Reviewer's report

Title: A Mobile Phone-based Program to Promote Healthy Behaviors among Adults with Prediabetes: Study Protocol for a Pilot Randomized Controlled Trial

Version: 1 Date: 19 Sep 2017

Reviewer: Jennifer Murray

Reviewer's report:

Thank you for the opportunity to review this manuscript. The paper describes the protocol for an evaluation of the JOOL Health application for increasing autonomous motivation to prevent type 2 diabetes among those with pre-diabetes. It also investigates the feasibility and acceptability of the intervention. This is an important area for research and an interesting and relatively novel approach to the problem.

It appears that the approach used and foci of the study has changed quite substantially since the last round of reviews. The changes are well justified and appear to suit the study's research aims better.

Broad comments:

As the target population are people with apparent low motivation already (having declined participation in DPP either face to face or online), are this group comparable to the wider patient population? Also, there may be significant retention problems, though the trial itself will identify whether this is actually an issue or not.

The control group (group 1) are not a true control group as they are receiving some form of intervention. They are more of a comparison group. Consider editing the terminology.

Should the University of Michigan be mentioned. Could this impact on confidentiality? Could this be masked slightly, e.g., by "our study protocol will only include members of a single university's self-funded insurance plans". This masks the university employees while also making clear the sample.
Abstract:

"which helps users connect certain health behaviors (e.g. sleep, diet) with personal values in specific life domains (e.g. family, work)." Has this actually been determined, or is this the aim of the application?

Background:

"To reduce the incidence of T2DM and improve population health, novel strategies are needed to increase autonomous motivation to prevent T2DM among individuals with prediabetes" - this is difficult to follow and feels almost as if there are two purposes to the sentence (the change from reduce incidence of T2DM and prevent T2DM). Consider rewriting for clarity.

Please provide a reference for self-determination theory.

The section on the aims and hypotheses for the study is difficult to follow, and at times it is not clear why the hypotheses are placed. For instance, why is it believed that the participants will find the intervention acceptable? And why is it hypothesised that the Fitbit condition will be more effective? More rationale needs to be included to justify these predictions.

Methods:

the rationale for the qualitative aspect as detailed in the design section is not aligned to that stated in the hypotheses. I think that this is a matter of wording; acceptability/feasibility versus experiences/perspectives. Consider editing to increase congruence.

Discussion:

As with the previous reviewers' comments, it is still not entirely clear how the current study will inform the larger study. Make the links between the two much clearer - emphasize which aspects of the current study (outcomes, methods) will inform the future trial.
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