Author's response to reviews

Title: Gender differences in the utilisation of health-care services among the older adult population of Spain

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Author's response to reviews: see over
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Cover letter with point-by-point description of the changes made and responses to reviewer’s comments

We thank the reviewer’s for their very useful comments, which have served to improve out manuscript. Following there is a detailed response to their comments and a description of the changes made.

Reviewer: Elizabeth Madigan

Mayor Compulsory Revisions

1. The reviewer is right. As suggested by some authors,¹ in the last paragraph on page 4 we indicate that there are different social constructions of health and disease between women and men, and that they could account for gender differences in health services use. To make it clearer we have added in parentheses a summary of such constructions: “(roles, attitudes, beliefs, and behaviors of men and women when they are sick or worried about ill-health)”. Please, see page 4, paragraph 3, line 5-6.


2. The aim of our work was not to test the Andersen’s model. This is why we did not mention it in the Introduction. We have used it only as a framework to facilitate the classification of study variables, as stated in page 7, paragraph 3, lines 1-3.

Lifestyle variables (e.g., tobacco and alcohol consumption, sedentariness, and hypertension) were used as indicators of objective health-needs amenable through clinical preventive services, either professional advice and counseling or drug treatment. These services serve both for primary or secondary prevention of chronic disease (e.g. ischemic heart disease). As suggested, we have further explained in the manuscript the use of lifestyles as indicators of health need (please, see page 8, paragraph 1, line 2-6)

On the other hand, HRQL served as an indicator of perceive need of health-care services. Unfortunately, very few studies have examined the influence of HRQL in gender differences in patterns of health-care use.² We believe that both need-related variables, objective and subjective, must be considered in the analyses because they provide complementary information on health needs. In fact, the Andersen’s model states that need can be objectively established by the medical practitioner and/or perceived by the patient.

3. Our study includes information on 9 significant diseases in older people: asthma and chronic bronchitis, ischemic heart disease, stroke, arthritis, cataracts without treatment, diabetes mellitus, Parkinson’s disease, cancer (at any site), and depression with need for treatment. These diseases are rather prevalent in people aged 60 years and older, and are important enough to be sure that people can be aware of their diagnosis by a physician. A list of diagnosis similar to that included in our study is habitual in most health surveys in Western countries (e.g., in US the NHANES, the Behavioral Risk Factor Surveillance Program, etc.), and serves as a measure of chronic morbidity requiring health care. Although heart failure is a major health disorder and its prevalence rises rapidly with age, awareness and perception of heart failure in the community are low compared with that for other cardiovascular conditions.3


4. As suggested, we have replaced the sentence “the higher the score, the better the health” with the sentence “the higher the score the better the HRQL”, in page 10, line 1.

5. We have aimed to facilitate interpretation of our results by including both alternatives suggested by the reviewer.

First, we have added a new table (Table 3), where we present odds ratios, and their 95% confidence limits, of the utilization of each type of health-care service by women versus men. To facilitate comparisons, we show in adjacent columns the crude odds ratios and the odds ratios adjusted for predisposing, need and enabling factors.

Second, we have also kept Figure 1 with information on the PCECOR. PCECOR has two key advantages over the rough comparison of OR in table 3: a) PCECOR relates quantitatively the absolute change in OR with adjustment (adjusted OR-crude OR) to the magnitude of the crude OR; b) Confidence intervals for the PCECOR inform on the precision of the estimation of the PCECOR, and whether the changes in the OR with adjustment are statistically significant or not.

Please, see page 13, paragraph 2 to find the following comment combining the information of both types of data presentation: “Lastly, a synthetic overview of results can be obtained through joint consideration of data in Figure 1 and Table 3. Adjustment for predisposing, need and enabling factors usually led to a reduction in gender disparities in the visits to medical practitioners, home medical visits, and intake of ≥3 medications (table 3). However, in the case of hospital admission and influenza vaccination, adjustment for need and enabling factors showed certain inequalities, in that hospitalization and influenza vaccination proved less frequent in women. We should note, however, that for influenza vaccination the change in the OR after adjustment did not attain statistical significance (Figure 1). Also, adjustment for predisposing factors did not lead to statistically significant changes in OR of any type of health service (Figure 1).”

