Reviewer’s report

Title: Development of a context-sensitive physical activity intervention for persons living with HIV and AIDS of low socioeconomic status using the behaviour change wheel.

Version: 0 Date: 18 Sep 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: This is a very well-written, interesting and rigorous paper documenting the thorough development of a context-sensitive physical activity intervention using the Behavioural Change wheel as a framework. The rationale for the study is reasonable and the methods are extremely detailed allowing the reader to fully understand the process that was taken by the research team in deciding on the most pertinent, evidence based intervention functions and techniques. This study makes an important contribution to behavioural science from a methodological standpoint, in that it demonstrates how to meticulously and transparently apply the Behaviour Change Wheel and Theoretical Domains Framework to intervention design. It also gives insight into some of the most appropriate theoretical constructs and behaviour change techniques that apply to an important target population of Low SES African persons living with HIV and AIDS. Very good Job

REQUESTED REVISIONS:

My only minor criticisms of the manuscript are firstly that it is missing a clear justification of the target population and why physical activity is of particular importance to them, and secondly that it is a bit disorganised in parts, which disturbs the flow and makes it hard to follow. To this end I have the following recommendations:

The Abstract is good, although I was not fully aware of the aim/purpose of this particular manuscript until I'd read the main text. You could make this clearer by saying that the aim was not only to develop an intervention but optimise it using behavioural theory/ frameworks in the background.

I would like to see the background make a stronger case for why we need this intervention. I think the evidence cited but you could develop some of your points to tell the reader what the
evidence is specifically for PLWHA (Lines 70-74). Is the argument that PLWHA are at greater risk of low PA or that PA has specific benefits for the management of HIV and AIDS? In Paragraph 2 (Line 77-79) you could also make the case stronger by adding some numbers to describe inactivity and the prevalence of HIV/AIDS in Low SES.

Line 89-175: This section of the manuscript appears to me to not fit here as it generally summarises the methods and results that come next. I think you could cut this section down and only describe why it is best practice to ground the intervention in behavioural theory and use a rigorous framework for developing the content and not tell the reader what you did in the intervention itself (as this repeats itself later). You do in fact touch on this in Paragraph 3 of the background so it might be suitable to leave this here and finish the background by stating the aims of the study/paper. Then the section entitled 'Models and frameworks informing the study' (Lines 125-168) could in fact move to the methods section (e.g. to the section starting on Line 218 'Use of the BCW'). Line 170-175 could be moved to/ integrated with paragraph 3 of the background.

It would be helpful if you told the reader in the Materials and processes section that the results of the 3 preliminary studies will be described and highlighted in relation to the APEASE process/BCW framework throughout the results. My instinct as a reader was to try and find what the outcomes of these studies were and it took me a while to work out that they were documented throughout the different steps of the results. I would recommend adding this line in instead of stating that 'the results of this study were used...' (Lines 204-205 and 209-210) as you should describe any results in the results section itself.

The results are reported very well - no comments.

My instinct is that the discussion might be an appropriate place to summarise briefly what the resulting intervention looked like (i.e. condense Lines 89-124 of the Background). I would suggest after the first paragraph.

Line 357: again, reinforce to the reader that PLWHA of Low SES is a high risk group.

The final line (359-360) is a bit redundant so you can remove as evidence of its use in other settings is not evidence that it has not been done in this one.

Line 377: you need to expand on why using two theories rather than just one is a strength - what is the evidence supporting this statement?

ADDITIONAL REQUESTS/SUGGESTIONS:

n/a
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.

Yes

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

Yes

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.

Not relevant to this manuscript

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

Acceptable

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