Reviewer’s report

Title: Effects of prenatal food and micronutrient supplementation on child growth: a randomized trial in Bangladesh

Version: 1 Date: 29 August 2011

Reviewer: Samson Gebremedhin

Reviewer’s report:

I want to congratulate the authors for their excellent work. The study has the following key strengths:

a) It raised an interesting research question,
b) It used a standard methodological approach to address the research objective,
c) The findings are attractive to the scientific community, programmers and policy makers,
d) The methodology is clear and reproducible,
e) It involved large sample size.

However, the authors should address/clarify the following ambiguities,

A. Major Compulsory Revisions

1. The study concluded (1) Early invitation to prenatal food supplementation resulted in significantly reduced proportion of stunting (2) MMS resulted in significantly more stunting in comparison with Fe60F (3) The effect by early vs. usual invitation to food supplementation on frequency of stunting was significantly shown for boys but not for girls (4) The increased proportion of stunting in the MMS group was more expressed among boys as compared to girls. BUT, the data presented in figure-2 is against the aforementioned four conclusions.

1.1. The 95% CI for prevalence of stunting for E-Boy and U-Boy overlap. Likewise, the CI for prevalence of stunting for E-Girl and U-Girl overlap. So the figure shows that early invitation doesn’t have added advantage in both sexes.

1.2. The CI for prevalence of stunting in MMS Boys overlaps with Fe60F boys; hence, there is no significant difference in the risk of stunting between the two groups.

2. The study concluded that among mothers with higher BMI, stunting was less frequent in early invitation food group in comparison with usual invitation. But in figure-3, the CI for E BMI > 19.7 overlaps with the confidence interval for U BMI > 19.7. So it means there is no statistically significant difference between the two groups in terms of prevalence of stunting.

3. How was the adherence of the pregnant women to the food supplement? (As distributing the food supplement cannot be taken as a guarantee that the women had consumed it)
4. The operational definition for “optimal adherence” in the study should be stated. Was there difference in adherence across the arms?

5. Despite the fact that the required sample size for the study was calculated to be 5300, only 4436 women were actually enrolled. Even further analysis was done with smaller sample size. Accordingly, the sample size has to be re-calculated with reduced power like 80%.

6. Sample size calculation was made based on the assumption that the major outcome of the study is birth-weight. Nevertheless, the major outcome of the study is child growth. Accordingly appropriate re-calculation should be made with the right outcome.

7. Stratified analysis was made taking the median BMI value of 19.7 as cutoff point. The internationally accepted cutoff point of BMI (18.5) should be used.

8. Result section, Paragraph 8: “….while this was not significant among mothers in the lowest half of the BMI distribution (difference 4.3 percent units, 95% CI=0.6-9.2 percent unit, p=0.09)…." The confidence interval is significant but the p value is not. Check if there is any editorial error.

9. The conclusion section has to be made very specific to the hypothesis of the study. It should also be clear.

B. Minor Essential Revisions

10. In the title it is good to specify the exact age range of the study subjects.

11. In the abstract section: short description of “Early invitation” and “Usual invitation” should be given in brackets.

12. In the abstract section: the authors stated “Early invitation to food supplementation reduced the proportion of stunting from early infancy up to 54 months for boys, but not for girls...” but they did not specify the reference group (i.e. compared to whom?).

13. In the abstract section: the statement “These results indicated programming effects in early fetal life” is not clear.

14. In the methodology section: brief description of the source population in terms of major health indicators should be given.

15. The ethical issues discussed under the section “participants” should come under a separate section.

16. In the methodology section the qualification of the data collectors and field supervision mechanisms should be discussed.

17. Based on the description given in the results section, it seems only singleton babies were included in the analysis. Whereas in the methods section it is mentioned that the first born of multiple pregnancies were included in the analysis. The authors need to give clarification.

18. Result section 4th paragraph: description on change of HAZ at different ages is given. It would be attractive if similar text description is given on WHZ.

19. Result section 4th paragraph: “There was no significant difference in mean
weight-for-age, weight-for-height, or height-for-age in the cross-sectional analyses across intervention groups...” But it is not clear at which specific point the cross sectional data were taken (as repeated measurements were taken).

20. As stated in the introduction section there is evidence that prenatal micronutrient or food supplementation increases birth weight. But this was not the case in the current study. The authors may need to discuss their unexpected findings.

21. The authors discussed that in Bangladesh boys are often given preference in food allocation within the family compared to girls. However, the discussion is irrelevant for the current study as it can’t explain the reported difference across sex groups.

22. The authors concluded that “This study provided evidence of the potential benefit of the on-going, government-supported national program...”. But in the methodology section it was stated that “in the national program, only pregnant women with low BMI are suppose to receive the supplement...” and the authors found that “the difference of occurrence of stunting was not significantly different among mothers in the lowest half of the BMI distribution...” So it means the usual intervention of the government is not working?

23. In the conclusion section, what is the evidence to claim that food supplementation strengthens prenatal care?? The conclusion is not based on the findings of the study.

24. Citation of supplement volumes, use of et al, citation of online document (e.g. ref number 21) seem to be inconsistent with the requirements of the journal. Please check.

C. Discretionary Revision

25. Discussion section, 3rd paragraph: The sentence “The results indicated a delayed effect of early invitation of food supplement on post-natal growth” is not clear. The authors need to rephrase it. Example “The results indicated that early invitation of prenatal food supplementation has positive effect on post natal infant/child growth.”

26. Discussion section, 4th paragraph: the following sentence is not clear.

“Other possible reasons could include, low doses of micronutrients (i.e, recommended daily dietary allowance) being insufficient for influencing fetal development, the effects of the endocrine system on uterine sensitivity on long-term child growth, post natal causes, such as feeding practices, specifically breast feeding and...”

27. Discussion section, 6th paragraph:

“As an early start to supplementation during pregnancy is beneficial for early child growth, future food supplementation during pregnancy should be implemented at the beginning of pregnancy”. (The underlined word should be added to differentiate it from MMS).

The authors may also consider the following editorial changes:
28. Background section: “Meta-analysis have shown” to “a meta-analysis has shown”
29. Methods section: “testing at 0.05 (Type I error)” to “95% confidence level (type I error of 0.05)”
30. Result section, Paragraph 3: “p=0.345 birth weight” to “p=0.345 for birth weight”
31. Discussion section, 6th paragraph: “m” to “months”
32. Discussion section, 6th paragraph: “…stunting reduced by 13%” to “stunting reduced by 12.7%”

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:

I declare that I have no competing interests.