Author’s response to reviews

Title: Relative contribution of various chronic diseases and multi-morbidity to potential disability among Dutch elderly.

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Author’s response to reviews:

To:

Editor-in-chief

BMC Health Services Research

Dr H Logan

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Thank you for reviewing our manuscript entitled, Relative contribution of various chronic diseases and multi-morbidity to potential disability among Dutch elderly, and for giving us the opportunity to improve and resubmit our manuscript.

In our reply to the reviewers we responded to the comments of the reviewers in a point by point manner. In addition, we submitted both the revised document and a document with track changes.
We feel our manuscript substantially improved by addressing the comments of the reviewers, and we hope that the improved manuscript may now be accepted for publication in BMC Health Services.

Sincerely,

On behalf of all authors,

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Reply to reviewers

Reviewer #1: Thank you for asking me to review this interesting paper about the relative contribution of a range of chronic conditions on life spent with disease.

I am afraid that I found this paper difficult to review and understand. I have read and re-read the methods section and it is still not clear to me how the results have been calculated. I have read several of the papers referenced too and it has not helped to clarify the results presented here. The description of the origin of the data is reasonably clear. The description of the outcome measures and multi-state life tables sections might be better re-ordered and the outcome measures moved to line 113.

Author’s response:

We appreciate the feedback and we made efforts to improve the link between the methods and the results sections. Apparently, the reviewer found the details provided in the methods section insufficiently comprehensive. We attempted to more elaborately explain the procedures and materials that were used, and we hope that these alterations increase the readability and comprehensibility of the paper.

We re-ordered the outcome measure section as proposed by the reviewer. We specifically refer to reference (23) as the equations we utilized to calculate the years spent in disease are found in the Appendix of that article. We do however feel that discussing the details of the calculations, would add little value to the readability of the article.

The results do not really make sense to me, especially the results for the combinations of conditions. The tables need more explanatory notes and labels, is LE measured in years? My understanding of the table 1 is that if you are a man aged 65 with a diagnosis of diabetes (assume it is a new diagnosis) then you can expect on average to live a further 7 years with the disease and then I assume they would die. I assume that the remaining LE column at the end is the remaining life expectancy for "non-diseased" people aged 65, so the person aged 65 could expect to live for 17.4 years.

Author’s response:

To improve the result section, and especially the section on the results for the combinations of conditions, we (i) added a description of the outcome measure and the tables in the multi-state life tables section, (ii) adapted the headings of the tables, and clearly indicated the units and (iii) included some more information on how to interpret the numbers in the tables. For example regarding table 1: A Dutch man aged 65 in 2007 could expect to live 17.4 remaining years. Of these remaining years, 6 years are spend with diabetes.
Table 2 does not make sense because it seems to imply that if you are 65 with a new diagnosis of CHD and CHF you will have 5.8 years of life with disease. However, if you only have a new diagnosis of CHF at 65 you can only expect 2.3 years of life with disease. Why would having a new diagnosis of both CHD and CHF at 65 result in more life lived with disease than a single diagnosis? For some of the combinations of diseases, it implies that as new conditions are added then life expectancy with disease increases. It may be that I have completely misunderstood this. My thinking is that if you have a new diagnosis of OA at 65, then your remaining life expectancy is lived with the disease. Some of these conditions hasten death and so combining conditions such as CHD and CHF seems unlikely to increase life lived with disease from say age 65.

Author’s response:

Our results mean that a Dutch men aged 65 in 2007 could expect to live 2.3 years with CHF, 7.6 years with CHD, and 5.8 years with CHF and CHD combined, based on age-specific prevalence, incidence and mortality among the Dutch population in 2007.

I think there needs to be a lot more clarification of the methods and results. I have not focused much on the introduction and discussion because I wanted to understand the methods and the results. There a quite a few typing and tense errors that will need to be corrected, there are also differences in font size in the manuscript. The introduction needs reworking to better make the case for the study.

Author’s response:

We clarified the methods and results (see before), and corrected the grammar and language errors, as well as some remaining layout issues.

In addition, we made alterations to the introduction to better showcase the importance of our study.

Finally, the paper was edited by professional language editing services.

Reviewer #2: This is an important topic area and addresses a key issue. The rationale is strong, but needs the following revisions with simple and clear explanations, to the larger lay audience who may be less familiar with the methodology:
1. The data that was used for the study. More information needs to be provided on how the data was used to model the non-diseased state, diseased state, and diseased state to death. As a reader, clarification needs to be given on how the data applies to the statement "Age specific transition rates were calculated for 1) non-diseased to death (total deaths divided by non-diseased population); 2) diseased to death (cause-specific deaths divided by diseased population); 3) non-diseased to diseased (disease incidence)." This terminology then needs to be related to the information given in the tables.

Author’s response:

In the methods section we provided more information on how the data was used to model the different transitions in our multistate life table calculations. In addition, we added some information to relate the description of the methods to the information given in the tables.

Lines in text.

2. The list of conditions is long and more justification needs to be given on why specific dual and triple pairs were looked at. It was probably because some of the combinations were more prevalent but the discussion rather suffers as it is trying to concentrate on the range of different conditions. The discussion needs to re-focus on the conditions reported in the abstract.

Author’s response:

We included more justification as to why we focused on the specific diseases and disease combinations:

“The specific diseases were chosen because they were most prevalent within the Dutch elderly population, reference 1-4. We focussed on the included disease combinations to demonstrate the effects of the combination of fatal diseases (CVD; cancer; COPD) and the combination of non-fatal diseases (osteoarthritis, dementia; diabetes) (29; 30). In doing so, a maximum of three diseases were combined“.

We changed the discussion so that it more clearly focuses on the chronic diseases mentioned in the abstract.

3. How does the remaining LE in the tables relate to the disease LE and how was this estimated?

Author’s response:
Of the remaining 17.4 years that Dutch men in 2007 can expect to live, 7 years are expected to be spend with diabetes, 2.3 years with CHF, 7.6 years with CHD, and 5.8 years with CHF and CHD combined. We clarified the link between the different LE’s in the text, and also changed Table 1 and Table 2 to better reflect this.

Remaining LE was obtained from Statistics Netherlands. Disease LE was calculated by applying multistate life tables. We clarified this in the methods section.

4. The abstract and results section requires more numerical statements on LE.

Author’s response:

We added additional numerical statements to the abstract and results sections.