Author's response to reviews

Title: The association between dietary selenium intake and diabetes: A cross-sectional study among middle-aged and elderly adults

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

Thank very much for your letter and advice. This paper has been revised, and we would like to re-submit it for your consideration. We hope that the revised version of the manuscript is now acceptable for publication in your journal. I look forward to hearing from you soon.

Best wishes.

Tu-bao Yang
Replies to Reviewer 1

Comment 1: How many 24-recalls did you use to validate the FFQ?

Response: We conducted 24-recalls in 55 subjects to validate the FFQ. We have added the details in the manuscript. (line 103)

Comment 2: Please explain the classification of the Se intake more clearly; did you classified it according to the distribution of Se intake in your population, or based on your knowledge of Se intake?

Response: On the basis of previous high-quality studies, we classified the Se intake into four categories according to the 25th, 50th, 75th percentiles of the Se intake in the study population. We have restate it in the manuscript as you suggested. (line 115)

Comment 3: The mean dietary Se intake in your population seems to be close to DRI. It means that your population was not very low-Se intake in overall, what do you think about the association in population with very low dietary Se intake?

Response: As you suggested, we have reviewed some former relevant studies and discussed it in the manuscript. (line 213-219)

Replies to Reviewer 2

Comment 4: The major limitation of this study is the reliance on dietary assessments to estimate selenium intake/status, which may cause potential misclassification of the main exposure variable of this analysis. The authors
should discuss this issue in greater detail, and provide additional supportive evidence to validate their dietary measures for selenium intake.

Response: The SFFQ in the present study was a special designed and a new measurement tool. Unfortunately, we could not provide other supportive evidence (e.g. published articles). According to previous studies, comparing to other dietary measurement was an efficient and acceptable way to validate FFQ. (Wolk A, Larsson SC, Johansson JE, et al. Long-term fatty fish consumption and renal cell carcinoma incidence in women. JAMA. 2006;296:1371-1376. van Dam RM, Hu FB, Rosenberg L, et al. Dietary calcium and magnesium, major food sources, and risk of type 2 diabetes in U.S. black women. Diabetes Care. 2006;29:2238-2243.) We have introduced the SFFQ in details and validated with 24-recall dietary measurement. (line 94-110) So we thought the dietary assessment in the study was accurate and acceptable.

Comment 5: Another potential limitation is the selected nature of the study population, which might cause potential selection bias thus limiting the generalizability of these findings. Again, the authors should discuss this issue in greater detail and acknowledge this as an additional limitation of this study.

Response: As you suggested, we have added the limitation into the manuscript and discussed it in details. (line 236-244)

Comment 6: Important confounding variables were missing, for example measures of socio-economic status (education, income or employment), which should be included in multivariate analyses.

Response: As you suggested, we have added the education level and
employment into the multivariable logistic regression. Unfortunately, we did not record participants’ income since the question relating to income was too private to investigate.

Comment 7: It is unfortunate that the authors did not examine potential sex-interaction in their analyses, also based on previous literature. Were results any different between women and men?

Response: We have conducted a subgroup analysis according to sex as you suggested. The results have been showed in the manuscript. (line 159-165, table 3)

Comment 8: Likewise, the authors should examine potential interactions between selenium intake and BMI in their analyses, also based on previous data. Were results any different across BMI categories?

Response: We have conducted a subgroup analysis according to BMI as you suggested. The results have been showed in the manuscript. (line 159-165, table 3)

Comment 9: I would suggest to include an additional descriptive table by diabetic status.

Response: As you suggested, we have added another descriptive table by diabetic status (Table 2)

Comment 10: The authors could also examine associations of selenium intake with pre-diabetes, if there are enough pre-diabetic cases.
Response: As you suggested, we have examined the associations of selenium intake with pre-diabetes, but there is no significant association between the pre-diabetes and selenium intake. In order to focus on the objective which is evaluating the relation of selenium intake to diabetes, we chose not to list the results related to pre-diabetes in the manuscript. The pre-diabetes results were showed below:

<table>
<thead>
<tr>
<th>Quartiles of Se intake</th>
<th>P for trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 (lowest)</td>
<td></td>
</tr>
<tr>
<td>Q2</td>
<td>0.81 (0.62, 1.05)</td>
</tr>
<tr>
<td>Q3</td>
<td>0.92 (0.68, 1.25)</td>
</tr>
<tr>
<td>Q4 (highest)</td>
<td>0.82 (0.57, 1.20)</td>
</tr>
</tbody>
</table>

Comment 11: Some importance references were ignored, for example a recent Cochrane systematic review on selenium and cardio-metabolic disease by Dr Rees and colleagues (Cochrane Database Syst Rev. 2013;1:CD009671), and a review article on selenium and diabetes by Drs Rayman and Stranges (Free Radic Biol Med. 2013;65:1557-64)

Response: As you suggested, we have added the first reference into the manuscript and discuss it in the discussion part. We already listed the second reference article in our manuscript (reference number 4), and we have added some information related to the review into the discussion area. (line 191-194, line 211-221)

Comment 12: Needs some language corrections before being published

Response: Done accordingly.
Special thanks to the reviewers and editors for their good and professional comments.