Author’s response to reviews

Title: Effect of unaffordable medical need on distress level of family member: analyses of 1997-2013 United States National Health Interview Surveys

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Response letter (manuscript BPSY-D-17-00172R1)

We sincerely thank the editor and reviewers for the opportunity to address a few comments about this manuscript. The detailed response for each point raised is presented below. We hope that the quality of the manuscript is now better.

Gerald Jordan (Reviewer 1): The purpose of this article is to examine the relationship between the affordability of health care and distress levels as experienced by family members. The results of the study showed that unmet medical needs due to cost were associated with a relative risk of both moderate and very high levels of distress. This paper deals with an important subject matter which has not received enough attention in the literature. However, I have serious concerns with the statistical analyses used, especially with the how the outcome variable is defined. The authors must attend to the various issues with the manuscript before it is ready for publication.

Response: We thank the reviewer for noting suggestions to improve the quality of this manuscript. We have addressed them as noted below.

Overall: There are many grammatical errors throughout the manuscript, in nearly every sentence (including in the title and abstract) which need to be corrected.
Response: We have revised the manuscript (including the title and abstract) using track changes to minimize the grammatical errors.
Introduction: The authors point to economic changes as being an impetus for cutting back on healthcare funding throughout the paper. While this is true, the objectives, methods, statistical analyses and results of the paper do not deal with economic changes. Hence, I feel this emphasis is too distal from what the study is actually about. The authors could discuss economic changes in the discussion section but not give it so much attention.

Response: We have revised the background section (lines 45-51, page 4) and briefly noted economic changes in the discussion section (lines 198-199, page 10).

The authors provide a list of keywords and some search parameters pertaining to a literature review aimed at detecting any similar studies to theirs which have been previously conducted. While their transparency is commendable, their search strategy was also not exhaustive, which may lead the reader to think they did not perform a thorough enough search of the literature.

Response: Yes, the information was provided to aid transparency and to support our statement about lack of publication on the topic. We felt the information served its purpose and have not retrospectively conducted thorough search since this manuscript is not a systematic literature review or a meta-analysis.

Methods

Study Design

I understand that this work is built on prior work, but there is simply not enough detail on the design of the study. The reader should be able to walk away with a clear idea of the study methodology from reading this paper alone (so that someone else may replicate their work), which is not possible with such limited information given. More information on the study design and the actual survey should be given.

Response: The United States National Survey team designed the study. Further details about the methodology were not provided due to word limit. We have, however, provided the references and web links for readers. These are noted clearly in the Methods section (line 80 on page 5, line 83 on page 5, line 88 on page 5, line 93 on page 6, line 97 on page 6 and line 107 on page 6). In addition to these, we have added the survey items on lines 97—103, page 6.

Participants

The sampling strategy was appropriate, but would again benefit from some more detail.

Response: The sampling strategy was implemented by the United States National Survey team. Details were not provided due to the word limit. We have, however, provided the references clearly in the Methods section (line 88, page 5).
Measures

The authors should provide examples items for each question used to collect data.
Response: The main variables are unmet needs of medical care (defined on lines 108-110, page 6) and mental distress (defined by Kessler’s 6-item questionnaire on lines 97-103, page 6). Details of the other demographic variables are accessible from references 10 and 12 as noted on line 93, page 6.

Details of the survey sampling strategy and data collection should be provided here.
Response: The sampling strategy and data collection were implemented by the United States National Survey team. Details were not provided due to the word limit. The brief process was noted in the Methods section under the Measures sub-section (lines 94-110, page 6) with references noted clearly (line 93, page 6).

More information on the Kessler's 6 questionnaire should be provided, including a list of items, scales, and information on reliability and validity.
Response: We have added the six items of the K6 questionnaire to the Methods section (lines 97-107, page 6). The validity and reliability is also noted on line 107, page 6. Details are not provided because the focus of this manuscript is not assessing its validity and reliability. Instead, reference number 15 was cited (line 107, page 6) for readers’ record.

On line 93, the authors state "whether during the past 12 months, was there any time when needed medical care, but did not get it because couldn't afford it"—who is this question directed at? The respondent? A family member?

Response: All questions were directed to the respondent, who is the family member.
I have serious concerns about their outcome variable. The authors used a categorical variable of distress over a continuous variable without providing a clear rationale for why this form of variable was used. Why is the outcome variable categorized as moderate or very high? What about low or very low? Was the variable classified this way based on a clinically meaningful cut-off, as should be the case? How do the authors know that a score of 5-12 is moderate, and then 13 and above is very high? What happened to high?

