Author's response to reviews

Title: Oral health of 12-year-old Dai school children in Yunnan Province, China: A cross-sectional study

Authors:

Shinan Zhang (snzhang2000@163.com)
E CM Lo (hrdplcm@hku.hk)
J Liu (liujuan1966@yahoo.com)
Chun-Hung Chu (chchu@hku.hk)

Version: 2
Date: 23 July 2015

Author's response to reviews: see over
### Reviewer 1 (Santosh Kumar Tadakamadla): comments:

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Though interesting, the introduction is very long. It would be better if the introduction can be shortened that flows gradually from background to the foreground.</td>
<td></td>
</tr>
<tr>
<td>Done. The introduction is shortened to 539 words.</td>
<td></td>
</tr>
</tbody>
</table>

| The title and aim are misleading as the study population included only school children but not all 12 year old Dai children. Include “School children” in title and aim. |
| Done, line 1-2, marked in red. |

<table>
<thead>
<tr>
<th>Methods</th>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The exclusion criteria is not clear, what do the authors mean by &quot;significant auto immune disease&quot;.</td>
<td></td>
</tr>
<tr>
<td>Amended, line 106-108 marked in blue.</td>
<td></td>
</tr>
</tbody>
</table>

| While calculating the sample size, why was the data from a 2005 study (a decade ago) used, is there any recent data. |
| Done, line 88-92, marked in red. |

| The sample size calculation procedure is not explicit, the authors need to explain this more clearly. |
| Amended, line 89-95, marked in red and blue. |

| No reference provided for DMFT index, caries diagnosis criteria. |
| Added, line 131 and 133 marked in red. |

| CPI (no index teeth according to the latest WHO oral health surveys. |
| Agree. This is discussed in line 261-263, marked in red. |

| CPI in children is used to record gingival status |
| Agree, line 144-145, marked in red. |

| No description on how many "Oral health knowledge" questions were there in the self-administered questionnaire. |
| Done, line 120-123, marked in red. |

| How were they scored? If scored, was the questionnaire validated. |
| Done, line 114-116 and 120-123, marked in red. |

| SPSS is no longer abbreviated as Statistical Package for Social Sciences. |
| Amended, line 158-159, marked in blue. |

| Did the authors conduct tests of normalcy to see if the data is normally distributed, if not they need to conduct non-parametric tests Fisher exact test but not the chi square is the test of choice for 2X2 table. |
| Amended, line 159-162, marked in red. |

| As the caries prevalence of caries was very low, we can assume that there were many subjects who had not caries. In this situation, zero inflated negative binomial regression analysis is the best method for multivariate analysis. |
| After consulting with statistician, we do not use Zero inflated negative binomial regression analysis because it analyses countable data. |

<table>
<thead>
<tr>
<th>Results</th>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the multivariate analysis table, only few independent variables have been entered while there is no description in the methods that only few independent variables will be entered into the multivariate analysis.</td>
<td></td>
</tr>
<tr>
<td>All the variables were entered for analysis and only significant variables were shown in the final model (Table 4).</td>
<td></td>
</tr>
</tbody>
</table>

| When describing the results that are not be seen in any tables or figures, indicate in the parentheses that "data not presented in the tables. |
| Done, line 177-179, marked in red, this results are not repeated in a table. |

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description on the scarcity of literature on this population is redundant, this has already been dealt with in introduction.</td>
<td></td>
</tr>
<tr>
<td>Deleted as suggested</td>
<td></td>
</tr>
</tbody>
</table>
Need to state the limitations of the sampling strategy used, it seems that the districts and schools were selected at convenience.

The best place for writing about the follow up of students, distribution of documents (pg 10, 212-216) is methods. The authors need to describe about the following up the missed students in methods

Further, the authors describe that parents were provided with questionnaires, what information was sought from parents and why was this data not used in the analysis.

The 1st and 2nd paragraphs on page 11 regarding sugar consumption are conflicting. in the first paragraph, authors describe that sugar in the form of drinks and sweets contributed to greater caries while in the second paragraph, they say that Dai community in China are still on traditional diets.

The third paragraph on page 11 about PUFA index is out of place. The authors might choose to write about PUFA if they have some content to discuss on its usage in the context of current study.

The last paragraph on page 12 which discusses why greater dental caries severity was observed in those children who visited dentist in the previous is not clear, the last sentence in this paragraph is again out of place.

Authors need to include discussion on the oral health behaviour pattern also if there is data on this available from the previous studies in the region.

The last sentence of the discussion is again out of place and doesn't belong there.

