Reviewer's report

Title: Bedtime Routines Intervention for Children (BRIC) using an automated text messaging system for behaviour change: study protocol for an early phase study

Version: 0 Date: 08 Nov 2019

Reviewer: Jenny Porritt

Reviewer's report:

The proposed study aims to develop a text based intervention for improving young children's bedtime routines (work package 1) and evaluate the intervention with 50 first time parents using the APEASE criteria (work package 2). One of the main strengths of the planned research study is the involvement of a range of stakeholders/experts in the design of the intervention. The BCW framework will also be used to identify which specific behaviour change techniques should form part of the text-based intervention. There are however a number of issues which could be addressed by the authors to strengthen this paper.

Abstract/introduction

* The terms pilot and feasibility study are both used in the abstract. These are different things so it would be worth using the most appropriate term consistently throughout to minimise confusion. A feasibility study would not typically investigate effectiveness so it might be worth using the terms 'feasibility and impact' or 'feasibility and effectiveness' if preliminary evidence of effectiveness is an aim of the research.

* The paper states that no evidence-based bedtime routine interventions using novel approaches currently exist. It would be useful if some brief description of the interventions currently used to change bedtime routine behaviours in young children was provided (along with an indication of how effective these are).

* The authors could also discuss the potential advantages of a text-based approach over the current interventions available. The rationale for why the intervention should use a text based approach could be strengthened with some discussion of how this approach has been used to successfully change other health behaviours/routines.

* Publicly funded projects that aim to assist young parents (Baby Boxes, Dental Checks 1, Head Start) are referred to however a little background information relating to how these projects support parents (and the relevance for this project) would be useful.

* There is discussion on page 5 of how previous interventions have focused on selective behaviours rather than the entirety of the bedtime routine. Indeed a number of specific behaviours are discussed in relation to an 'optimal' bedtime routine (which include tooth brushing, reading, bathing, avoidance of foods/drinks etc.). What is not clear is how the
factors which influence these quite different behaviours will be explored within the interviews. It appears from the interview guide that these behaviours will be discussed in a very general sense (as 'bedtime routines'). However the factors which influence tooth brushing may be very different to the ones which influence screen time behaviours or reading. Is there any plan to explore the specific behaviours individually during the interviews with parents to ensure the factors which influence all of the bedtime behaviours of interest are considered when developing the intervention using the BCW?

Methods

* Participants - A little more detail would strengthen this section of the paper. For example, will there be any age restrictions for parents? Will single parents be invited to take part in the study? Do both parents have to be first time parents to be included in the study (or if one of the parents has had a child from a previous relationship who is not living with them would that couple still be excluded?). Will both academic and non-academic staff be invited to participate in the study? Could a purposive sampling matrix be used to ensure the sample is representative of the population (e.g. gender, age, SES, ethnic origin)?

* Page 7, line 20 typo 'will'

* Page 7 - Reference is made to the effectiveness of text message based interventions but at no point in the paper has this research been presented.

* Page 8, line 5 'computer based…' add 'systems' or 'approaches'

* In Table 1 it states equity will be assessed by 'cost per participant'. It is not clear how this data will assess the equity of the intervention. Could the data relating to different groups uptake/retention/acceptability be a useful indicator of equity? Also it is not clear how affordability will be assessed via the focus group feedback?

* Please provide the appropriate reference(s) for the measures which will be used to assess bedtime routine behaviours and sleep quality and discuss how these were developed (presenting validity/reliability information if applicable).

* How long after the intervention is completed will this preliminary follow up outcome data be collected?

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