Author's response to reviews

Title: Self-rated health and hospital services utilization in the Spanish Public Health System: A longitudinal study

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Research article
Self-rated health and hospital services utilization in the Spanish Public Health System: A longitudinal study
Nayara Tamayo-Fonseca, Andreu Nolasco, José A Quesada, Pamela Pereyra-Zamora, Inmaculada Melchor, Joaquín Moncho, Julia Calabuig and Carmen Barona
BMC Health Services Research (Section: Utilization, expenditure, economics and financing systems)

Dear editorial board of BMC Health Services Research:
We would like to notify that we have deeply revised the manuscript, according to referees' comments, to whom we would like to thank for the excellent revision.
Summarily,
- We have included referees’ suggestions.
- We have added information to table 1, and have made changes in tables 2 and 3, reorganizing the information.

Further details about the changes that have been made can be found in the response addressed to the referees.

We hope the format and the content fits in well.
Thank you very much,

Andreu Nolasco

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Response to the referee 1

Reviewer's report
Title: Self-rated health and hospital services utilization in the Spanish Public Health System: A longitudinal study
Version: 2 Date: 24 July 2015
Reviewer: Erik Groessl

Reviewer's report:
The manuscript describes a database analysis studying the relationship between self-rated health and use of hospital services in a region of Spain. In general, the manuscript is well written and the methods and analyses seem well chosen and rigorous. The findings are very interesting and informative, and could influence policy in the future.

Thank you very much for your comments.

1. Lines 51-53. The sentence starting “In men,….” might read better if split into 2 sentences to clarify which group is being discussed.

We have modified this sentence and split it into 2 sentences.

2. Lines 67-68. Authors state that self-rated health provides a global overview of the population’s health status. That is only true if the measure is used at the population level, and not at an individual or group level. In addition, it is stated that SRH is an indicator of willingness to make an effort to maintain good health. I don’t understand how this can be true as the SRH question asks nothing about effort or willingness. It is possible that other research has linked SRH to these things. If so please provide correct references. The reference after this section is a review of studies linking SRH to mortality, not population health or willingness.

We have modified the text, mentioning both the population and the individual level. We have provided a specific reference about ‘the willingness to make an effort to maintain good health’ (see lines 67-71).

3. Lines 78-85. Please briefly summarize what these studies have found, and maybe where they were mostly conducted.

Most of these studies are dealt with in more detail in the second paragraph of the discussion section. In the background section we have added where they were mostly conducted.

4. Lines 86-96. I recommend that you mention the ease of using SRH, because it is such a short measure. There are many ways to measure health status, so why use this one?

We agree. We have followed your suggestion.
5. Lines 97-104. This paragraph seems to fit better in the Methods section. I also think by moving this, and maybe not specifying Spain in Line 93, the manuscript will be of interest to the broader audience served by this journal.

*We agree. We have moved this paragraph to the methods section and removed Spanish specifications.*

6. Lines 138-143. HS should be better defined as this might mean differ some by country. Does this mean admitted overnight? Why is HS only use or non-use?

What about # of days used? Was this transformed or too difficult to analyze otherwise? It would be very interesting if we understood what is required to be hospitalized in RV. If someone complained of chest pain and no cause could be found, would they be hospitalized? Is a physician decision that they are in need of close medical attention required? Number of days or times using HS would get at high frequency users.

*We have clarified the definition of HS in the text. This study focuses on the outcome variable ‘use/non use’ of HS without taking account of high frequency users. An explanation in this regard has been added to the limitations section. Subsequent studies will analyze in depth hospital stays, types of hospital admissions, diagnoses… Some information has been included on Spain’s health system and hospitalization characteristics.*

7. Lines 137 – SRH measure should be full explained first. I see the next paragraph starts describing exclusion criteria and the sample, yet then gives detail on the SRH measure. Should be regrouped. Describe sample later.

*We have modified the paragraph according to your suggestions. Results of follow-up have been moved to the results section.*

8. Results Lines199-201 the interaction is not fully explained, was there no relationship in those without chronic disease?

