Reviewer’s report

Title: Longitudinal patterns of poverty and health in early childhood: Exploring the influence of concurrent, previous, and cumulative poverty on child health outcomes

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Reviewer: Amanda Sacker

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Title: Longitudinal patterns of poverty and health in early childhood: Exploring the influence of concurrent, previous, and cumulative poverty on child health outcomes

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The authors have responded well to the reviewers concerns and this manuscript is sharper than the original. However, I still have a few comments where I believe the manuscript needs to be tightened up further.

In the Effects of Cumulative Poverty section, the results shown in table 5 are described. It is quite difficult to understand table 5. My understanding is that the estimates shown could be beta_0, beta_08 etc from the final model (C.1.2) in the appendix. If so, then they are incorrectly labelled in the table. For example, the slope to 29 months for the transient poor class is the sum of beta_10 and beta_11. Also the reference group is children at 17 months who remained non-poor in the three follow-up rounds.

The authors state that “the likelihood of being perceived in less than very good health by the mother, tended to decrease across time”. This is certainly the case for the majority non-poor latent class but not for the other poverty classes. This should be made clearer.

Then the authors say that “At 29 months of age, chronically poor children significantly experienced 32% more mother-reported asthma-like attacks than non-poor children”. Again from table 5, it appears that chronically poor children at 27 months experienced 32% more mother-reported asthma-like attacks than non-poor children at 17 months.

In the discussion, it says “The decrease in the mean number of mother-reported asthma-like attacks is consistent with the normal history of asthma in that the majority of symptoms likely develop in the preschool years and decrease later towards remission”. Isn’t this the normal history of wheeze rather than asthma? One of the other reviewers highlighted the need for greater clarity around the diagnoses of asthma and wheeze in early childhood.
Also in the discussion it is written “The likelihood of being perceived in less than very good health by the mother tended to increase across time”. This conflicts with the statement in the results section that “the likelihood of being perceived in less than very good health by the mother, tended to decrease across time”.

If my understanding of the odds ratios in table 5 is correct, then the statement in the discussion that “an increased risk of mother-reported asthma-like attacks from baseline to 29 months was indeed observed” may not be true. By my rough calculation, the odds of mother-reported asthma-like attacks from baseline to 29 months in the chronic poverty class were 1.08 (=0.82*1.32). It is the excess risk from baseline to 29 months that was increased.

So to sum up, the authors need to substantiate their claims about the interaction between the poverty classes and timing. It looks like that difference between the never poor and the chronically poor declines over time. It would be good to know if statistical tests support this observation.

Finally, a couple of typos:
“the can be said” should be “they can be said”.
“asthma0like” should be “asthma-like”.

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

**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