Response: We followed the cited reference (line 107, page 6) and applied the same cut-off points to categorize the continuous variable into groups; normal (0-4), moderate (5-12) and very high (13 and above). The validity and reliability is noted (line 107, page 6). We have since also revised ‘very high’ to ‘serious’ throughout the manuscript to avoid confusion.

Statistical analyses

In the preceding section, the authors state that moderate was defined as a K6 score from 5-12, and very high was 13 and above, but in this section they break down their categories into moderate or higher K6 > 5, or very high K6 > 13. These categories are not mutually exclusive, since moderate or higher would include cases of very high. Any analyses with overlap in the dependent variables would seriously violate assumptions that must be met to carry out analyses. These categories are not reported in the results. Why are they here and what happened to them?
Later, on line 105, the authors state they categorized their variables into categories of 0-4, 5-12 and 13-24, then don't report on the 0-4 category.

Response: The use of cut-off points for moderate (5-12) and very high (13 and above) followed the cited reference (line 107, page 6). We have since revised ‘very high’ to ‘serious’ throughout the manuscript to avoid confusion.

The reviewer is correct that the analyses done to present results in Table 1 includes K6 score of >5 (rather than just 5-12) to illustrate the risk of ‘moderate’ and ‘serious’ levels of mental illness. The assumption is not violated because they were compared to those with other K6 scores (K6 score of 0-4). This is the reason a third group was created as the ‘normal’ level.

The ‘normal’ group is the reference group created to calculate the risk of moderate level of mental illness (5-12) and serious level of mental illness (13-24) and is therefore not reported in quantitative analyses.

Results

The authors should provide more information in the results section. As it stands, the results section reads too much like a discussion section. For instance, could the authors provide parameter estimates, some important risk ratios, etc?

Response: The results are presented in Tables 1-3. The results section only noted a few interpretations of the numbers presented in the tables. These are not discussions. The purpose of the interpretations is to highlight the key findings in plain language to avoid repeating the estimates (ratios) in the tables.

Lines 126-128 should go into the discussion section.

Response: We have decided to keep lines 126-128 (now lines 139-142, page 8) because the sentence is a key result, not discussion of the results.

The authors should indicate in a table the number of people who had missing data, and how many were excluded from analyses for any type of reason.

Response: The total sample size (262,843) was noted (line 131, page 7).

How many participants were represented in each response categories?

Response: The results were estimates from statistical models. The number of participants for sub-groups is not presented in the tables for this reason, which is common for quantitative results published in journals such as BMC Psychiatry. In saying that, the participants are representative of the population as noted in reference 10.
P values should be provided and a bonferroni correction should be applied to correct for the large number of statistical tests performed. To reduce the number of tests, the authors should use continuous variables where appropriate (like age).

Response: The p-values were not provided because of the size of the table. We opted to present the 95% confidence intervals instead as they provide similar information as the p-values if not more details. We acknowledge the risk of performing many statistical tests and ran one regression model for an outcome. The analyses were initially performed on continuous variables, such as age, but we felt that the vulnerability of some age groups was hidden. For this reason we decided to analyse and present data on the categorized groups. This is an acceptable practice for quantitative analyses as noted on published articles, such as those in BMC Psychiatry.

Every statistical test yielded a significant result. The authors should explore reasons why and highlight this in the discussion section.

Response: As mentioned in the background section (lines 65-68, page 5), there is lack of publication in this topic area. Reasons attributable to the significant results are discussed to the best of our ability (lines 163-172, page 9).

Tables

The authors should find a way to condense their tables so that 1 table can fit on 1 page.

Response: We attempted to condense the tables but decided against it in order to ensure the key results are presented clearly to the readers. We are open to the Editorial Office to present the table as an appendix or in online format if needed.

TAIWO AFE, MBBS, FWACP (Reviewer 2): Good study, good justification for the study. I would however have loved to the authors to explore the level of psychological distress among those with unmet mental health needs versus general medical conditions.

Response: Thank you to DR TAIWO AFE for commending the study design and justification of our study. We are unclear about the definition of ‘general medical conditions’ mentioned and have therefore not compared the groups. Moreover, the comparison between those with unmet mental health needs and those with general medical conditions was not the aim of this study. However, we have included a brief comment on this in the discussion section (line 162, page 9) to the best of our ability based on a publication that used the same K6 questionnaire on a US national study. We hope this addition meets your expectation as we strive to improve the quality of this manuscript.