Reviewer's report

Title: A youth-led social marketing campaign to encourage healthy lifestyles, the EYTO (European Youth Tackling Obesity) project: A cluster randomised controlled trial in Catalonia, Spain.

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Reviewer: Andrew Springer

Reviewer's report:

This paper describes the study protocol and intervention approach for The European Youth Tackling Obesity (EYTO) project, a “multicentric intervention project with participation from the United Kingdom, Portugal, the Czech Republic and Spain.” The paper specifically presents the approach for the Spanish site of the study. The multi-site study is innovative and will make an important contribution to the field. Despite these strengths, there are several aspects of the current paper that merit further consideration:

Major Compulsory

1. Aim of the paper: The purpose statement of the paper is not explicit. In the abstract, the authors state: “…this protocol describes the participation of the Spanish team specifically.” First, it appears authors are referring to the paper under review as ‘the protocol’, which is confusing. Secondly, more explicit language would enhance the paper purpose statement, such as: “This paper describes the EYTO intervention and study design (or protocol or methods) for the overall intervention and specifically for the Spanish study site.” (or something to that effect).

2. Literature review:
   - The authors state (p.6): “Nutrition education, increasing physical activity (PA) and reducing sedentary behaviors are the principal behavior modifications that can prevent or reduce the risk of OB.” Here, the authors are conflating ‘nutrition education’ with ‘healthy eating’. Nutrition education is one strategy for improving healthy eating, but is not a ‘behavior modification’. Please fine-tune. Furthermore, as this is a statement of fact, please include a citation.
   - P.6: What does “good strategies” mean? “effective strategies”? Evidence-based strategies? Additionally, the paper cited in this sentence refers to a review on social marketing for obesity prevention. As this sentence refers to a statement on evidence for improving availability and quality and reducing prices of healthy foods and providing access to sports grounds, please cite the primary studies that support this statement and provide evidence for these intervention approaches.
   - P.6. The authors provide a good rationale for exploring other intervention approaches for obesity prevention that match with their developmental lifespan stage.
Consider further citation of the literature: P. 7, The authors state: “Some studies suggest that the use of SM strategies to modify behavior, lifestyles and other aspects of diet and PA using an intervention, program or campaign can reduce the overweight or OB prevention among children and adolescents. However the analysis and conclusions are not decisive because there are very few interventions that expressly use the SM criteria.” Lacking from the current literature review is citation of research that has used social marketing approaches to promote energy-balance behaviors. For example, while the authors cite a descriptive review of social marketing applied to obesity prevention on p. 6 (the reference I suggested changing above, ref #9), they do not cite the literature in this review that has used social marketing approaches (e.g., Evans WD, Necheles J, Longjohn M, Christoffel KK. The 5-4-3-2-1 go! Intervention: social marketing strategies for nutrition. J Nutr Educ Behav; Huhman M, Potter LD, Wong FL et al. Effects of a mass media campaign to increase physical activity among children: year-1 results of the VERB campaign. Pediatrics 2005;116:e277–e284. 2007;39:S55–S59.) or other youth-led health promotion approaches (e.g., Campbell et al., ASSIST smoking prevention, Lancet 2008). This research would provide a stronger foundation for the proposed youth-led social marketing intervention by providing theoretical and empirical evidence that social marketing and youth empowerment approaches have been shown to be effective in health promotion/behavior change. On this related note, given that there is evidence of previous interventions using social marketing-related strategies for behavior change in youth, were these other interventions less effective because they did not use all “SM criteria”? Or is the suggestion that these intervention approaches can be more effective by explicitly addressing all “SM criteria”? Less definitive language should be considered if there is no evidence that these 8 basic SM criteria can increase behavior change. I recommend being more explicit in stating that this study will help evaluate whether those criteria really are effective- in addition to the delivery of those criteria via a youth-led approach.

3. Intervention: Details on the intervention plan of action are lacking. For example, what is the overall framework of the intervention? How often do the five leaders meet? What types of trainings and how often are trainings conducted with the five leaders? What type of resources will be provided for these leaders? (e.g., budget? Materials?). What do ‘scholarly activities’ and scholar contests mean? How often will events take place and over how long a period? What are examples of the social marketing approaches? What is the theoretical framework for the intervention? (e.g., is their youth empowerment theory that is being applied? Why should we think the 8 SMBC criteria will be effective in changing behavior?

4. Methods

Can the authors describe how the five youth from across all grade levels and two high schools were selected? Research in this area has shown that the more effective approaches for selecting peer leaders are via peer nominations. Was this approach used? Also, why only five youth to represent two schools? Why not a youth-led committee at each school?
The authors state: “4 high schools will be selected.” Were these high schools already selected? If so, consider changing verb tense. Regarding randomization of schools, given the small sample size of schools, why didn’t the researchers first match and then randomize schools? Table 1 presents a general description of schools; can authors provide a more detailed description of how the intervention and comparison schools compare on economic disadvantage, size, public/private, geographic location?

P. 9: Authors state: “From these neighborhood, the randomization of high schools was performed.” Are the authors meaning to state: “Random selection?” I am not understanding how randomization is being used in this sentence. Also, were schools purposively selected from the 9 schools, or randomly selected?

P. 9: Why are physicians needed to lead the implementation of the study if the main measures are self-reported behaviors via the WHO HBSC survey? What specific “clinical aspects” of the study will be evaluated?

P. 10: Why will nutritionists be in charge of determining the primary and secondary outcomes throughout the questionnaire? The authors also state: “The nutritionists will be responsible for dietary and public health training.” Of whom? The five adolescent leaders?

P. 12: Please consider inserting another subheading that states: “Primary Outcomes and Measures”- or something to that effect, to distinguish from the section on the intervention.

Discussion Section: This section would benefit from greater enhancement and fine-tuning. For example, authors state: “This study protocol describes the effectiveness of an intervention aimed at…” Again, consider “this paper” as this is not the actual study protocol. Secondly, the paper does not describe the effectiveness, as no findings are presented. P. 14: “Based on the current high rates of OB…” High rates where? In Spain? Worldwide? “This summary represents…” What summary? The ref. 34 intervention, or the current EYTO intervention? If the current EYTO intervention study, then the summary does not present an evaluation of the study but rather a description of the intervention and study methods. Overall, fine-tuning of the discussion is needed.

Discretionary Comments

6. If the baseline has already taken place, have the authors considered presented their baseline findings along with this description of the intervention?

Edits

- P. 7: “…core SM concepts that takes into account…”

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare I have no competing interests