

## 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

<b>TITLE (PROVISIONAL)</b>	The Magnitude of Birth Trauma and its Associated Factors in South Wollo Public Hospitals, Northeast Ethiopia, August 2021: Institutional Based Cross-Sectional Study
<b>AUTHORS</b>	Biset, Gebeyaw; Mihret, Setegn; Mekonen, Asnakew; Workie, Amare

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Abebaw, Nigussie Semera University, Reproductive and maternity health
<b>REVIEW RETURNED</b>	18-Nov-2021

<b>GENERAL COMMENTS</b>	<p>General comments</p> <p>Generally I'm so happy with the title of the paper .it is visible an time d based condition .now a days majority of the neonates lost their life during delivery time but the exact cause is obscure .so this research is find the risk factor of the birth trauma during labor and delivery period</p> <p>Abstract: on the abstract part there is no introduction .i don't know weather it is the protocol of the journal .if it is not you should include the introduction of the paper [Line 4]</p> <p>In this study there is no indication of the time when this research was done. I think it is better to put the time when this research was done [Line 11,-16]</p> <p>On the abstract part I think strength and limitation of the study is not necessary to include this part .so as much as possible you should try to delete it [Line 43-57]</p> <p><b>INTRODUCTION</b></p> <p>In the introduction part it has its own principle it starts from simple to general sequences.in this research I think it lacks the sequences .please see again and try to correct it [Line 1-29]</p> <p><b>METHOD AND MSTERIALS</b></p> <p>In the setting and participants I think it includes the exact study area and participates during study period ,but you are listed the excluding participants in my assumption it is not necessary in this part .it has its own part so delete and put in the exclusions part[line 38-40]</p> <p>Independent variables [maternal stature] not clear please see again</p> <p>In the method and material part I think it is better include the Ethical principle which is important to assess the informed consent of the participants</p> <p>In this part I think it is better to put the eligibility criteria .I have been seen this part in the setting and participants but it is better to put independently.</p>
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	<p>RESULT: in the result part table 1 [line 24 ] showed that the duration of labor focused on the second stage of labor what is the reason only focused on the second stage why first stage?          In this part you have been used the interval between 1 hr. it depends on the maternal status weather the mother is primi or multi gravid why you are used 1 hr. both mothers ?          In the neonatal variables you have been explain the neonatal condition term ,preterm and post term but there is no any indication of term neonate in the table 2 please insert the finding of the term in the tab le 2[ line 55]          DISSCUTSSION          Writing of the discussion has its own format .it tarts from local to global in this part it is not sequential steps see again and re write          REFFERENCES          Some references like 7,9 and 23 are outdated please use updated reference</p>
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<b>REVIEWER</b>	Svelato, Alessandro Ospedale San Giovanni Calibita Fatebenefratelli, Department of Obstetrics and Gynecology
<b>REVIEW RETURNED</b>	09-Dec-2021

