Reviewer's report

Title: Socioeconomic differences in childhood length/height trajectories in a middle-income country: a cohort study

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Reviewer: Barbara Lourenco

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Research article
Socioeconomic differences in childhood length/height trajectories in a middle-income country: a cohort study
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General comments:
This is a nicely written manuscript that prospectively accesses the influence of socioeconomic status on length/height gain in a large sample of children through 7 years of age in a middle-income setting. Aims were well defined, methods seem appropriate in general and I believe the study may contribute for expanding public health knowledge in its field with a solid body of data. Some clarification is though necessary to make the manuscript more concise, as depicted in the observations and suggestions below.

Major compulsory revisions:
1. Background, first paragraph: I do not fully agree with the rationale presented in the last sentences —some of the studies cited by the authors in fact contributed for advancing knowledge about at what age socioeconomic differences in length/height emerge, if these differences are modified with age during childhood, and possible mechanisms (these points would not be, therefore, completely “unclear” to date). I believe it would be important to reformulate these statements and thus clarify throughout the introduction section how the present study contributes to the literature in the field. Please also adapt the background in the abstract of the manuscript accordingly.

2. Methods, statistical methods, first paragraph: please clarify why the knots at 3, 12, and 34 months were chosen to model the growth trajectories.

3. Methods, statistical methods, second paragraph: I believe it is useful to present absolute differences in terms of standard deviations, for proper internal comparisons at any age. However, it is still not possible from the paper in its current form to know whether children in Belarus are growing as expected for their age and sex, according to the reference data from the growth curves of the World Health Organization, for example. This information could make the present analysis more comparable with other studies and give readers a better the notion
on the proportion of stunted children, if any. My suggestion to the authors would be replacing current SD analysis with Z scores for age and sex according to the WHO growth curves, and at least indicating some comparisons of Belarussian children with the WHO growth curves in the results section (mean height-for-age Z score, proportion of stunted children, etc). If not possible, please explain.

4. Methods, statistical methods, third paragraph: the strategy for selecting variables for the three multiple models described in this paragraph is a major concern. I agree with model 1, but I am not sure about the progressive order of inclusion of variables in models 2 and 3, considering a hierarchical framework for potential determinants of linear growth. In my opinion, mid-parental height (or maternal/paternal height separately) would temporally precede the adjustment for factors such as overcrowding, maternal smoking, and infant feeding practices. Please reformulate and/or explain your approach.

5. Methods, statistical methods, third paragraph: I believe it is important to add information on adherence to PROBIT if the trial intervention arms are being considered a measure of prolonged/exclusive breastfeeding.

6. Results, third and fourth paragraphs: besides results in cm, I would consider to include information in SD (or Z scores) for the absolute height differences at age 7 according to the socioeconomic variables described in the manuscript.

7. Discussion, mechanisms: could authors shed more light on why socioeconomic differences in length/height were especially detected at early infancy and early childhood, rather than the other periods analyzed?

8. Discussion, limitations: retrieving all but the last length/height measurement from child health records would be the major limitation in the present manuscript, particularly in view of the magnitude of the estimates. Would authors have any information available on reliability of these routine measurements in Belarus?

Minor essential revisions:

1. Methods, follow-up between 12 months to 6.5 years: please indicate the abbreviation for interquartile range, as this will be used later in the manuscript.

2. Methods, statistical methods: I suggest replacing univariable and multivariable analysis with crude and multiple analysis throughout the manuscript.

3. Results, first paragraph: please add “as shown in” or something similar as you wish before referring to Table 1.

4. Results, third paragraph: please remove “particularly”, as attenuation of estimates after controlling for urban/rural and East/West area of residence was seen only between birth and 3 months of age.

5. References: it is necessary to review the citation to comply with the Journal's style.

6. Tables: please revise the number of decimals presented.

Discretionary revisions:

1. I suggest removing subsections from the discussion section.
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.