Reviewer’s report

Title: Migration background is a risk factor for caries in Austria school children, even when parents have received a higher education.

Version: 3 Date: 29 January 2014

Reviewer: Lisa Christensen

Reviewer’s report:

Dear Editor

I have reviewed the present manuscript which has now undergone many changes and new analyses have been made. Even though the theme is interesting, I am still critical to the manuscript. Below are my comments.

Major objections

The title indicates that the study population is representative to all school children in Austria. The study took place in the capital area only, and further, I am doubtful about the external validity of the study.

Figure 1 should illustrate the sampling and selection process, however, I find the figure insufficient. Number of children should be included at each level, in order to make it possible to follow the way to the final study population. Further, I wonder how the final study population could be 736 children. According to the text in the methods section, 18 children were selected from each of the selected schools, and according to figure 2 there were 39 selected schools; that makes 702 children?

In response to earlier comments from one of the reviewers, the authors claim a participation rate of 100% “selected and agreed”, but how many of the selected children did not agree to participate? There must be some misunderstandings of the concept of participation rate. Further, in the discussion section under “limitations”, the authors mention possible selection bias, however, since there is no information on the number of non-participants, selection bias cannot be assessed.

The authors have now used more advanced statistical methods (negative binomial mixed model), but to me, table 2 seems insufficient for illustration of the results of such analyses. In general, explaining interaction terms may be difficult and must be done carefully. The text regarding table 2 is puzzling, among other things it is necessary to show how the values 52% and 22 % are obtained. Alternatively or additionally the statistical methods can be explained more detailed in the methods section.

In the discussion section the authors mention that some of the results of the present study agree with and some disagree from earlier findings. The discussion of whether migration or parents’ educational level has strongest association with the caries level of their children is essential. Since the results of some of the studies that are referred to, are in contrast to the results of the present study,
deeper reflections and possible explanations should be added to the present discussion section.
The conclusion seems to generalize the findings to schoolchildren in general. The present result cannot justify such conclusion

Minor comments
I would prefer the term “association with” instead of “impact”, since this is a cross sectional study
The language in the new text of the present manuscript is grammatically not correct
What means “highly distributed variables (the methods section)?
The paragraph under the title “Basic caries status of the children” is not well written, it is unclear from the text what is shown and what is not show in tables.
Abbreviations are not used consistently

**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:** No, the manuscript does not need to be seen by a statistician.