Author's response to reviews

Title: Gender differences in Greek centenarians. A cross-sectional nation-wide study, examining multiple socio-demographic and personality factors and health locus of control.

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Author's response to reviews: see over
Dear Editor,

We are sending you our revised manuscript “MS: 7719673256665628 - Gender differences in Greek centenarians. A cross-sectional nation-wide study, examining multiple socio-demographic and personality factors and health locus of control”. All manuscript changes are presented with different color. Point by point answers to referees are presented below.

Sincerely,

Tigani Xanthi

(Corresponding author)

Point-by-point Answers to referees

Referee 1

1. Is the question posed by the authors well defined? Yes, on the whole the research question is clear.

No need to answer

2. Are the methods appropriate and well described?

The methods are reasonably well described. However, information is needed on response rate. For example, the sample appears to consist of 400 centenarians, but it is unclear how many were approached and how many refused to take part, or how many could not take part because they had dementia or some other illness that prevented study participation. What were the inclusion and exclusion criteria?

Answer

We have added the following sentence in the 7th line of the 1st paragraph of methods “508 centenarians were identified and approached..” and two new ones at the end of the same paragraph: “Exclusion criteria were severe cognitive dysfunction, meaning diagnosed type of..."
dementia (e.g. Alzheimer) or use of dementia drugs according to prescription health books and severe hearing problems. The final sample consisted of 400 centenarians, as 23 people (4.5%) were excluded from the analysis and 85 centenarians (16.7%) refused to participate.”

Information is also needed on translation of the scales used in the study. I am assuming that scales developed in the US were used and translated into Greek. Were both forward and backward translation done? This information is needed and it is important that the authors assure the reader that translation did not affect reliability and validity. Or, if there are doubts this should be raised when discussing the limitations of the study.

Answer

All scales, except TCI have been validated and used in Greek studies. TCI subscales were translated using the backward-forward method. This information is added in the text. Satisfactory Cronbach’s alphas presented are also indicative of unimpaired internal consistency reliability.

The authors note that females were more likely to be illiterate. I was uncertain if they really were illiterate or merely less well educated. It would surprise me somewhat to find that a significant proportion of the women in the sample could not read or write at all. Illiteracy is not the same as a low level of formal education.

Answer

As noted in the methods section, illiteracy was below the category of attending even some classes in primary school, so actually we assessed the educational level (in years of official education) and not the ability to read or write directly. For more clarity we have added the following: “years of education” in the 10th line of the sociodemographic variables paragraph. Findings of more illiterate females than males is not surprising, since patriarchy predominated past social and familial life in Greece, so women had limited access to the educational system. This is noted in the last two sentences of the 3rd paragraph of the discussion section.

3. Are the data sound? Probably.

No need to answer

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

I cannot remember anything in the manuscript about data deposition.

Answer

We assure you that Strobe reporting guidelines were used for manuscript preparation.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
On the whole, yes. However, I think more information is needed on the range and standard deviations of the variables.

Answer

For numerical variables (age, TCI subscales, HLC subscales and IPP subscales) ranges and SDs were added in tables 1 and 2 (see text). The change was added to the statistical analyses section.

6. Are limitations of the work clearly stated?

Yes, there is a good section on the limitations of the study. The only problem I have though is that more could have been said about whether or not the gender differences represent changes with age. To do so would require comparison with other age groups (this issue is briefly mentioned) so as to attempt to separate any confounding of variables. I am aware that the question cannot be answered with the data, but more discussion of the issue would have been nice.

Answer

We agree with this notion. We have added the following sentence (as 3rd) in the last paragraph of limitations of the discussion part “Future cross-sectional and follow-up studies should focus on gender differences across various age groups that would give a more robust insight into gender disparities through extreme longevity”.