<b>GENERAL COMMENTS</b>	<p>I reported my comments on the manuscript titled “The Magnitude of Birth Trauma and Associated Factors in South Wollo Public Hospitals, Northeast Ethiopia, August 2021.”.</p> <p>The study design (retrospective) is weak. Nevertheless, I understand good intentions of this manuscript, that are clearly expressed in its conclusion section " The ministry of health and the local health care system should give attention to the antenatal and delivery services". In my opinion any effort that may contribute to the reduction of birth trauma rate, certainly deserves to be proposed to the scientific community. For this reason, I have decided to accept this manuscript.</p> <p>Anyway, before the acceptance I suggest some major revisions. I have not the competence to judge if statistical analysis is correct, and for this reason I think that this paper require a specialist statistic review.</p> <p>In the “strength and limitations of the study” section, I have some doubts on the first point. I don’t know if the sample size is really representative of all population. Indeed, you affirmed that the region of Ethiopia considered is a big region with a total population of more than 3 million of people and 13 hospital, but only 4 hospitals were selected purposely for this study. Why did you selected only 4 hospital? In the same section at the second point you say that there might be bias in the diagnosis of birth trauma because you didn’t use the same standard for the diagnosis of birth trauma in each hospital. I suggest add some information’s about the diagnostic criteria used for the identification of birth trauma in the different hospital. I suggest add this information in detail way. As explain by you in the last point, the Hawthorne effect is probably present in this study. We can postulate on this hypothesis that birth trauma is under-estimated. This should be discussed in the manuscript. I suggest to speak about this studies limits in the text at the end of discussion.</p> <p>As discussed in the introduction the data on birth trauma are very heterogeneous in literature. Probably there is a problem in the definition and in the different diagnostic criteria used. I suggest add this explanation of data variability also in the discussion, where you speak about this aspect. Moreover there are many some reference to literature in the introduction that are redundant</p>
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	<p>with some information in the discussion. I suggest to shorten the introduction and put all literature data in the discussion.</p> <p>You used a structured questionnaires for the data collection. I suggest including a copy of the questionnaires, with the aim to give the opportunity at anyone to repeat the study.</p> <p>There are some abbreviations (like ANC) that are used for the first time in the text without explain their meaning, I suggest to check all abbreviations. In the section “Independent variable” (page 6) change “Feta presentation” with “Fetal presentation”</p> <p>In the results, please indicate the median instead of mean.</p> <p>In many part of the text you speak about “normal duration of labor”. This is a debated issue, because the real question is: What means normal? Which is the normal duration of labor? I suggest remove the word normal.</p> <p>The manuscript is clear and easy to understand also for non-specialized reader. References list appears up to date.</p> <p>After these major revisions, I suggest to accept this manuscript.</p>
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<b>REVIEWER</b>	Mehta, C. Christina Emory University School of Medicine, Medicine, Division of Infectious Diseases
<b>REVIEW RETURNED</b>	13-Dec-2021

<b>GENERAL COMMENTS</b>	<p>This is an interesting study investigating the prevalence and factors associated with birth trauma in South Wollo, Northeast Ethiopia. A better understanding of how commonly birth trauma occurs as well as what factors are associated it could inform potential future interventions that would have public health benefit.</p> <p>The paper highlights the heterogeneity in reported prevalence of birth trauma and types of trauma experienced in the introduction and discussion. Suggest that the introduction could report birth trauma in a common way (% versus cases/1000). Also suggest that Reference 5 needs more clarification as the denominator (number of newborns) is unclear. The discussion could further highlight potential explanations for amount of birth trauma observed compared to the literature. A table providing prevalence ranges for amount and type of birth trauma might be helpful as the text gets confusing.</p> <p>The amount of birth trauma observed (13.1%) is very similar to the 15.4% reported in Ethiopia (the prevalence used for planning this study). While higher than India (2.2%) and Nigeria (0.57%), the conclusion of higher prevalence of birth trauma seems to overstate the results. Would also appreciate more discussion on how this information could be used to improve patient care.</p> <p>Would like some additional clarification on the study design:</p> <ul style="list-style-type: none"> <li>- Were multiple births excluded?</li> <li>- How/when was birth trauma determined?</li> <li>- When did patient recruitment occur? June 1-30, 2021?</li> <li>- Should hospital characteristics (number of deliveries, etc.) also be reported on?</li> <li>- Would like to know more about total number of deliveries that were sampled from and reasons for study refusal</li> </ul> <p>A few other areas that could use are clarification are:</p> <ul style="list-style-type: none"> <li>- Was model fit assessed for the logistic regression models?</li> <li>- Abbreviations should be defined first (ex., ANC)</li> </ul>
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	<ul style="list-style-type: none"> <li>- Line 40, page 7: According to Table 2, the line should read "Three-hundred and sixty..."</li> <li>- Please use consistent number of decimal places in tables and also in text</li> <li>-Table 1:             <ul style="list-style-type: none"> <li>- Please add unit of measurement for age.</li> <li>- The frequency numbers for age in the table don't total to 594. Also, the percentages are incorrect.</li> <li>- Please define "disease during pregnancy." Also, the frequency numbers do not total 594 (and the percentages are incorrect)</li> <li>- For duration of labor, which category includes exactly 1 hour of labor?</li> </ul> </li> <li>- Table 2:             <ul style="list-style-type: none"> <li>- Please define categories for gestational age</li> <li>- Please define categories for birth weight. Also, frequency numbers do not total 594 (and percentages do not total 100)</li> <li>- Please define all abbreviations (ex., SVD)</li> <li>- Vertex category for fetal position, missing an ")"</li> <li>- Fetal presentation frequency numbers do not total 594</li> </ul> </li> <li>- Table 3             <ul style="list-style-type: none"> <li>- Remove redundant "hospital northeast Ethiopia" and change 2020 to 2021 in the table title to be consistent with the other tables</li> <li>- Define all abbreviations (ex, HCW, GP)</li> <li>- Please define the variable of "Full delivery material"</li> <li>- Does not utilizing a partograph mean one was not available or just not used?</li> </ul> </li> <li>- Table 4:             <ul style="list-style-type: none"> <li>- Since the variables are drawn from the other tables, please use consistent wording. Duration of labor, ANC follow-up, Birth weight, Fetal position are all labeled differently.</li> <li>- The frequency numbers for mode of delivery do not match Table 2</li> <li>- The cOR for shoulder dystocia is missing the 95% Confidence Interval</li> <li>- The cOR (and aOR?) appears to be incorrect</li> <li>- Please define all abbreviations (COR, AOR)</li> <li>- Suggest adding a type 3 p-value for categorical variables with more than 2 levels (mode of delivery, birth weight)</li> <li>- Did the adjusted models only adjust for variables listed in the table?</li> </ul> </li> </ul> <p>A STROBE checklist might be helpful in making sure all of these points are addressed.</p>
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### VERSION 1 – AUTHOR RESPONSE

