Author’s response to reviews

Title: Tracking physical activity using smart phone apps: Assessing the ability of a current app and systematically collecting patient recommendations for future development

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Author’s response to reviews:

Dear Amy Nguyen and associated editors:

We appreciate the minor revision request on our manuscript “Tracking physical activity using smart phone apps: Assessing the ability of a current app and systematically collecting patient recommendations for future development” for consideration by BMC Medical Informatics and Decision Making. The reference ID is MIDM-D-19-00108.

All authors have approved the revised manuscript and agree with its re-submission.
Below we respond to the editor and reviewers’ comments.

Sincerely Yours,
All authors

Reviewer 1:
Chen Liang, PhD (Reviewer 1): Thanks for the revision and authors' responses. One of the major concerns from round one review is the lack of significance and rationale of the reported study, reflected in the missing summary of related studies and the missing perspective in the state-of-the-art medical informatics studies related to mHealth of bariatric patients. Authors have made a revision, however, after careful review, there are still missing pieces in providing a strong rationale in terms of why the proposed study added important data to the literature. For example, see Bradley 2018. (Bradley, L. E., Thomas, J. G., Hood, M. M., Corsica, J. A., Kelly, M. C., & Sarwer, D. B. (2018). Remote assessments and behavioral interventions in post-bariatric surgery patients. Surgery for Obesity and Related Diseases, 14(10), 1632-1644.)

Author Response: Thank you for your comments. Your comments have allowed us to read and reference more recent research in our paper. We have added new information throughout the introduction (specifically on page 6) and discussion (specifically on page 18 and 19). We discuss how remote monitoring using mHealth technologies is important for research and practice in terms ecological validity, and making it easier to track patient progress. We emphasise the utility of using remote technologies as a way of strengthening our rationale as to how our study adds to the current literature.

Chen Liang, PhD (Reviewer 1): In addition, upon reviewing the updated discussion, it is not significant for me as to how these principal findings fill the gaps in mHealth and a broad field of medical informatics.

Author Response: Additional information has been added to the introduction and discussion to explain how our study contributes to the mHealth literature. We discuss how face-to-face clinical appointments have high attrition rates that mobile technologies could help mitigate and the benefits of recording real-time data. This is particularly crucial because bariatric surgery patients require a life-long commitment to weight maintenance and if patients are not responding to letters or phone calls, remote technologies may still be able to collect and longitudinal data.

Reviewer 2:
No comments provided in email or online portal to respond to.

Reviewer 3:
Huong Ly Tong (Reviewer 3): General comment: I appreciate that the authors have responded to previous comments made by Reviewers 1 and 2. The paper is well structured with clear sections and subheadings. The authors have addressed and/or discussed most of the limitations of the study.
However, the methods section requires a bit more work, as well as the discussion. Please find below my specific comments that could help improve the paper.

&gt;&gt;&gt;&gt;&gt;Author Response: Thank you for your positive comments and helpful suggestions to improve the present manuscript.

Huong Ly Tong (Reviewer 3): 1. Methods: While more details have been provided about the intervention and the participant, there should be a separate section called Data analysis. At the moment, specific information about Data analysis is included in the Results. For example, page 15, line 340 - 46 "Assessing the relationship between physical activity and other health related variables" - information about data analysis should be in the methods. Similarly, page 16, line 370 - 73, "Identifying the facilitators and barriers to the apps use", the first 4 sentences of that section should be in the methods as well.
I suggest that the authors included a section called Data analysis, after the Measures section, and detailed the analysis for each of the outcome proposed in the measures section.

&gt;&gt;&gt;&gt;&gt;Author Response: Thank you for this advice. We have now included a data analysis section in the results based on your suggestions above.

Huong Ly Tong (Reviewer 3): 2. Methods: While it is great that the authors have provided description of the intervention, as well as the associated Behaviour Change Techniques, the authors could also consider including screenshots or screen-capture video (per CONSORT-EHEALTH checklist), either as part of the methods, or as an Appendix, to enable readers to understand the look and feel of the apps better, as well as to enhance replicability.

&gt;&gt;&gt;&gt;&gt;Author Response: We have added details about the apps to Supplementary Materials 1.

Huong Ly Tong (Reviewer 3): 3. Discussion: The intervention is composed of 2 different apps (Moves, WLCompanion). Previous research has shown that users would prefer and would be more engaged if they only have 1 app/1 central system to view all their health-related data and engage in different functions (as opposed to going to 2 different apps, each app offers different things). Perhaps this could be part of the reasons for the high attrition observed. It would be good if the authors can briefly discuss the implications of having 2 apps as the interventions, and how that could potentially impact user engagement level (for e.g., in the first paragraph of Principle findings where the authors discussed the use of the app).

&gt;&gt;&gt;&gt;&gt;Author Response: This is now expanded upon in the introduction and discussion. Specifically, we now discuss how some patients are often receptive to remote technologies and it would be fruitful to make mHealth interventions as user-friendly as possible to mitigate attrition rates. New references have been added about on how people often lose interest in an app after the first month and thus new mHealth technologies must be more engaging.
Huong Ly Tong (Reviewer 3): 4. Abstract: A minor point regarding the Background. The abstract said "remotely monitoring patients' physical activity and other health-related variables may enable practitioners to offer patients further support in real time" (page 2, lines 52 - 54). This sentence doesn't seem to align with the rest of the article, or the aim of the study. Specifically, the manuscript did not discuss how practitioners used the patients' data to offer real-time support at all - not in the introduction, intervention description, or discussion. Hence, I suggest that this sentence be reworded slightly to better align with the rest of the article.

Author Response: Thank you for pointing this out this useful information. The abstract has now been changed to relay how real-time data paints a more ecologically valid picture of one’s activity, and we emphasise that such technologies may be an important factor in supporting patients’ long-term health outcomes.

Editor comments:

Please also ensure that your revised manuscript conforms to the journal style, which can be found at the Submission Guidelines on the journal homepage.

Author Response: Thank you for your support. We have reviewed the submission guidelines on your journals webpage (https://bmcmedinformdecismak.biomedcentral.com/submission-guidelines/preparing-your-manuscript/research-article) and have adjusted the manuscript accordingly.