**Reviewer's report**

**Title:** Determinants of patterns of maternal and child health service utilization in a rural community in South Eastern Nigeria

**Version: 0 Date: 23 Feb 2017**

**Reviewer:** Remy Mwamba

**Reviewer's report:**

The paper is of high interest since it's trying to describe the determinants of MCH service utilization which are key to identify appropriate interventions to improve MCH outcomes especially in low and middle income countries.

The article is missing some articulation between the abstract and its main content. There are pieces of information in the methods section of the abstract which are not in the main content of the article. This is confusing since the abstract is a summary of the article. For instance, the following pieces of information could not be found anywhere in the main content but in the abstract.

"Two focus group discussions (FGDs) involving 8-10 men/women each were conducted to identify factors affecting service utilization".

"N vivo software was used to analyze findings of the FGDs."

The paper contents some minor inconsistencies on p-values when comparing which is in the main content and tables. There are some very little differences that should be fixed and aligned with journal guidelines.

**Methods:**

The design is clear and appropriate for this study. I would however recommend to authors to specify in the methods section which MCH interventions/services are being studied. The first time authors evoked these MCH services is in table 3. With regard to immunization services, authors should probably clarify which vaccines they are referring to. Is it tetanus toxoid vaccine that pregnant women receive during prenatal visits? Or vaccines received by a child prior it first anniversary? In this case which ones? Did the study assessed children completely vaccinated? For the latter which combination of vaccines has been taken into account to measure this (BCG,
Polio3, DTP3, MCV, YF, HepB, Hib, Rotavirus, PCV, ?). Furthermore, which child outpatient services authors are talking about?

Results:

Would recommend to sharpen interpretation of findings-

Table3.

Rows 4-7 on page 3 it says "Table 3 also shows a higher level of use of family planning, child outpatient (OPD) and institutional delivery among those with some form of education compared with non-literate women".

If non-literate women refer to those whose education level is "none", therefore authors should notice there is no observation among women illiterate for "institutional delivery", "family planning" and "child outpatient (OPD). Thus one cannot draw any conclusion since no woman falls within this group. Similarly, the study reported only 2 observations for illiterate women using antenatal care and immunization. Again it might be hazardous to draw any conclusion from so few number of observations. This is a general comment for the remaining tables.

Table4

Authors would consider rephrasing the title.

In table 4, none of the husbands was either unemployed or a student. It would be better to drop these two category from the analysis. Authors should also consider alternative way to recode variables.

Table5

The paper mention 3 groups "poor", "good" and "very good" whilst the table shows 2. Please do match the explanation with the background table. Is there a way to better present table 5 to reflect the following statement "among those who used delivery and family planning services, the proportion of users was greatest in the groups which had good and very good assessments of the local health facility and lowest among those that scored the facility "poor"."
The paper did not provide rational to justify why authors selected these 4 variables (Ag. monthly income, No living children, educational level and age) as independent variables to carry out logistic regression (for COP 2 independent variables, for deliver and for FP only one). The authors could really find out how to do it better.

Authors may consider showing which is the reference category within each variable selected for logistic regression so that one can better understand odd ratio related to each value category.

Some OR in table 6 do not fit within the confidence interval. For instance, on page 9 it says "...number of children (OR: 1.196, p<0.01, CI: 1.563-7.000) as determinants of use of child care. Educational level (OR: 0.495, p<0.001, CI: 1.244-2.164) was a determinant of use of delivery services and age (OR: 0.115, p<0.001, CI: 0.838-0.948) was a determinant of use of family planning services." The authors should probably explain these findings.

Discussion

Authors may consider additional statistical analysis including log regression for all statistically significant variables with chi2 test. The paper found potential association that could not be assessed by solely a chi2 testing. Picking up one example from the discussion section it says "Women aged between 25 and 34 years were more likely to use antenatal, delivery, family planning and immunization services than those younger than 25 years with the lowest utilization rates found among women who were less than 20 years of age". It did not find qny statistical test in the paper to support this statement.

On page 10, rows 9-12 it says: "Significant association of husband's occupation with use of family planning and immunization services was also observed." while table 3 shows p: 0.304.
Are the methods appropriate and well described?  
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?  
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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

Needs some language corrections before being published

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?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal