Author's response to reviews

Title: Is proximity to food retail stores associated with diet and BMI in Glasgow, Scotland?

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Title: Is proximity to food retail stores associated with diet and BMI in Glasgow, Scotland?

We are grateful for the opportunity to revise this paper in the light of referees’ very valuable and insightful comments. We have revised the paper in the light of these comments and our response to specific issues raised by referees is below:

Referee 1

Major revisions:

• Discussion on representativeness of respondents (noting the % OW/obesity is dramatically less than Scottish average, a high % claimed to eat 5 a day, high % female respondents)

Authors’ response – The study data has been weighted by Greater Glasgow Health Board to ensure representativeness of the adult population in the area (we have now included this point in the text). However, the prevalence of obesity is indeed lower and reported consumption of fruits and vegetables is higher than the Scottish Health Survey. BMI is based on self reported measures in this study which may lead to an underestimation of the prevalence of obesity but the levels follow a similar social patterning to the Scottish Health Survey and since we are using these values to explore relationships with exposures, we believe that this does not substantially affect our results.

Minor essential revisions:

The paper might be enhanced by the following:

• In the introduction, reference should be made to the full report of the FSA funded Scotland wide survey of food access (available from

Authors’ response – this report has been referred to in the Background

• Methods sections needs a small adjustment (number with BMI< 25 was combined within healthy weight category), could the Authors’s mean <20 ?
Authors’ response – typing error corrected

• It should be reported if any respondents were less than 18.5kg/m2 and they should probably be excluded but certainly not counted in healthy weight category
Authors’ response – Respondents with a BMI <18.5 (N=37) have now been excluded from the analysis (Methods) and this not substantially affect the results.

• Discussion should be provided on the concept that it may be time to move research into the shop and include issues around the % of healthy versus less healthy foods available (e.g. the proportion of the fruit within a sea of confectionery), visible promotions and value deals to name but three of the more visible parameters that confront the shopper.
Authors’ response – this point has now been discussed in the concluding section of the paper.

Referee 2

(a) The limitations of the paper are in the main recognised by the Authors’s. In fact they are extensive. There are so many and the implications are so serious, but they raise in my mind severe questions about the viability of the paper. It is good that they are pointed out by the Authors’s, but they do call into question the approach of the paper.

Authors’ response – We have made substantial revisions to the Discussion section of the paper.

(b) The outcome of the analysis is basically that store presence is not related to diet and BMI and is not causal. There is virtually no statistically significant result in the paper and the paper talks about trends instead. The explanation in not finding relationships is then sought in ' power ' issues amongst others. The other limitations may also play a part, including the knowledge we have about the Glasgow situation.

However, despite these, in my view, fundamental issues, a casual reading of the paper from the title onwards would present a different view. The Authors’s do not ' front up ' on the lack of outcomes, but rather pursue the association line. The balance of writing is out of line with the limitations and especially the outcomes I believe. I then have some points as I read the paper:

Authors’ response – we have changed the title of the paper to pose a question on
whether proximity to food outlets is associated with diet or BMI.

We have reworded sections of the paper to be more explicit about the lack of associations (Abstract, Results and Discussion sections).

Page 4: the justification for the paper (line 6 to 7) is basically variation in previous studies’ results. Why is this a justification? Why do we presume variable outcomes are not the standard realities? Could it be that we are trying to find standard casual explanations by using relationships that are neither standard nor directly casual and we need to know more about other dimensions and in particular actual behaviours?

Authors’ response: We see our paper as important as a UK lack of evidence for environmental determinants of food availability and associated obesity has been highlighted in UK Government reports (e.g. Tackling Obesities: Future Choices –Obesogenic Environments –Evidence Review, Government Office for Science)

Page 5: I do not follow the point about the BMI data and in particular the last line of this page. Table 1 tells me there are 58% of respondents with a BMI under 25, so how can this be described as 'small'? The sentence seems wrong to me.

Authors’ response – typing error corrected

Page 6: the paragraph about retailing seems out of date and inaccurate. There are accepted definitions for these formats of retailing. I'm very surprised that there are no superstores (2500 m²) in Glasgow. I do not equate convenience stores with corner shops and they would not necessarily have a limited range. I can for example think of convenience stores containing over 11,000 lines in under 500 m². The descriptions point to a coarseness of understanding of the store environments available to consumers.

Authors’ response – Re the use of the word ‘convenience’ - We used categories which were given by the Council in the list – the Council called these types of shops ‘general stores’ or ‘newsagents’ - we re-named them ‘convenience’ stores’ as we thought this would be more understandable for international readers. To avoid confusion we have changed ‘convenience stores’ to ‘general stores’ within the paper. The ‘general stores’ categories includes both convenience stores, and newsagents etc which we now explain more clearly in the Methods section. There are superstores in Glasgow, they were included by the council in the list under ‘retail food’, we have clarified this in the text.

Page 7: despite later (rightly) pointing to a limitation about transferring non-UK results into the UK, Canadian references on distances are used to drive the data construction here. Why? Do these distances really mean much in the UK? In Glasgow?

Authors’ response – Distance of 1 km has been used in a number of other countries and we have now added reference to other studies in the UK and Republic of Ireland which use this distance. As mentioned in the Methods section 500 m was used for general stores as application of a larger threshold resulted in
too little variability.

Page 10: the last few lines raise some points for discussion. Here, the idea of proximity to outlets (plural) is raised in the context of fast food. But, could a range of food stores be a dimension to consider as well? Why do we focus on nearest, despite evidence that this is not the preferred/used store in many cases? Why do we look for a single store outcome? Likewise the 'puzzling' results about men in work do not seem puzzling to me if we look at many employed men's shopping behaviours. What this section points to is a need to base such research on actual behaviours.

Authors' response – We have amended this section to say ‘It is possible that proximity to a supermarket is a marker of proximity to a range of destinations selling energy dense foods.’ The reviewer makes an interesting point about considering a range of outlets rather than a single store. However we are interested in whether a specific type of store could have an affect on a specific outcome. If we included any kind of store or restaurant within 1 km we would have a very small comparison group as most Glasgow residents have reasonable access to food retail. We have no data on preference or usage so can not base our research on the actual shopping behaviours of our respondents.

Page 11: I am not sure about the data on food shops in Glasgow. This seems to imply an increase of 50% plus between 1997 and 2007. I do not believe this is accurate at a time of national stagnation or decline in food store numbers.

Authors’ response – Our wording of this finding may have been misleading, we have reworded this point and included it in the Methods section.

Page 13: do the conclusions warrant publication on the basis of contribution?

Authors’ response – We believe so. We feel that this is an under-researched area within the UK and it is important to share results even when they show non-significant results.