Reviewer’s report

Title: The effect of mere measurement from a cardiovascular examination program on physical activity and sedentary time in an adult population

Version: 0 Date: 19 Nov 2017

Reviewer: João Valente dos Santos

Reviewer's report:

General Comments:

GC 1.

This study investigated the variation in leisure-time PA, transport-related PA, and overall ST using a novel statistical approach such as the multilevel latent growth curve modelling. The paper has important applied relevance for behavioural intervention trials that needs to be further explored.

GC 2.

I recommend that the authors provide a little more detail regarding the trajectory variables and the covariables were measured/obtained.

GC 3.

The discussion section, in general, is good and provides straightforward and transparent account of the findings of this study. A considerable effort to link the results of the currently study in relation to existing literature was performed. My recommendation would be that the authors spend a little more time discussing the potential practical implications of this research without indulging in general reasoning.

That said these limitations should be easy for the authors to address. Some specific comments are posted below.

Specific Comments:

01. I suggest that the title include information of the study population.

"... in an adult population", for example.
02. Page 2, Line 3-6: Rephrase, please. Include "tailored letter intervention" when referring to the brief intervention.

03. Page 3, keywords: For indexing purposes, repeating words of the title is not a strong approach.

04. Page 4, Line 2 - 8: … Any references to support this? Focus on the over-arching problem.

05. Page 6: How was Randomization stratified? It is well-known that interstrata variability can lead to biased model effects if the strata are not adjusted for in the model. Was this done? In general, there is no description of how the study design was incorporated into the analysis, or what the impact of doing so might be.

06. Page 7: it should be explained in more detail how the trajectory variable and the covariables were measured/obtained.

07. I would be delighted to have some technical error of measurement on anthropometry.

08. What is the power of these models to detect clinically relevant differences among groups with the sample size given?

09. How did you checked for heteroscedasticity? Heteroscedasticity can result in biased parameter estimates and standard error estimates that are either too large or too small. Consequently, heteroscedasticity can increase Type I-error (be overly optimistic about parameters being statistically different from zero) or increase Type II-error (be overly pessimistic about parameters being statistically different from zero). One approach to detecting violations of homoscedasticity is to examine plots of residuals versus predicted values for evidence that residuals increase as a function of the predicted value. However, heteroscedasticity can also be a result of a violation of the linearity or normality assumptions, and it may also be remedied by addressing those violations.
10. LGM's were adjusted for time invariant covariates. But sex could be used in the model as a dummy variable to check if there were sex differences at each measurement occasion.

11. Conclusions

Avoid replicating statements that are already stated in other parts of the paper. In this section the author(s) should address more possible take home message/s supported by the results of the present study.

**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.

I am able to assess the statistics

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

Acceptable

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