Reviewer’s report

Title: "Happy Feet": Evaluating the benefits of a 100-day 10,000 step challenge on mental health and wellbeing

Version: 0 Date: 06 Jul 2017

Reviewer: Nicholas Ara Mischel

Reviewer's report:

Recommendations for major revisions:
1. Except in the declarations section, replace mentions of "Stepathlon" with a phrase such as "workplace based health promotion program" or similar. There is no data that supports the promotion of this over any other workplace based health promotion program, and would serve the manuscript to not read like an advertisement in places.
2. Need significant clarification or change of the statistical analyses. It appears that there were three considerations; first, whether there was a significant overall effect of implementing the program on the outcome of self-reported mental health measures, second, if reaching a 10,000 step goal or not modified this effect, and finally, whether activity level during the program had an effect on the outcome. The use of ANOVA to describe statistical differences between groups of participants in this study is not inappropriate, however it makes comparisons between groups rather awkward in that one is restricted to describing isolated main effects of individual factors on the outcome and interactions between multiple factors. Would highly recommend instead using regression analysis to compare the number of steps taken in an individual to the difference in self-reported mental health measure before versus after the program. This would allow the study to show if there is a biological gradient of increasing number of steps taken leading to increasing improvement in outcomes. Another advantage of regression is the ability to better account for other independent variables which may confound the analysis such as common demographic factors that may be included in the dataset. It would be useful to have a table showing the demographics of participants in each sub-grouping. When describing ANOVAs, please specify in each instance when single versus multiple factor ANOVA was employed and when specific factors were considered to be repeated measures. Then, report when there was or was not significant main effects of a factor, and finally if there was an interaction between factors in multifactor analyses. Names of post-hoc analyses with corrections for multiple comparisons need to be specified.
3. The only consistent finding is a statistically significant improvement in the outcome measures in persons after a 100 day program compared to before. In the manuscript please refrain from statements that the 10,000 steps or that increasing activity levels led to greater improvement in outcomes. Refrain from using language that conflates statistically significant differences with biologically relevant differences. For example, an improvement in well-being of just 2.1% may be undesirable for a large scale intervention of physical activity which we already expect to be positively associated with improvement in mental health.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No
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.

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
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests
I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal