Reviewer's report

Title: Effects of neighbourhood income on body mass index: an eight year longitudinal study of Canadian children

Version: 2 Date: 14 August 2007

Reviewer: Louise Baur

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General
This study looks, longitudinally, at the influence of neighbourhood disadvantage on children’s weight or BMI over a period of time. It takes advantage of the Canadian National Longitudinal Survey of Children and Youth. Data from over 2,200 children, over five cycles of data collection, are used. The study findings are of great interest and the approach to analysis is, I suspect, likely to be of broad interest as well. The authors tackle an important issue, highlighting the impact of neighbourhoods (rather than just families or individual factors) as an influence on obesity risk. There are, however, a number of issues to do with the way in which the data are presented and the way in which the manuscript is written, which I feel require further clarification.

Methods - general comments
The authors have chosen the CDC 2000 (note, not just the CDC) growth reference cut points to denote overweight (BMI percentile # the 85th percentile). This is an appropriate cut point to use although a more “internationally focussed” one would have been the International Obesity TaskForce cut points (Cole et al, BMJ 2000). This is only a minor issue and the import of the findings would not change with the slight change in cut points used.

Discussion - general comments
The Discussion appropriately highlights the strengths and limitations of the study, the fact that some of the changes in income, parental education and family structure were not captured by the analysis and so on. These are all appropriate. The authors also highlight what I think is a really important issue i.e. this is the first longitudinal study of the association between family and neighbourhood environment and children’s body weight. The authors finish by highlighting the research questions that remain and raising the issue of how the mechanisms about social disadvantage on obesity can be further clarified.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

ABSTRACT & KEY WORDS
- The Abstract reads well although there is no information, in the Abstract, of where the study was undertaken nor of the use of data from the Canadian National Longitudinal Study of Children and Youth.
- No key words appear to be given.

BACKGROUND
- The Background is rather lengthy (two pages) and has many ideas. While they are generally of interest, I think it would be important for the authors to focus down and to avoid the repetition which occurs. A tighter editing in the writing of this section in particular would aid the reader.
- First paragraph, line 8. The association between neighbourhood disadvantage and prevalence of obesity and overweight is, I think, found in westernised community and developed communities, whereas the inverse association has been found in countries which are yet to undergo the nutrition transition or are just doing so.
- Lines 11 and 12 of the first paragraph of the Background. The sentence starting “Such research…” is difficult to understand. Perhaps a rewriting of this section may help focus it down a little bit?
- Several examples of where tighter editing would work are in the second paragraph of the Background. Phrases such as “There is reason to believe that”, “Evidence suggests that”, and “Evidence also suggests that” could all be omitted without changing the meaning of the sentences.
- The last sentence of the second paragraph of the Background. The term “neighbourhood disparities” may be inappropriate. Do the authors mean something such as “differential neighbourhood effects on obesity may widen with age”?
- There are several examples here, and throughout the rest of the text, where some attention to typographical errors would be useful e.g. “over time” rather than “overtime”, introducing the abbreviation SES when first used (towards the end of page 3), “Though” rather than “Thought” etc.
- In the second last paragraph of the Background, the authors highlight in the last three sentences the contributions of the study. I would suggest that these be omitted. These can be picked up in the Discussion.
- In writing about the hypotheses and goals of the study, these should be written in the past tense as the authors are reporting their original plans which they have subsequently carried out.

METHODS
- The statistical description appears appropriate but I would urge a review by a statistician
- These are outlined fairly clearly. Again, attention to typographical errors and to the tense (past tense to be used) is needed. Some of the extra abbreviations (e.g. LYCO, CMA and IGLS) are probably not needed.

FIGURES
- Both figures would benefit from having a Y axis label!
- The PDF version of the figures appears somewhat fuzzy and it would be important that a version which is clear and able to be photo-reduced well is ultimately provided.

TABLES
There are three tables and they all appear appropriate. Strangely, Table 3 was provided as a jpeg file, making it harder to actually read. I would suggest that in a future version that a Word version of the table be provided (perhaps in landscape, rather than portrait format).

RESULTS
The Results section of the paper goes for over two pages and is quite densely written. I suspect that it could be written more succinctly and with the aim of connecting to an audience that may not be as statistically sophisticated as the authors are.

DISCUSSION
This is well written and picks up on important issues. The first paragraph appropriately outlines the main findings, although there is some movement between talking about things in the present tense and the past tense (the manuscript would benefit from some careful editing in this respect).

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions
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 that I have no competing interests