Author's response to reviews

Title: Do dentists have better oral health compared to general population? A study on oral health status and oral health behavior in Kathmandu, Nepal

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Author's response to reviews: see over
Dear Editor,

Thank you very much for giving us the opportunity to submit a revised version of our manuscript “Do dentists have better oral health compared to general population? A study on oral health status and oral health behavior in Kathmandu, Nepal” for publication in *BMC Oral Health*. We would like to thank the reviewers for their constructive comments and helpful suggestions. We have revised our manuscript taking into consideration all the comments provided by the reviewers and believe that implementation of their recommendations has greatly improved our article. Below, we have provided a detailed itemized response to all the comments and described how they have led to any changes to our manuscript. Changes in the manuscript are highlighted in red.

Yours sincerely

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Response to the reviewers

Reviewer #1

Comment:
This is a cross-sectional survey in Nepal to investigate the impact of dental education on the oral health status and compare the dental professionals’ practice of preventive dentistry and oral self-care behaviors to that of the laypersons. The paper may have a value for researchers study in this field.

Abstract: The structured abstract can be revised to not more than 250 words.
For example:
1) “The aim of this study was to investigate the impact of dental education on ….” can be revised as “This study aimed to investigate the impact of dental education…”, and
2) “A total of 472 participants (195 dentists and 277 laypersons from the general population) were recruited to this cross-sectional study.” can be revised as “This cross-sectional study recruited 472 participants (195 dentists and 277 laypersons from the general population)

Author response:
Thank you for helpful suggestions. We have revised our abstract according to your suggestions and shortened it substantially down to 238 words (the word limit in abstract for BMC Oral health is 350 words).

Introduction
The hypothesis tested can be rewritten as null hypothesis

The hypothesis is now rephrased and presented as a null hypothesis.

Methods
It is not known if the questionnaire is validated.
We did not validate the questionnaire in our target population, and we do agree that this is a concern when analyzing the results. However, the questionnaire was validated in a Mongolian study (ref. 11) and a modified version of the questionnaire has been used in other studies as well (ref. 33). Preferably, the questionnaires that were available to us in English should have been translated to Nepalese and back translated for validation. A pilot study was carried out and gave us some information about the face validity – which seemed to be good. Nonetheless, concerns reflecting this have been added to the discussion.

**It is not known how to calibrate if there is only one examiner.**

As explained in the paper, calibration exercises were carried out under the supervision of experienced professionals at the University of Bergen. This has been an accepted method in several published papers during recent decades. For two days, the examiner (MW) was given detailed theoretical and practical instruction on dental caries assessment and periodontal status assessment. The examiner then performed the assessment of dental caries and periodontal status for 2 days on >15 patients which was cross-checked by the dental professionals at the clinical departments of Restorative Treatment and the Department of Periodontology at the Faculty of Dentistry, University of Bergen, Norway, before starting the study.

**The intra-examiner agreement should be reported if available.**

Unfortunately we did not examine the intra-examiner differences. However, the examiner (MW) had recently trained for calibration before departure from the University of Bergen, and had shown satisfactory skills in determining the level of oral health.
Results

Please report the actual p value, not p<0.05.

We have provided actual p-values in the revised manuscript including tables, texts and abstract.

Any data about the education level between the 2 groups? This can be a factor affecting the outcome and should be discussed.

Thank you for this valuable remark. 18% of the laypersons had education below 10th grade, 34% had 10th grade, 27% had a bachelor degree, 11% had a master’s degree and 2% had other education level. 8% of the laypersons did not have any formal education. We have added brief information about this in the results section and have discussed (Lines 170 and 222-223)

Discussion

The limitations of the study such as sampling method should be discussed.

Possibility of sampling bias has been discussed in lines 273-280.

Conclusions

The author may put down the dentists had a better periodontal status and less caries prevalence than the laypersons examined

We have modified the conclusion according to your suggestion. Now it reads: “Our study has shown that dentists have a better self-reported oral health behavior, periodontal status and less caries prevalence than the laypersons from the general population. Since dental caries and periodontal diseases can be prevented with effective oral hygiene practices, educating public to improve oral health awareness and to develop effective oral-care habits should be considered.”
Reviewer #2

Major Compulsory Revisions

Report, study titled: ‘Do dentists have better oral health compared to general population? A descriptive study of oral health status and oral health behaviour in Kathmandu, Nepal’

The study is interesting, but some points should be considered before accepting the manuscript for publication.

