Reviewer's report

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

Version: 2 Date: 23 July 2007

Reviewer: Julie Lumeng

Reviewer's report:

General

This paper addresses a very interesting and timely topic. In general, I believe its presentation could be simplified for the readership and its central point made more clear.

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

Introduction

1. The authors' comment in reference to adiposity rebound that "This change may make detection of neighbourhood effects problematic or may exert greater influence than environmental factors." seems imprecise or unclear. Given that the authors use BMI percentile or z-score, and findings are therefore normed against BMI by age and gender, it is not clear that adiposity rebound should have any unique effect on the analysis or its interpretation. Could the authors please clarify (or alternatively, omit the statement).

2. The introduction could be significantly shortened and simplified. At present, it is difficult to clearly appreciate the central objective of this paper.

Methods

1. Did the subjects without complete data differ from those with complete data? It would be helpful to describe differences.

2. The use of parent-reported heights and weights, as the authors note, is very problematic. I believe this is the central flaw of the manuscript, and unfortunately limits its interpretation. At minimum, it should be clearly stated in the abstract, and possibly also the title, that these are parent-reported anthropometrics. The casual reader may therefore more readily take this information into account.

3. All the income and neighborhood data are obtained at age 2-3 years (Cycle 1). This therefore implies that any income or neighborhood effects are those of the income or neighborhood the child experienced at ages 2-3 years. The authors later acknowledge that they did not include family income or neighborhood as a time-varying covariate, as this would have made the model overly complex. Nonetheless, this should at least be pointed out clearly in the discussion, and
highlighted in the abstract and/or title. The authors note that all children’s socioeconomic status appeared to improve over the course of childhood. In short, the neighborhood environment differed during the time frame of the study, and it is therefore only the neighborhood in which the child lived at age 2-3 years that we can make judgments about with regard to impacting weight gain trajectory. In short, the conclusion seems to be that neighborhood of residence at ages 2-3 years impacts trajectory of future weight gain.

4. I would recommend decreasing significantly the amount of model explanation for the readership of this journal. I would, however, defer to the editor on this point.

5. Is it also possible that the cohort's BMI percentile declined over time because lower-income or high-risk groups were more likely to "drop out" as the child grew older, thus leaving only lower-risk members in the cohort, and as a result those with lower risk of overweight and lower BMI percentiles? This could be tested.

Results

1. Are figures 1 and 2 adjusted or unadjusted?
2. A simplification of the presentation of the results would be helpful.

Discussion

1. It would be helpful for the authors to add what the immediate implications for the results of this study would be. Would they affect how intervention programs are designed, for example, or the age that they target?

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

1. The word "data" is plural.
2. The 85th percentile using CDC categorization methods refers to the category "at-risk-for-overweight". The 95th percentile refers to "overweight".

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published
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.