Title: Association between the food and physical activity environment, obesity, and cardiovascular health across Maine counties

Version: 0 Date: 07 Aug 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: Overall this is a comprehensive study examining the association between the food and physical activity environment, with obesity and cardiovascular health across Maine counties. The study is well constructed, implemented and generally well described. The statistical analysis and results sections need to be better worded to ensure clarity for the reader.

REQUESTED REVISIONS:

Abstract:
Line 21: it is confusing to mention 'high incidence' without providing an indication of what this incidence is - so please include.

Don't use acronyms without writing in full first.

The results section of the abstract is difficult to follow, so needs to be reworded to ensure clarity for the reader.

In the abstract and the main results section, primarily results are presented for poor CVH health and obesity, but then the discussion and conclusions focus on lifestyle behaviours. Need to ensure parity between the results presented in the text with the discussion and conclusion sections.

Background:
Line 47: make this clear if this prevalence is for the adult population.

Line 56: Provide example of what is meant by behavioural risk factors.

Line 61-62: These statistics were already presented.

Line 55-66: This paragraph is a bit repetitive in places so could be trimmed down.
Line 71: provide examples of what counts as food access metrics and food availability metrics.

Line 74: explain how the environment influences diet and physical activity in positive and negative ways.

Line 74-76: What did these studies find?

Line 96-98: This sentence should be higher up in the background section.

Line 101: Provide statistics to evidence the poor CVH in Maine.

Methods:

Line 123: Describe how BMI was calculated.

Line 129: Provide evidence of the validity of the BRFSS data given it is based on self-report.

Line 141: Already provided USDA acronym.

Line 144: Has anyone tested the reliability of the USDA database or has it just been widely used?

Line 158: Change four to for

Line 172: It is a bit confusing as to whether physical activity and diet were examined separately or not. Some sections of the text suggest they were, but this sentence suggests that they were just examined as part of the CVH score. This needs to be adjusted and made much clearer for readers throughout.

Line 175-176: provide more of a rationale for not adjusting for race - i.e., low prevalence of diversity.

Results:
I wonder how these results would be different with the changes in the last 5 years since the data was collected? Has there been much investment in the built environment? What about changes in reported obesity and CVD levels?

No final sample sizes are provided, only weighted samples and missing data. Please provide these for the final analyses.

The background section talks about the levels of poverty in Maine, however, 40% of the sample earn over $50k - how does this compare to national averages?

Generally the results section needs more order and structure. It seems a bit random which results are presented and which ones aren't? Why are the regression analyses not presented in a table?
There is very little information provided on the results for PA or diet. Why is this?

The results need to be better worded to ensure readers understand the direction of associations.

Discussion:

The discussion starts by saying that you report strong associations for diet and physical inactivity - but this is not reflected in the results section.

The discussion or limitations section should include that the study presents data from 2010-2014, and so does not reflect the changes that have occurred since then. It would be useful to provide an indication of how these variables are likely to have changed in recent years,

ADDITIONAL REQUESTS/SUGGESTIONS:

See comments above

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.

Not relevant to this manuscript

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

Acceptable
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