Minor Essential Revisions

1. We have rephrased the last sentence of the abstract to make it more understandable. Now it reads: “For equal need, certain inequality was observed in hospital admission, in that it proved less frequent among women.”
2. Although the hypothesis of compression of morbidity awaits full testing, it was not the aim of this study. We have added the following comment on gender differences in disability at the end of life: Compared to men, women live longer but, paradoxically, report greater morbidity and disability and make greater use of health-care services, at the end of life (please, see first sentence in the Introduction).

3. We agree with the reviewer on the interpretation of p values. In fact, in our manuscript p values are used as descriptive statistics, and do not aim to inform on the magnitude or relevance of the findings. Consequently, both table 3 and Figure 1 include the magnitude of the point estimates (OR and PCECOR) and report confidence intervals as a measure of their precision.

4. The large confidence intervals for PCECOR reflect the relative (multiplicative) nature of PCECOR. When the crude odds ratio is close to 1, as is the case in hospital admission, the denominator of PCECOR (crude OR-1) is very small. As a result, relatively minor absolute changes in OR after adjustment (adjusted OR-crude OR) translate into large lower and upper confidence limits.
Reviewer: Edward J. J. Callahan

Discretionary Revisions

1. The procedure to calculate the PCECOR has been presented at the end of the Methods section. We think that PCECOR has a key advantage over the rough comparison of OR before and after adjustment for third variables in a logistic model: PCECOR relates quantitatively the absolute change in OR with adjustment (adjusted OR-crude OR) to the magnitude of the crude OR.

Relative measures of change in regression coefficients have appeal as a simple way to assess quantitatively either confounding or the effect of mediating variables in epidemiologic studies. A particularity of this type of measure, however, is that it can overestimate the relevance of changes in OR when the crude OR is close to unity. In these situations a relatively minor absolute change in OR after adjustment (adjusted OR-crude OR) can translate into large PCECOR, because the denominator of PCECOR (crude OR-1) is very small. This is the case for hospital admissions or influenza vaccination. (We have added a comment on this issue on page 16, line 15-16, and page 17, paragraph 1, line 1-6). Also to address this issue, we have added a new table (Table 3) presenting the values of OR before and after adjustment for predisposing, need and enabling factors.

2. As suggested, we have run a model for each type of health-care service adjusting simultaneously for all predisposing, need and enabling variables considered in our study. Fully adjusted OR for each health-care service among women versus men were respectively: 0.77 (95%CL: 0.59-1.00) for visits to the medical practitioner; 1.19 (95%CL: 0.79-1.79) for home medical visits; 0.82 (95% CL: 0.59-1.15) for hospital admission; 0.82 (95%CL: 0.63-1.06) for influenza vaccination; 1.00 (95%CL: 0.77-1.32) for intake ≥3 medications; and 0.83 (95%CL: 0.59-1.18) for overall utilization of health-care services. In general, fully adjusted OR are quite comparable to OR adjusted only for chronic diseases and HRQL, confirming the leading contribution of these variables to gender differences in health services use. We have found, however, a trend to lower use of visits to medical practitioners among women (OR: 0.77; p=0.051).

3. The reviewer points to a very interesting issue. Instruments to assess IADL in older people ascertain functional limitations only in those activities stereotypically assigned to each gender. We agree with the reviewer in that such gender-linked roles may, and should, change in future generations. However, until it occurs, it is true that assessment in Spanish older males of the ability to prepare meals, do household chores or wash clothes would render negative results regardless of the physical or mental status of the male elders. For the time being, we think it is preferable that the evaluation of limitations in IADL take into account the psychosocial and cultural context, including differences of roles, attitudes and behaviors, of men and women. The reviewer also poses many other interesting questions regarding IADL evaluation, which merit research in other studies.

4. As suggested, in page 17, paragraph 2, line 3-4, we have acknowledged that the way of self-reporting health status to physicians may also partly explain gender differences in the utilization of health-care services. We also acknowledge that we have not been able to include such determinants of service utilization in our study.