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: 0 Date: 06 Apr 2017

Reviewer: Bridie Evans

Reviewer's report:

Thankyou for the opportunity to review this paper and learn about the proposed study, which will generate some timely and useful evidence about managing the serious problem of diabetes.

I have a few comments below:

'Leverage': this term is used in the abstract and main paper but it is not clear what it means. Please explain.

Different types of motivation are described in the abstract and main paper including autonomous and overall motivation. Autonomous motivation is explained clearly but there is no corresponding definition of overall motivation until the final paragraph of the paper. Please clarify these distinctions at the first opportunity to help the reader through the rest of the paper. Also, in the background, please explain what is 'competence' (line 32, p2 of background). Additionally, please explain 'purpose and values' (line 9, p3 of background) and whether the participant predefined these during the intervention. Finally, please explain 'proximal mediators'. In the abstract, it is unclear why these appear to relate to overall motivation and not all types of motivation. Could these sections be clarified please.

Could the authors explain why this is a pilot study. Is this the first time JOOL Health is being evaluated? If so promising, why not undertake your research on a bigger scale?

Why is a 12 week intervention period chosen? Do all participants start at the same time and complete 12 weeks? If there is a fixed end date, how does the team include data from participants experiencing a shorter intervention period?

Qualitative data

Please provide references to evidence the rationale that focus group participants should be grouped according to level of change. The heading 'statistical analysis' is not correct - this
section describes all analyses. Please amend. Please reference the qualitative analysis methods. Please justify the use of grounded theory. This is a research method not just an analysis method. It is an inductive approach involving a data collection approach which is informed by findings in early data. It doesn't seem suitable for a pilot study where four focus groups are predefined.

Limitations

The paper would benefit from a consideration of the limitations of the protocol. The population is already known to be hard to reach but the challenges in recruiting people who have ignored previous encouragement to behaviour change are not acknowledged. Additionally, if this is generally an unwilling population, what effect will such a lengthy series of questions (table 1) have on their risk of dropping out? It is best practice to involve members of the public or patients who share characteristics and experiences of the target population, partly to ensure the research methods are optimised to achieve recruitment and minimise dropouts. Have the study team involved some people with prediabetes in planning this study and discussed recruitment and data collection methods and tools? If not, why not?

Also, how generalisable are the findings? Could some aspect of being a University of Michigan employee affect willingness to engage in DPP?

There is evidence that targeted mobile health interventions can have the opposite effect than that intended. Could this be discussed please. See for example: Lyons R.A., Rodgers S.E., Thomas S., Bailey R., Brunt H., Thayer D., Bidmead J., Evans B.A., Harold P., Hooper M., Snooks H. (2016) Effects of an air pollution personal alert system on health service usage in a high-risk general population: a quasi-experimental study using linked data J Epidemiol Community Health doi:10.1136/jech-2016-207222

Abstract

L20: please explain what is meant by 'leverages'

L41: please give mHealth in full

L48-57: unclear what is the difference between autonomous and overall motivation; behaviours listed are relevant to both outcomes
Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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