#### 2. Response for Comments from the reviewer

Reviewer: 1

Mr. Nigussie Abebaw, Semera University

Comments to the Author:

Based on the comments I need the correct inputs

Response: I didn't find the comment for the first reviewer

Reviewer: 2

Dr. Alessandro Svelato, Ospedale San Giovanni Calibita Fatebenefratelli

Comments to the Author:

Dear Authors,

I reported my comments on the manuscript titled “The Magnitude of Birth Trauma and Associated Factors in South Wollo Public Hospitals, Northeast Ethiopia, August 2021.”.

The study design (retrospective) is weak. Nevertheless, I understand good intentions of this manuscript, that are clearly expressed in its conclusion section " The ministry of health and the local health care system should give attention to the antenatal and delivery services". In my opinion any effort that may contribute to the reduction of birth trauma rate, certainly deserves to be proposed to the scientific community. For this reason, I have decided to accept this manuscript.

Anyway, before the acceptance I suggest some major revisions.

I have not the competence to judge if statistical analysis is correct, and for this reason I think that this paper requires a specialist statistic review.

#1: In the “strength and limitations of the study” section, I have some doubts on the first point. I don’t know if the sample size is really representative of all population. Indeed, you affirmed that the region of Ethiopia considered is a big region with a total population of more than 3 million of people and 13 hospitals, but only 4 hospitals were selected purposely for this study. Why did you select only 4 hospitals? In the same section at the second point you say that there might be bias in the diagnosis of birth trauma because you didn’t use the same standard for the diagnosis of birth trauma in each hospital. I suggest add some information’s about the diagnostic criteria used for the identification of birth trauma in the different hospital. I suggest add this information in detail way. As explain by you in the last point, the Hawthorne effect is probably present in this study. We can postulate on this hypothesis that birth trauma is under-estimated. This should be discussed in the manuscript. I suggest to speak about this studies limits in the text at the end of discussion.

Response: The sample size was calculated scientifically, so it represents the source population. Additionally, we have used the margin of error 3% instead of 5% to maximize the sample size. The aforementioned 3 million people are not the source populations, it is the general population in the catchment, our source population is the number of neonates/newborns in the study area and generalization is to these neonates, so, the sample size we use was representative enough. The number of hospitals in the study area (south wollo) were 13 and we select 4 hospitals randomly. When determining sample size, it is recommended to include 20-30% of the target group/populations, so, we include 30% of the hospitals which is acceptable enough (rule of thumb). Here only 20% of the total hospitals (i.e. 3 hospitals) might be enough, but we take 30% of the hospitals (4 hospitals) to maximize our sample size.

