Reviewer’s report

Title: Clinical consequences of untreated dental caries assessed using PUFA Index and its covariates in children residing in orphanages of Pakistan

Version: 0 Date: 14 Sep 2016

Reviewer: Morenike Folayan

Reviewer's report:

Clinical consequences of untreated dental caries assessed using PUFA Index in orphanage children in Pakistan.

The aim of the study was to determine the prevalence of caries and its effect on institutionalised orphans in Pakistan. The DMFT was used to assess caries severity while the PUFA was used to access severity of complications associated with caries. Beyond that, the authors actually tried to identify risk if some specific factors - child's dental visiting and pain - were associated with untreated dental decay.

I think this paper is important for a number of reasons one of which is the need to understand oral health problems of institutionalized children. This is important as no one should be left behind as we struggle to address health inequalities and promote quality oral health. The paper will however benefit from a number of modifications to strengthen it.

Title: The scope of the study is far beyond what the topic represents. It is important that the title reflects the scope of the study. Also the title needs to be modified to prevent the use of stigmatizing phrases. The use of the phrase 'orphanage children' should be changed to children resident in orphanages.

Abstract

*The study objective is not clear. What associations did the authors plan to establish?

*The authors noted they will determine an association of something (see point above) with demographic, behavioural, dental pain and dental visiting pattern related variables. However, in
the plan for analysis, only the association between dental decay, child's dental visiting and pain was established.

*The authors stated an untreated caries ratio of 49.1% and refer to this as moderate in the conclusion. This is an understatement.

Introduction

*Please provide a reference for the statement - Orphans are particularly at risk of untreated decay due to lack of parental support and neglected oral health care.

*Please provide reason(s) for the statement - UNICEF, UNAIDS & USAID reported that orphanages can be unfavourable for a child's growth and development [5].

*The authors wrote: Data collected through this index can have impact on decision taken by dental practitioners and decision makers, which cannot be obtained by DMFT index alone. How does puFA/PUFA improve clinical decision making? Please include references

*The introduction could be significantly improved if the authors provided information on caries status of children and adolescents in Pakistan, as well as caries status of children resident in orphanages around the world. It is also important to have a conceptual framework that helps us learn how residence in orphanages increases the risk for caries. This framework should also help readers conceptualise how a vicious cycle for and of caries can be broken in children resident in these orphanages.

Method

*The lower age limit stated here is 6 years while in the abstract it is 4 years. This differences needs to be reconciled. The upper age limits also differed
What was the age range for this study wide? The authors noted their reference for study conduct was WHO. WHO clearly identifies age categories for epidemiological study. This study had not adhered to this recommendation. Would the authors like to provide a justification - derivable from the introduction - why such a large age range was included in this study? This ranged from the mix dentition stage to the permanent dentition stage.

Please what formula (ref) was used to calculate this sample size? Was a prevalence value not needed to calculate this sample size. What prevalence value was used?

Why was the sample size 377 and the sample collected 750. This is almost a 100% increase. The margin allowable for sample size increase is 20%. What was the justification for an almost 100% increase?

How was the random selection done?

The authors noted that - The children were also informed about the study and were asked for their consent at the beginning. How did this happen? How did children 6,7,8,9,10,11 give consent for study participation?

Was there any inter- and intra-examiner reliability conducted for the two examiners who conducted the data collection? If not, please include this information as a limitation for the study

What is a 'usual' chair?

How was gauze pads used for visual examination?

The dental caries prevalence cannot be determined using the DMFT/dmft index. Prevalence is determined by counting number of persons with and without caries. This information needs to be corrected in the manuscript.
The authors note: The PUFA score per person is calculated in the same cumulative way as for the dmft. However, we the readers were not informed about the cumulative way the dmft is computed.

The authors noted the questionnaire was self administered. Do they imply that children below 8 years old were able to comprehend the questions and appropriately write their responses for the questionnaires? Was the questionnaire administered in English or was it also translated into the local language?

Please describe the study instrument - what questions were asked? What response options did they have? What this an adapted tool or newly developed tool? How was the validity and reliability of the instrument determined?

What were the categorical variables for this study?

Why did the logistic regression analysis determine only the impact of only decay and pain on dental visiting? Is there a reason why the regression analysis was limited to two variables?

Results

The authors noted that the sample size calculated was 377. They however increased the number to 750. Here, they noted they actually collected data from 753. Any reason(s) for these variations in sample size numbers?

Was there any decline for study participation?

Once again, we see disparity in the age. The inclusion criteria states age of inclusion was 6 years to 15 years. Now the age range of study participants is 4 years to 17 years. Will the authors help explain this?
*dmft and DMFT are not scored in percentage. It is therefore not clear how the authors derived a percentage dmft/DMFT score for the study participants. Same comments for the pufa/PUFA score.

* Table 1: First the authors obtained a mean score for since lesions. It is difficult to understand how a mean of a single entity could be obtained (mean of F is 0.006 and mean of f is 0.007). Also difficult to understand how the percentages were calculated. dmft/DMFT and pufa/PUFA are tooth level related indices. The authors will need to count the number of teeth in the mouth and not the individuals to determine the proportion of teeth that were decayed. This Table is not clear.

* Please can the precise p valued be quoted throughout the manuscript?

*Please can the p values be quoted even when no association was established?

*Table 2: What does all ages mean? Also, again dmft/DMFT and pufa/PUFA do not have prevalence values but mean values. So the associations conducted using chi-test is completely wrong. Please could the appropriate computations and the appropriate statistical analysis be conducted?

*Table 3 highlights types of orphanages. This is a completely new variable that comes from the blues. Why is this now a variable for the study and why is the distinction needed. The audience was not set to see the need for this distinction in the introduction.

*Table 3 also discusses pain location (teeth) and pain time (night). How did these variables arise? Nothing prepared us for this in the introduction and also nothing prepared us for this in the methodology either. The authors also compute row total rather than column total which makes it difficult to understand and interpret the p value obtained in their analysis.

*The authors stated in their abstract and the methodology they planned to conduct logistic regression analysis. The results do not reflect this was conducted.
*Please present the information shared in the last line in the result section as a table.

Discussion

*The authors keep referring to the 'orphanages of the twin cities, Rawalpindi and Islamabad'. However, the profile of the cities and the range of orphanages in the twin cities were not discussed in the introduction. Why the twin cities and no other cities in Pakistan? Which orphanages were selected for this study and from which sampling framework? What was the sampling strategy for the orphanages and the children who met the inclusion criteria in these orphanages?

*Please refer to the STROBE guideline on how to report a cross sectional study. The first paragraph of this section should be a summary of the results

*The discussion is largely based on findings in the result sections that need to be redone. Also, the discussion does not focus on addressing any study objective(s). There is a large section discussing about government owned and private owned orphanages which was not a study objective. There are also details introduced into the discussion which are not data collected for this study. An example is: The children had come to the orphanages at different ages and some even visit their relatives in vacations, this can also be attributed for presence of untreated decay as when children are away from the orphanage, their dietary and oral hygiene practices may differ

Other comments

*The manuscript needs to be extensively edited. The grammar is poorly written and so are the syntax. The authors need a professional editor. I think the authors have the study data. They however need to re-calculate and resent their results in ways that it is understood by their peers and colleagues reading the manuscript. This manuscript will require a major modification. The authors will need to revise and re-submit the paper.

*Manuscript needs to conform to BMC style. These include the need for tables to be repositioned at the end of the manuscripts. The referencing style within the manuscript should be addressed.
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?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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