Reviewer’s report

Title: Effective nationwide school-based participatory extramural program on adolescent body mass index, health knowledge and behaviors

Version: 0 Date: 14 Aug 2017

Reviewer: Steven H. Kelder

Reviewer’s report:

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1. There is high potential for selection bias. 69 schools were eligible to participate in the evaluation (i.e., did the intervention), 15 New York schools were selected, and one agreed to participate. No school characteristics are given comparing the 69, 15 to the 1 evaluation school.

2. Student response rates are not clearly stated, although appear to be less than 50% in both arms. No comparisons by participating and nonparticipating students is given. This is not stated as a limitation.

3. The timing of the pre and post survey is not provided, nor whether there were any time differences by HealthCorps or control. Presumably, measures were taken in September and May? Information not provided.

4. The intervention is not well described. What is written is only in generic terms, applying to all 69 program schools. Little intervention process information is given specific to the school reported in the study. Unclear as to level of intervention dose.

5. Analysis methods are described as if there is more than one school (e.g., clustering among schools). It seems cut and pasted.

5. Main outcome analysis proposed is a treatment by time interaction, yet results do not provide the statistical test. Only within condition by time outcomes. This is a fatal flaw rendering interpretation speculative.

6. Reliability and validity estimates are not provided for behavior measures, or other measured constructs. The nutrition and physical activity measures are imprecise and limitations of such measures are not discussed in discussion section.
7. It is unclear how, for HealthCorps obese girls, the percentage measured as obese increased from 12.7% to 13.1% pre to post, while BMI z-score decreased from 1.98 to 1.74. This is likely due to small sample size (n=33). This deserves discussion.

7. Given the method flaws, the written interpretations are not reliable.

**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.

Unable to assess

**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

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