Author's response to reviews

Title: Relationships between self-rated oral health, subjective symptoms, oral health behavior and clinical conditions in Japanese university students: A cross-sectional survey at Okayama University

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Author's response to reviews: see over
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Dr. Christopher Foote
Executive Editor
BMC Oral Health

Dear Dr. Christopher Foote,

Please find an enclosed copy of our manuscript entitled, “Relationships between self-rated oral health, subjective symptoms, oral health behavior and clinical conditions in Japanese university students: A cross-sectional survey at Okayama University (6528812210308331)” which we would like to resubmit for publication in the BMC Oral Health.

We have made every effort to implement the suggestions, and we feel that the paper has been sufficiently improved.

[A point-by-point response to the concerns]

Reviewer 1

Reviewer's report:

General comments:
Avoid the use of the word 'subjects', this is outdated terminology. See Chalmers (1999), BMJ http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1115535/

Our response: We have changed ‘subjects’ to ‘participants’.

Methods:
Which version of the WHO protocols were used? This isn't referenced.
Our response: We have added the reference (#20) (P9, L1).

It is normal to report the participation rate at the start of the results section, not in the methods. In the methods section the description of the sample should be limited to a description of the characteristics of the base population and inclusion/exclusion criteria that were used.
Our response: We have moved the participation rate from the Materials and Methods section to the Results section and revised the manuscript according to this comment (P7, L12-14; P12, L2-4).

Were those aged 20 excluded from examinations, or were data collected for this group? This section is confusing. Were 232 20-year-old students excluded, or were "n=120" excluded? It looks like the authors meant 112 with incomplete data and = 120 20-year-olds, but this is not clear on first reading.
Our response: We have revised the manuscript to address this concern (P12, L2-4).

The authors have made extensive use of SEM modeling, and this is fine; however, the Table data are not very well formatted, and could be presented in a much more informative way. It would be informative to compare sociodemographic characteristics by self-care and the major outcome measures.
Our response: We have revised Table 1 and 2 as well as the manuscript (P10, L5-6; P12, L5-6, 9-12).
Reviewer's report:
Research on the social determinants of health would benefit from theoretical frameworks reflecting the complexity of real life social processes and their influence, and mechanisms of influence, on health outcomes. That is, theories of the causes of disease that bring together factors defined at different levels and their implications for public health policy.
This is a cross-sectional study aiming to assess the influence of behavioral and clinical on self-rated oral health among University students in Japan.
The subject is relatively well-studied. The criticisms / comments / questions / suggestions below aim to contribute the manuscript improvement.

- Major Compulsory Revisions
1. The determinants of and factors associated with self-rated oral health could be more clearly defined in the background section.
   **Our response:** We have revised the Introduction (P5, L14-17).

2. Give the direction of associations reported in the background section.
   **Our response:** We have revised the Introduction (P5, L17).

3. Describe in more depth the geographical location contextualizing study population in the country, city and University. Sample is composed of first year students who underwent to the general health examination. All first year students underwent to the general health examination? How many of this age group is out of University? What is the proportion of 18-19-year-old university students in Japan?
   **Our response:** We have revised the manuscript (P7, L3-6).

4. Authors claim that previous studies have examined only direct effects of independent variables on dependent variables. They justify the adoption of the structural equation modeling because it can be studied to investigate indirect effects and to analyze complex relationship within a conceptual model by allowing the inclusion of latent variables. However, it appears that data collection was not originally designed to answer the proposed research question. A justification of the theoretical model would benefit the manuscript. The proposed theoretical model is limited to the assessment of direct effects of clinical and of behavioral variables on self rated oral health. It lacks accounting for important factors such as socioeconomic, gender, dental health care, psychosocial and contextual variables. This limitation should be pointed out in the discussion section.
   **Our response:** We included sex and dental health care (regular check-up) in the SEM analysis. Then, sex was excluded from the final model. Due to study limitations, we were unable to include the other suggested factors. We have emphasized this limitation in the Discussion (P17, L3-4 from the bottom).

- Minor Essential Revisions
1. Page 5 (p5) what does ‘low activity of health behavior’ mean? Place the long sentence about the reasons for evaluating self-rated oral health in the Discussion section.
   **Our response:** We have rephrased the words and placed the sentence about the reason for evaluating self-rated oral health in the Discussion (P5, L17-19).

2. P6 – Keep together objectives and hypotheses. Alternatively, delete the hypothesis sentence.
   **Our response:** We have kept the objectives and hypotheses together (P6, L12-13).

3. P7 – Is socioeconomic position an important factor for this age group in Japan? Was it collected? Why sex was not included in the model (Figure 1)
   **Our response:** We do not believe that socioeconomic position is an important factor for this age group compared with middle aged subjects in Japan. However, we could not collect socioeconomic information in this study. We have emphasized this limitation in the Discussion (P17, L3-4 from the bottom).
   As mentioned above, sex was excluded from the final model. We have added that comment to the manuscript (P13, L1).

4. P15 – re-phrase the following sentences because they are not supported by the data: “The high score of DMFT is correlated with anxiety as well as self-rated oral health [13]. Anxiety associated with caries experience might explain the reason why the
score of DMFT had higher association with self-rated oral health [4].” And, “These data suggest that people who cannot recognize and acknowledge their deteriorating periodontal condition accurately are at increasing risk of delaying access to dental care [3].”

Our response: We have re-phrased these sentences (P16, L4-7 and L15-16).

5. P17 “our sample might be representative of Japanese young adult population, because the mean score of DMFT in 17 this study (2.3) was close to the data of Japanese aged 15-19 years in the National Survey of Dental Diseases at 2011 (3.2).” This statement is not well taken because: (1) this is not a probabilistic sample, (2) it does not take into account 95% confidence intervals, (3) study population was not contextualized in the methods section.

Our response: We have deleted these sentences.

6. P17 – Why to combine data collection with routine health screening limits the study?

Our response: The principal institution of routine health examination is the Health Service Center in Okayama University. Because of the policy of the Health Service Center, the number and type of questionnaire items are limited. In addition, the duration of oral examinations per student is set to be within 5 minutes. Thus, we had to minimize the number of variables that we could study.

7. Do not duplicate data on figures and tables. Either delete or Table 3 or Figure 1.

Our response: We have deleted Table 3.

- Discretionary Revisions

1. Page 5 (p5) Place the long sentence about the reasons for evaluating self-rated oral health in the Discussion section.

Our response: We have placed the sentence about the reason for evaluating self-rated oral health in the Discussion (P5, L2-4 from the bottom).

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

Our response: The manuscript has been reviewed by a native English speaker (a supplemental file).

We would like to thank you in advance for considering our manuscript, and we look forward to your review.

Sincerely yours,

Daisuke Ekuni