Reviewer's report

Title: Empowerment and Adequate Use of Antenatal Care among Women in Ghana: A Cross-Sectional Study

Version: 3
Date: 1 July 2014

Reviewer: Laura Lauria

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Please number your comments and divide them into

- Major Compulsory Revisions

1) The outcome indicator was based on the number of antenatal care visits. It is very likely that the course of pregnancy, physiological or pathological, is associated with both, the number of antenatal visits and also with the empowerment indicators. In fact, these indicators could be an expression of socio-economic deprivation which is usually associated with worst health status. To the extent this associations do exist, a bias could occur. Women with pathological pregnancies should be excluded from the analysis, also considering that maternal mortality in Ghana is so high.

2) Particularly relevant is considered by the AA the interaction found between women education and empowerment; this result is emphasized in the abstract and in the conclusions. A significant association between physical abuse and adequate antenatal care among not educated women was found (OR=0.01, 95%CI=<0.01, 0.11). The confidence limits need to be clearly defined (what does it mean <0.01??). The OR of "inadequate" care would be OR=100 (1/0.01) with 95%CI from 9.1 to a value that is >100?, 1000?..2000? A so large CI and also a not clearly defined CI are critical points which may indicate a problem with data.

3) In all tables the absolute numbers of subjects should be inserted to allow the reader to understand and correctly interpret the results. In particular, the absolute numbers should be inserted in table 2. In Table 3, it would be useful to add a column with the absolute numbers of subjects and a column with the percentage of adequate (or not adequate) use of antenatal care for each category of the listed variables.

4) In Table 1, the wealth quintiles are listed, but this variable is never mentioned in the text. Why is that? This could be one of the most important factors to be taken into account.

- Minor Essential Revisions

Minor Essential Revisions

5) The 95%CI of OR for physical abuse in the abstract (0.08, 0.76) is different from that in the table (0.08, 0.076).
6) To standardize the table 2, in the last two rows the lines for emotional abuse=no and physical abuse=no should be deleted.

7) Why in the “sample population” session there are so different numbers of households: row 56: over 4000; row 63: 5009?

- Discretionary Revisions

8) I think that the association would be more easily interpretable by using the odds of “inadequate” care instead of odds of “adequate” care. For example, women who experienced physical abuse are 4 times more likely to have “inadequate” care compared to women who have not experienced this abuse: OR= 4 (1/0.25), 95%CI= 1.32, 12.5.

9) Is information on the time of the first antenatal visit available? It would be a better indicator of adequate prenatal care.

10) The empowerment indicators are not standard measures. The AA indicate two references for these measures, both are studies conducted in India. To what extent these measures are valid in different cultural context?

11) Was, the variable "partner control index", used in the logistic model? There are no comments on this in the text.

12) I have some doubts about the strategy of building the model. I think I would have kept the socio-demographic variables and the variable "overall health", although not statistically significant, as was done for the variable "education".

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

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

**Declaration of competing interests**: I declare that I have no competing interests.