Reviewer's report

Title: Common risk indicators for oral diseases and obesity in 12-year-olds: a South Pacific cross sectional study

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Reviewer: Lisa Bøge Christensen

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Common health determinants for oral diseases and obesity in pre-adolescents: A South Pacific epidemiological study BMC Public Health

The manuscript deals with a cross sectional study on common risk indicators for oral diseases and obesity among 12-year-olds (n=1304) in New Caledonia (NC). Data are collected by means of clinical examinations and questionnaires. It is a study of high interest; however, I have the following comments and suggestions.

The title

1. It should be clear from the title that the study comprises 12-year-olds instead of "pre-adolescents".

2. Further, the term "risk indicator" should be used instead of risk factor and determinant, since it is a cross-sectional study showing associations. Determinants and risk factors are more relevant in longitudinal studies. This applies for the total manuscript.

3. The term "influence" is used in the abstract and the result section; this must be substituted with "association".
The introduction and the aim of the study

1. It would be nice to have a little more introduction to NC, maybe just a few general data.

2. It is mentioned that there are some health and social disparities between the ethnic groups, a little more details about this is needed.

3. The aim of the study should be more precise, the study includes 12-year-olds (not" pre-teens").

4. The results section includes the prevalence of oral diseases and the conclusion mentions "a new indicator for presence of oral diseases", hence, prevalence of oral diseases ought to be a part of the aim.

5. The aim about masticatory dysfunction is not clear; nothing has been mentioned about this in the introduction section among children and adolescents. Reference (no 6) was made to a study among older people! 12-year-olds will often have a mixed dentition (eruption of permanent and exfoliated primary teeth with considerable variations in time), which is a normal condition. At least such an aim on masticatory dysfunction should be explained and justified.

Methods

1. Regarding calibration procedures for measuring oral diseases, reference is made to a previous article. Cohen's kappa values should however be mentioned in the present manuscript.

2. Methods for measuring caries and gingivitis are explained in the present manuscript, and the indices are shortly mentioned in table 1, but the literature references should be indicated in the text and included in the reference list.
3. Masticatory dysfunction was measured as chewing efficiency measuring number of posterior functional dental units (PFU), is there a reference of this measure?

4. Severe oro-facial dysmorphologies (malocclusion) is also defined in the text of table 1. Is there a reference of the definition of "severe dysmorphologies"?

5. A combined index COGHI was constructed and the children were divided into 4 groups, ODG, OG, ODOG and HG. It is not clear how the index COGHI was made, it has to be further detailed. Which variables are included in COGHI? Was caries experience or untreated caries included? Were conditions such as PFU, malocclusion and oral breathing considered as oral diseases, and if yes, it should be justified?

Results

1. The first 12 lines of this section includes too many figures (in percentages), which is confusing to the reader. It would be clearer to insert percentages etc. in table 1 and 2. This would also give an overview of the characteristics of the study population. A reduced number of figures could be mentioned in the text and reference could be made to the tables 1 and 2.

2. "Almost 3 % had fewer than four PFUs", Could this simply be because of the mixed dentition in 12-year-olds? This should be commented upon in the discussion section.

3. It is difficult to see the relevance of the evaluation of probability of children having a low number of functional units, table 4. The study population is 12 year-olds, where low number of functional units might vary and be a normal condition, when primary teeth are exfoliated and permanent teeth erupt. If the authors find it relevant, it has to be explained.

4. "Dental caries was present in 46.9 % of the children", was it untreated caries or caries experience (DMFT)?
5. "Oral dysfunction was observed in 31.5 % of the children having an oro-dysmorphology". Oro-dysmorphology was apparently measured according to the text below table 1, but what about oral dysfunction? It can hardly mean masticatory dysfunction, since chewing difficulties are mentioned separately? This is confusing and has to be clarified

Discussion

1. Nutritional variables, ("sugar consumption") were not found to be risk factors, which was unexpected for the authors. Could the lack of association between consumption of sweet drinks and oral disease be caused by the definition of oral diseases, which seems to include conditions such as malocclusion? Could an association be found, if only caries, gingivitis and infectious dental processes were used in the index of oral diseases?

2. It was also unexpected to the authors that masticatory ability was not found to be a risk indicator and "not in accordance with other findings (13)…", however, reference no 13 seems not to include masticatory ability!

3. Geographical residence and ethnicity were found to be significant risk indicators. The authors have already commented upon it, but I would suggest to go some deeper into this, since these are the most prominent results. It was mentioned in the introduction section that ethnicity and geography might cover some social differences. Even if social variables such as parents' level of education, income, type of work were not included in the present study, some reflections on this could be added in the discussion section.

Tables

1. Table 1 should be a description of the characteristics of the study population and the prevalences should be shown in percentage for each category in each variable.

2. Table 2: Please show the percentage for each category
3. Table 3: The heading should only include the term risk indicators and it should be indicated that these are associations. The abbreviations HG, OGG, OG and ODOG should be written in full text. A reader should be able to understand the table independent from the text.

4. Table 4 (see my comments above) under Results

5. Table 5: The abbreviations HG, OGG OG and ODOG should be written in full text. A reader should be able to understand the table independent from the text.

Abstract

1. The aim should be identical with the aim in the text. The word "influenced" should be substituted with "associated with" (cross-sectional design)

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
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Yes

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