Author’s response to reviews

Title: 10-year ASCVD risk is positively correlated with depressive symptoms in a large general population

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Author’s response to reviews:

Dear Editor and Reviewers,

Thank you very much for your comments on our manuscript entitled “10-year ASCVD risk is positively correlated with depressive symptoms in a large general population” (MS: BPSY-D-18-01014R1). According to the recommendations, we have revised thoroughly our manuscript with colored text (Red). The following is a detailed list of our description on revisions according to the reviewers’ comments. Since the changes were too much, we didn’t list all the detailed contents here. If any question arises, please let us know.

Thank you very much for your consideration.

Sincerely yours,

Yingxian Sun

Response to Livia Carvalho (Reviewer 1)’s comments:

In this study, the authors investigated the association between the 10-years risk of cardiovascular disease with depressive symptoms in a large population study in primary care settings. The topic of the study is of high clinical relevance. My first comment is the reason behind analysing PHQ-9 as factor while it should be analysed as continuous scale, the authors would have a more reliable and powerful statistical association if results were shown using it as continuous. The authors did not show individual associations with covariates, was there a main effect of gender and a main effect of cvs risk with phq-9 as continuous? If so, show main effects and then in
another regression model show the presence (or not) of interaction. If stats are modified than its most likely either table 2 or 3 will become redundant.

Answer: Thank you for your kind comments. In the revised version, we analyzed depressive symptoms using PHQ-9 score as continuous. Accordingly, we changed the statistical methods and provided the new tables 1-3 and figure 1. In the revised results, gender and 10-year ASCVD risk were independently associated with PHQ-9 score, and then interaction analysis showed the influence of sex on the associations of 10-year ASCVD risk and PHQ-9 score was statistically significant. Therefore, all the old tables and figures were deleted, and the manuscript was renewed thoroughly.

It would also be helpful to describe which statistical method was used in each part of the results section more clearly.

Answer: We added the corresponding statistical method in each part of the “Results” section.

There was no evaluation by a psychiatrist according to any diagnostic criteria, and therefore I would remove any mention of a major depressive disorder. Just analyse the data as continuous depressive symptoms.

Answer: Thank you. In the revised version, we analyzed depressive symptoms using PHQ-9 score as continuous scale and removed the mention of major depressive disorder. Also, we added this in the “Limitation” section.

As this study is cross-sectional, the authors are unable to investigate as mentioned in page 4 risk of depression. What the authors have done is to investigate whether individuals with higher depressive symptoms have higher cvs risk or vice-versa.

Answer: We agreed with this viewpoint. In this cross-sectional study, we wanted to investigate the potential associations between 10-year ASCVD risk and depressive symptoms (PHQ-9 score) but not the role of 10-year ASCVD risk in predicting depression. We revised the sentence to “However, whether 10-year ASCVD risk is also associated with depressive symptoms has never been reported,” in the third paragraph of “Background” section.

As an additional comment, it would be helpful if the article was revised for English, and for clarity family income changed to higher/middle/lower and abbreviations avoided as much as possible. What is WC in page 8 line 1?

Answer: As recommended, we revised the language and corrected some mistakes. Family income was divided into high, middle and low levels, and we described the information in the “Method” section. Some abbreviations such as WC (waist circumference) were deleted, leaving the commonly used ones in the manuscript.

Response to Nana Pogosova (Reviewer 2)'s comments:
The article is devoted to an actual topic - the relationship between cardiovascular risk and one of the most important psychosocial risk factors for cardiovascular disease - depressive symptomatology. The authors have performed a large-scale epidemiological study in one of the provinces of China with the determination of traditional risk factors for CVD, assessment of the total cardiovascular risk and depressive symptoms by means of a well-proven tool - the PHQ-9 questionnaire, validated earlier in China.
At the same time, the article is based on the analysis, which is not quite correct from the methodological point of view: (1) all examined persons are divided into 2 groups - a group of persons without depressive symptoms and having mild depressive symptoms, and a group of persons with moderate and severe depressive symptoms. All analysis was conducted between these two groups.

That kind of division of the examined patients seems to be incorrect taking into consideration the previously well known relationship between mild depressive symptoms and cardiovascular prognosis. Numerous studies have shown that the mild depressive symptoms and even individual depressive symptoms are associated with cardiovascular factors, higher overall cardiovascular risk and a worse prognosis. In this regard, the results obtained in the study may be distorted. In addition, the compared groups are not comparable in terms of volume. It is possible that some of the obtained results are connected with the incorrect division of participants into groups of comparison. Publication of the article in its current form is not recommended.

Answer: Thank you very much for your comments. Since PHQ-9 score reflected the severity of depressive symptoms, we analyzed depressive symptoms using PHQ-9 score as continuous in the revised version. Accordingly, we changed the statistical methods, provided the new tables 1-3 and figure 1, and revised the manuscript thoroughly.