Reviewer’s report

Title: Do country-level environmental factors explain cross-national variation in adolescent physical activity? A multilevel study in 29 European countries

Version: 2 Date: 01 Feb 2019

Reviewer: Ian Ang

Reviewer's report:

The authors have done a great job refining their manuscript in this revision and I appreciate the detailed outlining of where they have made the changes. I have some minor points for consideration that could help further improve this manuscript.

Lines 188-191:

Perhaps a justification for using Weatherbase's average of major cities is that most of the data of the physical activity was collected in major cities?

Lines 262-282, 401-408:

I think it is important to build into the results as well as the final conclusion section the findings that the betas for individual-level factors are over 30- and 20-fold of both the regional and country level factors for MVPA and VPA, respectively. Therefore, in comparison, the contribution of these country-level factors are much smaller compared to individual-level factors of age and gender. However, to note is that these are aspects that can be improved on or changed, and so this study's contribution is in highlighting where efforts can be focused on, perhaps for older girls, who have the least amount MVPA and VPA.

Lines 366-368:

There could be many other factors that lead to the outcomes and predictors that are could have been influencing physical activity. I suggest rephrasing this sentence to sound less dismissive of this point, especially since only 8 predictors were explored in this paper. The strength of this paper is systematically identifying these various environmental factors and determining their contributions to physical activity together. An additional step the authors could take is to further review any existing literature and include in the background and/or this part of discussion section
the longitudinal or experimental studies that have strongly concluded a causal relationship for some or all of these factors.

Lines 382-383:

A minor point that could be added was that the measurement of transport policy was a binary dummy variable, which is different from the other variables which were continuous, and could have thus limited the power to detect effect from this factor.

Table 3:

Typo that still included previous calculations for footnote b. Explained country-level variance.

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

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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