Reviewer's report

Title: Validity of a brief Stages of Change instrument relevant to the physical activity goal of achieving 10,000 steps per day

Version: 1
Date: 2 July 2015
Reviewer: James Dollman

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Major Compulsory Revisions
1. I would like to see a stronger justification for the separate hypotheses in this study. For instance, I am not convinced that the theory would suggest that steps/day, BMI, and health measures etc would vary systematically across all 5 stages of change. For example, why would these measures differ between pre-contemplation and contemplation? The second hypothesis seems to me to be a de facto validation of the instrument to perform as a physical activity self-report, and is therefore not really testing the theory.

2. While raised as a limitation in the Discussion, the use of a baseline sample in a walking intervention for the study's purpose is a serious issue. According to exclusion criteria, low numbers of people in Action and Maintenance would be expected (although it seems a relatively high number of Maintainers snuck through), and, as pointed out, Pre-contemplators would be minimal. The authors need to provide re-assurance that their statistical inferences are justified in the light of these sampling issues.

3. Why would Intention be expected to be higher in the Maintenance stage?

Minor essential revisions
4. It would be useful to know the prevalence of overweight/obesity in the sample. The mean BMI does not allow the reader to evaluate the authors' claim that a 'large and diverse' sample is a strength of the study.

5. On that same point, I suggest removing reference to a 'large' sample as a strength - studies can be overpowered, and as the authors have not provided a power analysis, it is impossible to determine whether the sample size is appropriate.

6. Were daily steps corrected for wear time in analyses?

7. How valid is the GT3X as a step counter?

8. The authors refer to General Health as an outcome in the text of the Results, and yet all domains from the SF36 are provided in Table 2. These all need to be commented upon.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests