Author's response to reviews

Title: Migration background is associated with caries in Viennese school children, even if parents have received a higher education.

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Author's response to reviews:

Editorial comments:

1. Referring to Comment 6 & 7 of the second reviewer: The authors are encouraged to have a look at recently published articles in peer-reviewed international journals so that they can see how tables should be made and all necessary information provided and all info that is not necessary omitted. E.g. table 2 is still puzzling as the authors do not succeed in giving exact captions to the different parts of the table. Moreover tables should stand on themselves, thus all abbreviations and codes should be explained.

AUTHORS: We changed table 2 accordingly.

2. Referring to Comment 7 of the second reviewer: The way the statistics are described is still not sufficient for an international journal. The reader should be told what the outcome of the analysis is: binary (DMFT = 0 vs. DMFT > 0) or categorical (DMFT=0, DMFT= 1, DMFT= ..) and the results should be described as such! Inform the reader which results is based on a univariable vs. a multivariable analysis!

AUTHORS: We now describe the results more clearly and in the form required by international journals. We also declare if we used one or more variables for statistical analyses.

3. What is a type III test??

AUTHORS (statistician): This is a certain method of decomposing the sum of squares of regression models. This is the default setting in SAS 9.3 and SPSS 21.

4. What is IRR?

AUTHORS (statistician): IRR means Incidence Rate Ratio. An incidence rate
ratio is a relative difference measure used to compare the incidence rates of events occurring at any given point in time. Or more generally speaking, analogous to an Odds ratio it quantifies how strongly the presence or absence of property A is associated with the presence or absence of property B in a given population. For negative binomial regression models the model coefficients are interpreted as IRR.

5. Also, why did the authors not perform simple logistic analyses? First univariable and in a second step multivariable? Why do they make it so complicated?

AUTHORS (statistician): Logistic regression models would be inappropriate, because the depended variable D3MFT represents count data (number of teeth within a child, which are classified by certain criteria), where low numbers are much more frequent than high ones. Due to this fact, a negative binomial model is appropriate. The application of a logistic regression model requires that the depended variable is dichotomous, which is clearly not the case.

The primary focus of this analysis was not to build a best fitting model from a set of possible explaining variables. Instead the research question addressed with this analysis was to assess group differences in the number of bad teeth within a child between the groups given by the three variables migration background, education level of a child’s parents and school type.

If we coin the approach sketch in the formulation of question three “bottom up”, then ours was “top down”. We decided to perform our analysis this way, to avoid falling into the trap of Simpsons paradox.

6. Comment 8 of the second reviewer: answer is not sufficient

AUTHORS: We now discuss this in several parts of the manuscript. Mainly at the last paragraph of the Discussion:

The education of parents, used to measure socio-economic status, reflects the material, intellectual and other resources of their families of origin. Moreover, higher educational levels may make people more receptive to health-education programs [42]. This is partially in contrast to the findings of this study that children of parents with a migration background are at higher risk of acquiring caries, even if parents have a “higher educational level”. Consequently, in this study, the higher education of the parents do not compensate for the increased caries susceptibility of their children. Therefore, several factors should also be considered to have an influence on the development of caries in children like e.g. genetic and biological factors, social environment, physical environment, health behavior, dental and medical care and time, as described in a conceptual model by Fisher-Owens et al. [40]. Whether these factors have different influence in children regarding their country of origin cannot be answered with the results of this study, but should be considered in the planning of future studies.

7. Comment 10 of the second reviewer: answer is not sufficient? look at the title, the conclusion, M&M section, results, ...!!!!
8. ........association with .......... not association in nor association on
AUTHORS: We corrected this accordingly

9. Dental caries is not plural
AUTHORS: We corrected this

10. Make sure all german words are translated in English
AUTHORS: We checked this and removed german words

11. What is the rational for the subdivision of parental educational classes in this way?
AUTHORS: We aimed to distinguish between people without vocational training who have completed compulsory education only and people with a vocational training or higher education. In our opinion, another subdivision would not been appropriate for international comparison, since the different types of education are internationally hard to compare. Another possibility would have been to distinguish between people with vocational training and people with university degree. However, in this case we also would have had groups with different sizes. Furthermore the level of education would not be so different.

We are aware of this problem and its possible effects on the statistics. Therefore we now discuss the problem; however, the main message of our study does not refer to this small group of people.

12. Add absolute numbers in the results section
AUTHORS: We added absolute numbers in the result section.

13. Among the 736 children who were examined, 50.7% had a migration background, and 49.3% were native Austrians (Table 1). To be deleted: The description of participants is shown in Table 1
AUTHORS: We changed this accordingly

14. .... DT decayed tooth, and MT missing tooth (all p<0.01, Table 1). >> must be Table 2
AUTHORS: We corrected this.

15. No interaction was found between school types and migration background (p=0.220) or the educational level of parents (p=0.08) (Table 3A). >> explain why this interaction term was added in the analysis described in table 3B and 3C and the significant interaction was NOT added?
AUTHORS (statistician): We changed table 3 accordingly

16. Please explain: Further analysis considered the different educational levels of parents.
AUTHORS: For further analysis it was distinguished between children of the
group “parents with higher educational level” and children of the group “parents with a low educational level”.

