Reviewer’s report

Title: What Really Happens in the Home: A Comparison of Parent-Reported and Observed Tooth Brushing Behaviors for Young Children

Version: 0 Date: 25 Dec 2018

Reviewer: Dalia Meisha

Reviewer's report:

Thank you for the kind invitation to review this article. The objective of this research was to compare parent self-report to observations of young children tooth brushing.

The topic is interesting and the paper is generally well written.

My comments are below:

1. In the objectives, it is stated "We compared parent self-report to observations to determine the accuracy of self-report in this population." While this paper addresses the comparison between parent self-report to observations, however it does not determine the accuracy of self-report as being observed might have had an influence due to social desirability bias.

2. In the methods section it is stated "A pair of RAs conducted the home observations." It is good a pair of RAs conducted the home visit, but it is unclear, were the recorded observations of the home visit a result of consistency between the 2 RAs or as one RA was responsible about the observation and the other for the videotaping? More explanation in this regard would be helpful. Was any training and/or calibration of observers (RAs) done? In addition, talking about the risk of observer bias and perception bias as a limitation is encouraged. It would be interesting to know more details about the RAs such as their race.

3. In the methods section, it is stated "sample size of 45 was considered to be sufficient to answer the primary question of feasibility." Please justify why 45 was considered sufficient.

4. In the methods section, it is stated "Fishers Exact Test to identify statistically significant associations" was used. However, nothing was mentioned regarding that in the results section.

5. In the conclusion section, it is stated "Observation and video-recording of brushing routines and equipment are feasible and acceptable to families." However, only 40% agreed to participate and ended up with only 24% who completed the home observation. These percentages suggest it is feasible, but may not be very acceptable to families. It is suggested to re-phrase this part of the conclusion to make sure it is supported by the data shown?

6. In the limitations of the study, it is encouraged to discuss how the Hawthorne effect and volunteer bias might have affected the direction of the results of this study.
7. Overall, this appears to be a good interesting study and does add to the gap of knowledge in this area.

**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.

Yes

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

No

**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:

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