Author's response to reviews

Title: Boys are more stunted than girls in Sub-Saharan Africa: a meta-analysis of 16 demographic and health surveys

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Version: 3 Date: 12 January 2007

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Responses to the reviewers' comments

Reviewer: Joseph Beyene

1. Table 1 Zambia 2001/2 the percentages do not add to 100% (only adds up to 98%)
   - The rounding off error has been corrected. It now adds up to 100%

2) The authors have made several tests (Tables 2 and 3) thereby inflating the likelihood of finding spurious associations. It would be useful if their discussion mentions this multiple testing issue and warns readers as to what extent a reliable/generalizable inference can be made based upon the reported p-values.
   - Paragraph number 2, page 11 has been inserted alerting readers about inferences made based on p-values

3) The authors have provided a p-value corresponding to a test of homogeneity/heterogeneity to justify their choice of fixed-effects modeling. I assume that they have used the Cochran Q statistic for this test (although they do not say this in their methods section). I think it would be important to describe the specific test that was used and also to provide the I2 statistic for their data to help readers see the magnitude/extent of heterogeneity, even if it is not deemed statistically significant.
   - The Cochran’s statistic for independence of data sets has been included in the results section (page 8, first paragraph) and in the methods section (page 6)

Reviewer: Eric Benefice

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

Page 10, end of the page: gender is not synonym of sex.
   - Appropriate correction has been made

Page 14 : Reference 11 : Prevalence or prevalance ?
   - Spelling error corrected

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Discretionary Revisions (which the author can choose to ignore)
Page 2, second paragraph: Notice that uniformity of growth pattern in young boys despite ethnic differences was first described by: Habicht JP, Martorell R, Yarbrough C, Malina RM, Klein RE. Height and weight

- This was very important observation by the reviewer. Later works which had been quoted were removed in recognition of the original that has been inserted.

Page 4: The reasons for choosing only English-speaking countries are debatable since the majority of Sahelian countries, where food insecurity is at its maximum, are disregarded.

- We agree with the reviewer. This provides an opportunity for further work on the subject.

Page 10: The authors rightly discussed the role of the WHO/CDC reference in creating potential distortion in the H-age index between boys and girls. It should be also observed that they analyzed a single age group (0-5 years) although growth and nutritional profiles are dramatically changing over this period of time. High prevalence of wasting could be expected around 18 to 24 months of age, while more stunting is observed after 40 months. We are advised that the population structure according to sex is the same in the whole sample (page 7 and table 2), but differences in sex-ratio could exist between separate groups of age of the same sample. For example, if there were more boys in older ages, the prevalence of stunting in this group could be artificially increased.

- The reviewer raised an important issue that prompted us to re-analyze the datasets. A whole paragraph (bottom page 10 and top page 11) was inserted to describe the findings of the analysis that was however not reflected in the results section.

Additional Changes
- New references, Number 3 and 21 have been inserted
- Page 10 paragraph 2, last sentence has been rephrased to reflect the current reality about the new international growth reference standard
- A section on the authors contributions has been included