Reviewer's report

Title: Risk factors and a predictive model for under-five mortality in Nigeria: evidence from Demographic and Health Survey, 2008

Version: 2 Date: 24 October 2011

Reviewer: Deepak Chawla

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Major Compulsory Revisions (The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation)

1. Abstract contains insufficient information about method of the research. Study setting, study design, selection of study subjects and outcome variables should be briefly and clearly described.

2. Results and conclusions drawn in the abstract need to be changed in view of the comments on main article.

3. Background section needs extensive revision. Instead of discussing individual variables like maternal age, education, birth interval, family size etc. authors should briefly summarize what is known and what needs to be investigated on the topic of research. This should be followed by a statement on what knowledge gap this study wants to address.

4. Risk factors of under-five mortality can be remote or immediate. For example socio-economic status, educational status, birth order and interval are remote factors which may increase the risk of a child getting sick. However, these remote factors alone will not determine the probability of a sick child dying. Later may be associated with factors like illness severity, cause of sickness, transport or medical facilities available. Therefore, a statistical model using mainly remote risk factors is inherently not robust enough to predict the risk of child death. Although authors state that “Area under the ROC curve was greater than 90% which means that the predictive power of the model was perfect”, I doubt the validity of this conclusion (see comments on statistical analysis below).

5. In results section authors state “Out of all the 28,647 children delivered by 28647 mothers…” Were there no multiple births in such a large cohort? In addition, as I understand the study included interview about reproductive outcome of last 5 years. This should translate into higher number of children then mothers.

6. Results of the study should be presently more eloquently. At present authors are stating results about each outcome. The same information is also presented in tables. Authors are advised to use brevity.

7. Multivariate statistical analysis does not seem to be appropriate. One expects to have a summary result with the important risk factors being part of the final model. At present it seems that authors present risk estimates for each variable
while controlling for all the other variables. This approach is inconsistent with what is stated in the method section. In addition, many continuous variables have been analyzed as ordinal variables (e.g. maternal age). This may cause loss of valuable information. Is this done consciously? On what basis boundaries of these classifications have been selected is not clear. For example how care seeking behaviour was defined and classified?

8. Under-5 mortality is a heterogenous entity with neonatal deaths constituting a distinct part with important role played by perinatal care.

Minor Essential Revisions (The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes)
1. Background section, paragraph 2, line 1 needs grammatical error correction.
2. In methods section paragraph 1 authors state “The national GDP was 38.8% when the survey was carried out”. Please recheck this figure and units.
3. Page 6 (as per manuscript file, page numbering has not been done by authors) paragraph 2 last line needs grammatical error correction.
4. Please consider removing table 1 as this does not provide any unique information.

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

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