Author’s response to reviews

Title: Association of infant growth with emergence of permanent dentition among 12 year-aged southern Chinese schoolchildren

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Author’s response to reviews:

Dear Dr Slack-Smith,

Thank you for considering our manuscript OHEA-D-17-00519R1 entitled "Infant growth and permanent tooth emergence at 12 years of age". With regards to the comments, we provide the following explanation:

Editor’s comments:

Thank you for the paper. This is a complex topic and this is a useful contribution. Review comments may contribute to thinking for future work.

Response: Thank you very much for your comments.

Reviewer reports:

Laura Strohmenger (Reviewer 1): Very original topic, well-applied methodology.

The data are of good interest and their interpretation seems well conducted.
It is believed that the work deserves to be published with a partial revision of English.

Response: Thank you for the comments. The manuscript has been reviewed by one of the authors who is a native English speaker.

Peter Bottenberg, PhD (Reviewer 2): This article describes statistical associations between birth weight development and tooth emergence in a cross-sectional sample of Hong-Kong children. Using cross-sectional with a one-time measurement on a phenomenon like growth and tooth emergence will probably yield some significant associations somewhere but no definite proof of some hypothesis. This is also poorly developed in the discussion. It would probably yield more interesting data to do several consecutive clinical assessments to catch tooth emergence in order to judge its rate or progress.

Response: We agreed with the Reviewer that a cross-sectional design cannot yield a cause-effect conclusion; a longitudinal study would be better to see the whole picture of the relationship. This has been addressed in the discussion as one of the study limitations. Although the cross-sectional design cannot give definite proof of specific hypothesis, it provides hints for further studies, in terms of longitudinal studies as well as experimental studies.

Of the children you examined it was a dichotomous decision: all teeth present or not, or all teeth in a certain anatomical location present or not. Statistically, it is a missed chance not to include children with multiple unerupted teeth in order to derive some information on "quick" or "slow" emergers. This would have yielded much more interesting data like for instance the longitudinal studies on tooth emergence by Leroy et al (Eur J Oral Sci. 2008;116:11-7 or Community Dent Oral Epidemiol 2003; 31: 30-9)

Response: We thank the Reviewer for the comments. The present study aimed at investigating if variations of growth during the first year of life had an influence on the emergence status of permanent teeth at 12 years old, not at the timing of individual tooth emergence. Further studies on detailed information of tooth emergence would be of interest. We have added the comments in the Discussion section.
Furthermore, it puzzles me that in table 2, there are some significant variables between included and excluded participants. The reason and implication should at least be discussed.

Response: Only term births (gestation $\geq 37$ weeks) were included to generate the growth trajectories in the study population because different trajectories have been found for term births and preterm births (Line 319-322). This is the reason why there were differences in mode of delivery, birth weight for age $z$-score and 3 months weight for age $z$-score between included and excluded participants. Explanations have been added in the Discussion section.

Next to weight gain, length growth may have contributed as well and could as well have been extracted from the database. Why was this not done?

Response: We agreed with the Reviewer that apart from weight gain, other changes in anthropometric measurements may have contributed as well. However, length in infants who are too young to stand is measured while infants lie on a device, such as a measuring table. The data on length may not as reliable as weight due to the measuring methods. The reasons we chose weight gain were addressed on Line 257-261, 333-341. In the future research, the relationship between growth in length and tooth emergence needs to be investigated.

Conclusion: an interesting question, alas on a somewhat inadequate experimental design. It presents an interesting pilot study but the data acquisition should be refined.

Response: The discussion of possible future research has been modified and moved to the Discussion section.

Furthermore, there are some rather odd formulations like: "Children of 1997' were those born between April 1st and May 31st, 1997 in Hong Kong (N = 8,327, 88.0% of all newborns)": suggesting that child birth in Hong Kong happens mostly in spring.

Response: We thank the Reviewer for the comments. We have revised the statement to avoid misunderstanding.
The changes of the manuscript are highlighted in red. Thank you very much for your consideration.

Yours sincerely,

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