Author’s response to reviews

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

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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-19-00324R3). 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:

Editor Comments:
Thank you very much for your revision. Would you please revise the manuscript following the comments from a reviewer.
Response: Thank you. We revised the manuscript according to the comments.

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): General comments:
This prospective cohort study evaluated association of the number of teeth and denture use with all-cause mortality in Chinese older people, and found that tooth loss was associated with an increased risk of mortality and denture-use provided a protective effect against death. The topic is interesting for the readers of this Journal. The statistics used are appropriate. The followings are concerns that should be addressed.

Specific comments:
Abstract
1. Page 2, lines 3-12: The purpose of the present study should be added in the Background.
Response: Thank you. We added the purpose as suggested.

2. Page 2, lines 13-19: More information such as age of the subjects, and dependent and independent variables and covariates of the Cox proportional hazards model should be added in the Methods.
Response: Thank you. We revised the methods as suggested.

3. Page 2, lines 20-43: The contents in the Results need to be shortened because those in the Methods will be increased.
Response: Thank you. We shortened the results section.

4. Page 2, lines 47-49: The sentence "The optimal number of natural teeth was ≥ 25." seems to be misleading. Some explanation should be added; or the sentence should be deleted.
Response: Thank you. We deleted this sentence.

Introduction
5. Page 3, lines 3-7: The sentence should include references.
Response: We added references.

6. Page 3, line 26: The words "Tooth loss, denture use" should be "Tooth loss and denture use." The manuscript should be proofread by a native speaker of English.
Response: We revised the reference and checked the language throughout the manuscript.

7. Page 3, line 33: Because the meaning of "optimal teeth number" is unclear, explanation should be added. A study (Fukai et al., Geriatr Gerontol Int. 2011) using the words "critical tooth number" might help the definition of the "optimal teeth number."
Response: Thank you. We replaced "optimal teeth number" with “the minimum tooth number that have no additional mortality risk”

8. Page 3, lines 42-46: The sentence should include references.
Response: Thank you. The references were added.
9. Page 3, lines 52-58: The purpose of the present study other than "to address limitation of the previous study" should be provided.
Response: Thank you. We revised the sentence as follows:
“We carried out this study was to prospectively evaluate the associations of the number of natural teeth and/or denture use with mortality using the Chinese Longitudinal Healthy Longevity Survey (CLHLS) datasets.”

Methods
10. Page 4, line 9: Outline of the survey should be provided. For example, is it a questionnaire survey or interview survey? If the survey was conducted by questionnaire, is it mailed?
Response: CLHLS is an interview survey.

11. Page 4, lines 28-32: How the informed consent was obtained?
Response: Informed consent was obtained from all participants during the face to face interview.

12. Page 4, lines 38-41: The sentence "In the first wave, all participants were newly recruited so all were included." should be revised because it seems like spoken language not academic sentence. Page 4, line 45: The word "analysis" should be "analyze."
Response: Thank you. We revised this sentence as “we included all participants from the 1998 survey as all participants were newly recruited.”

13. Page 5, lines 1 to 5: Some explanation of the words "natural teeth" should be provided. Does the natural teeth mean intact teeth? Or, does it include filled teeth?
Response: Thank you. We explained as suggested.

14. Page 5, lines 1 to 5: Some explanation of the words "false teeth" should be provided. Does it include only removable dentures? Or, is it include crowns and/or bridges?
Response: Thank you. “false teeth” included partial or complete removable dentures. We added description for it.

15. Page 5, lines 1 to 5: The authors should discuss validity of self-reported number of natural teeth and denture use because education time of the more than half of the study subjects was zero and about one third of the subjects were cognitively impaired.
Response: Thank you. We explained this issue as follows:

“Through the education level of included participants were low and one third of the subjects were cognitively impaired, the validity of self-reported number of natural teeth and denture use may not be influenced as the interviewers could help older adults to confirm their responses to these questions.”

16. Page 5, lines 1 to 5: The following information might help readers to understand characteristics of the study population. For example, comparison of the data of the mean number of teeth present and percent of people using denture between the subjects in the present study and national survey might help readers to understand generalizability.
Response: Thank you. According to the 4th National Oral Health Survey, the mean of remaining teeth was 22.5 ± 8.7 and denture use rate was 34.0% in the 65 to 74 age group in 2015-2016 (data for older people aged 75 and over was not collected). The mean remaining teeth (17.6 ± 10.6) and denture use rate (29.9%) in this age group were relatively lower in our study. This was because our data was collected much earlier than this national survey and there was a continuous improvement in the oral
health in Chinese older people during the past decades.

We think it’s more appropriate to compare the data in the discussion. So we discussed this in page 14, line 1-15.

17. Page 5, line 31: The sentence should include references.  
Response: Thank you. The literature review included a lot of papers. We only selected the most relevant references here.

18. Page 5, line 35: How was the information of fresh fruit intake and vegetable consumption collected?  
Response: Thank you. Data about fresh fruit intake and vegetable consumption was collected structured questionnaire. The questions for fruit intake and vegetable consumption are as follows:  
λ How often do have fresh fruits? a. almost every day; b. often; c. occasionally; d. never.  
λ How often do have fresh vegetables? a. almost every day; b. often; c. occasionally; d. never.  

We cited the questionnaire as a reference in the manuscript.

19. Page 5, lines 45-58: How was the information of covariates collected?  
Response: We obtained covariate information from the structured questionnaire. We cited the questionnaire as a reference so readers can find more detailed information.

20. Page 6, line 4: The words "number of teeth" should be "number of natural teeth."  
Response: Thanks. We replace "number of teeth" with "number of natural teeth" throughout the manuscript.

Discussion
21. Page 10, lines 18-21: The sentence needs revision because of the grammatical error.  
Response: Thank you. We corrected the mistake.

22. Page 12, lines 5-12: The sentence "This maybe because more tooth loss could have a more severe influence on the masticatory function and nutritional status, which in turn, been linked to overall morality." contradicts the fact that BMI was not associated with mortality in Additional Table 2. These results should be discussed.  
Response: Thank you very much for the comment. Additional Table 2 presents the stratified analysis by BMI. The results suggested that BMI was not an effect modifier, which means that the associations of the number of natural teeth and/or denture use with mortality were not modified by BMI. The results did not show that BMI was not associated with mortality.

Table 1
23. Data for the number of total subjects for each variable should be provided.  
Response: Thank you. We added the number of total subjects for number of natural teeth and denture use.

Figure 1
24. The words "Teeth number" should be replaced with "Number of natural teeth."  
Response: Thank you. We revised as suggested.
Additional Tables 1-3
25. Number of subjects used in the analysis for each group should be provided.
Response: Thank you. We added the events and participants number as suggested.