Reviewer’s report

Title: Effects of school-based interventions on motivation towards physical activity in children and adolescents: protocol for a systematic review

Version: 0 Date: 17 Dec 2018

Reviewer: Anne Martin

Reviewer's report:

This manuscript described a systematic review study protocol to assess the evidence base on the effectiveness of school-based interventions on physical activity motivation and physical activity outcomes. The authors followed the reporting guidelines of PRISMA-P. However, the description of study identification and selection, risk of bias assessment and data synthesis require more details in line with guidance set by the Cochrane Collaboration for systematic reviews of interventions. The topic of the systematic review focuses strongly on the individual as the agent for changing or maintaining physical activity behaviour. Individual-level interventions have been shown to have limited success in particular for physical activity promotion on population level (e.g. healthy school-aged children). The study would benefit from widening the focus and assessing the role of peers, school community, school policy and school build environment for motivation towards physical activity in children and adolescents. Failing to go beyond the individual level will lead to study results less relevant for practitioners and policy makers.

Specific comments:

Abstract:

1. Methods - The authors should name all databases searched.

2. Line 43 - change present tense to future tense in "The studies ….grouped according to their motivational outcomes…"

3. Line 52 - Please spell out PE as it has not been introduced before.

4. Line 52 - It would be good to clarify that leisure time refers to school-based leisure time.
Background:

5. Lines 79-84: The lines on the link between developing theory-based/theory-informed interventions and "identifying effective strategies in changing mediators of behavior" needs to be revised as the link between the two constructs (theoretical framework and mediators) is not clear.

6. Lines 85-104: The background section would benefit from generating two separate paragraphs on
   a) possible theoretical frameworks on which interventions to promote motivation for engaging in a particular behaviour can be based on and
   b) the different types of motivation on which the data synthesis is structured around.

In addition, it is not clear why the authors focused strongly on SDT in their introduction while there are several other suitable theoretical frameworks (e.g. Capability-Opportunity-Motivation Model). If the authors are specifically interested in effectiveness of school-based interventions that were based on SDT vs other theoretical frameworks, then this should be made explicit in the background section (i.e. rationale for the comparison) and data synthesis.

7. Line 114: Please provide an example of what is meant by "small intervention effect" (how many minutes of increase in school-based (?) physical activity)

8. Line 121: "weak to moderate magnitude" - This statement should be reconsidered with a population level lens to health promotion. On population level, moderate effect sizes can have substantial impact on health and wellbeing.

9. Line 136: Please add "school-based" between 'towards' and 'PA'

Methods:

10. Search strategy
   a) The authors should consider searching the database Physical Education Index (ProQuest) given the topic of their review.
   b) The search strategy, described in Table 1, indicates a lack of subject heading (e.g. MeSH). If this is the case indeed, the search strategy needs to be revised as the review would be at high risk of incomplete evidence. If the subject headings were omitted from displaying in the table, the authors should make sure to include them.
c) Minor comment: Please replace the term "treatment" with other suitable terminology. The population of interest are not patients and so the interventions are not part of a treatment regime.

11. Eligibility criteria

a) Interventions: Are eligible interventions only those that were implemented in addition to what is part of the school curriculum already? How do the authors intend to identify as to whether an intervention was not already routine practice. Would the authors consider routine practice evaluation as eligible interventions?

b) Line 160: It would improve the clarity of reporting if the authors could provide an example of what they mean by "motivational climate".

c) Line 164: It is surprising to see the restriction of the publication language of primary studies to English Language only given the international and multi-lingual co-author team (German, Portuguese, Italian, Greek (?) ) The authors should make use of their privilege to be able to cover more than English language literature.

12. Study selection

a) Selecting records based on the title only introduces a substantial risk of selection bias. The authors should combine screening titles and abstracts in a single step to avoid excluding relevant studies.

b) Please indicate if title and abstract screening will be done independently by two reviewers. Who will be the reviewers? Please indicate with reviewers' initials.

c) How will be disagreement between reviewers resolved at the title and abstract screening stage? Please describe in the methods section.

d) Do the authors intend to contact corresponding authors of primary studies to obtain additional information helping to determine study eligibility (and missing data - to be described under 'Data extraction')? If not, state why and if yes state how often corresponding authors would be contacted in case of a missing initial response. How long would the review authors wait for a response? Please make this transparent in the review protocol.

13. Quality assessment and risk of bias: Please indicate who will do the risk of bias assessment, by how many reviewers and as to whether this will be done independently and how disagreement will be resolved.
14. **Data synthesis**

a) Line 194: The authors should provide more detail on the narrative synthesis method. Which methods will they use (summary of effect estimates without pooling, combining P-values or vote counting based on the direction of effect) and how will they treat the data? The authors should consider displaying the narrative synthesis in a graph/plot in addition to the GRADE SoF table. A recent publication indicated the high level of poor reporting of narrative syntheses of quantitative data, which the authors might be interested in reading to avoid making the sadly common mistake ([https://doi.org/10.1016/j.jclinepi.2018.08.019](https://doi.org/10.1016/j.jclinepi.2018.08.019))

b) The authors should describe their consideration of sensitivity analyses based on study quality and use only the most robust findings in their assessment of the quality of evidence.

**Level of interest**

Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

**Quality of written English**

Please indicate the quality of language in the manuscript:

Acceptable

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No