Author's response to reviews

Title: Disparity of anaemia prevalence and associated factors among rural to urban migrant and the local children under two years old: a population based cross-sectional study in Pinghu, China

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Author's response to reviews: see over
Dear reviewers,

Thank you very much for giving the opportunity to respond to the further comments. We have attempted to address all these comments for the re-reviews and give a point-by-point response below. We copy the comments below and response using bold font. In our updated manuscript, we highlighted our major changes in red.

Reviewers' Comments to Author/s:

**Reviewer: 1 (Zumin Shi)**

The following two papers on magnesium and anemia may be relevant and included in the discussion.

We thank the reviewer for the further suggestion to our manuscript. We had carefully considered the literatures recommended by the reviewer. We do think the recommendation is relevant. We had included the points from those two papers into our discussion and take those two papers as our references 41 and 42.

**Reviewer: 2 (Marly A Cardoso)**

We thank the reviewer for the offering the chance to have further discussion with us. We response for the points as below:

Major Compulsory Revisions
1. Please clarify the description of statistical analysis and results presentation: if the authors used Prevalence Ratios (PR, as estimated by Possion regression, for instance) why they are presenting odds ratio? As indicated in my previous report, if the authors are exploring associated factors, the use of PR is more appropriate. However, in this version it seems that the crude and adjusted PR were not calculated (?).

We thank reviewer for the questions. We did agree the point in previous review report that “the use of prevalence rates for this comparison would be more
appropriate for many reasons (high prevalence rates and cross-sectional design)”. As pointed out by Zocchetti et al in 1997, in a cross-sectional study, the selection of PRR or POR ought to be based on epidemiological grounds. Departures between PRR and POR from equality greatly depend on prevalence of outcome and prevalence exposure. (Zocchetti et al.: Relationship between Prevalence Rate Ratios and Odds Ratios in Cross-sectional Studies. International Journal of Epidemiology, 1997 Vol 26 No 1(p. 220-223)). We were aware of the possible increased risk to overestimate the associations between outcome and factors by using OR instead of PR especially with the high prevalence of outcome. We had taken the advice from the reviewer:

a) Updated our data analysis and results presentation: using PR, as estimated by Possion regression instead of OR to explore associated factors.

b) Updated our results parts and renewed discussion section.

c) Table 3, 4 and 5 had been updated accordingly.

2. Please review the use of risk factors through the manuscript, avoiding the use of the terms univariate and multivariate for just one outcome (crude and adjusted multiple models would be more appropriated).

As pointed by the reviewer, to avoid the possible misunderstanding raised from the terms we used, we had changed “multivariate regression model” into “adjusted multiple regression model” in our manuscript. We will not use the term “univariate logistic regression” to report our results too. Instead, we used cPR and aPR as suggested by the reviewer.

We are happy to response all those review points. Of course, we would be more than happy to make further amendments if needed.

Yours sincerely,

Shiyun Hu, on behalf of the co-authors