Reviewer’s report

Title: “Strong Teeth” – a study protocol for an early-phase feasibility trial of a complex oral health intervention delivered by dental teams to parents of young children

Version: 0 Date: 21 Mar 2019

Reviewer: Jenny Porritt

Reviewer’s report:

The study protocol describes a mixed methods research project which aims to explore the acceptability and feasibility of an oral health intervention ("Strong Teeth") for parents of children aged between 0-5 years old and dental team members. This proposed research would provide valuable insights into stakeholders' experiences of using evidence-based oral health interventions in NHS dental services. However, the study protocol could be improved and should provide more detailed information about the proposed study design and analysis as outlined below:

* Page 5: What is considered 'regular dental attendance' for children (every 6 months or every 12 months)?

* Page 6: What would preventative advice following the "Delivering Better Oral Health" Guidance likely involve and how does this differ from the "Strong Teeth" intervention?

* Page 6: The authors state that complex interventions should be underpinned by psychological theory, however, it is not clear whether their intervention was guided by a behaviour change model/framework/theory. Also how was the "Strong Teeth" intervention 'co-developed' and how did the research team synthesise the findings from the rapid reviews with the qualitative data generated from the interviews with stakeholders?

* Page 6: What are the key oral health behaviours that should be promoted? This may seem obvious to the authors but I think this is worth making explicit within the paper. Which oral health behaviours are 'targeted' by the "Strong Teeth" intervention?

* Pages 6 & 10: There is a lack of information provided about what the "Strong Teeth" intervention actually consists of and what evidence-based strategies or techniques are incorporated within the intervention.

* Page 7: What did the 'rapid reviews' entail? More detail about how these reviews were undertaken should be provided to promote transparency.

* Page 7: The second workstream involved interviewing parents and children aged between 7-10 years old to investigate their experience of receiving oral health advice however the current project is targeting children (and parents of children) aged between 0-5 years. How might this younger group of children have different experiences?
* Page 7: How many participants were involved in the 12 focus groups?

* Page 7: Aim 2 - it is not clear how the objective and self-report measures of oral health behaviours will be compared and the rationale for why this is being examined is not presented in the introduction (this is discussed briefly in the discussion section of the paper).

* Page 8: Aim 3 - Again this aim/objective appears without any rationale - is using an electric toothbrush as key part of the "Strong Teeth" intervention?

* Page 8: It is not clear how the different objectives will be met within the proposed study. For example, how will the 'mechanisms for action' be examined? How will the impact of the electric toothbrush be assessed within the study?

* Page 9: How will parents be approached? Will patients' details be taken from NHS waiting lists? Who will approach families to invite them to take part in the study? How do the research team hope to gain access to families who are not engaging with dental care? What criteria will be used to purposively sample members of the dental care teams?

* Page 9: At what stage will the research team film the tooth brushing behaviours of the parent and their child? Has this method been used before? Is there evidence to suggest this observational method is a valid tool for assessing parent-child tooth brushing behaviour?

* Page 9: More detail about the measures which will be used in the proposed study (e.g. to assess oral health (e.g. tooth brushing) and dietary behaviours) should be provided. This should include the validity/reliability estimates of the measures and example questions included in the questionnaires etc.

* Page 13: Specifically how will the Theoretical Domains Framework guide the interviews and/or analysis? How will the researchers use the TDF to understand the 'active ingredients' of the intervention and how these variables are exerting change?

* Page 13: 'We will formulate a preliminary measurement model and calculate factor loadings'. This is a little confusing - what measurement model are the authors referring to here? Specifically what analysis do they plan to undertake and what software will they use to undertake this analysis?

* Page 16: 364-366 how does this specific component of the data collection approach aim to support parents?

* A Figure/flow chart could be used to clearly illustrate the different stages of the study. This would help the reader understand the specific variables/outcomes that the research team plans to assess at baseline, the 2 week and 2-3 month follow-ups and could outline the time points at which the interviews with the different groups would take place etc.
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