Reviewer's report

Title: A Stepped-Wedge Implementation and Evaluation of the Healthy Active Peaceful Playgrounds for Youth (HAPPY) Intervention

Version: 0 Date: 12 Nov 2017

Reviewer: Rachael W Taylor

Reviewer's report:

This is an interesting study in a very under-studied area - how best to maximise physical activity within school recess. Specific comments as follows:1. There is another large study undertaken in NZ very relevant to this manuscript which should be included - results on physical activity (Farmer et al. IJO 2017;41:793) and children's interactions with one another (Pediatrics 2017;139:e20163072) - in both the introduction and discussion.2. While a reader can certainly find the protocol paper and get further information on the methodology - this is always frustrating to do and I think the authors need to include some additional information about particularly relevant areas in this manuscripta) power calculations - particularly for the student behaviour section which seems like it would have always be underpowered - only 5 children per school was only ever going to provide you with 25 students which seems insufficient even if you had 100% retention. If it was not powered to detect this then why have it as an aim of your study?b) More specific detail should be provided on the analyses - given there was no control group per se, how were the multiple data points actually used particularly given these were not consistent between your 5 schools? Figure 1 suggests length of follow-up varied between schools - did you look at the data in terms of short-term follow-up vs long-term? What were the actual time points of measurement? If only short-term e.g. 3 months this should be added as a limitation to the discussion.c) the Introduction intimated that moveable equipment was going to be part of the intervention but this did not appear to be the case?d) how many research assistants performed the SOPARC? On how many days? What were your kappas (not the literature)? 3. I found tables 2 and 3 quite unclear for several reasons:a) I think these are referring to the percentage of children undertaking those specific activities at a single point in time (rather than the % of recess time children spend in each category)? If that is the case, then how does this work (not clear because the methods are too brief) - I assume the whole recess wasn't evaluated but children change intensity of activity very quickly - how is this evaluated?b) 1 decimal place is plentyc) For Table 2, what do the % means of the hard surface/soft surface? They don't add to 100, nor do they add to the VPA numbers in the table above so these are hard to interpret?d) Table 3 seems to contain some errors - what do all the different numbered superscripts mean? Why is "n=" appear beside the M (SD)? Why does basketball have 100(N/A or 0) at baseline? 100% are already doing basketball?e) Why at the numbers so low at baseline in Tables 2 and 3? Is this because some schools had more than one X3 (Figure 1) - this can't be right though as just as many had X1?4. I think the authors have to be very careful with their interpretation - if I am reading the tables right (and I might not be given I found them unclear), this study is reporting the % of children engaging in different intensities of activity during recess at baseline and follow-up - so the children are not necessarily more active (e.g. line 13-14 page 13) - but a greater proportion of them are engaging in VPA during recess. Without measures of activity outside of recess you have no idea whether some compensation
might occur (as often occurs in PA interventions in children). I think the text needs to be modified in several areas throughout the manuscript here. 5. Page 14, line 11 - given point 4 above, I think this argument might be weak. Certainly SOPARC gives you other contextual data that accelerometers and other methods cannot - but it also has limitations (e.g. activity outside of school) that have not been mentioned in this manuscript.

**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.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**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 recommend additional statistical review

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