Author's response to reviews

Title: Prevalence and associated factors of anemia among non-pregnant women of reproductive age in Bangladesh: Multilevel logistic regression analysis

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Manuscript Title:
Prevalence and associated factors of anemia among non-pregnant women of reproductive age in Bangladesh: Multilevel logistic regression analysis

Dear Editor,
Thank you very much for sending us reviewers’ useful comments and suggestions on our manuscript.
We have modified and revised the manuscript accordingly, and detailed corrections are listed below point by point:

Reviewer: 1

Major Compulsory Revisions:
1. The section on “Measurements” needs to be added to this manuscript. The authors only specified how they categorized anemia (dependent variable) into three groups of “severe”, “moderate” and “mild.” The authors listed residence, women’s education, husband’s education, breastfeeding, currently amenorrhea, working, source of drinking water, toilet facility, living with husband, religion, wealth index, body mass index, age group, age at first marriage, number of ever born children and their coding in Table 2 and 3. But very little is known for the measurements of these variables, for example if they were recoded or in their original forms. Please specify.
   □ Thank you very much for your useful comments and suggestions on our manuscript.
   We have revised our manuscript and described in detail the method of checking the level of Hb in the survey [Page: 5-6; Line:107-116]. We also provided references where details of various independent variables have been reported [Page:6; Line: 122-139].

2. Line 241: In Table 2 and 3, authors specified that contraceptive use was dichotomized as “Yes” and “No.” Can authors compare anemia risks between “oral contraceptive use” and “intra-uterine device use” based on their results? Please verify.
Thank you for your suggestions on our manuscript. We checked BDHS-2011 dataset, 27.2% women used oral contraceptives (Pill) but only 0.9% used intrauterine device (IUD). Percentage of IUD use is too low to provide useful comparison between the two methods of contraception.

3. Authors need to interpret results with caution as this study only employed cross-sectional data (BDHS-2011). Any conclusions regarding causality need to be eliminated.

Thank you for your comments. We understand the limitations of our study and will be careful to avoid making conclusions that cannot be supported by the study results. We have revised the material accordingly.

**Minor Essential Revisions:**

1. Line 75: Add “the” to United States

   We have added the [Page: 4; Line: 75].

2. Line 98: Use “nationally representative” rather than “national-level population”

   We have written nationally representative instead national-level population [Page: 5; Line: 93].

3. Line 109: What do you mean by “the present authors”?

   The present authors mean the authors of this paper. We have removed “the present authors” from the text.

4. Line 118-119: Incomplete sentence

   We have rearranged the methodology, and revised the incomplete sentence.

5. Line 122: Specify ICC score for this study and the conclusion of whether to use multilevel analysis.

   Thank you for your comments. We have mentioned ICC score (0.063) for this study in Results section [Page: 10; Line: 213].

6. Line 157-186: Specify that Chi-square results shown in Table 2

   We mentioned Chi-square value in Table 2 and shorten the manuscript we didn’t put it in text.

7. Line 188: Specify that multilevel logistic regression results shown in Table 3.
The results of multilevel regression have been shown in Table 3, and we interpreted the results on the base of OR, CI and p-value, these three values put in text, we think these three values are enough for text.

8. Line 189-191: The conclusion that multilevel analysis was appropriate for this study (with ICC score) must be stated in the Statistical Analysis section.

Thank you for your comments. We mentioned the ranges of ICC values for considering multilevel model for data in methodology section [Page: 7; Line: 146] and ICC values we got from our data put in results section [Page:10; Line:213].

9. Check format for Table 3. Rather than reporting exact p-values, authors should report significant level of p<0.05, p<0.01, p<0.001.

Thank you very much for your useful comments on Table3. We have revised as your comments.

10. Authors do not need to report results in Discussion section. Authors should only discuss relevance of their studies compared to previous studies on the same subject.

Thank you for your useful comments on our manuscript. We have revised our discussion section as your comments.

11. Line 228: Citation needed for “Education is another factor that influences the general health status of the public”

We did not find any reference, we have deleted this sentence.

12. Line 234: What does it mean by “of girls”?

We have revised and written female student instead girls [Page: 11 Line: 280].

13. Line 235-236: Citation needed for “Eradication of poverty and improving level of education among women are two essential components that should be able to reduce the prevalence of anemia”

We have deleted this sentence, because we did not find reference.

14. Line 238: What does it mean by “suture evaluations”?

We have deleted suture evaluations.

15. Same as #10, authors do not need to report results in Conclusion

Thank you very much for your useful comments. We have revised the conclusion as your comments.
16. Line 258-259: Is it relevant to conclude about “ongoing socio-economic development by the government” based on the results on individual anemia? Please revise.

☐ We have revised the conclusion as your comments.

Discretionary revision:

1. Authors can choose to report either coefficients or odds ratios, standard errors or confidence intervals as these concepts are similar. Based on the text explaining results from Table 3, authors should only report odds ratios and confidence intervals in the table.

☐ Thank you for you suggestions. Standard Error (SE) is needed for understanding multicollinearity problem among independent variables, p-value also needed for taking decision whether significant or not. We think better to put coefficient, SE, P-value, OR and interval OR.

2. What is the purpose of comparing anemia prevalence between countries in the Discussion section? Does it serve any ‘policy implication’ purpose?

☐ Prevalence of anemia is associated with general health status of the population, and it is helpful to compare the value with those from other developing countries as well as more developed countries. It will reflect the effectiveness of government policies to improve standard of living in Bangladesh

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests: Not applicable
Reviewer: 2
To the authors:

1. Method: The authors only wrote that the sample used in the study was taken from Bangladesh Demographic and Health Survey and described the sampling technique of BDHS but did not mention how 5293 married non-pregnant Bangladeshi women were taken out of 17842 in the survey.

☐ Thank you very much for your useful comments and suggestions on our manuscript. We have mentioned how 5293 women were selected from 17842 in BDHS-2011 [Page:5; Line:94-102].

2. Result: By using logistic regression, the authors identified several factors considered predictors to anemia. But according to the statistics showed in the paper, some of the predictors should be checked. For example, regarding the independent variable “staying in the rural areas”, with OR=0.0854, it is hard to say staying in rural areas is among the most predictors to anemia. Moreover, with 95%CI and p=0.057 (>0.05), it can be seen that the result is statistically insignificant. The same or other kinds of problems happens to some other predictors which need to be reconsidered.

☐ Sorry, we wrongly put OR = 0.0854, actually it was 0.854 and it was very close to significant (p=0.057). We have corrected [Page:10; Line:217].

3. Discussion: There were so much information given in the result part but only some of which were mentioned in the discussion. There are some significant factors which are expected to be discussed like age, being Muslim or non-Muslim, using of unhygienic toilet, education level of the husband etc. In additionally, some parts of the discussion are just like repeating the result.

☐ Thank you for your comments. We have revised in discussion part of our manuscript and provided some discussions on recommended factors [ Page: 12; Line: 267-275; Page: 13; Line: 290-295].

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests: I declare that I have no competing interest
The revised manuscript has been submitted to your journal. We look forward to your positive response.

With best regards
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