Author’s response to reviews

Title: Convergent validity of the interRAI-HC for societal costs estimates in comparison with the RUD Lite instrument in community dwelling older adults

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Author’s response to reviews:

We thank both reviewers for their valuable comments on our manuscript, as these comments have improved the quality of our paper. We have carefully taken the comments of reviewers into consideration in preparing our revision. Detailed responses to the reviewers are given below.

Reviewer #1

Well-written article on a topic of interest for health services research in the target population of older adults and need for care. The authors adequately address all the limitations to the design/methods that I was able to identify, with the one exception of clustering "home health and domestic care" into the same cost estimate. It may be my U.S. lens, but in the U.S. Home Health implies nursing care, whereas "domestic care" implies unlicensed personal care services. The
cost differential is great between these two types of care in the U.S., which would argue to not collapse into one cost category. It is not clear if the categories in Table 1 of HH and domestic care and "Home Nursing" were estimated separately and then combined in Table 3 for the cost estimate comparison. What happened to the "home nursing" category? Was it included in the "weighted standard cost for home care [25]"? Some clarification would be beneficial - especially since the total cost for "Home health and domestic care" is a substantial part of the total costs described in Table 4.

Our response:

First, we would like to thank the reviewer for his/her positive opinion about our manuscript. Due to differences between countries, it was not possible to make a clear distinction between different types of home care services. Because we assumed that most services would concern personal care and not nursing, we decided to value these services with the standard cost for personal care. We deleted Home Nursing from Table 1 because we did not use this standard cost in the calculation of total Home health and domestic care cost.

Reviewer #1

Other than that, only very minor typo corrections. On page 17, lines 375 and 380, I believe the ">"s in the Spearman rho stats are reversed. If that's correct, a careful review of all the "<" and">" would be prudent. In line 486-487, "...were included main analysis, ..." should be " ... were included in the main analysis, ..."

Our response:

We thank the reviewer for noticing. The ">"s in the Spearman rho stats were indeed reversed. We carefully reviewed all the "<" and">" . We also added in the in accordance to the reviewers suggestion.

Reviewer #2

Throughout the manuscript, the authors use the word agreement to describe correlations using Spearman correlation. This word is used to describe agreement estimated from methods such as intra-class correlation and kappa procedures. Recommend using terms such as association, relationship, and correlation.
Our response:

Following the reviewers suggestion, we decided to replace the term agreement by correlation throughout the manuscript.

Agreement is now only used in relation to the Bland-Altman plot.

Reviewer #2

In this paper there is specific detail about how the RUD-lite was administered in the introduction, methods, and results sections. Similar detail is missing for the Inter-RAI-HC throughout.

- Specify in the introduction and in the methods whether the estimates are based on patient-self-report or provider/nurse report in completing the Inter-RAI-HC.

- Specifically, when discussing recall period, specify whether the patient, or other specific person is recalling. If patient-report, specify how the instrument is administered ---by interview or other means. If by interview, specify whether the interviewer was aware of the answers to the comparator instrument and to the aim of the study.

Our response:

The following sentences were added to the manuscript to provide more detail on the InterRAI-HC and the data collection in general

Introduction:

Another way to collect this information from clients, is by using routine care assessments, that are administered by a health professional who is involved in the care for the client. (lines 112/113)

Method section:

The assessments were completed based on observations by the (research) nurse, information from medical records, and information obtained by interviewing the client and their informal caregiver (if available). (lines 173-175)
All RUD-Lite assessors were aware of the aims of the IBenC study. Therefore, we added the following sentence to the method section (lines 181-182):

A brief description of the aims of the IBenC study was provided during the training.

Regarding the reviewers remark on whether the interviewer was aware of the answers to the comparator instrument: in some situations, both instruments were assessed by the same person. In these cases, the assessor was aware of the answers provided in the comparator instrument.

We, therefore, added the following sentence to the discussion section (lines 535-538):

In situations where the instruments were administered on the same day by the same assessor, the correlation between both instruments may be overestimated as compared to situations in which the assessors differed or the assessments took place on different days.

Reviewer #2

Some services (informal care/monitoring) were assessed over the prior 3 days; PT/OT/psych/HHA/nsg/homemaking/meals-wheels over 7 days; hospital admissions, ER/MD visits over 90 days. Address the reliability and validity of the extrapolation from recall period to the time period used in this study, and for the estimate of hospital overnight stays.

Our response:

It is true that all services that were assessed over the prior 3 or 7 days in the interRAI-HC, were extrapolated to reflect a period of three months. Whether this is valid, was evaluated in this study since we compared the extrapolated resource utilisation rates with the resource utilisation rates according to the RUD Lite which had a recall period of 3 months. We found strong correlation for almost all items between both instruments. Therefore, we conclude that based on the results of this study it is valid to extrapolate utilisation estimates based on interRAI-HC to a period of 3 months.
Reviewer #2

Page 13, line 285: Rationale/reference for choice of 5000 replications in bootstrapping procedures should be provided.

Our response:

A reference was added. (line 290)


Reviewer #2

Provide a measurement-based rationale/reference to support description of strong correlation. For example, how does this line up with Ian McDowell's discussion (Measuring Health: Guide to Rating Scales and Questionnaires, 3rd ed. Oxford U Press, 2006, p35-6.) relative to the reliability of each instrument?

Were there adjustments made in the analysis to address the large number of hypotheses tested and therefore probability of chance findings?

Our response:

Based on Cohen et al (1998), we used a cut-off of 0.5 which corresponds to a strong correlation and is widely-applied in the literature.(line 296).

In this clinimetric study, the size of the correlation coefficients is more meaningful than p-values; we were not interested whether the correlation coefficient was significantly different from zero, but whether there was some predefined degree of correlation. Because we did not test whether the correlation deviates from zero, we believe that adjustments are not necessary. (De Vet HCW, Terwee CB, Mokkink LB, Knol DL. Measurement in medicine. A practical guide. Cambridge University Press, 2011, p181)
Reviewer #2

The supplemental files are helpful. In the main manuscript, Tables 3 and Table 4, it would be helpful to provide a summary of the correlations for each item/score of interest, for example the range of correlation coefficients for Home Health and Domestic Care Hours.

Our response:

The range of the correlation coefficients that were estimated for the separate countries for each of the items/categories were added to Table 3 and 4 as was suggested by the reviewer.

Reviewer #2

Page 19, lines 437-439. Please remind/clarify for the reader the difference between the 2 paper versions for which estimates are provided.

Our response:

The following sentence was added to clarify the difference between the two paper versions for which estimates are provided:

When exclusively the caregiver was interviewed, a slightly adapted version of the RUD Lite was used, in which the questions were targeted at the caregiver instead of at the client. The caregiver answered the questions regarding care utilisation on behalf of the client (lines 445-446).

Reviewer #2

Discuss the interpretation of the findings for number of occupational therapy sessions and emergency room visits.
Our response:

Occupational therapy was utilised by only 0-1% of the participants from Finland and Iceland. Since 68% of the study sample consisted of Finnish and Icelandic participants, the low utilisation of occupational therapy in these countries may explain the weak correlation that was found for occupation therapy in the total study population.

This is also partially true for the weak correlation found for emergency room visits; a very low number of emergency room visits was reported in two of the five countries.

We added occupational therapy to line 522:

Furthermore, the utilisation of some health care services, such as occupational therapy and psychological treatment was very low in some countries (1% of the study population used this service on average).