Author's response to reviews

Title: Toothache and associated factors in Brazilian adults: a cross-sectional population-based study.

Authors:

Mirian Kuhnen (kuhnen@uniplac.net)
Marco A Peres (mperes@ccs.ufsc.br)
Anelise V Masiero (anemasiero@uniplac.net)
Karen G Peres (karengp@ccs.ufsc.br)

Version: 2 Date: 30 September 2008

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

On behalf of all authors, I am submitting the revised manuscript of “Toothache and associated factors in Brazilian adults: a cross-sectional population-based study” to your appreciation and to editorial analysis of the BMC Oral Health, as to the possibility of its publication.

The text has been revised according to indications of reviewers. We thank comments and suggestions, which we truly believe contributed to improve the text. We prepared a response to the reviewers, addressing each of their comments. Each of the modification is in bold words.

The manuscript has not been published before, and is not being considered for publication elsewhere. We agree to assign exclusive copyright to the BMC Oral Health if and when the manuscript is accepted for publication.

Yours sincerely,

Karen Glazer Peres
Federal University of Santa Catarina, Brazil.
Reviewers Comments

Version: 1 Date: 16 July 2008

Reviewer: Anne Nordrehaug Astrom

Reviewer's report 1:

Review of ms "Toothache and associated factors in Brazilian adults: a cross-sectional population based study"

General comments:
A descriptive cross-sectional study involving 2022 adults 20-50 years old residents of an urban area of a medium sized city in Southern Brazil is described.
The specific objective was to assess the prevalence of pain and factors associated with toothache in this population. The sample design is described as a two stage cluster and a sample size taking into account the design effect has appropriately been calculated a priori of conducting the study. The prevalence of toothache was 18% and gender, age, use of dental services, race, income smoking and alcohol consumption were all statistically significantly associated with toothache in Poisson regression analysis. Toothache is considered a major public health problem for this Brazilian population.

Major compulsory revisions

1) It could be useful with a more detailed description of the process by which the two stage sample was actually drawn. What was the primary sampling unit?

Authors: The descriptions of the primary and secondary stage sample are in the page 4, third paragraph of the manuscript (...The sampling process was carried out in two stages.)
The census tracts (n=186) was the first selection stage and the household as the second. Sixty urban census tracts were randomly sampled. All individuals living in the sampled household were eligible participants of the study. ...

2) Factors at different levels of a conceptual hierarchy that were statistically significantly associated with toothache in Poisson regression analysis after controlling for factors at the same and previous levels of the hierarchy were identified as correlates of toothache. Using such an approach – one might omit the caveat that distal factors whose effect are mediated thorough more proximal ones in the hierarchy are identified as important associated factors (e.g. underestimates the importance of the distal socio-demographic factors). However as to the presentation of the analysis in table 2, I would prefer to show all variables at all steps in the various models to fully account for the complexity of the model and to provide information, not only on cownfounding effects but also on possible mediation of effects of distal variables through more proximal ones. What about interaction effects to reveal the extent to which risk factors might vary by subgroups of the sample?

Authors: We understand the reviewer point of view. However, our aim was to identify the main variables associated with toothache and not to investigate mediators. We did not test interactions due the lack of plausibility. We are open to perform interaction test if it would be suggested.

3) The literature review considering studies of dental pain is limited and should be updated.

Authors: The literature review was updated in the second version of the manuscript as follow: Pau A, Croucher RE, Marcenes W. Demographic and socio-economic correlates of dental pain among adults in the United Kingdom, 1998. Br Dent J. 2007 May 12;202(9):E21., de Oliveira BH, Nadanovsky P. The impact of oral pain on quality of life


4) The English writing is not acceptable – authors should consult an expert of the English language before eventually re-submitting this article.

Authors: The English writing was reviewed in the second version of the manuscript.

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

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests
Reviewer's report 2

Title: Toothache and associated factors in Brazilian adults: a cross-sectional population-based study.

Version: 1 Date: 29 July 2008

Reviewer: Christopher Okunseri

Reviewer's report:

Toothache and Associated factors in Brazilian adults: Cross-sectional population-based study.

Major Compulsory Revisions

Abstract

1. The author’s use of “Poisson regression analyses following hierarchical framework is not necessary in my opinion, because a straightforward poison regression analyses is adequate for the data collected. I would like the authors to explain why they used Poisson regression analyses following hierarchical framework and provide at least one citation from a statistical journal to justify it's use in their data set.

Authors: In cross-sectional studies in which the frequency of the outcome is higher than 10% the odds ratio tends to overestimate the prevalence ratio (PR). In this case, bivariate and multivariable analyses are recommended be conducted under a Poisson regression model in order to produce direct estimates of all calculated Prevalence Ratio. This a conclusion of a seminal paper wrote by Barros AJ and Hirakata VN, 2003 (Barros AJ and Hirakata VN (2003). Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. BMC Med Res Methodol 3: 21.). This reference was added in the second version of the manuscript. We adopted a hierarchical framework based on theory to guide the statistical analysis as

2. What other similar population-based studies are authors referring to in their conclusion? Please revise/rewrite the conclusion.

