Reviewer's report

Title: Is WHO height reference relevant to Polish school-aged children and adolescents

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Reviewer: alessandro tarozzi

Reviewer's report:

- Minor Essential Revisions

This is an interesting paper which aims at evaluating the adequacy of WHO2007 and USCDC2000 growth charts (widely used for international comparisons) as references for the height performance of Polish children and adolescents. This is done by estimating features of the distribution of height for age z-scores using different data sets from Poland. On the one hand, I think the statistics described in the article are interesting and deserve to be disseminated. On the other hand, I believe that the main conclusions offered by the authors are flawed and should be revised. Findings (as the authors do) discrepancies between nationally (or sub-nationally) representative distributions of growth performances and WHO/CDC charts does not imply in any way that the latter do not adequately describe the potential growth performance of well-nourished and healthy children in a given country. Indeed, as the authors themselves write in the discussion section, there are many reasons why discrepancies may emerge, reasons that may derive not only from genetic differences but, often more importantly, from different health and diet in different countries. So, I think that statements such as "the performance of local charts might be more useful than WHO and CDC reference" (p. 12) or "height-for-age charts should be based on countrywide population studies in order to establish clinical basis for diagnosis of growth retardation" need to be revised. I should emphasize that I am not arguing that the WHO and/or CDC charts are a good representation of the distribution of growth performance in Poland among well-fed and healthy children. I am only saying that the finding of this paper cannot tell us whether they are or not. Perhaps I can make myself more clear using the (more extreme) example of India. A nationally representative sample of Indian children would show very large differences between growth performances in India and in the WHO or CDC charts, but I certainly cannot take this to mean that those charts are not suited to evaluate the growth performance of Indian children. Unfortunately, we know that the discrepancies are largely due to the poor nutritional status of Indian children, which are mostly very far from achieving their genetic potential.

So, overall, I think the structure of the paper and the description of the results are acceptable, but the interpretation of the latter needs to be substantially changed.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.

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