The diagnosis of birth trauma might depend on the availability of diagnostic tools in each hospital and the types of birth trauma. Birth trauma could be diagnosed clinically, by ultrasound, CT scan, and MRI. These different diagnostic tools might yield different diagnostic result as they have different diagnostic accuracy. We incorporate the diagnostic tools for birth trauma in the manuscript (see the main document).

Regarding the Hawthorne effect, our study is not observational study concerning the practice of health care professionals. The information concerning the health care professional who attend labour and delivery was obtained at the end of the delivery so the Hawthorne effect is minimized despite of information sharing to the next professional that will attend the next labour and delivery.

The limitation of this study was written in the abstract section as it is recommended from the journal editors.

#2: As discussed in the introduction the data on birth trauma are very heterogeneous in literature. Probably there is a problem in the definition and in the different diagnostic criteria used. I suggest add this explanation of data variability also in the discussion, where you speak about this aspect. Moreover, there are many some reference to literature in the introduction that are redundant with some information in the discussion. I suggest to shorten the introduction and put all literature data in the discussion.

Response: Sure, we have incorporated the variability might be due to the different diagnostic tool or the problem in the definition of birth trauma.

We have shortened the introduction section of the manuscript by removing the redundant information (see the main document).

#3: You used a structured questionnaire for the data collection. I suggest including a copy of the questionnaires, with the aim to give the opportunity at anyone to repeat the study.

There are some abbreviations (like ANC) that are used for the first time in the text without explain their meaning, I suggest to check all abbreviations. In the section "Independent variable" (page 6) change "Feta presentation" with "Fetal presentation"

Response: We have explained the full description of all abbreviations as they appeared in the first time (thank you for reminding) and also all typographical errors were corrected (see the main document).

The tool or questionnaire will be shared for future researcher up on request.

#4: In the results, please indicate the median instead of mean.

Response: Before we use those measures of central tendencies like mean, median, and mode, we perform normality test and check the data for the presence of outliers. But, in our data, the distribution was normally distributed and there was no outlier. In such cases the mean is the best measure of central tendency than the median, hence we use the mean. In contrast, the median is the best measure of central tendency when the distribution of data values is skewed or when there are clear outliers.

#5: In many part of the text you speak about "normal duration of labor". This is a debated issue, because the real question is: What means normal? Which is the normal duration of labor? I suggest remove the word normal.

Response: Normal duration of labour mean labour lasting 12-18 hours for primiparous and 6-12 hours for multipara beginning from the starting of labour. Labour lasting longer than the specified time is said to be prolonged labour. Thus, in our finding compared to the normal duration of labour (12-18hours for primiparous and 6-12 for multipara) prolonged labour causes birth trauma.

The manuscript is clear and easy to understand also for non-specialized reader. References list appears up to date.

After these major revisions, I suggest to accept this manuscript.

Reviewer: 3

Dr. C. Christina Mehta, Emory University School of Medicine

Comments to the Author:

This is an interesting study investigating the prevalence and factors associated with birth trauma in South Wollo, Northeast Ethiopia. A better understanding of how commonly birth trauma occurs as well as what factors are associated it could inform potential future interventions that would have public health benefit.

#1: The paper highlights the heterogeneity in reported prevalence of birth trauma and types of trauma experienced in the introduction and discussion. Suggest that the introduction could report birth trauma in a common way (% versus cases/1000). Also suggest that Reference 5 needs more clarification as the denominator (number of newborns) is unclear. The discussion could further highlight potential explanations for amount of birth trauma observed compared to the literature. A table providing prevalence ranges for amount and type of birth trauma might be helpful as the text gets confusing.

Response: Sure, some literatures report the incidence of birth trauma per 1000 and some reports prevalence. The denominator for the prevalence of birth trauma in reference number 5 is 134, that means out of 134 assessed newborns 90 develop birth trauma. The high prevalence might be due to the study were done at the emergency department, i.e. the study was done among the sick neonates at the emergency department. Neonates seen in the emergency department could be of mainly with emergency conditions (trauma) hence highest percentage of birth trauma is reported (90 out of 134). The magnitude and percentage of each types of birth trauma were described from among the total birth trauma, i.e. the denominator is 78 (magnitude of birth trauma). For example, from the reported 78 birth traumas, 15 were soft tissue injuries and the percentage for this were calculated as  $(15/78) * 100$  which is 19.20%. It is better to write this section in text as we have 4 more tables, it is not advisable to have more than 3 or 4 tables in a single manuscript.



