Reviewer's report

Title: Adherence of Iron and folic acid supplementation and determinants among pregnant women in Ethiopia: A systematic review and Meta-analysis

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Reviewer: Vanessa Brizuela

Reviewer's report:

Adherence of iron and folic acid supplementation and determinants among pregnant women in Ethiopia: A systematic review and meta-analysis

Thanks for the opportunity to review this manuscript. The authors conduct a systematic review to calculate the overall adherence to iron and folic acid supplementation and what determines this use among pregnant women in Ethiopia. This is an important topic given the prevalence of anemia among pregnant women, and the potential consequences of anemia during pregnancy. I do suggest some revisions to make this manuscript clearer and stronger to consider for publication. I also suggest the authors revise the language and grammar to improve readability and avoid typos and grammatical and orthographic errors. I suggest using the same acronyms throughout (e.g., iron folic acid supplementation or IFA supplementation or IFAS) and always defining them before using them. You also refer to pregnant women as mothers in a few instances throughout the text.

In particular, the authors do not explain their methods well. It seems they performed a lot of tests—some redundant (e.g., Egger's and Begg's)—but there is insufficient explanation as to why all these tests were done. This is also reflected in how the results are presented. Overall, I think the paper requires more thinking into what had to be done and why and what are the main discussion points of this review.

Please see some specific comments below.

Abstract:

1- Suggest including confidence intervals for "fear of side effects" and "forgetfulness"

2- You only mention I2 and Egger's test in the methods section, while in the manuscript you also mention Begg's, the Duval trim technique, funnel plots. However, please see my comment above.

Introduction:
You mention DALYs impacted by iron and folic acid anemia, yet the rest of the discussion is around morbidity and mortality as expressed in other terms. I suggest using the same analysis throughout (perhaps replacing DALYs with morbidity/mortality in the introduction). I suggest you reference Daru J et al, 2018 Lancet Global Health for anemia-related mortality and Benova L et al, 2018 BMJ Global Health for ANC coverage and content.

Methods:

Please improve your description of your search strategy - perhaps include it as an appendix. Also include when the search was conducted.

Under outcome of interest you mention "index pregnancy period." I am unclear what is meant by this.

Suggest including the quality assessment according to the Newcastle-Ottawa as an appendix or embedded in Table 1.

Please include an explanation as to why you conducted sensitivity analyses. You include this in the results (paragraph 4) but this should be in the methods section. Relatedly, you need to explain also why you perform a Duval and trim technique.

Results:

Please include the flowchart in the paper and not as an appendix - it makes it easier to follow the eligibility flow. Similarly, there are some errors in the flowchart. Normally, exclusions are noted with a box to the side and the flow should indicate a diminishing number of studies. The second box in your flowchart should appear to the side and not below the first one. I also suggest merging the two last boxes into one (under included studies) stating "studies included (n=20)". Please also explain why you exclude studies (e.g., irrelevance, language, location, not primary studies, etc., etc.) in all the boxes (e.g., box that says "records excluded (n=1219)". This isn't clarified in the manuscript either.

Suggest summarizing the data from table 1 you wish to present in the text - focus on the most important data.

Under "adherence of IFA supplementation" you state you performed an I2 test of heterogeneity resulting in high heterogeneity with a p-value <0.05. Under "knowledge of related factors and history of anemia" you performed the same test, state that there was "statistical evidence of heterogeneity" with a p-value=0.108. Please consider revising. Moreover, at times when presenting results of heterogeneity you present a percentage, at other times a percentage and p-value, at others just a p-value. Please be consistent. Also, high heterogeneity does not equate significance (e.g., you could have a result of 97% heterogeneous but with a p-value of 0.56 and this would be not significant) (paragraph 5).
Under "frequency of ANC visit" you present adjusted odds ratios and in the methods section you do not mention you would be adjusting for any factors. Could you please clarify or revise?

Under "barriers of adherence of iron folic acid supplementation" you present numbers and it's unclear if these are percentages or ORs.

Suggest only referring to one of two tests for publication bias and stating whether it was significant or not. No need for p-values.

Discussion

The discussion section requires a little more refining. At times, interpretation of results points towards reverse causality - I think this can probably be amended by revising grammar. At others, while there is mention of other studies looking at similar topics, there lacked a real interaction with said literature, i.e., stating how your findings support prior evidence or contrast prior findings and how. There are also some statements made with no references (e.g., fourth paragraph where you state that women with higher levels of education might have better knowledge on IFA supplementation).

References

There are a lot of references (91!) and while it's good that you are interacting with the literature, this seems excessive. Please revise to see if all these are necessary - i.e., if there is updated data or guidance, then just reference the newest. I would also suggest not adding the studies included in the review but rather include them in a table which can be an appendix. Please also check some of the references for accuracy and completeness (and appropriateness/correct citation style).

Reference 1 is used to support burden of anemia when this is a reference to a guidance on iron supplementation. Please correct.

I suggest using the most updated reference for iron supplementation during pregnancy (to replace references 1 and 8) with the following: https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/antenatal-care/who-recommendation-daily-oral-iron-and-folic-acid-supplementation.

References 12, 13, 14 I assume are from the same author but spelling is differently - also, are these all necessary?

Tables and figures:

Suggest reducing the amount of tables and figures. Only include the main ones (i.e., table 1 with my suggestions below, and some of the forest plot ones)
Table 1:

17- Please include unit in which adherence is reported (%?). Clarify what response rate means, and please include what the outcomes and study design were for each of the studies.

Table 2:

18- Suggest including as an appendix although I am unsure of whether this was a good analysis given the very small number of studies in each -unless the unit in number of women, in which case this needs to be included in the table headings (e.g., include sample size for each sub-group).

19- Why did you include a national level study under "others"? I'm not convinced the national level study should be included in a sensitivity analysis by region.

Table 3: suggest removing

Table 4: suggest removing

Figures 2 and 3: suggest removing

Additional files

Additional file 1: see my comments above about including this in main text but making the necessary corrections

Additional file 2: unsure this is necessary, but if so, you should add all the results from the test used (suggest using only one test) for all the different variables. It is unclear why you only included some in this file.

Level of interest
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:
1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

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