Authors: The conclusion was rewritten in the second version of the manuscript.

Introduction

3. The background section of the manuscript needs to be rewritten. There are several terms (e.g. “indices” in the 1st line, “panorama” and “index of permanent teeth experiencing caries) that don’t fit with the information authors are trying to convey.

Authors: The background was rewritten according to the reviewer’s suggestion.

4. Toothache is not an “excellent indicator of oral health”, as written by authors, but a symptom of dental caries. Please correct. Please provide citation(s) for the 1st sentence in para.3 or rewrite it.

Authors: The sentence was rewritten as follows: “Toothache is a dental public health problem and one of the predictors of dental attendance and it is strongly associated with the life quality of individuals [4,5].”

5. Although authors have a well defined research question, but they failed to clearly articulate the real gaps in the literature that their study addresses.
Authors: We performed a search in Medline from 1966 to 2007, using the terms ‘toothache’, ‘dental pain’, ‘prevalence’ and ‘epidemiology’. We have identified very few population based studies. Consequently, there is a lack of information in this core issue, especially from middle income countries such as Brazil. We updated the search in the second version of the manuscript.

Methods

6. The sequencing of information in the methods section makes it difficult to understand. Please rewrite.

Authors: We rewrote the methods section in order to clarify it.

7. The description of the sampling method is incomplete. For example authors should provide information on how they selected the adults in the household for the study.

Authors: All individuals living in the sampled household were eligible participants of the study. It is written in the final of third paragraph of the second version of the manuscript.

8. Why were variables with values of p<0.25 in the bivariate analysis included in the multivariable analysis?

Authors: We adopted an usual procedure in statistical modeling. According to Kirkwood (Kirkwood BR, Sterne JAC. Medical Statistics. 2nd ed. Oxford: Blackwell Science Ltd, 2003. P 3412) typical stepwise selection procedure involves several steps including select all variables with P-value <0.20 or more conservative <0.25. This procedure attempts to control confounders. For example, in our analysis alcohol problem was not associated with the outcome in the bivariate analysis (p>0.10) but it was chosen to the multivariable model. In the adjusted model this variable was associated with the outcome.

Results
9. Authors should be consistent on the use of either toothache and/or dental pain.

The information regarding the word toothache or dental pain being used interchangeably should be well documented in the background section.

Authors: We thank the reviewer. We adopted toothache in the whole manuscript.

Minor Essential Revisions

10. Authors should be consistent in writing: 95% confidence Interval or 95% CI in the whole of the manuscript.

Authors: It was done.

11. Please revise the title on Table 2, so it can be self explanatory.

Authors: It was revised.

12. The writing is unacceptable in the background, methods and results sections. The discussion section is better written than other sections however, it requires some minor editing.

Discretionary Revision

Authors: The second version of the manuscript was fully revised.

13. There is no need to have male 728 (40.4) in Table 1, since we have female 1,077 (59.6).

Authors: Male and female was kept in table 1 in order to show the toothache prevalence in both categories. The table is technically correct.

14. What do authors mean by dental service in the last attendance in Table 1?
**Authors:** It means: type of dental service (public, private) in the last dental attendance. It was corrected in the second version of the manuscript.

15. Any particular reason why authors decided to use different denominators for all the different variables. Why not clean the data to allow the use of one denominator and delete incomplete information.

**Authors:** The denominator for multivariate analysis was the same for all variables. The data were clean considering the complete information for all individuals. The denominators showed in table 1 only show the number of information available for each variable.

16. The discussion section provides a balanced argument however, there are few instances of authors overstating their results

**Authors:** Some points were modified in order to attend the reviewer’s recommendations.

**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:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.
Reviewer's report 3

Title: Toothache and associated factors in Brazilian adults: a cross-sectional population-based study.

Version: 1 Date: 4 August 2008

Reviewer: Jimmy Steele

Reviewer's report:

This paper reviews the prevalence of toothache in a Brazilian community. The basics of sampling and analysis are sound and I have no major issues with them. The text would benefit from some final editing and review by a native English speaker, because, whilst the English much better than my Portuguese, there are a few slightly unusual phrases and constructions which could easily be improved.

Trying to calculate a prevalence for any given condition can be quite tricky. In this case there are two major issues which I think need to be raised in the discussion:

1. To what extent are the authors comfortable that the pain reported by their subjects was actually toothache, and what do they mean by toothache anyway? Prevalence data like this are easily skewed by other forms of pain from around the mouth, including TMD (which is often initially interpreted as dental pain) and perhaps other sources. This is touched upon in the text but it would be good to know how this could be improved in the future.

