Reviewer’s report

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

Version: 0 Date: 10 Apr 2019

Reviewer: Chen Liang

Reviewer's report:

The paper reported physical activities changes for patients of pre- and post-bariatric surgery by collecting data from mobile apps. The paper is strong in the language and organized presentation. But there are a couple of questions regarding methods, study conduct, and validity of results. Below please find my comments for your consideration.

Major comments:

1. Introduction. While the specific aims are clearly stated, the significance of the proposed research questions is not clear. Given a considerable number of relevant studies (i.e., mHealth, physical activities, wearable HIT), it is not clear what knowledge gaps or methodological limitations the present work is attempting to address. This weakness largely harms the scientific value of the work. For example, the authors did mention the change in physical activities for patients of pre- and post-bariatric surgery. However, the authors provided no, or very limited references, to demonstrate why it is important and how the present work can make scientific contributions to it. In addition, the Introduction is weak in (1) literature review, (2) demonstrating state-of-the-art study in the proposed research domain/topic, and (3) demonstrating the scientific contribution to informatics (also see comment 3).

2. The paper has a couple of major limitations in methods and conduct. (1) The data collection seems to be not satisfactory resulting in substandard sample size for robust results. For example, of the 117 participants who reported data on WLCompanion app, there is only an average of 12 days data were collected. This is acceptable for an pilot report but is perhaps not the best practice for a journal publication. (2) Owing to the small sample size and incomplete data collection, I suggest to carefully re-consider the validity of the regression models. Even when the numbers suggest a statistical significance, the inferential results could be less meaningful. (3) Authors generated statistical results and conclusions based on multiple subsets of data analysis with different sample sizes. It is not clear whether these data are from the same group of participants or not. If not, there may be alternative interpretations/conclusions to those results as compared to what was proposed in the paper. A clarification or downstream analysis is needed to ensure the validity of the results and conclusion.

3. The Discussion is suggested to include the authors' understanding and suggestions as to how the present work is related to medical informatics in areas of interest or general.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
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