Conclusion
The first sentence of the conclusion is too general, how much is "common"? Overall, this is well written paper but discussion needs substantial corrections.

There are spelling and grammatical errors in the manuscript (for instance "accessed" on page 7, line 125; Grammatically unsound, pg 6, 118-119; pg 7,172-173).

Level of interest: An article whose findings are important to those with closely related research interests.

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

Statistical review: No, the manuscript does not need to be seen by a statistician. Declaration of competing interests: I declare that I have no competing interests
Reviewer 2 (Huan-cai Lin) comments:

The study described the dental caries and periodontal status of 12-year-old Dai 12 children in China and to study the factors affecting their oral health status. The information reported is important for planning the dental health promotion program for this population because such information is scarce.

I have several suggestion for minor revisions.

1. In the first page, the name of second institution of the first and third authors is not found.

2. Page 3, lines 31-32: the dentist/population has changed obviously now compared to year 2007. Please try to find recent data, including those published in Chinese.

3. Page 3, lines 42: "the predominant ethnic group' is better deleted to avoid misunderstanding because all ethnic groups in China are equal.

4. Page 11, lines 224-225: The description "no organized oral health promotion programme was conducted for the ethnic minority children" has no evidence. Please rewrite. e.g. organized oral health promotion programmes were uncommon in rural areas of China, especially in western areas where the economic was less development.


6. Page 20, lines 406: "P value" should be amended to keep consistency with previous tables.

Level of interest: An article of importance in its field.
Quality of written English: Acceptable.
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests.

<table>
<thead>
<tr>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The information was added in line 4-7, marked in red.</td>
</tr>
<tr>
<td>This is deleted to shorten the Introduction to 539 words.</td>
</tr>
<tr>
<td>Deleted as suggested.</td>
</tr>
<tr>
<td>Amended as suggested in line 233-234 marked in red.</td>
</tr>
<tr>
<td>Done, line 234-237, marked in blue.</td>
</tr>
<tr>
<td>Amended as suggested (Table 5, marked in red)</td>
</tr>
<tr>
<td>Reviewer 3 (Saraiva Guedes) comments:</td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td><strong>Major Compulsory Revisions</strong></td>
</tr>
<tr>
<td>1. The title should include the study design, for example: Oral health of 12-year-old Dai children: in Yunnan Province, China: a cross-sectional.</td>
</tr>
<tr>
<td>2. In the abstract, you could describe the statistical tests used and detection criteria.</td>
</tr>
<tr>
<td>3. The introduction shows a coherence with descriptions about this subject. But I thought long, you can review some topics:</td>
</tr>
<tr>
<td>3.1) Description criteria of the World Health Organization in lines 34, 35 and 36: &quot;The caries experience measured by the mean DMFT score ('D' stands for decayed tooth, 'M' denotes a missing tooth due to decay, and 'F' Represents the filled tooth.)&quot;</td>
</tr>
<tr>
<td>3.2) Description of ethnic groups in lines 42, 43 and 44: &quot;China has 56 ethnic groups. The Han, the predominant ethnic group, constitute approximately 92% of the total population. Although the other 55 ethnic groups account for only 8% of the total population of China, nonetheless they number approximately 114 million [7].&quot;</td>
</tr>
<tr>
<td>3.3) Also describes about the language in the line 47: &quot;They speak over 80 languages, 30 of which have written forms [8].&quot;</td>
</tr>
<tr>
<td>3.4) Another suggestion is to insert the description of the province of Yunnan (from line 54 up to 63) of the study methodology.</td>
</tr>
<tr>
<td>In addition, some data could also be inserted in the methodology (from line 75 up to 78): &quot;The World Health Organization has selected 12 years the indicator the age groups for international benchmarking of children's oral health. [15] The authors of this paper Conducted epidemiological surveys and Reported 12-year-old children in various regions and countries in southeast Asia.&quot;</td>
</tr>
<tr>
<td>4. What is your hypothesis?</td>
</tr>
<tr>
<td>5. The methodology of the study could be supplemented with some information that would clarify how the study was conducted for example: design of the study.</td>
</tr>
<tr>
<td>6. All children of the province of Yunnan were examined? It was a convenience sample?</td>
</tr>
<tr>
<td>7. About this calibration process, the children were re-examined on the same day? This could generate a bias because the examiner could remember the details?</td>
</tr>
<tr>
<td>8) The calibration process was conducted during the study, or just before the study?</td>
</tr>
<tr>
<td>9. Describe about the data collect related to oral behaviours and oral health-related health knowledge for example: 9.1) Tooth-brushing practice: brushing once daily or brushing twice or more daily.</td>
</tr>
</tbody>
</table>
9.2) Snacking habits: eating snacks every day or eating snacks twice a week.

