Author’s response to reviews

Title: Current Status of Periodontal Disease in Adults in Takahagi, Japan: A Cross-sectional Study

Authors:

Satoshi Sekino (sekino-s@tky.ndu.ac.jp)
Ryoichi Takahashi (ryoichi.t.amalgam@gmail.com)
Yukihiro Numabe (numabe-y@tky.ndu.ac.jp)
Hiroshi Okamoto (Perio-center@db4.so-net.ne.jp)

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Author’s response to reviews:

Dear Professor Saito:

Thank you for inviting us to submit a revised draft of our manuscript “Current Status of Periodontal Disease in Adults in Takahagi, Japan: A Cross-sectional Study” to BMC Oral Health. We also appreciate the time and effort you and each of the Reviewers have dedicated to providing insightful feedback on ways to strengthen our paper. Thus, we are herewith resubmitting our article for further consideration. We have incorporated the detailed suggestions you have graciously provided, and we hope that our revisions and the responses we provide below have satisfactorily addressed all of the issues and concerns you and the Reviewers have noted.

To facilitate your review of our revisions, the following is a point-by-point response to the questions and comments delivered.

Reviewer 1

"Current Status of Periodontal Disease in Adults in Takahagi, Japan: A Cross-sectional study" is an interesting manuscript. However, the reader should be able to gain a better understanding if the following points are revised.

1. In the manuscript, the data of Takahagi City and Ushiku City are compared and examined, but there is a lack of explanation about both cities when the data was collected. The author has to give a little more detail about the fact that both cities are cities with similar backgrounds.

Responses to Reviewer 1.

Thank you for your comments.
Response: With respect to the data from Takahagi City, we collected data between April 2010 and March 2013, as described in the 11th line of the Methods.

With respect to the background information on both cities, we now note in the Methods that they are in the same prefecture, and have added the percentage of people aged over 65 years in Ushiku.
2. In Figure 1, the dotted line is shown as a solid line, so correction is required. 
Response: Thank you for bringing this to our attention. We have corrected the text accordingly.

Reviewer 2
Major comments

I admit fundamental importance of the study and preciousness of data which suggests the incompleteness of Japanese public health program for periodontal disease to date. However, I am afraid to say that the current analyses in the paper, mainly presenting raw data and comparing to the past study similar to each other but different in several aspects, may lead wrong conclusion potentially. I suggest that the authors perform additional analyses in the obtained data to figure out the rationales of their observation or to report finding from the population and then add the comparison to the past study, even failing it with clarity. By that, I expect the conclusion obtained by the analysis of Takahagi population secures credibility of the paper to be published. The data for educational level, tooth brushing frequency, use of inter-dental care devices, regular dental visit, and experience of periodontal therapy is presented without any analysis. I hope the author successfully make precious data open in public.

Response: Thank you for your suggestion. We have now performed additional analysis for each characteristic (demographic, biologic and environmental parameters), and have prepared a new table (Table 4) to show the results. In the Discussion, we now comment on this new analysis.

Other comments

The excessive discussions including the repetition of results make the point unclear. The description in results are mostly repetition of tables, which is unpreferable to the manuscript.

Response: Thank you for your comments. We have simplified the Discussion and Results by removing this repetition.

The title of table 2 should be revised for clarity. The detail should be described in the legends. The description of SE and X2 test has an error and incomprehensive.

Response: We have revised the Table title and legend accordingly.

Reviewer 3

The authors have put a tremendous amount of work and effort for epidemiological study of a Japanese population.
In the abstract, please consider re-writing the Methods.
1. A total of 582 (aged 20 to 89 years) randomly sampled Takahagi residents answered a comprehensive questionnaire and participated in clinical examinations-

Response:
Responses to Reviewer 3.
Thank you for the suggestions. We have corrected the manuscript accordingly.
Line 53 of background
by pockets, do you mean greater than 4mm periodontal pockets?
It is better to be clear in what you mean by pockets

Response: We now use the phrase “periodontal pockets ≥4 mm”, referring to pockets of 4 mm in depth and pockets of greater than 4 mm in depth.

Recent studies:
How much is high, &gt; please clarify
In Western nations less of a problem: Please clarify

Response: We now discuss this issue in the Discussion. The criteria for attachment loss and analysis methods can vary between papers. Thus, if we included results from all references that discuss prevalence, the study background section would be very long and confusing for the readership.
In the revised Discussion, we have now included the following:
“An epidemiological survey of a rural area of Thailand, however, found that the mean proportion of tooth surfaces with attachment loss of ≥4 mm was 23.9% in their 30s and 63.9% in their 60s. A study by Corraini et al.4 carried out in an isolated population in Brazil from 2005 to 2006 found that CAL of ≥3 mm was present in 100% of participants, and attachment loss of ≥5 mm was evident in 100% of those aged 50 years or more.”

“In a Swedish study, Hugoson et al. 9 Between 1973 and 2003, the proportion of individuals with healthy gingival tissue who were categorized as Group 1 increased from 8% to 44%, and the prevalence of gingivitis and moderate periodontitis declined. Similarly, a Norwegian study by Skudutyte-Rysstad et al. 18 in patients over 35 years of age also found that although the number of participants with little or no bone loss decreased between 1973 and 2003, the proportion of participants in the most severe category (bone loss of over 20%) had hardly changed (from 6% to 7%).”

The authors write about the National Survey of Dental Diseases that it did not include a detailed analysis of clinical parameters and that this study covered only 10 teeth. The reader is left to infer what the survey covered, please describe what this national survey studied.