9. Is the writing acceptable?

There are a few places where the grammar needs correcting

Answer

Several grammar and spelling corrections were done. Please, see revised text (corrections highlighted in blue with “track changes” system). Other types of changes were noted as light blue.
1. **Is the question posed by the authors well defined? The Introduction is under-developed, particularly as related to gender differences in the examined variables.**

   **Answer**

   We assure you that we thoroughly searched published literature on this subject. In specific, our study has two principal aims. Firstly, we described a large sample of centenarians by examining gender differences in sociodemographic and disease-related factors. So far, there is only one published study in the Greek population by Stathakos et al (2005) addressing this issue. This is clearly stated in a separate paragraph in the introduction. Secondly, we examined gender differences in psychosocial factors such as health locus of control, self-directness, self-transcendence, harm avoidance, reward-dependence, adaptability, spirituality and optimism and additional correlation analyses also took place. As noted also in the discussion part, there are no other studies addressing gender differences on these psychosocial factors in centenarians. As such, we chose to provide a brief review (paragraph 2 and 3 in introduction) on the literature concerning psychosocial characteristics of centenarians and their associations by citing the most prominent papers on the subject (20 papers in total, ref 4-23).

   In the last paragraph of the introduction we have made changes clarifying lack of literature and our study aims.

2. **Are the methods appropriate and well described? No, please see below.**

   **Answers below**

3. **Are the data sound? It is difficult to tell from the current description; more information is needed.**

   See answers below for statistical analyses

4. **Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes**

   No need to answer

5. **Are the discussion and conclusions well balanced and adequately supported by the data? The implications of the study need to be expanded. It is not clear what the “take-home” message is for readers of this journal.**

   In the conclusion section we included what we believe to be the most important messages deriving from our findings. We quote the following three messages:
1. “In conclusion, this group of centenarians is important for research on successful ageing, taking into account gender differences on both the demographical, health and personality level.”

2. “According to our preliminary findings, self-directness for men and optimism for women emerged as significant putative determinants of health locus of control, a valuable public health measure.”

3. “Future research on the psychosocial profile of centenarians should adopt a more comprehensive and modeling approach by gender group.”

To our knowledge these statements are reported for the first time in the centenarian literature.

6. Are limitations of the work clearly stated? Yes, briefly.

No need to answer

7. Do the authors clearly acknowledge any work upon which they are building both published and unpublished? Not entirely; the Introduction should be expanded to address this issue.

Answer

Please see answer on question 1.

8. Do the title and abstract accurately convey what has been found? Yes, but it is not compelling.

Answer

We have chosen to build title and abstract according to STROBE guidelines.

9. Is the writing acceptable? Please see notes under Minor Revisions below.

Answer

Several grammar and spelling corrections were done. Please, see revised text (corrections highlighted in blue with “track changes” system). Other types of changes were noted as light blue.

**Major Compulsory Revisions**
The authors briefly describe their rationale for using self-report rather than proxy information. However, this issue warrants greater attention. For example, what is the cognitive status of the centenarians in the study (quantify and expand description on p. 2)? Presumably these centenarians are high functioning thus increasingly the likelihood of a selective sample.

Answer

We believe this is a very useful comment giving the chance to elaborate further on this issue. Hence, in the first paragraph of the methods section for clarification, we added the following sentence referring to exclusion criteria: “Exclusion criteria were severe cognitive dysfunction, meaning diagnosed type of dementia (e.g. Alzheimer) or use of dementia drugs according to prescription health books and severe hearing problems. The final sample consisted of 400 centenarians, as 23 people (4.5%) were excluded from the analysis and 85 centenarians (16.7%) refused to participate.” Thus, the referee correctly has noted that this sample of centenarians is somewhat selective by means of functionality and this was also depicted by the relative low disease frequency. We have also added the following sentence in the discussion: “Finally, excluding centenarians of severe cognitive and hearing problems may increase the probability of obtaining a relatively selective sample of “healthy” centenarians. However, we should note that this is a large sample, meaning 25% of all centenarians registered in the 2001 census with a country-wide distribution.”

A greater rationale for the analysis plan is needed as well as more information (e.g., test of normality results, decision to use a non-parametric test, handling of missing data). In the Discussion (p. 9), the authors mention the need for additional analyses based on theoretical models. Given the sample size, data, and cited literature, multivariate statistics, and perhaps structural equation modeling, would provide more compelling results. More sophisticated analyses are needed to address specific research questions.

