Author’s response to reviews

Title: Number of natural teeth, denture use and mortality in Chinese elderly: A population-based prospective cohort study

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Version: 5 Date: 05 Feb 2020

Author’s response to reviews:

Dear Editors,

Thank you very much for your comment on our manuscript, titled ”Number of natural teeth, denture use and mortality in Chinese older adults: A population-based prospective cohort study” (OHEA-D-19-00324R4). We have revised the manuscript according to your comment and a point-to-point response to the comment can be find bellow. Please contact us for any problems. Thank you.

Best regards.

Xiaoming Shi

Technical Comments:
Missing email addresses of all Authors
Response: Thank you. We added the emails as required.

(Body of MS) Rename “Introduction” to “Background”
Response: Thank you. We revised as required.
Editor Comments:

Thank you for submitting your revised manuscript, and your patience through the peer review process with the journal. As you may be aware, it is our aim to obtain two independent peer review reports for each submission. Unfortunately, it has come to our attention that this has not been the case in regard to your submission. As a result, we found it necessary to seek an additional opinion. I'm happy to say that overall they broadly agree with the other reviewers, but they have raised some additional points that we would ask you to address in a further revision. We do apologize for any inconvenience, but trust that you understand why this was necessary.

In addition, could you please copyedit your manuscript to further improve the quality of written English. There are a number of grammatical and typographical errors that should be corrected.

BMC Oral Health operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Tatsuo Yamamoto, Ph.D., D.D.S. (Reviewer 3): The manuscript has been revised well. I think this manuscript is acceptable for publication.
Response: Thank you.

Torsten Mundt (Reviewer 4): The authors of this population-based prospective study evaluated longitudinal associations between the number of missing teeth/denture use and all-cause mortality:
Strengths of the study may be the big sample size, the inclusion of several possible confounders and the prospective design.
Main limitations are the data assessment without any clinical examination, the unknown time points and causes of death. In older age, deaths due to several forms of cancer are very probable. Older people with a history of cancer were apparently not excluded in this study. I think this fact is another limitation.
The manuscript has been improved by the changes after the first review. However, other issues remain while reading the manuscript:
1. In another observational study (Schwahn et al. Missing, unreplaced teeth and risk of all-cause and cardiovascular mortality. Int J Cardiol 2013;167:1430-1437) a reduced unrestored dentition was associated with an increased all-cause and cardiovascular mortality risk, and an induction period of at least 5 years was proposed for the analyses of the relationship between the number of unreplaced teeth (denture use) and mortality. In the present study, an observation period longer than 3 years was considered only in the additional sensitivity analyses. This should be discussed.

Response: Thank you. Including an induction period is not commonly applied in previous studies (for example: J Dent Res. 2015 Aug;94(8):1055-62; Geriatr Gerontol Int. 2008 Sep;8(3):152-9; J Am Geriatr Soc. 2013 May;61(5):815-20). Such analysis could reduce bias that some older adults died soon after recruit may not due to tooth loss or denture use. However, it may also induce selection bias as only those could survival longer then the induction period can be included, making the study population is relatively healthier than the general older population. So in this study we only undertake such analysis in the sensitivity analysis. The sensitivity analysis excluding participants with an observation time of < 3 years showed no major difference. We believe this issue is not a threat to our finding.

We discussed this issue as follows.
“There is a threat that some older adults died soon after recruit may be not due to tooth loss or denture use. We undertook sensitivity analysis by excluding participants with an observation time < 3 years and the result showed no major difference as compared the primary results. We did not include an induction period in the primary results as most previous studies, since it may also lead to selection bias.”

2. Obviously, fixed dental prostheses were not considered for the analyses of tooth replacement. One could assume that such restorations are not prevalent among the elderly in China? Please explain.

Response: Thank you for this comments. Our previous reporting was ambiguous. The original questionnaire question for collecting exposure data is “Do you have false teeth? (你使用假牙吗?)” False teeth actually referred to any type of non-natural teeth, including partial or complete, removable or implant-retained fixed dentures. The type of false teeth is not collected. We revised the definition of exposure to make it clear.
“Do you have false teeth? False teeth referred to any type of non-natural teeth, including partial or complete, removable or implant-retained fixed dentures.”

3. According to the baseline characteristics, the majority of participants with either no or few remaining teeth (two third of the edentulous participants and 83% of those with 1-9 remaining teeth) had no dentures. In Western Europe or Japan, the proportion between denture users and non-users among persons with no or few remaining teeth is rather the other way around. What are the reasons for these differences between the populations? Please discuss!

Response: Thank you for this comment. Denture use rate is closely related to the economic status. China is a developing country and 60.6% of included participants were from rural area with low income. So the proportion of denture use is relatively low. We discussed this as follows:
“The overall denture use rate, particularly in those with no or few remaining teeth, was relatively low in this study as compared with the older adults from Western Europe or Japan. This is because denture use rate is closely related to economic status, while China is a developing country and 60.6% of the included participants were from rural area with low income.”

4 I am not a native English speaker, but I feel the paper suffers a bit from grammar mistakes.
Response: Thank you. A native English speaker checked the reporting of this manuscript for us.