Response: The survey only included probing depth for 10 teeth, and had no data on CAL or BOP. We now note that the study focused on “probing depth for 10 teeth”.

First sentence of the second page of background
'was' should be inserted between examination and carried out.

Response: Thank you for the suggestion. We have corrected the text in question.

is located approximately

Response: We have added the term “located” to the sentence in question.

Ushiku City residents: How many is many?

Response: The Ushiku study showed only the mean percentage of plaque, not the frequency distribution. Therefore, we have revised the sentence as follows.
“The study found that mean plaque score and gingival bleeding rate of the residents were 64% and 48% respectively, and that the degree of attachment loss increased with age. “

Therefore, a new cross-sectional study is necessary. : This sentence seems to be unnecessary, or should be re-written as past tense.

Response: We have removed the sentence in question.

Most readers may not familiar with the geography or administrative division of Japan. I think it may be kinder to readers to provide a map so that we may understand that these two cities are in the same region or same district (what is a district? is it the same as prefecture? ).

Response: We have included a map of the prefecture. It is our own one, not taken from another source.

Methods

I do not think that it is necessary to mention that Takahagi City is in the same district as Ushiku City, Japan (what prefecture is Ushiku City in? is it the Ibaraki Prefecture? Did you mean Prefecture when you wrote district?) in the first sentence where you are describing the survey participants.

Response: We have removed some of the text in order to reduce potential confusion.

Comparison of Ushiku City and Takahagi City

How was random sampling of the inhabitants accomplished?
582 people were randomly sampled from 1400 inhabitants? Or 1400 inhabitants were randomly sampled, and 582 people answered the questionnaire?

Response: We sampled 1400 inhabitants, and 582 people answered the questionnaire. We have corrected the sentence accordingly.

What did the Japanese Society of Periodontology authorized the periodontist to do? Or does this mean that S.S. (one of the authors) was a specialist? If so, I think writing 'an experienced periodontist' carried out the examinations would be enough.

Response: Yes S.S. is a specialist, and we have corrected the sentence accordingly.

All participants agreed to take part or People who agreed to take part became participants?

Response: People who agreed to take part in the study became participants.

Their characteristics: Please re-write the sentence. We corrected the sentence.

Response: The sentence in question has been corrected accordingly.

What agreement did the Nippon Dental University have with Takahagi City in 2012?
Response: For clarity, we have added the phrase “…cooperation in epidemiological research with…”.

Where did plaque adhesion go in the results? And how was this graded? Did you use Modified O'Leary's index?

Response: We used the Sillness and Loe plaque index, and have now cited the appropriate reference.

I see that you've described in Table 1, wouldn't it be better to put it in table 2?

Response: Thank you for the suggestion. We believe that plaque score is a predictor, not a parameter that measures health status itself. Thus, it is relevant to Table 1.

Probing pocket depth should go before BOP if the PPD was measured before BOP (and I think that it would have been)

Response: You are correct, and we have revised the descriptions in the text accordingly.

Recorded sites
Please re-write. Mesiobuccal appears twice. Where is mesial central?

Response: Thank you for bringing this to our attention. We have revised the text accordingly.

Mesiobuccal, buccal, distobuccal would be the usual terminology.

Response: We revised the text accordingly.

Reproducibility of measurements
Shouldn't it be intra-operator reproducibility?

Response: You are correct. We revised the text accordingly.

Data analysis

There is a typo in chi squared

Response: We revised the text accordingly.

Discussion

For the second sentence, provide a reference.
Please provide a reference for the third sentence as well.

Response: We have now cited the appropriate reference. With respect to the third sentence, it was based on the reference cited for the second sentence.

Why would better numbers suggest better understanding?
Response: This is a good question. We believe that good values for parameters of chronic disease suggest that participants understand what is good or bad for preventing disease.
If differences between studies may be due to ethnicity, educational level, oral hygiene, please compare the this factors of different studies.
Response: We have performed additional analysis for these characteristics and now show the results.

Precision and accuracy are two different things.
Response: Yes, but reproducibility of measurements of this kind is very important. Thus, measurement by a single examiner is a strong point for this study.

Comparison with the study of Ushiku City residents:
Please describe how these two cities are comparable.
Response: We now provide background information on both cities. They are both located in the same prefecture, and in the same country.

I would think that number of missing teeth would be related to number of remaining teeth. Why not include these values in Table 1?
Response: All tables were based on the paper by Holtfreter et al. (2015), which suggested the standards for reporting chronic periodontitis prevalence and severity in epidemiologic studies. In that paper, it was suggested to show the number of remaining teeth. However, the Ushiku study shows the number of missing teeth. This is why they are shown in different ways.

I am not sure what you mean by the last sentence of the Discussion.
Response: Thank you for the question. We have corrected the sentence for clarity.

The line break of the second institution does not seem to be appropriate
Response: We revised the text accordingly.

There seems to be two different fonts used in the References section.
Response: We revised the text accordingly.

In table 4, the prevalence of CAL greater than 5 decreases to 9.55 for people in the seventies, could this be correct?
Response: The text should have read “95.5”, so we have revised the text accordingly.

Table 2, 2 commas after PD, in the table, Value has two Ls
Response: We revised the text accordingly.

List of abbreviations
CDC, AAP first letter of every letter should be capitalized.
The list needs more spaces.
Response: We revised the text accordingly.

Funding: translation has a typo.
Response: We revised the text accordingly.

Again, thank you for giving us the opportunity to strengthen our manuscript with your valuable comments and queries. We have worked hard to incorporate your feedback and hope that these revisions persuade you to accept our submission.

Best regards,

Satoshi Sekino,