17. Replace ?calculation? by model or analysis
AUTHORS: We changed this accordingly

18. As already suggested delete tables 3A and 3B and apply a multivariable model where educational level is used as one of the covariates. This will render high level information.
AUTHORS (statistician): The tables present the results from multiple (or multivariable) models. But we were very grateful for this comments and put more emphasize on it in the description of the statistical methods.

19. How is the 52% higher relative risk obtained?
AUTHORS (statistician): Thank you very much for this comment. We adapted the specific paragraph containing this statement in the results section.

20. P values of interactions among migration background, parents' educational levels and school types are given in Table 3C.? > i only see one interaction term in Table 3C.
AUTHORS (statistician): We changed table 3

21. Delete ?new? from the first sentence of the discussion as there is nothing new obtained in this study.
AUTHORS: We deleted “new” from the first sentence, since this finding is already know, as you mentioned, and focused more on the still unnoticed findings.

22. Rephrase the sentence ? If parents with a migration background ...?
AUTHORS: We rewrote the sentence: Possible explanations might be the socio-economic status, language barriers, social standing, dietary habits and other factors which were not addressed by this study.

23. Avoid general statements in the discussion and sentences that look overzealous, e.g. The data presented here provide a scientific basis for the planning of oral health care programs specifically designed for children with a migration background who attend school type 2/Hauptschule (level 2C).
AUTHORS: We deleted this sentence and wrote a more focused sentence: Consequently, in particular children with a migration background, attending school type 2 (level 2C), would benefit from specifically designed oral health care programs.

24. the question that remains ...? ? a lot of studies have discussed and analysed this already...
AUTHORS: We changed the sentence: Interestingly, children with migration background in families with highly-educated parents have poorer dental health status than others. Culturally-influenced dietary habits may explain these findings.
25. ?Another bias is the correlation...? > is this a bias? Educational level of parents can be seen as a proxy for SES! Table 3A demonstrates that the correlation was not significant...

AUTHORS: Since we did not investigate the socio-economic status we still wanted to mention that this could be a bias in this study. We now mitigated this statement.

26. ? ..birth countries...? is it the country of birth that is detrimental??

AUTHORS: We did not write that the country of birth is detrimental.

We rewrote the sentence; since we do not want that our discussion will be understood as meaning of this: Moreover, in future studies, the birth countries of immigrant children should be taken into account by comparison the DMFT scores of children still living in the countries and children that were born in the countries, now living in Vienna.

27. ?The present study functions as a primer...? ???

AUTHORS: We rewrote parts of this paragraph:

The education of parents, used to measure socio-economic status, reflects the material, intellectual and other resources of their families of origin. Moreover, higher educational levels may make people more receptive to health-education programs. This is partially in contrast to the findings of this study that children of parents with a migration background are at higher risk of acquiring caries, even if parents have a “higher educational level”. Consequently, in this study, the higher education of the parents do not compensate for the increased caries susceptibility of their children. Therefore, several factors should also be considered to have an influence on the development of caries in children like e.g. genetic and biological factors, social environment, physical environment, health behavior, dental and medical care and time, as described in a conceptual model by Fisher-Owens et al. [40]. Whether these factors have different influence in children regarding their country of origin cannot be answered with the results of this study, but should be considered in the planning of future studies.

28. Why were the variables described in the last sentence of the discussion not adopted in the study, the analyses???

AUTHORS: As also mentioned in the first review we wanted to keep the number of participating children as high as possible and thus to obtain meaningful information, the questionnaire for parents was reduced to the essentials. There was concern that we would not get an adequate number of participants if we send out a more detailed questionnaire with partially sensitive information. Now that the basic data are available, it is of great interest to investigate other factors like income level, how long the family had lived in Austria, etc. and their influence on children’s caries status.

29. Fig 1 does not have an added value so should be deleted.

AUTHORS: We removed Figure 1.
30. A key aspect of this paper is that I cannot tell whether the children got caries in Austria or in their country of origin. More information is needed about the time of migration for that to be apparent. Consequently the data do not distinguish between current and previous risk. This is a key point that must be made in the discussion.

AUTHORS: We now discuss this point in the limitations section: Another point of consideration is determination of how long immigrant families have been living in Austria. This would be of particular interest, since in the present study no information is given about current and previous risk of the children, because it was not able to investigate whether the children with migration background, not born in Austria, got caries in Austria or in their home country.

31. A consequence of this is that we know nothing of parents’ current motivations or practices. It is therefore wrong of the authors to say that we cannot assume the parents cannot motivate their children.

AUTHORS: This is correct. We changed the manuscript accordingly.

32. Whilst I can see that these data are helpful for service planning, and the need for services targeted at migrant children, some reservation is needed about the role of prevention and especially dental health education.

AUTHORS: We added the importance of prevention and dental health education.

33. Finally, migrant children are caries prone depending on their original country. The addition of these data would have added to this study and the authors could note that

AUTHORS: We now also discuss this point: Furthermore the knowledge about the children’s original countries could provide more sensitive data, since the prevalence for caries might be different in the countries of origin. In this way one could figure out the group of children with the highest risk and support them and their parents accordingly.