Reviewer’s report

Title: The development of CHAMP: a CHecklist for the Appraisal of Moderators and Predictors

Version: 0 Date: 18 Jul 2017

Reviewer: Julian Wolfson

Reviewer's report:

This paper describes the development process and end result of creating a checklist to assess the quality of studies which analyze predictor and moderator variables. Overall, the paper is well-written and clear, and the methods used to develop the checklist seem appropriate. I have a few specific comments that, if addressed, could in my view improve the paper:

1) Figure 1 refers to a schematic of "causal models", but I find this terminology a bit problematic for two reasons. First, a predictor may also be associated with intervention (i.e., if it is a confounder). And second, an arrow intersecting another arrow is not a well-defined quantity within a formal causal diagram.

2) [First bullet point on page 5] I think more detail is needed here. I assume you mean bias for the main treatment effect, but this isn't stated. It may also be worth pointing out that this is only a concern for non-randomized studies.

3) [Page 6, Step 3: Pilot testing] The set of researchers used in the pilot testing seems relatively narrow. Agreement is likely to be (artificially?) high with so many people from the same research team participating.

4) [Page 9, Delphi round 2] The last sentence is missing an ending.

5) [Page 11, checklist] Although the authors note that studies where there may be bias need to be discarded first, it seems like this should be a part of the checklist. Maybe it should start with something like: "Can the main treatment effect be estimated without bias (either due to randomization or by controlling for possible confounders)?"

6) [Page 11, checklist #1] Should probably be plural: "moderators or predictors"

7) [Page 11, checklist #6] Consider adding "... or was sufficient adjustment made for multiple testing?"

8) [Page 11, checklist #8] Ambiguous; what are 'results'? 

9) [Page 11, checklist #9] The theme of the rest of the checklist is 'yes' answers indicate higher study quality. However, answering item #9 "no" isn't necessarily a negative; an analysis that
tests for significant predictors and moderators and finds none is doing a good job by reporting this.

**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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