#2: The amount of birth trauma observed (13.1%) is very similar to the 15.4% reported in Ethiopia (the prevalence used for planning this study). While higher than India (2.2%) and Nigeria (0.57%), the conclusion of higher prevalence of birth trauma seems to overstate the results. Would also appreciate more discussion on how this information could be used to improve patient care.

Response: As it has been said in the introduction section there has been limited studies regarding birth trauma for detailed discussion. But, the prevalence of birth trauma was higher than the expected frequency which is expected to be zero and also it is higher than the report from Iran and Nigeria. So, when saying higher prevalence, we are not over estimating it rather we are comparing with the existing reports.

#3: Would like some additional clarification on the study design:

Response: The study design for this study was institutional based cross sectional study

#3.1- Were multiple births excluded?

Response: No, multiple birth was included, however data were obtained from one neonate selected by lottery method.

#3.2- How/when was birth trauma determined?

Response: immediately after delivery the new born was assessed clinically or using imaging study for the presence of and types of birth trauma.

#3.3- When did patient recruitment occur? June 1-30, 2021?

Response: The study participants were recruited from 1 March 2021 to 30 June 2021 at the delivery units of each hospital until the required sample size is reached using simple random sampling method.

#3.4- Should hospital characteristics (number of deliveries, etc.) also be reported on?

Response: Hospital characteristics like number of delivery were considered for proportional allocation of samples otherwise we didn't consider for any association. The total sample size was proportionally allocated to each hospital based on the number of delivery they attend.

#3.5- Would like to know more about total number of deliveries that were sampled from and reasons for study refusal

Response: We have used the quarterly plan (3-month plan) of deliveries in each hospital to estimate our sample size. South wollo has planned to attend 12, 000 deliveries from January 2021 to December 2021. From this 3000 were the zonal quarter plan where our sample is calculated. Regarding study refusal; in this study, we didn't face any resistance/refusal from any of the participants

#4: A few other areas that could use are clarification are:

- Was model fit assessed for the logistic regression models?

Response: The model fitness for the logistic regression model was assessed using the Hosmer Lemeshow goodness of test and the model fits best with p-value of 0.062.

- Abbreviations should be defined first (ex., ANC)

Response: Corrected, all abbreviations were defined first before we use these abbreviations (see the main document)

- Line 40, page 7: According to Table 2, the line should read "Three-hundred and sixty..."

Response: Corrected (see the main document), (thank you for reminding the error)

- Please use consistent number of decimal places in tables and also in text

Response: The decimal numbers were made similar to two decimal digits throughout the document.

-Table 1:

- Please add unit of measurement for age.

Response: Corrected, maternal age was measure in years and we have corrected the unit years in the main document. Ana also gestational age was measured in weeks and written in weeks in the main document.

- The frequency numbers for age in the table don't total to 594. Also, the percentages are incorrect.

Response: sorry, the number of women age >35 years was 71 not 12, hence the percentage was corrected accordingly.

- Please define "disease during pregnancy." Also, the frequency numbers do not total 594 (and the percentages are incorrect)

Response: Disease during pregnancy mean any form of illness that was diagnosed during pregnancy that could have impact on the fetus. The women were asked whether she had diagnosed for disease during pregnancy and her medical charts were reviewed for possible medical illness and treatment during her pregnancy time.

- For duration of labor, which category includes exactly 1 hour of labor?

Response: mothers with exactly 1hours of duration were categorized as normal duration of second stage of labour.

- Table 2:

- Please define categories for gestational age

Response: gestational age was measured in weeks and it is corrected in the main document (see the main document)

- Please define categories for birth weight. Also, frequency numbers do not total 594 (and percentages do not total 100)

Response: Birth weight was defined as low birth weight having birth weight less than 2.50 kg, normal birth weight birth weight 2.50 – 4.00 kg, and macrosomia birth eight greater than 4.00kg. this was corrected in the main document (see the main document). The frequency and percentage of birth weight was corrected; it was editorial problem (see the report of birth weight in table 4)

- Please define all abbreviations (ex., SVD)

Response: Corrected (see the main document), SVD = Spontaneous Vaginal Delivery

- Vertex category for fetal position, missing an ")"

Response: Corrected (see the main document)

- Fetal presentation frequency numbers do not total 594

Response: the frequency of feta presentation was computed out of 588, there were 6 missing data.

