Reviewer’s report

Title: School-based strategies for oral health education of adolescents- a cluster randomized controlled trial.

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Reviewer: Jolanta Aleksejuniene

Reviewer’s report:

Overall, the study design is well thought through and implemented and the loss to follow up is relatively low. The study is well presented, but some sections of the manuscript are difficult to follow or need some clarification. The following recommendations will be useful to make the necessary revisions to the paper.

Minor essential revisions.
• Overall, the manuscript needs scientific editing, thus language scientific consultant should be sought.
• Abstract. The key words should be reported separately, i.e. oral education, dental education, etc.
• Introduction (last paragraph). The present manuscript and possibly the present study did not focus on sustainability, availability or acceptability. Thus, authors should present aims only but not the rationale that is not in accordance to what was done or presented.
• Study design and Study population. Authors report eligibility criteria (n=65) but did not explain what eligibility criteria they employed. The inclusion/eligibility criteria in most cases might influence the external validity of the study. Therefore, authors should explain about them.
• Sampling. Authors state that the number of schools (clusters) and the number of subjects in all groups was adequate based on expected 50% difference. Firstly, authors should present what statistical method was used to calculate the necessary sample size, namely the number of clusters and the number of adolescents. Secondly, the description of this paragraph needs to be revised. I suggest to exclude “in the control group” and “in the intervention groups” by simply stating that they expected the prevalence of gingivitis to decrease from 34% to 17%, alpha, etc. Otherwise, it is difficult to follow and might be confusing for some readers.
• Ethical approval and parental consent. This section should be moved earlier, e.g. as a third sentence in the study design and study population section. In addition, although authors stated that all parents consented to the study, they should present this information in numbers, e.g. the number of parents approached and the number of consents, particularly that 100% response rates are not commonly acquired in other studies.
• Oral health education interventions. Page 8, “under indirect supervision”. It is
unclear what authors meant by this term, thus they should explain this type of supervision more explicitly.

- Page 10, regarding reliability testing. It is unclear which analysis was used to test reliability particularly given the reliability coefficients being 7.9 and 8.7. Thus, authors should explain what these numbers indicate. Further, “the COE examination of teeth for plaque…” This sentence clearly needs revision.

- The last sentence prior to data analysis (should be “analyses” that denote several analyses, not “analysis” defining just one). It is insufficient to report that intra-examiner and inter-examiner agreement was assessed by just referring to other publications. Authors should state precise values as well as the method of reliability assessment.

- Page 11 the first paragraph. In order to ease the reading of the present paper, authors should present theoretical ranges of their measurements in text as well as in tables, e.g. the OHS (range 0-12).

- Results. Regarding loss to follow up. Authors should consider presenting the overall % of loss to follow-up and might perform a non-response analysis by comparing the baseline values between the ones who completed the study and the ones who were lost and regarding gender and other factor distribution. Given there will be no statistical significant differences regarding a number of characteristics and no baseline differences between them, they may state that loss to follow-up potentially did not influence the study findings.

- Page 12, it is redundant and hard to follow the text when a number of P values are presented. P values alone do not present the magnitude of the effect sizes, i.e. it is important to focus on effect sizes (clinical relevance) than consider P values (statistical significance).

- Discussion. Overall, the discussion is well written, but authors might consider cultural or country-based differences while comparing their findings with previous studies.

- Table 1. Present both numbers and % in all cells enabling readers to make direct comparisons.

- Table 3. This table is the most cumbersome to follow. In addition, should not use “=” sign where P values exceed the threshold chosen (here P<0.05), i.e. being statistically non-significant does not necessarily mean both strategies produced equivalent effects.

Overall, good work!

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I have no competing interests.