Reviewer’s report

Title: Comparison of dental plaque reduction after use of electric toothbrushes with and without QLF-D-applied plaque visualization: A 1-week randomized controlled trial

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Reviewer: Monique Van Der Veen

Reviewer's report:

The paper describes a simple straightforward study on how monitoring plaque during toothbrushing can help to improve plaque removal. It is a first step. Limitations to the study are many. Follow up with a more realistic setting and sample is necessary. Also needed is a long-term evaluation. After how much time does the use of the monitor wear off?

Title: May I suggest that the authors choose a more catching title based on the outcome of the study, while following CONSORT?

Abstract:

- The results can be condensed to two sentences. Knowing the 1 week and baseline PHP values for both groups is sufficient. The reader can calculate the change in PHP himself.

Introduction:

- no comments. One question: is the bristle distribution in the bristle head of the electric toothbrush with QLF-D monitoring built in different than that of the bristlehead of an oscillating/rotating toothbrush from say Oral-B?

Methods:

- Why was a parallel design chosen, and not a cross-over one?

- Why was smoking not an exclusion criterion?

- What do you expect of the amount of bias caused by:

  a) The fact that blinding of the study participants was not possible? Irrespective of your claim that participants were blinded for treatment intervention: "To ensure blinding with regard to monitor usage, the monitor-non-use group first performed the procedures for 1 week, followed by the monitor-usage group."

  b) The dependence of the dental students on the researchers for their grades at dental school?
- What is the need for determining the amount of plaque AND the change in amount of plaque?
- Why is the gingival index determined when having gingivitis was an exclusion criterion?
- Did participants use the toothbrush at home or at the dental school?
- Why do you choose to present all values as mean ± standard deviation or median with upper and lower limits, when only non-parametric tests are used for comparison between groups or changes in time.

Results:
- Demographics of the two groups (age and sex) can simply be mentioned in the text. There is no need to include this in a data table. Data in Tables 1 and 2 can be combined. Table 3 is not needed. There was no change observed in GI and SEOH, then testing a difference between groups for this (non-existent) change is superfluous.

Discussion:
- What effect on the gingiva was anticipated from the QLR-brush, that could be reflected in the GI?
- You state that: "Participants in the present study were not provided with any educational information on oral health behavior and tooth brushing was done individually." However the participants were dental students.
- Among the limitations of the study I am missing a discussion on bias induced by hawthorn effect (1 week of study duration) and the non-blinding of the participants. Participants must have been aware that the QLR brush was subject of study and a non-monitor was not. Interventions must have been announced to participants in the information letter prior to giving informed consent. If not international standards for scientific integrity and ethics are not met.
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.

Yes

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

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Please indicate the quality of language in the manuscript:

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