Reviewer's report

Title: Girl child marriage, socioeconomic status, and undernutrition: Evidence from 35 countries in sub-Saharan Africa

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Reviewer: Arijit Nandi

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Review of "Girl child marriage, socioeconomic status, and undernutrition: Evidence from 35 countries in sub-Saharan Africa" (BMED-D-18-00048)

Major comment
The authors were generally responsive to the reviewers' comments. With respect to the methodology, I offered two main suggestions: (1) do not present odds ratios and (2) either remove the Baron & Kenny-style mediation analysis, or update it to reflect the current state of the science. I provided references in support of both suggestions.

Regarding (1), I appreciate the inclusion of Supplementary Table 1, which shows estimates on the risk ratio scale. However, the results presented in the main paper are all on the odds ratio scale. To reiterate my earlier point: I do not see any reason to present an odds ratio outside of select case-control study designs. The authors seemingly agree, because throughout the paper they misinterpret their measures of association as "risks", when in fact they are estimating odds ratios. The two should not be conflated; as we see when we compare the main results to those in Supplementary Table 1, the odds ratios overestimate the risk ratios, although I agree with the authors that the results are qualitatively similar. For example, in the abstract, there is the phrase, "....girl child marriage appears to slightly reduce the risk", which is inaccurate and presumes causality. We see similar language in the first paragraph of the Discussion. I know these remarks may seem nit-picky (or suggest I have some personal vendetta against the odds ratio), but I feel that it is our duty as researchers to be as accurate and precise with our interpretation and our language, and to encourage better practices. Me personally, I would have presented all of the results on the absolute scale as risk differences (percentage point differences in the proportion underweight), which can be done quite easily in Stata by following logit models using "margins" to get contrasts on the probability scale. This would have given a much cleaner interpretation vis-à-vis the odds ratio.

Regarding (2), the authors appeared to respond to my call to either revise or remove their mediation analyses by stating that they performed an "informal" mediation analysis and essentially leaving the sequence of models unchanged, with the "fully adjusted" model including hypothesize mediators, such as early and multiple childbearing, and suggesting that their model is not "fully-specified", leaving the door open for a formal mediation analysis. Once again, I simply do not see the rationale for this. Much like the odds ratio, I think we should put a moratorium on Baron & Kenny-style mediation analysis. At the very best, this sort of approach is lax and fails to articulate the now well-known assumptions for a valid mediation analysis or
provide accurate interpretations; for example, nowhere in the methods or results do the authors make clear that the models including the mediators are estimating a parameter analogous to a direct effect (everything is interpreted as a total effect). A worse scenario is that the estimates are biased, although there does not seem to be much evidence of mediation here at all, although we cannot conclude this confidently from the analyses presented.

Minor comments

* In table 2, the relation between completion of primary education and completion of secondary education is meaningless, since you essentially have to do one in order to achieve the other, as indicated by the odds ratio approaching infinity.

* Please fix (truncate) the scale for some of the figures, such as Supplementary Figure 2

* In the forest plots, I presume ES is "effect size", which is not a thing. Please just call them odds ratios (OR), which is what they are, or something else if you revise those analyses.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
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