Reviewer’s report

Title: Education and income-based inequality in tooth loss among Brazilian adults: does the place you live make a difference?

Version: 0 Date: 09 Mar 2020

Reviewer: Marcos Pascoal Pattussi

Reviewer's report:

Dear Editor/Authors,

Thank you for the opportunity to review this manuscript. It is a cross-sectional multilevel study that used robust data from a national survey (SB2010) to assess socioeconomic inequalities in tooth loss among Brazilian adults. The subject is particularly important in Brazil, a country with marked levels of both relative and absolute education/income-related health inequalities. The manuscript is well written but there are some points relating to data analysis and that could be clarified further. The following questions/suggestions/comments aim to improve the manuscript.

1. The SB2010 used a complex sample design aiming to be representative for the country, the Brazilian Macro Regions and the capitals. Thus, some small municipalities from the interior contributed with very few sampling units. For example, there are situations in which only three or four people aged 35-44 years were surveyed. Thus, I suggest to exclude municipalities with very few observations (e.g. <10) observations should be excluded from the analysis.

2. Due the complex nature of sample, were sample weights used?

3. I suggest to report a measure of absolute health disparity also, e.g. Absolute Concentration Index (ACI).

4. Readers would benefit from an expanded justification for the use of random slopes and how would they translate into research questions and the interpretation of their results.

5. Besides parsimony, why only education cross-level interaction and random slopes were included in models? why not income?

6. It would be interesting to know the distribution of the original interval/ratio area variables.

Minor points

7. Page 3 lines 67-69. What are the potentially different pathways or mechanism linking income and education to health?

8. Page 6. For each variable of interest, describe which groupings were chosen and why, e.g. skin colour, Human Development Index (HDI) and coverage of health services.

9. Page 6. Why income and education variables were collapsed into four categories?

10. Table 1 - page 20, column "Prop. 95%CI". There are no need for confidence intervals for the relative frequencies. Are relative frequencies correct? Take the example of women: 6405/9779=65.5%. Table 1 could be combined with Table 3.

11. Table 2 could also include non stratified results.


13. Page 11, Line 251. Unable to locate Model 5 in Table 5.

14. Figure 2 is not necessary.
Reference

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

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

Unable to assess

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

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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