Reviewer’s report

Title: The Unbuilt Environment: Culture Moderates the Built Environment for Physical Activity

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Reviewer: Chris Ardern

Reviewer's report:

This paper proposes a novel Systematic Cultural Observation approach to examine the cultural nuances (and "unbuilt" environment) of physical activity in Lenoir County, NC. Authors suggest that this method can provide much needed insight into local culture that may moderate lifestyle-related behaviors and health (e.g. obesity). My main comments regard the description of the methods and contextualization of the approach, as follows:

General Comments:

1. Abstract (line 11-12), Background (lines 16-19), and Conclusion (lines 11-12): The statement that "this article assesses the moderation of local culture in the effect of the physical environment on obesogenic behaviors" needs further support or should be tempered, as "moderation" was - at least in a traditional sense - not directly assessed (i.e. no comparison groups, etc.). Moreover, it seems that a complete examination of local culture - described as shared styles, skills, habits, and beliefs - would require further qualitative work on usage patterns (along with environmental audits) to more fully understand the shared culture that might promote or inhibit physical activity. To this end, the authors might consider simplifying (and re-positioning) the manuscript as a theory-driven methods paper for exploration of the unbuilt environment.

2. While "individual attitudes nor structural features of communities is sufficient to explain obesity outcomes" (background, lines 31-32), the authors may wish to include some of the local details of these factors in order to provide robust support for the selection of the target community and their overall study rationale. Specifically, a table with indicators of county-level estimates of BMI and physical activity prevalence, along with individual-level socio-demographic factors (e.g. age, sex, ethnicity, education, income, etc.), and measures of relative income (e.g. Gini-coefficients), etc. would provide a context for readers unfamiliar with the sample area. In the same way, a broader comparison to other existing methods and a context to how the "percent of photos that included people" might relate to physical activity prevalence estimates captured by other means would be instructive.
Methods:

3. (lines 24-27): Although inter-rater coding agreement was quite good, it is unclear how differences in coding were resolved, and should be added to the methods.

4. Methods and Table 1: Provide a rationale for why a single person in a physical space is important from a theoretical standpoint.

Limitations:

5. The authors purposely conducted the study under ideal conditions for physical activity and data capture. However, it is not clear whether the authors are concerned about replication (at another time point or day), and may wish to acknowledge this as a potential limitation.

6. The authors may wish to comment on the limits to a shared culture, given the size of the region explored. Specifically, the issue of "moderation" is discussed at several points, but it is not clear whether this might vary by socio-demographics, smaller geospatial units, etc.

7. It is not clear if all private physical space could be accurately coded for the presence of people or whether there were portions that were not visible.

Minor Comments / Typographical Changes:

8. Abstract and Introduction: Given that physical activity is a behavior, and obesity is a disease (with many modifiable and non-modifiable risk factors), statements linking these factors should be tempered or discussed with caution.

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
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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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