*We have added further explanation about the interaction.*

9. Lines 207-208. What probability increased for higher education group? Was the same relationship found for low education stronger yet?

*We have explained the interaction in detail.*

10. Lines 226-229. Unless I misunderstood, this statement seems incorrect. This study did not look at volume of use, only presence or absence if use. That is a limitation of the analysis.

*We agree. We have moved this statement to the limitations section.*

11. Lin 230. Is the Garcia % of 29.6 an annualized figure? If so please specify this.
We have added in the text: ‘…,for the overall follow-up,…’

12. Lines 231-232. Did you look at annual % and then take the mean of those 4? Or simply divide the total over 4 years by 4? The method chosen can produce different numbers. If the former, it could be of added interest to present the HS use separately for each year of the study in a table or text, but no need to do separate regressions.

We have divided the total over 4 years by 4.

13. Lines 256-257. Are there any barriers to use of HS by immigrants that might explain this finding?

We have added a paragraph with some possible explanations of the results.

14. Line 311. Please clarify what “presented greater intensity” refers to. May just be the wording chosen.

We have changed the wording to: ‘the association was stronger in the group with higher educational level than in the group with lower educational level’.

15. Lines 346-351. Should add HS being binary outcomes as limitation if it must be analyzed that way. A volume of HS would be a more desirable outcome.

We have added this limitation.

Final remarks
We want to thank sincerely the referee for all of his comments, for we think that he has contributed importantly to the improvement of the manuscript. Thank you very much
Response to the referee 2

Reviewer's report
Title: Self-rated health and hospital services utilization in the Spanish Public Health System: A longitudinal study
Version: 2 Date: 31 August 2015
Reviewer: Andrew Sarkin

Reviewer's report:
Major Compulsory Revisions
1. This is a well written article, and the questions posed by the author are well defined. However, the methods section is missing pertinent information that hindered my interpretation of the results. Due to the concerns described below, I felt unable to review the interpretations of the findings in the discussion section.

   Thank you very much for your comments; we have included additional information in the methods and results sections.

2. Specifically, without further description of how the weights, which were used to create a sample representative of the Region of Valencia, were incorporated into the analyses, I am unable to properly interpret the finding about the predictive value of self-rated health.

   We have added a sentence in the methods section: ‘The weights of the sample subjects were introduced using the ‘weights’ option of the statistical package’.

3. It is unclear how the percentages included in Table 1 were calculated, and the sample size of reported responses within the ‘Good’ and ‘Poor’ self-rated health categories contradict the findings reported in the results section.

   We have modified table 1. We have added a figure representing the people who replied ‘Don’t know or did not provide answer’ for every explanatory variable. We have also included the ‘total sample’ results.

4. Additionally, there is insufficient description and justification for the categorization of the socioeconomic variables, most notably self-rated income levels.

   We have included further description and justification in the text.

5. There is also no information included in the method or results sections about the number of cases that were excluded during the recoding of self-rated health because they responded ‘Don’t know’ or did not provide an answer. It is also unknown how many were excluded for missing other variables such as income.

   We have modified table 1. We have added a figure representing the people who replied “Don’t know or did not provide answer” for every explanatory variable.

6. The Results section is also missing statistical testing results commonly
reported for multivariate logistic regression, such as the goodness of fit for the model.

In the methods section we have added some information about the test that was used for assessing the goodness of fit for the model and the statistical significance of variables. In the results section we have reported the goodness of fit values. We have also included in tables 2 and 3 the likelihood ratio test values for the multivariate models, changing the order of the adjusted models.

Minor Revisions

1. Although there is quite a bit of presentation and discussion on the interesting gender differences in the results, gender is not mentioned in the title or abstract.

We have stated in the abstract that we have found different complex models by gender.

Comments
1. The discussion is thorough and covers many important points.
2. The methods are appropriate and well-defined, though some info is missing as stated above.
3. The authors address some limitations well.
4. The authors acknowledge background work supporting their study.
5. The writing is very clear in most places, though some information is missing as noted above.

Final remarks

We want to thank sincerely the referee for all of his comments, for we think that he has contributed importantly to the improvement of the manuscript. Thank you very much