Reviewer's report

Title: Does the local food environment around schools affect diet?
Cross-sectional and longitudinal associations in adolescents attending secondary schools in East London

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Reviewer: Shannon Zenk

Reviewer's report:

Strengths of the study include its longitudinal design, with repeated measures of both dietary intake and the food environment, and potentially large sample size. However, the study has several limitations that weaken its contribution to the literature.

Major

I found the sample description to be confusing. I could not follow what accounts for the different sample sizes for the different analyses. Perhaps a diagram would be useful, showing the reasons participants were included/excluded at various stages. Furthermore, I was unclear about the following points: whether schools were randomly selected; whether children were sampled and response rate; and why schools with fewer than 10 students were excluded. A strong justification is needed for why diet measures were not imputed; this is a major limitation.

Food environment measures. Please justify using inconsistent sources for food outlets in 2001 and 2005. It seems problematic to use YP in 2005 and YP and Thompsons phone directory in 2001. Would the data be subject to at least the same limitations and potential coverage problems if using only YP for both timepoints? While I recognize that there are not many validation studies to date, any evidence regarding the validity of this secondary data source? If not, this is a limitation. It would be helpful to justify the choice of access emasures conceptually. It seems that the number of opportunities within 400 and 800m would be interesting. Also, it seems that you grouped grocery stores and convenience stores together in analysis. Prior studies have hypothesized and sometimes found different directions of effects for these two store types. Please clarify and justify.

Please clarify the geocoding of the food outlets. I suspect it is partially a country difference (I'm in U.S.), but I do not understand how outlets were geocoded. I am not sure if “unit postcodes” are different from “full postcodes” and “postcodes,” or why postcodes were used rather than street address. I am also unfamiliar with look-up tables. Further, the authors refer to checking a 10% sample of postcodes for accuracy “using internet searches”; I am not sure what this means or what the outcome of that test was.

Please provide information on the validity of the diet measure. Also, while the
other items make sense, please justify the inclusion of eating breakfast; how does the food environment affect breakfast consumption.

Please clarify that the GLM model accounted for clustering of students within schools.

You have provided several tables. I do not think the bivariate analyses contribute much to the paper, including because they do not account for clustering of students within schools. I recommend removing. I am also unclear why you present cross-sectional results for relationships between outlet type and intake for both 2001 and 2005; did you expect that the cross-sectional relationship would change between 2001 and 2005? The longitudinal analysis is the main contribution of the paper, so please consider what this adds to the paper.

Some of the results were in the opposite direction as what I would have predicted. I would have thought that distance to a grocer (grocer/convenience store?) would be negatively associated with healthy diet; you found a positive relationship. Please explain this; you did not seem surprised. (e.g., I do not understand the point in the discussion that “The repeated cross sectional design…may explain the small significant association between diet score and physical access to food outlets.” I am not sure if this means that the food environment was not relevant in 2001 but it changed and then had an effect on diet in 2005, or something else.) It raises the question of whether hypotheses would have been helpful.

A limitation that detracts from the study’s contribution to the literature is the lack of information on the residential food environment. It seems likely that it is a confounder in this analysis.

Minor

It is true that there is a paucity of longitudinal studies on the food environment and diet. There are several recent studies though on food prices and diet; thus, I think the authors should be more clear that they are referring to studies on food outlet accessibility and include recent longitudinal studies (e.g., Block 2011 Am J Epi).

The background has some areas that should be clarified. E.g., “The results of studies on local food access and (diet?) quality…” I do not understand the sentence indicating that diet intake is an alternative measure to in-store surveys of available foods; it seems these are quite different measures conceptually and are used to answer different research questions. The authors should also indicate the basis on which researchers use outlet type as a proxy for “healthy” and “unhealthy” food availability. Also, it seems bringing food from home is another source of food for children during the school day.

Minor – some of the measures appear with analysis. Please place the identification/description of these covariates with the food environment and diet measures.
The effects are small, as you point out. It would help to discuss the substantive significance of your coefficients. This would help the reader to understand whether the findings are substantively important.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare no competing interests