, and the words 'over a two year period' appear twice in the last sentence.

We left variability out of the abstract. And adapted the sentence where over a two year period appeared twice

4. The country/area and year of the study are not stated.

We added this to the abstract

5. Background: The final sentence would be clearer if it referred to 'limitations in activities of daily activity' and 'limitations in physical activity', such that all the 'conditions' are expressed as limitations.

We changed this in the background

Line 85 – 86: Therefore, we aim to investigate factors that are related to HrQoL in older people with multimorbidity, living at home

6. Method: The first paragraph should provide more information about the Age-FIT study, covering country/area and date and how the sample were identified/selected.

We added this information

‘Line 99 - 105: Data were collected between February 2011 and December 2013 in a municipality in south-eastern Sweden, which contains rural and urban areas and had approximately 130,000 inhabitants, 8.3% of whom were 75 years or older. In the original AGe-Fit study, 382 individuals were included and 252 completed the two year follow up. In this longitudinal study, we excluded older people who were not living at home after two years (n = 14), for this reason, the current analysis included data of 238 older people with multimorbidity, living at home.

7. The second paragraph should make clear whether the older people included in this study comprise members of the Age-FIT control group, treatment group or both.

We added this information more clearly, see former reply to comment.
8. Since the NHP which is the dependent variable contains a physical activity dimension and physical activity assessed by the s-IPAQ is an independent variable, the risk of circularity/endogeneity should be mentioned.

We added a separate limitation section in the discussion, were we also discuss the risk of circularity

Line 270 – 273: Furthermore, we looked at physical activity as a factor related to the total score of HrQoL, while from the literature it is known that physical activity may only be associated with certain domains of HrQoL.

9. It is not clear why a mixture of means and medians are set out in the second paragraph: consistency would be better unless reasons are stated for showing means for some variables and medians for others.

For non-normal distribution median and IQR were used. For normally distributed data, mean and standard deviation was used. We added this information in the method section

Line 164 – 165: Data that was not normal distributed were presented with median and InterQuartile Range (IQR) and normal distributed data with mean and standard deviation.

10. The paragraphs on changes over a two year period could usefully remind readers that the sample constitute a select group in that people who were no longer alive and living at home were excluded.

We added this to the limitations

Line 274 – 276: This study population was a selected sample, including older adults with multimorbidity, living at home and can therefore not be generalized to all older adults with multimorbidity.