Answer

Additional information for test of normality results (Q-Q plots and Kolmogorov-Smirnov test) and handling of missing data were added.

Our primary aim was to assess associations of health locus of control (HLC) with other psychosocial factors, since HLC is more directly related to health measures such as quality of life, lifestyle etc, as noted in the introduction. As such, the construction of complex models of psychological nature was beyond the scope of this study. In other words, HLC was handled as the dependent variable, although directionality cannot be inferred with correlational analyses. Moreover, character and personality characteristics are variably
discussed in the psychological literature and we are not aware of any specific theoretical framework to confirm.

Abstract, last sentence: expand on the implications for aging policies as related to compliance and efficacy. Also discuss such implications in detail within the Introduction and Discussion sections.

Answer

In the introduction part we have one paragraph on health locus of control (HLC) and its importance on health and health policies. Gender differences on HLC associations were also investigated. As such in the last sentence of the abstract we changed the sentence to: “...increase efficacy by targeting health locus of control”. Compliance is not discussed so we eliminated the word in order reduce probabilistic interpretations, as well-noted by the referee.

Introduction has already expanded on HLC.

In the conclusion section, implications are addressed in the last paragraph. We quote: “In conclusion, this group of centenarians is important for research on successful ageing, taking into account gender differences on both the demographical, health and personality level. According to our preliminary findings, self-directness for men and optimism for women emerged as significant putative determinants of health locus of control, a valuable public health measure. Future research on the psychosocial profile of centenarians should adopt a more comprehensive and modeling approach by gender group. This gender informed approach could increase the efficiency of future ageing and well-being policies and programs.”

P. 3: Provide a rationale (and supporting literature in the Introduction) for the major disease categorization including the inclusion of diabetes mellitus as the only specific disease category.

Answer

Cardiovascular, neoplasmatic and neuropsychiatric diseases are the most prevalent disease categories world-wide and in Greece. Under the term category one can include different rare or more frequent diseases; hence these are “umbrella” terms. The decision to set diabetes mellitus as a separate, common category was based on the fact that it has distinct phenotypical and prognostic characteristics from the other three categories, thus it represents a syndrome deserving special attention. This reason was also added in the methods section.
P. 4: The internal consistency of the HLC was low. What is the implication? Is this typical within an oldest old sample or with this measure? At the minimum, the effect of such a low reliability should be noted in the limitations.

Answer

Cronbach’s alpha for internal and external HLC were 0.77 and 0.671 respectively. Values of 0.6 and above are widely accepted for analysis with some debatable exception for multivariate tests, which were not the case in our analyses (see above answer). In that case, no serious effects on our results were found. A note was added in the limitations section in accordance to your suggestion.

P. 7, paragraph describing bivariate correlations: The wording within this paragraph was unclear.

Answer

Wording within the paragraph was changed. Please see text.

P. 9: Define and elaborate discussion of “self-referential concept of health” as well as the next sentence describing worry and the role of external factors influencing health perception.

Answer

We changed it to “internalized health locus of control”. The following sentence was changed to: “Finally, not surprisingly, centenarians’ harm-avoidant temperament was positively correlated with higher external HLC, suggesting that in both genders, inclination to inhibition, uncertainty and worry enhance health dependence to external resources such as physicians etc.”

Minor Essential Revisions

The manuscript would benefit from review by a native English speaker as well as a careful proof reader.

Answer

Several grammar and spelling corrections were done. Please, see revised text (corrections highlighted in blue with “track changes” system). Other types of changes were noted as light blue.
Ensure that decimal points are used rather than commas.

Answer

Checked.

Use past tense to describe cited studies and the current work which is completed.

Answer

Several grammar and spelling corrections were done. Please, see revised text

P. 3 first sentence: Change to “4” principal measurements

Answer

Done

P. 8, last 6 lines: Provide literature to support the assertions regarding contextual gender differences in Greece.

Answer

Literature has been provided as you have suggested.

Tables: Spell out abbreviations in the table or a note; use decimal alignment.

Answer

Done.