Authors: We strongly agree with the reviewer point. We added this limitation in the second version of the manuscript. (“...Although others studies have been developed using the same way to measure toothache, it is important to consider that other forms of pain from around the mouth, as Temporal Mandibular Disorder, can be taking into account...”)
2. What effect did a six month reference period have on prevalence. The prevalence has been calculated over a six month period but there are all sorts of issues about recall and accuracy that again make accurate assessment of prevalence difficult. Toothache in its classical forms (pulpitis, apical periodontitis) are characterised by short lived and rather severe pain. The authors need to justify more clearly why a six month reference was used and whether a shorter recall interval might have had advantages. Future researchers in this area need to be prompted as to how they may answer this question more precisely. The text is already quite long and some of the discussion may need to be shortened in order to accommodate this material.

Authors: The prevalence has been calculated over a six month period to allow comparisons with the majority of the studies. However, the limitations have been reported in page 9, paragraph 2 in the second version of the manuscript. (“...Another limitation of the study is the possibility of overestimating or underestimating the prevalence of toothache when compared with studies which adopted a history of toothache other than six months. However, other studies have used the same investigation period, which allows the comparison of results [4,13,16]...”)

3. Level of interest: An article of limited interest

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

5. Statistical review: No, the manuscript does not need to be seen by a statistician.

6. Declaration of competing interests: I declare that I have no competing interests
Reviewer's report 4

Title: Toothache and associated factors in Brazilian adults: a cross-sectional population-based study.

Version: 1 Date: 14 July 2008

Reviewer: Ichizo Morita

Reviewer's report:

General

This is a cross sectional study aimed to estimate the prevalence of toothache and associated factors in adults of Lages, Southern Brazil. Information is generated from a large population survey and used validated data collection questionnaires. The authors conducted the sampling carefully. I have some concerns in the analysis model in this study. My concerns are outlined below.

- Major Compulsory Revisions

This study was conducted based on the model of Hierarchical model to dental pain determination (Figure 1). This model is not helpful at all. It does not show the directions of determinants. For example, dental pain can influence uptake of dental care as they suggest in their discussion. And dental care teeth can influence pain.


Authors: We agree with the reviewer that the adopted model does not show the directions of determinants. Temporal ambiguity is a problem inherent to cross-sectional design study. This limitation was highlighted in the discussion section.

There are no teeth in this model! What is the information base for the origin of this model?

Author: The hierarchical model was built based on the variables available. The number of teeth was collected roughly only to be work as a control variable. The toothache study was nested in a large general health survey.

All independent variables were finally used in the Poisson regression analyses. The model in Figure 1 does no explain the relationship between socioeconomic conditions and use of dental services or tobacco alcohol problems. How was multicollinearity in these variables at the Poisson regression analysed?

Author: The relationship between block 2 (socioeconomic variables) and block 3 (use of dental services or tobacco alcohol problems) is described in methods section. We adopted the same hierarchical model used in other studies which focused the same outcome (Bastos JL, Peres MA, Peres KG, Araujo CLP, Menezes AMB. Toothache prevalence and associated factors: a life course study from birth to age 12 yr. Eur J Oral Sci 2008;116: 458–466., and Bastos JLD, Gigante DP, Peres KG. Toothache prevalence and associated factors: a population based study in southern Brazil. Oral Dis; 2008; 14: 320-6).

We agree with the reviewer concern about collinearity. In spite of this, the choice of measures of socio-economic conditions depends on how the researchers believe that these
measures are linked to health damaging exposure (Lynch J. KaplanG. Socioeconomic position. In: Berkman LF, Kawachi I. Social Epidemiology. New York: Oxford Press, 2000. p 19.). We believe that family income, for example, indicates the purchasing power. On the other hand, schooling is stable during the life span.

P8, Figure 1

The “block 1”, “block 2” and “block 3” should be explained in Figure 1 and Methods.

Author: It was added in the second version of the manuscript

Table 2

The format (column) in the Table 2 and Table 2: continuation is not matched.

Author: It was corrected in the second version of the manuscript.

- Minor Essential Revisions

There are a few specific points:

Background:

Minor Point: This sentence does not make sense. English usage perhaps. Adults have not been systematically excluded. They do have access to dental services as they say they have access to urgent dental services centered on repair or extraction. “Additionally, the adult population has been systematically excluded from dental health services, with access only to urgent dental services centered on repair or extraction [3].

Author: We agree with the reviewer. The sentence was changed in the second version of the manuscript.

In the result, Table 1 and 2, CI 95% is 95% CI. (“95% CI” was used in the abstract.)

Author: It was corrected in the second version of the manuscript
There are a few specific points:

Pg11 Line 24 15% in IN is 15% in

There are a few specific points:

Pg11 Line 26 Riley et al.23 is Riley et al.[23]

Author: Thank you for the observation. We corrected the mistakes in the second version of the manuscript.

- Discretionary Revisions

Per capita incomes were categorized to quartiles in this study. What is the average or mean of per capita incomes in Brazil? This information shows status in Lages in Brazil.

Author: Data available in September 29th shows that per capita income in Brazil is around US$ 8,600 per year, similar to the Lages finding.

Level of interest: An article of limited interest

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.