Reviewer's report

Title: Individual and Community Level Determinants of Childhood Full Immunization in Ethiopia: A Multilevel Analysis

Version: 4
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Reviewer: Chiara de Waure

Reviewer's report:

The paper “Individual and Community Level Determinants of Childhood Full Immunization in Ethiopia: A Multilevel Analysis” reports the results of a multilevel analysis aimed at assessing determinants of vaccination coverage. The topic is quite interesting and relevant and the paper well organized. Anyway, I would like to ask the authors to address some minor/major essential revisions.

Methods

Minor revisions

- In my opinion the part on study area should be shortened and moved to introduction.
- Authors should report how they categorized continuous variables early in methods section.
- Authors assessed the effect of independent variable through p-values and 95%CI independently. Anyway this is meaningless since p-values do agree with 95%CI.

Major revisions

- It is not clear how authors combined information about children immunization. In fact they relied on both immunization cards and mother’s verbal reports. This is quite misleading. I believe that immunization cards are enough in order to assess immunization status. Furthermore, relying only on the latter, recall bias could be avoided.
- Criteria used to run the stepwise regression should be provided.
- Criteria to assess interaction and confounding should be detailed and provided. Furthermore, in my opinion, since the model is a predictive one, confounding is not a concern.
- How did the authors manage missing data?

Results

Minor revisions

- Authors should provide information on missing data in tables.
- I suggest the Authors to replace p-values equal to 0.000 with p-values < 0.001. It is not sound to say that the chance to occur alfa error is 0.
Discussion

Major revisions

- In discussion it emerges that some observations were removed from the analysis. This information should be given earlier and should be reasoned.

- Authors elaborated on the association between having children less than five years of age and incomplete immunization of the last child. Anyway, I do not understand why they spoke about last child. I mean that, even though parents may have more children less than five years of age, it is not clarified that the analysis was carried out on last children. Furthermore, in table 1, birth order is shown and it appears that a huge amount of children were not the last ones. Finally, I am wondering if birth order was associated to immunization status.

Conclusion

Minor revisions

- I suggest the Authors to replace p-values equal to 0.000 with p-values < 0.001. It is not sound to say that the chance to occur alfa error is 0.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests