Reviewer's report

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

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Reviewer: Saverio Stranges

Reviewer's report:

This is an interesting article examining the association between selenium dietary intake and prevalent type 2 diabetes, using a large cross-sectional sample from China. The authors found positive significant associations, which are in line with some previous epidemiological and trial data from Western populations.

While the study findings are of potential interest to the field, there are however a number of issues with the present manuscript which would require attention from the authors. Specifically:

Major Compulsory Revisions

- 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.

- 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.

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

Minor Essential Revisions

- 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?

- 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?

- I would suggest to include an additional descriptive table by diabetic status.

- The authors could also examine associations of selenium intake with pre-diabetes, if there are enough pre-diabetic cases.

Discretionary Revisions
- 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).

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests