Reviewer’s report

Title: Psychosocial vulnerability underlying four common unhealthy behaviours in 15-16-year-old Swedish adolescents: a cross-sectional study

Version: 1 Date: 26 Oct 2017

Reviewer: Diana Rancourt

Reviewer’s report:

The authors have addressed many of my original comments and concerns. I have a few remaining suggestions to strengthen the paper.

Introduction

I appreciate the authors' efforts to clarify the Introduction and respond to my previous comments. There remains some difficulty in following the flow of the argument, which has potential to be remedied by some minor changes in content order and term labels.

1. The authors state on lines 92-93, "Although several publication support this model, it has not been empirically tested." This suggests that the publications supporting the IHBM all are theory papers. Is this accurate? If not, please clarify what you mean by stating the model "has not been empirically tested." Depending on the intended meaning, it might be as simple a fix as adding "in non-US samples" to the end of the sentence.

2. I think it would be clearer to follow the paragraph starting "Jessor and colleagues…” with the additional information provided in this revision about the association between welfare regime and health behaviors. Then have the consolidated information from the Morgan research follow. As is, the description of the Morgan information is redundant.

3. Perhaps some of my remaining confusion with the introduction is due to the use of the term "model" both to simultaneously reference a statistical model and a theoretical model. In some places the authors specify that they are discussing findings related to a theoretical model, whereas in other places I'm unsure of whether they're just reporting empirical findings from a structural equation model.

Methods

1. The authors state that "first order latent variables for social relationships and self-esteem constituted the total scores on the respective subscales…” That sentence suggests to me that the first-order latent variable for social relationships and self-esteem only had one item. My understanding is that latent variables require a minimum of two indicators. Could the authors please clarify?
2. In reviewing Figure, all variables are provided in circles/ovals suggesting they all are latent variables. Gender and age, though, were observed and should be represented by squares/rectangles. Please update the figure to accurately reflect which variables were latent and which were observed.

**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?**
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I am able to assess the statistics

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