9.3) Dental visits: dental visits within last year.

10. What is the reason to make a stratified analysis of the data, between boys and girls? How can this be related to your purpose?

11. One suggestion is to insert a table with the baseline characteristics of the population or one table about caries experience (dmft) and variables studied. So that the reader better understand the data.

12. Na tabela 1, você pode descrever as siglas: decayed teeth (DT), missing teeth (MT), filled teeth (FT), severe untreated caries (PA), and visible apical infection (A).

13. You can include in Table 1 that the first value refers to "mean", next to the standard deviation. Mean DMFT(SD), Mean DT(SD), Mean MT(SD), Mean FT(SD), Mean PA(SD), Mean A(SD).

14. Review the data found on line 180 with the data from that table (table 2). Apparently are different: "Among the children surveyed, 96% (N = 766) Their teeth brushed at least once daily."

15. You could indicate that the text found in the 190 "Only 7% of the surveyed children had healthy gums (highest CPI = 0). Most of Them (93%, N = 762) had unhealthy gums (Highest CPI> 0), and the mean number of sextants (SD) with calculus was 5.1 (1.1). There was the statistically significant difference in the distribution of the CPI highest scores between the boys and girls. "refers to table.

16. Another suggestion is to delete this text, you can let the data only at the table.

17. What are the limitations of the study? Do you think that the convenience sample and the calibration process may have influenced or created a bias?

18. What the findings of their research can contribute to this population? What are the recommendations?

19. In conclusion you state that: "The prevalence of gingival inflammation and calculus was high." You compared his findings with which data?

Minor Essential Revisions
1. As it is about a cross-sectional study, you could exchange in the

In Table 2, marked in red.

In Table 2, marked in blue.

We wanted to check if there is a gender difference in caries experience.

This is not related to the aim of this study.

Done (Table 3) line 380, marked in red.

The acronyms of DMFT index was described in line 39-40.

Amended as suggested in Table 1, marked in red.

Done line 187-188 This is not presented in the table.

Shown in 204 - 207 marked in red.

The text was added in line 204-207.

Those data described in the text are not repeated in the tables.

The limitations are added in line 218-219, 261-263 marked in red.

Line 229-237, 254-259 marked in red.

Amended, line 272.

Done, line 27-28, marked in red.
abstract the term "caries risk" (line 18) by a higher prevalence of caries in the sentence: "Girls and Those Who had visited the dentist During the previous year had higher caries risk."

Discretionary Revisions
1. To make the methodology clearer, you would first describe the sample size calculation and then the selection of children.

2. Maybe you can make more clear the term "undetermined enamel" in the line 127. Because it can be confused with restrict enamel lesion.

3. You may inform in the introduction the previous published studies regarding pre-school children in the province of Yunnan. You can explain that there are few researches related to children in the specific ethnic minor group. The studies were related only among five years old children."Zhang S, Liu J, Lo CE, Chu CH Dental caries status of Dai preschool children in Yunnan Province, China BMC Oral Health 2013 Nov 27; 13:.... 68 doi: 10.1186 / 1472-6831-13-68. "


Level of interest: An article of importance in its field.
Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: I declare that I have no competing interests.

Amended as suggested. Line 88 to 109.
Done. Line 131-133, marked in blue.
The introduction was revised and shorten as suggested by other reviewers.

Paper by Fan et al. is not included because caries status of Han but not Dai children was reported.
**Reviewer 4 (Professor C.J Oulis) comments**

**Comments to authors**

**General comments:** The issue that this paper is exploring, although it is very common, is interesting due to the area and the population (ethnic minority) studied. However, the authors due to methodological errors do not succeed to convince of such a significance and do not make any contribution to the literature with the poor results presented after all. They spend so much space in the introduction explaining about the peculiarities of this ethnic group, in terms of the location, the language, the income and the Dentist to population ratio, but they do nothing to correlate these characteristics with the caries prevalence and the oral hygiene habits or diet of this population. It seems like they have collected so much data via the clinical examination or the questionnaire, but they present so little in the paper at the end. The only data presented in four simple tables is considered very little and the paper doesn’t contribute to the literature with anything new.

**Specific Comments:** Major Compulsory Revisions.

Abstract Methods: This is a very poor abstract, not well organized with most of the important information regarding the criteria of registering caries and periodontal status missing while the given data in the results is considered very little.