Title:
1. In the title the study named as ‘descriptive study’. However, the authors are posing the study hypothesis and comparing two groups of participants which is more characterize analytical study design.

The word ‘descriptive’ has been removed from the title as suggested. Now the title reads “Do dentists have better oral health compared to general population? A study on oral health status and oral health behavior in Kathmandu, Nepal”

Abstract:
1. Aim of the study: it seems there are two aims ‘to investigate the impact of dental education on the oral health status…..’ and ‘to compare the dental professionals’ practice of preventive dentistry and oral self-care behaviors…..’. In the first aim the population and comparison are not clear. Try to rephrase the aim and make it more concise.

The aims have been rephrased.

2. Results: In the sentence ‘Significant differences (p<0.01) were found…..’ add MEAN number of teeth with caries (1.8 and 3.7)...

The term ‘mean’ has been added to this sentence in the results section of the abstract as advised.

In the sentence ‘Regarding the periodontal status, 82% of dentists…..’ add ‘had HIGHEST score ‘3’ (p<0.01)…..’.

We have added the term “highest” as advised.

Background:
1. The hypothesis is not related to the second study outcome ‘oral health status’.
It may be two separate hypotheses: 1. There is no difference in oral health behavior between Nepalese dentists and general population 2. There is no difference in oral health status between Nepalese dentists and general population.

The hypothesis is now rephrased taking into consideration the comments from both reviewers.

2. In the aims of the study:
‘b) to objectively assess and compare….’ I would remove the word ‘objectively’ because the clinical examination of caries or periodontal disease status depends on individual who is doing the measurement, so it is individual based.

The word objectively has been removed as suggested by the reviewer.

Methods:
1. Should all dentists register in the Nepal Dental Association in the city?
All medical professionals must be registered with the Nepal Medical Council (NMC) for a practicing license. Almost 99% of the dentists working in Kathmandu valley are members of Nepal Dental Association.

2. The exclusion criteria for examined population were not mentioned.
We have added a sentence “The dentist working outside the Kathmandu valley and healthy laypersons <20 years of age were excluded” in the methods section of the revised manuscript (Lines 102-103).

3. Fourth paragraph:
It is mentioned that ‘closed end questionnaire’ was used. Is there information about validity and reliability of the questionnaire? Where and how it was filled out by participants from both study groups? Were the participants informed about the study aim? Was the clinical examination performed before or after filling out the questionnaire? Was the clinical examiner aware about the results of the questioning?

To some extent these concerns have been addressed in our answer to Referee 1. Both study group participants filled in the questionnaires in a shielded office, before the clinical examination. The
clinical examination for dentists was carried out in their own working place whereas the
laypersons were examined at the dental unit of the respective hospitals under the same conditions.
Clinical examination was carried out by one of the researchers (MW). The examiner was blinded
to the results of the questionnaire at the time of intraoral examination.

Corrections and clarifications have been made in the manuscript.

4. Fourth paragraph:
'The intra-oral examinations were performed by the author (MW) after calibration according to
the WHO criteria for DMFT-registration [12] and CPITN-registration [13] at the department of Restorative Treatment and the Department of Periodontology at the
Faculty of Dentistry, University of Bergen, Norway, before starting the study.'
Rephrase the sentence. Instead of ‘DMFT-registration’ maybe it is better to say dental caries
experience assessment and instead of ‘CPITN-registration’ periodontal status assessment
The sentence has been rephrased according to the reviewer’s suggestion.

5. Fifth paragraph:
'Information about the oral hygiene behavior was assessed….’ I think it should be written oral
health behaviour instead of ‘oral hygiene behavior’
The change has been made according to the suggestion.

6. All the information about dichotomization of variables should be in statistical analysis
section.
Information about the dichotomization of categorical variables is now provided under statistical
methods section as suggested.

