Author's response to reviews

Title: Age- and Gender-related Prevalence of Multimorbidity in Primary Care: the Swiss FIRE Project

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Author's response to reviews: see over
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Eden Bobier  
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Re: MS: 7771512297086762. “Age- and Gender-related Prevalence of Multimorbidity in Primary Care: the Swiss FIRE Project”

Dear Editorial Team

Thank you for the opportunity to respond to the reviewer’s comments on the above-referenced manuscript. We believe we have made the appropriate revisions, meeting each concern.

Enclosed we provide a detailed point-by-point response to each reviewer’s comments. We trust you find our resubmission satisfactory and hope you consider this work suitable for publication.

Yours sincerely,

Vladimir Kaplan, MD, MPH
Response to reviewer 1

Authorship: We have changed the authorship as suggested to “on behalf of”

1  Introduction:
1.1. We implemented into the introduction that “the medical conditions taken into account and the number of medical condition required to define multimorbidity” (page 5, paragraph 2, line 5-6) is a major issue regarding the wide variation of reported prevalence estimates.

2  Methods:
2.1. We resampled our data and readjusted for clustering on primary care providers as suggested. We added this information to the method section (page 7, paragraph 4, line 1). We corrected the confidence intervals and p-values as appropriate in the entire document.
2.2. We added the complete classification by medical specialties under appendix 1 and adapted the text as appropriate (page 7, paragraph 3, line 7-8).
2.3. We provide the correction as suggested: Data exporter software extracted administrative data, patient’s demographics, vital signs, diagnostic codes, laboratory values, and medication from the electronic patient records, “de-identified the data sets”, and uploaded the anonymised information on a central server (page 6, paragraph 1, line 8-9).

3  Results
3.1. As suggested we parted figure 2 into a table (Table 2), depicting the ICPC-2 rubric count of 1+, 2+, and 3+, and a figure (Figure 2), comparing the prevalence rates for different definitions of multimorbidity (2+ count of rubrics, chapters, and specialties).

4  Discussion:
4.1. We added to the discussion, as suggested, that counting all ICPC-2 rubrics would have even increased our estimates of multimorbidity and reinforced our conclusion, that multimorbidity is more prevalent in primary care than the most common chronic disease “hypertension” (page 12, paragraph 1, line 4-6).
4.2. We dropped the reference to CIRS and remained without a specification of more precise instruments. However, because we lack information about the severity of the conditions,
we could not use instruments referring to severity of disease (page 14, paragraph 3, line 12-14).

For consideration:

5. We provide the simple 3+ count of the chronic ICPC-2 rubrics in table 2. It shows that using the 3+ count to define multimorbidity would have decreased the prevalence estimates of multimorbidity to one half roughly (14.5% vs. 7.30%). As mentioned we omitted to explore the 3+ count for the other two definitions because the 2+ count is much more commonly used in literature and makes comparisons more feasible. In addition we did not want to add more different definitions of multimorbidity to the paper to avoid confusion.
Response to reviewer 2

Major compulsory revision: Data presentation should be improved.

1. It is true that the prevalence of multimorbidity defined as two or more chronic health conditions provided as text on page 10, last paragraph, refer to the entire study cohort. We specified this in the first line of this paragraph: “For the entire study cohort”. Furthermore, we added a table with prevalence estimates for the entire study cohort, and stratified by age and gender and refer to this table in the text (table 2). As suggested by reviewer 1, we split figure 2 into a table (Table2) providing 1+, 2+, and 3+ counts for chronic ICPC-2 rubrics, and a figure (Figure 2) presenting age- and gender-specific prevalence estimates for the three different definitions of multimorbidity (rubric, chapter, specialty).

2. The legend of figure 1 was shortened as suggested.

3. As suggested by reviewer 1, we split figure 2 into a table (Table2) providing 1+, 2+, and 3+ counts for chronic ICPC-2 rubrics, and a figure (Figure 2) presenting age- and gender-specific prevalence estimates of multimorbidity for the three different definitions of multimorbidity (rubric, chapter, specialty). The legend of Figure 2 was shortened as appropriate. It is still true, that the 2+ count for chronic ICPC-2 rubrics (Table 2) represents the same numbers as the upper panel of Figure 2 (two or more conditions from different ICPC-2 rubrics). We consider this duplication to be helpful providing a visual impression of the distribution of multimorbidity by age and gender for the different definitions of multimorbidity used.

4. The baseline characteristics are a short paragraph; therefore, we kept the text format. The prevalence estimates of 1+, 2+, and 3+ counts of chronic health conditions are now presented separately in Table 2.

Minor essential revisions:

1. We replaced the expression “disease pattern” as suggested by saying “that multimorbidity is observed more often than isolated disease” throughout the paper.

2. As suggested, we separated the numbers in thousands by commas in the entire article.
3. We corrected the text as suggested: “Studies from the United States and Canada” (page 5, paragraph 2, line 3).

4. We added in the method section that “medical conditions not addressed during any encounter were not coded” (page 6, paragraph 1, line 10).

5. We added to the limitation section that “The potentially severe underestimation because of under-coding was already discusses above” (page 14, paragraph 3, line 14-15).

6. As suggested, we replaced “American studies” by “North” American studies” (page 13, paragraph 2, line 2).

7. There are problems with the references:

   7.1. References 1 and 2 have been corrected.

   7.2. Reference 12 has been deleted.

   7.3. Reference 2 was corrected and reference 15 was dropped.

   7.4. References 20 and 21 were corrected.

   7.5. Reference 15 was dropped.

8.1. The figures have been redesigned and the axis correctly renamed.

8.2. Repetition of figure 2 dropped.

9.1. As suggested, we replaced prevalence with “prevalence estimates” throughout the paper and added to the conclusion that “prevalence estimates, based on a disease-count methods during physician-patient encounters, as done in this study, warrant further confirmation using more accurate data collection methods”.