*Introduction (page 3)*

In general, most of the space and effort is consumed in the presentation of the geographic characteristics of the area and it’s population without any information regarding the caries status and periodontal condition of these ethnic groups. The literature review is irrelevant to the topic and the introduction is considered very poorly organized, not satisfying the reasoning for conducting this study.

*Methods (page 5)*

Selection of the Sample: There was a good methodology selecting the sample but more information, regarding the questions (probably by including the questionnaire). The methodology on how they measured the oral health knowledge and the final score, should have been included.

*Questionnaire Survey*

Page 115: it is stated that information on the “oral health-related behaviours (snacking habits).” was collected, without explaining how this questionnaire was formulated.

How the snacking habits were registered and evaluated.

Page 117-119: the same goes for “the oral health knowledge was measured with standardized questions on the causes and prevention of dental diseases, and a dental knowledge score was constructed” and why the questionnaire is missing from the paper.

*Data Entry and Analysis:*

1) The data on DMFT scores with 40% of the children having caries and a mean DMFT of 0.9, apparently constitutes a very skewed distribution of caries and nonparametric tests are better for the statistical analysis of

<table>
<thead>
<tr>
<th>Authors response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The paper was amended thoroughly according to the reviewers’ comments.</td>
</tr>
<tr>
<td>The abstract is revised in 17-35.</td>
</tr>
<tr>
<td>The Introduction is revised and shortened to 539 words, line 37-83.</td>
</tr>
<tr>
<td>The score was explained in line 120-123, marked in red.</td>
</tr>
<tr>
<td>The questionnaire for our previous studies was used. Line 113-115 marked in red.</td>
</tr>
<tr>
<td>The questionnaire is in additional file 1</td>
</tr>
<tr>
<td>The questionnaire is in additional file 1, mentioned in line 114-116, marked in red.</td>
</tr>
<tr>
<td>Agree. Two Independent-Samples Mann-Whitney U test was used. Line 159-164, Table 1 and Table 5 marked in</td>
</tr>
</tbody>
</table>
such data.

Results:
In general the way that the results are presented is very poor with very little data in percentages and giving only the total means without details and analytical presentation of the values or scores i.e: the CPI index.

1) Page 183: “Daily snacking habits were common, and no significant difference was found between boys and girls”. Q 1: Why, this data is not given in a table along with the other information?

Q 2: How “Daily snacking habits” were registered and what was the measurement unit?

Q 3: why there is no comparison between those with caries and those without..? since on line 236 the lower caries prevalence is attributed to lower sugar consumption?

2) The results of the study might be biased since percentages with parametric tests are used and in table 2 comparisons are made between the three parameters and gender and not with those having caries and these they don’t. Why there is no any multifactorial analysis of the data?

3) page 184-186: “..a dental knowledge score was constructed...The mean dental knowledge score of the 12-year-old Dai children was 7.8 ± 3.6. Higher oral health related knowledge was found among the girls than among the boys (8.1 ± 3.3 vs. 7.5 ± 3.8, p=0.007).

Q 1: Why there is no such a table showing the different scores in comparison with the other parameters and caries?

Q 2: The study might have been more meaningful with better elaboration of the findings in terms of assessing the distribution of caries (Occlusal vs proximal sites) and based on the findings to conclude whether prevention has to go towards more often and better tooth brushing with a fluoridated toothpaste or the use of pit and fissure sealants.

Discussion
The discussion is devoted to comments and comparisons of the results of the study with studies only from China and not from other parts of the world or Europe. The DMFT score of 0.9 for the 12 year-old children and 60 % of them free of caries is an extra ordinary figure and ideal oral health target for many European countries.

The authors are talking on how to establish better preventive programs, which I don’t see that might offer any further reduction in caries …instead of focusing on teaching the population to brush their teeth twice a day …..or cover the population with a public insurance scheme applying pit and fissure sealants. Therefore the discussion should have focused on the findings of the high percentage of untreated caries and how to prevent it from happening (fluorides and sealants) and secondly on how to treat the consequences of the disease.

Conclusion:
In conclusion, the study cannot be published in the present form due to...
methodological errors and inadequate statistical management of the data. The study can be re-written and resubmitted after a major revision in the introduction and the statistical analysis, adding more information on the DMFS index and the distribution of caries according to surfaces in order to support the effect of sugar on the proximal surfaces or absence of sealants on the Occlusal surfaces.

Summary
An article of limited interest. Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions.

Declaration of competing interests. I declare that I have no competing interests in relation to this research or paper I have reviewed.

DMFT and not DMFS score. We thus also did not collect data with DMFS index.

The authors have revised the manuscript according to the reviewers’ comments.