7. Seventh paragraph:
‘The tooth with visible discoloration and with a catch during tactile sensation was reported as decayed …’ The description of caries lesion detection is not completely mach with WHO criteria. Please check with the WHO, 1997 caries criteria, the description how caries was recorded: (‘Caries is recorded when the lesion has an unmistakable cavity, undermined enamel, or a detectable softened floor or wall’, WHO, 1997). Add information about filled and missing teeth because of caries.

Thank you for this very valuable remark. We apologize for this confusion caused by inaccuracy in describing the criteria used to assess dental caries. We changed the manuscript accordingly. It should now be clear that we fully employed the well accepted criteria described by WHO.

Statistical analysis:

1. Please describe how sample size was calculated.

A priori sample size calculation was performed using the Raosoft Inc. Sample size calculator (ref. 14). In Kathmandu, the number of registered dental surgeons at the time of survey was 319. With an assumption of an estimate of professional preventive knowledge being close to 50% and using an absolute precision of 0.05 and 95% confidence level the required number of participants were 175. To allow for possible refusals and drop-outs we approached 196 dentists, of which 195 consented to the study.

This information is now added to the Statistical methods section of the revised manuscript (Lines 139-144).

2. Describe more when each statistical test (chi-square and t-test) was used.

Frequency tables for group comparison were processed and statistical evaluation was done using chi-square test for categorical variables and independent sample t-test for continuous parametric variables.

This information is added to the Statistical methods section of the revised manuscript.
3. Information about dichotomisation of categorical variables should be in this section

Thank you. This has been done as suggested.

Results:

1. Second paragraph: ‘whereas 71% of controls had a score of 3 (p<0.01)
Add a HIGHEST CPITN score of ‘3’
The sentence has been rephrased.

2. Fifth paragraph: ‘Regarding the interdental space cleaning… However these differences were not significant between the genders and among the two study groups.’ In the Table 4 it is not indicated the significance of the differences between two groups (only between genders).
Analysis was carried out for the groups as well as genders. However, the results were not significant. We have deleted this sentence from the results section.

3. The results about dietary habits were not reported but it was mentioned in the methods section that dietary habits were assessed.
To collect information about the dietary habits are always challenging, specifically when this is self-reported. Due to the missing validity tests for the questionnaire in the Nepalese population, we cannot insist that our information has high validity and reliability. That is why we decided not to include this information. The sentence about dietary habits has been removed from the revised manuscript.

Discussion:

1. Fifth paragraph: ‘Mongolian dentists had less number of total teeth present….’
Was the age group of the examined Mongolian dentists the same as the dentists in Nepal?
Yes, the age group of the Mongolian dentists (mean age 35 years, range; 23-60 years) was similar to that of Nepalese dentists (mean of 30 years; range 24-56 years). This information has been added (Line 245) in the revised manuscript.
2. Fifth paragraph: ‘These differences could be related to dietary habits’. Is it only dietary habits may be responsible for the differences in caries status? What about age, socio-economic status, oral health care system, etc. …?

We fully agree with your comment. We have added other factors that may be responsible for these differences and given a reference (ref. 26).

3. Sixth paragraph: ‘Although more than half of the controls reported to have visited dentists before, the frequency of visit in a period of two years was low…’ I did not found the information in the results section about frequency of dental visit.

The frequency of dental visits was provided in the original manuscript. In the revised manuscript this information is available in the results section (Lines 204-207).

4. To the limitations of the study can be added the following:
- not equal number of males and females in two groups (dentists and general population)

This information has been added as one of the limitation of our study (Lines 278-284).

- participants from one location only

This limitation has been mentioned and issue of generalisability has been discussed.

- if the clinical examination was performed before the questionnaires were filled out and if the participants knew about the study aim it might influence on the participants’ responses

Clinical examination was performed after the questionnaire was filled out. This information has been added in the methods section.

- the same can be addressed to the examiner who performed the clinical examination (awareness about study aim, absence of blindness of examiner)

Clinical examination was performed by one of the investigators (MW) and she was aware of the study design and aim. However, she was blinded to the participants’ response to the questionnaire before intraoral examination was performed.
5. Ninth paragraph: ‘The oral health status reported here in this study has been based on objective clinical examination….’ I recommend removing the word ‘objective’ because the clinical examination is far from objectivity.

The word ‘objective’ has been removed as suggested by the reviewer.

Thank you