Reviewer's report

Title: Promoting parenting strategies to improve tooth brushing in children. Design of a non randomised cluster-controlled trial

Version: 0 Date: 06 Nov 2018

Reviewer: Peter Milgrom

Reviewer's report:

This is a protocol for evaluating the efficacy of an intervention to boost parent skills in promoting tooth brushing for preschool children. The abstract and paper are confusing. For example, registration of the trial retrospectively implies the trial has already been conducted. However, the paper presents the trial as prospective. Sometimes the text switches verb tenses.

The paper should more closely follow the CONSORT statement or similar guideline where the title includes the design. This is a quasi-experimental design with two arms. Repeatedly there is confusion about the purpose. The study does not actually measure parenting skills. Rather the primary outcome measure is caries increment. In various places the paper fails to differentiate between primary and secondary outcomes. All of this would be clarified if the evaluation questions were stated up front.

The authors state that the intervention practices are a group of volunteers. The comparison practices are also volunteers matched by practice population and SES of the region. The method of matching and a justification are required. The authors should address selection bias.

Children and parents in the intervention practices are to be chosen randomly. The methods are not described. Will more than one child from a family be eligible. Documentation of the number and characteristics of those accepting and refusing is missing. One assumes there is a similar evaluation of the non intervention practice patients?

The authors should address contamination bias.

The sample size section makes it clear that the primary outcome is dfms. This is a rather imperfect proxy for parenting skills and makes unstated assumptions about the interpretation of dmfs. The study may be underpowered assuming a 2 dfms difference between groups. The justification is unclear.

The training of the interventionists is specified. There are no measures of fidelity described. There is no provision for a change of personnel in any given practice. It is unclear if the training includes the standard practices of the Ivory Cross guideline and if the practices have to agree to change existing procedures. This has implications for the comparison with the non-intervention practices. Note, the authors report pilot work that asserts that parents already have tooth brushing knowledge. However, they do not cite other work in the literature that documents that parents are
often confused by the information they receive (for example, the amount of toothpaste to be applied to the brush).

The authors should explain what they will do if parents miss appointments.

The dentists in the practices are evaluating their own patients. One assumes this is also true for the non intervention group dentists. One also assumes there is only one dentist per practice. They receive training on ICDAS but there are no criteria for certification and no measure of reliability.

The source of questionnaires and their reliability and validity in Dutch is not given. Exactly how the questionnaires will be administered should be described.

The analytic section should be structured to reflect analysis of the primary and secondary outcomes in an ordered way. The analysis should account for missing data.

The references appear to be accurately cited except that #3 appears incomplete.

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

No

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

No

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

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