Reviewer's report

Title: Variation in the effects of family background and birth region on adult obesity: results of a prospective cohort study of a Great Depression-era American cohort

Version: 2
Date: 28 January 2015

Reviewer: Philip McLoone

Reviewer's report:

The authors have made several changes to their paper based on the comments I had previously made. This has improved the clarity of the paper to a certain extent.

There are, however, several points that need to be addressed.

Major Compulsory Revisions

1) The authors have not taken on board my suggestion that they should have analysed this as a multilevel model of individuals clustered within birth region. The authors should state why they did not do this. A multilevel logistic model is a more appropriate statistical model for their data structure.

2) In the analysis the authors now present regional effects now persist at older ages, whereas previously they had disappeared! We now get a different conclusion - what has brought about this change? Should the authors have not discussed this in the paper. It raises questions about the robustness and sensitivity of the analysis.

3) Any link to the Great Depression in tenuous (apart for defining when the cohort were born). To make such an association the relative ranking of areas in terms of infant mortality and income before, during and after the great depression would need to be explored.

4) It also strikes me that there is a question of regional ethnic differences which the authors have not seemed to mention at all!

The main finding of this paper is that obesity among women is related to maternal schooling, and there remain regional effects which appear to be related to area measures of income and/or infant mortality. The authors speculate why the area effects might occur, but admit they do not know what the mechanism is. It would be good if the authors could point to other examples in health related topic when maternal education had influence on outcomes.

Minor point – birth date is summarised as a unitless numeric in table 1. It would have been better to show median date, with the inter-quartile range (IQR). Similarly medians with IQR would be better than means (SD) for years of schooling, income wealth (with units).

Typo - ‘fender’ 2nd para page 4
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests