

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Association between adolescent motherhood and maternal and child health indices in Maiduguri, Nigeria: A community-based cross-sectional study
AUTHORS	Oyeyemi, Adewale; Aliyu, Salamatu; Sa'ad, Fatima; Rufa'i, Adamu; Jajere, AbdulRahman; Oyeyemi, Adetoyeje

VERSION 1 – REVIEW

REVIEWER	Dr. Md. Ashraful Islam MAHSA University, Malaysia
REVIEW RETURNED	17-Jul-2018

GENERAL COMMENTS	<p>Very good initiatives and good writings as well. In my opinion the topics have significant scientific merits, issues of current and updated maternal health as well as global health concern.</p> <p>Well done for this well-intention with the standard academic writing but I have some major concern about the following: study design, literature review, sample & sampling procedure and data analysis Detailed comments are attached with the edited copy of the article. Thank you.</p> <p>- The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.</p>
-------------------------	--

REVIEWER	D. Korczak University of Toronto, Canada
REVIEW RETURNED	19-Jul-2018

GENERAL COMMENTS	<p>The authors present a cross-sectional survey of 220 mothers aged 12-25 years recruited from economically disadvantaged areas in Nigeria. The manuscript is well written and the authors are commended for addressing a critical maternal and child health problem that demands greater attention.</p> <p>I have a few specific minor comments for the authors to consider: 1. Could the authors please clarify the inclusion and exclusion criteria. I am not familiar with a few of the phrases (for example, "has not yet put to bed") and am uncertain as to how participants were evaluated for eligibility.</p>
-------------------------	---

	<p>2. The survey instrument should be included as an appendix, given that the instrument was developed by the study authors and has not been published elsewhere.</p> <p>3. As the central question of the study centers on the comparison of adolescent and adult mothers, Tables 1 and 2 should present the data for adolescent and adult mothers separately, noting where statistically significant differences between adolescent and adult mothers are present. This would assist the reader in understanding potential demographic and health differences between the two groups more broadly.</p> <p>4. The discussion section notes the sparse literature on this topic with respect to Nigeria. Can the authors also place their findings in the context of the global literature. Although the authors do an excellent job of presenting the magnitude of the problem, similar findings from other countries would further strengthen both the discussion and the implications of this study.</p>
--	---

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Very good initiatives and good writings as well. In my opinion the topics have significant scientific merits, issues of current and updated maternal health as well as global health concern.

Response: We thank the reviewer for the positive review of our manuscript and for your interest in the paper.

Well done for this well-intention with the standard academic writing but I have some major concern about the following:

- study design,
- literature review,
- sample & sampling procedure and
- data analysis

Detailed comments are attached with the edited copy of the article.

Thank you.

Response: We thank the reviewer again for his comments and edits. We have substantially revised the manuscript to address the major concerns regarding study design, literature review, sample and sampling procedure and data analysis. Specifically, in a new paragraph in the introduction section, we have expanded the literature review to include six current articles on child health indices. We have also clarified the sampling procedure and included a power calculation to justify the sample size and the analytical approach utilized in the study. In addition, we made clarification that only the maternal and child health variables that were significant in the bivariate analysis (chi-square statistics) were included in the regression models. Moreover, we have added discussions in the limitation section regarding the lack of construct validity and reliability evidence for the study's questionnaire and the potential selection bias in the sampling approach utilized. Our detailed points of revisions are highlighted in yellow ink in the revised version of the manuscript.

Reviewer: 2

The authors present a cross-sectional survey of 220 mothers aged 12-25 years recruited from economically disadvantaged areas in Nigeria. The manuscript is well written and the authors are commended for addressing a critical maternal and child health problem that demands greater attention.

Response: We thank the reviewer for the positive review of our manuscript and for his kind comments and interest.

I have a few specific minor comments for the authors to consider:

1. Could the authors please clarify the inclusion and exclusion criteria. I am not familiar with a few of the phrases (for example, "has not yet put to bed") and am uncertain as to how participants were evaluated for eligibility.

Response: We thank the reviewer for these points. We have revised the manuscript to clarify the inclusion and exclusion criteria and also reworded the ambiguous phrase "has not yet put to bed". Specifically, we revised the manuscript as:

The study adopted a cross-sectional survey design. The participants were 220 young mothers (aged = 12 - 25 years) recruited from their various households in Gwange, Bulunkutu, Lamisula and Kofa biyu communities (wards) of Maiduguri city. The age range of the mothers was based on definitions from previous studies on the same topic.^{18,21} Sample size was calculated with the Cohen's formula: $n=2(Z_1 + Z_2)^2/d^2$, using a modest effect size statistic [$d = 0.40$] for regression test.²⁴ We determined that 192 participants (96 each per group for adolescent and adult mothers) were needed to detect a moderate to large effect size with more than 80% power at 95% confidence interval. A three-stage approach was used to determine household and participants selection into the study. In stage one, four wards (communities) were randomly selected (ballot method) from the available 15 communities in Maiduguri.²⁵ In the second stage, for convenient purpose, three streets each were randomly selected (ballot method) in each of the four communities. In stage three, houses and participants were selected using convenient sampling technique. From each of the selected houses, all mothers that met the inclusion criteria and were willing to participate were recruited into the study.

The eligibility criteria for the study were (1) being a mother between the ages of 12 and 25 years, (2) having at least one child, (3) living within the identified community in the last 12 months, and (4) willing to be interviewed for a survey in English or Hausa language. Mothers that got married at the age of 26 years and above, those that were experiencing their first pregnancy and yet to deliver a baby and mothers that married for more than 10 years were excluded from the study. Based on the preference of each participant, the survey interview was conducted by one of the researchers (FS) using either the English or Hausa language. The researcher who administered the survey was a native speaker of Hausa and also proficient in English language. Data collection was conducted between March and August, 2014 and all measurements were completed at the participants' home. All participants provided signed informed consent and the study was approved by the Ethics Committee of the University of Maiduguri Teaching Hospital.

2. The survey instrument should be included as an appendix, given that the instrument was developed by the study authors and has not been published elsewhere.

Response: As suggested, we have included the study survey instrument as an appendix.

3. As the central question of the study centers on the comparison of adolescent and adult mothers, Tables 1 and 2 should present the data for adolescent and adult mothers separately, noting where statistically significant differences between adolescent and adult mothers are present. This would assist the reader in understanding potential demographic and health differences between the two groups more broadly.

Response: We thank the reviewer for this comment. We agreed this would assist the reader to understand the unique differences in demographic and health indices between adolescent and adult mothers. As suggested, we have included the separate data for adolescent and adult mothers in

Table 1 and Table 2. We have also highlighted the significant data in the results. Please see the results section of the manuscript for these changes.

4. The discussion section notes the sparse literature on this topic with respect to Nigeria. Can the authors also place their findings in the context of the global literature. Although the authors do an excellent job of presenting the magnitude of the problem, similar findings from other countries would further strengthen both the discussion and the implications of this study.

Response: We thank the reviewer for this point. We have included six current international literature to support our findings and reinforce the discussion of the study.