Author's response to reviews

Title: Behavioral factors to include in guidelines for lifelong oral healthiness: an observational study in Japanese adults

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Author's response to reviews: see over
Dear Dr Appleford,

Thank you very much for your letter of 14 November 2006, conveying the reviewer’s reports of our manuscript.

We enclose a revised version of our paper in which we have tried to take into account all comments by the reviewer. We corrected and deleted items that were suggested in the third version. Also attached are our answers to the reviewer, outlining our alterations in detail.

We hope this revised version meets with your and the reviewer’s approval.
Please let us know if there is anything further we need to do.

Yours sincerely,

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**Answer to Referee 3**

1. There will be biases in the sample as a result of the poor response, but I think they are unlikely to have affected the associations found in a profound way. Only bivariate associations are investigated (rather than using multivariate techniques to address issues of co-variance) which I find a little surprising.

   We focused on clarifying the relevance of particular items to relationships between tooth loss and behavior and oral health status in this study. We used bivariate associations in the present study because we plan to use the findings from this study in the development of a self-administered checklist at the next phase of this research. We will then use multivariate techniques to address issues of co-variance to test the scores of a self-administered checklist, developed from the current research, on a much larger representative sample.

2. In terms of clarity, and when thinking about a common risk approach simply considering bivariate associations has some merits, but it can result in some slightly unusual conclusions.

   We agree, but we will not fall into the trap of using unexpected findings in the guidelines. This was an exploratory study to clarify the relevance of certain items to relationships we are exploring.

3. This may well account for some of the findings. For example “not having a hobby” may be associated with tooth loss, but getting a hobby would not necessarily change the risk at an individual level- or at least I find that unlikely. It might of course lead to greater self worth and better oral health behaviours, but equally the people who have higher self esteem may have better health behaviours and incidentally be more likely to have a hobby. Such associations appearing in an analysis of this sort are due to co-variance. This is an important consideration and a limitation of such a simplistic approach. This should be addressed in the discussion.

   Whilst agreeing that there may be a problem of co-variance in the analysis, the links between having a hobby and tooth loss is feasible. Having a hobby may reduce stress and stress has been shown to affect periodontal health (Sheiham and Nicolau). In addition, having a hobby may be a marker for having more flexible routines and control
over ones daily life (Abegg et al. 1999, 2000). (See Below).

These sentences were added to Page9, Para 3.

“In addition to some of the questions by the abovementioned researchers our questionnaire included a question on hobbies to determine whether having a hobby may reduce dental disease and tooth loss. Our research does not clarify whether having a hobby will change the risk of tooth loss at an individual level. It may point to the importance of flexibility in daily routines and/or stress. We found that persons with hobbies lost fewer teeth than those without a hobby. This finding may be due to co-variance. People with more time for hobbies may be higher socioeconomic status. They have more flexibility in their daily activities and routines and that influences their mouth cleaning behaviors and periodontal health [38,39]. In addition, having a hobby may reduce stress, and stress affects periodontal status [40].”

References (Addition)

