Reviewer's report

Title: Diabetes, Obesity, and Recommended Fruit and Vegetable Consumption in Relation to Food Environment Sub-Types: A Cross-Sectional Analysis of Behavioral Risk Factor Surveillance System, United States Census, and Food Establishment Data

Version: Date: 21 October 2014

Reviewer: Lisa Mckesfield

Reviewer's report:

This is an interesting paper that measures the food environment and how it is associated with the prevalence of diabetes, obesity and fruit and vegetable consumption. The study is looking at these factors in the Washington DC metropolitan area which is very specific, and I am concerned about the generalizability of its findings. In addition many of the findings of this study are not supported by statistical analyses, and when statistical analyses have been completed (Table 3), they are not clear.

Major compulsory revisions

Abstract:
1. Define low and high ‘levels’ of geography

Background:
1. Another term for ‘chronic health condition’ in this context would be ‘non-communicable diseases’;
2. Pg 3, line 74: need punctuation marks (,) around ‘or for other lifestyle factors’

Methods:
1. Please define ‘block group’ level;
2. Data to be included in the various analyses have been sourced at different time points, which raises some concerns. BRFSS data was collected in 2009, census data in 2010 and food environment data in 2011. Please comment.
3. Is there some way of using the census data to calculate a score for social deprivation? More clarity is needed on how these individual variables are associated with social deprivation. If some kind of score for social deprivation could be calculated from the individual variables, and then used to draw a spatial variation of social deprivation figure, that would be really interesting to compare visually to the other figures.
4. Figure 2 is not necessary, this should be included in the text.

Results:
1. Pg 7, line 168: Please provide the mean RFE value for the greater
metropolitan area, as well as a measure of variation around the mean;

2. Although the authors suggest that Figures 3, 4 and 5 are similar (ie. higher RFE ratio and higher prevalence of obesity and diabetes east of Columbia, this is not the case for a large majority of the spatial variation figures ie. Spotsylvania has a high prevalence of obesity and diabetes but a low RFE ratio.

3. No statistical analyses have been provided to support the text or the data in Tables 1 and 2 so it is not clear if any of the results referred to are statistically significant;

4. It is not clear how the data are presented in Table 3, and exactly how low RFE has been used as the reference category.

5. No co-variates have been considered in the analyses.

6. Tables cannot be included as supplementary documents as these are the findings of the study.

Figure titles and legends:

1. Figures 1 and 2 do not reflect Figure 1 and 2 in the text

No comments can be made on the Discussion or Conclusion until these revisions have been completed

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests