Author’s response to reviews

Title: Socioeconomic and Environmental Determinants of Under-Five Mortality in Gamo Gofa Zone, Southern Ethiopia: A matched case control study

Authors:
Girma Shifa (girmatemam2@yahoo.com)
Ahmed Ahmed (ahmedaa5050@yahoo.com)
Alemayehu Yalew (alemayehuwy@yahoo.com)

Version: 1 Date: 21 May 2016

Author’s response to reviews:

Response to Editor's comments:

The authors present the results from a case control study of under-5 mortality in southern Ethiopia. The study has the potential to contribute to the literature on socio-economic and environmental risk factors for under-5 deaths and could be relevant for this journal. However, significant improvements are needed before the manuscript can be sent to reviewers.

1. We thank you very much for recognizing our work and giving important comments which helped us to improve the manuscript further.

The background section needs an conceptual model or theory of change. How does socio-economic status (SES) likely affect mortality in settings like Gamo Gofa zone? The authors can posit what the key risk factors are and the potential confounders in their theory of change (ToC) and summarize the literature noting where studies agree and disagree with their ToC.

2. Thank you once again for the suggestion. It is accepted and discussed at line # 94-105.

In the background section, the authors should also address how facility deliveries, receiving the complete vaccination schedule, a child's birth order, the mother's parity and the children's gender/sex can have an effect on under-5 mortality. The lack of any discussion of these risk factors is concerning.

3. We appreciate your concern. According to the conceptual framework, distal (socio-economic) factors operate through proximate factors. This means, the observed effect of a give distal factor is its effect through known and unknown proximate factors. In other words,
if we control proximate factor in the model for distal factors, the observed effect of the distal factor is equal to its overall effect minus its effect through that controlled proximate factor. So the observed effect is the overall effect of that distal factor on the outcome (under-five mortality) (without controlling proximate factors).

With regard to the model for proximate variables (environmental contamination), there may be confounding effect of some proximate variables. Because of the number of more important factors (distal and environmental contamination related factors) that need to be included in the model, we couldn’t be exhaustive in including the above variables in the model. However, it is possible to assume that the confounding effect of proximate variables could be at least partially controlled by controlling distal factors, as they are assumed to be operating through these proximate factors. We have reflected this in the discussion line # 268-272. As mentioned in the method part, gender/sex of the child was also controlled in both models.

In the methods section, the cases and controls are matched on age by month and being born in the same locality (resident village or health facility location?). Can the authors also match the cases and controls by sex, vaccination status, and whether the birth was at home or health facility? Depending on data availability, these risk factors should be included in the analysis or highlighted as significant limitations in the discussion section.

4. Thank you for raising the point. As discussed above, these variables may affect the association between proximate factors (environmental contamination related variables) and under-five mortality. Because of the number of other important variables these were not included in the model. However, it is possible to assume that the confounding effect of proximate variables could be at least partially controlled by controlling distal factors, as they are assumed to be operating through these proximate factors. We have reflected this in the discussion line # 268-272. As mentioned in the method part, gender/sex of the child was also controlled in both models.

In the conclusions section, the first paragraph there should summarize the study's findings and its place in the literature. As written now, the study limitations are there. These limitations can be moved to the discussion section.

5. We accepted the comment and modified accordingly (moved the limitation to discussion) at line # 266-72

If the authors can make substantive improvements to the manuscript, it can be reconsidered.
6. With regards to the authors, there will not be changes in number and order. We hope we have addressed your concerns. Looking forward for further inquiries if you have any.