- Table 3

- Remove redundant "hospital northeast Ethiopia" and change 2020 to 2021 in the table title to be consistent with the other tables

Response: corrected (see the main document)

- Define all abbreviations (ex, HCW, GP)

Response: We have defined these abbreviations at the end of the table.

- Please define the variable of "Full delivery material"

Response: According to the Ethiopia standard, hospitals with the minimum of the following materials were considered having full materials for delivery. Delivery couches, delivery kit, linens, towels, IV stand, medications, vacuum, forceps, trolley, neonatal resuscitation kit, newborn care table (Ethiopian standard, 2012).

- Does not utilizing a partograph mean one was not available or just not used?

Response: It is to mean they have not used the partograph to attend labour, despite the presence of partograph.

- Table 4:

- Since the variables are drawn from the other tables, please use consistent wording. Duration of labor, ANC follow-up, Birth weight, Fetal position are all labeled differently.

Response: corrected (see the main document)

- The frequency numbers for mode of delivery do not match Table 2

Response: corrected (see the main document)

- The cOR for shoulder dystocia is missing the 95% Confidence Interval

Response: corrected (see the main document)

- The cOR (and aOR?) appears to be incorrect

Response: corrected (see the main document)

- Please define all abbreviations (COR, AOR)

Response: COR & AOR were defined in the main document (see the main document)



- Suggest adding a type 3 p-value for categorical variables with more than 2 levels (mode of delivery, birth weight)

Response: Sorry I am not sure whether a type 3 p-value is necessary for this form of data.

- Did the adjusted models only adjust for variables listed in the table?

Response: Yes, these variables listed in the table with a p-value of less than 2.5 in the bivariate analysis were entered to the multivariable analysis for adjustment.

Comment from the editor

Contributorship Statement

Please state the contributions of each member in doing this manuscript. Each contributorship statement should make clear who has contributed what to the planning, conduct, and reporting of the work described in the article, and should identify one, or occasionally more, contributor(s) as being responsible for the overall content as guarantor(s). For example:

Johann Schmidt planned the study. Carol Danvers conducted a survey. Abraham Erskine submitted the study etc.

You can also state the name by using only the initials. JS for Johann Schmidt, CD for Carol Danvers, AE for Abraham Erskine.

Please avoid using "All authors"

Response: Author contribution statement has been corrected (see the main document)

Thank you for the editor and reviewers for raising an important issue for the manuscript!

### VERSION 2 – REVIEW

<b>REVIEWER</b>	Svelato, Alessandro Ospedale San Giovanni Calibita Fatebenefratelli, Department of Obstetrics and Gynecology
<b>REVIEW RETURNED</b>	28-Mar-2022

<b>GENERAL COMMENTS</b>	The paper has undergone good revision according to the reviewers comments and the current version is acceptable for publication as it is.
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<b>REVIEWER</b>	Mehta, C. Christina Emory University School of Medicine, Medicine, Division of Infectious Diseases
<b>REVIEW RETURNED</b>	26-Mar-2022

<b>GENERAL COMMENTS</b>	The revised manuscript addresses many of the comments from the previous review. Nevertheless, a few issues remain that should be addressed: - Some of the information in the response to reviewers should be added to the methods section of the manuscript, such as how multiple births were handled, when birth trauma was assessed, and the recruitment date range. - The literature review provided suggests that birth trauma seems to be within the range observed in African countries. Not sure that
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	<p>the comment in the abstract the "prevalence of birth trauma was higher than in most African countries" is supported.</p> <ul style="list-style-type: none"> <li>- Agree that the goal should be zero birth trauma newborns but not sure that is the "expected rate"</li> <li>- Remove the description of how birth traumas was coded (defining the levels as yes/no is sufficient)</li> <li>- Decimals reported in text and tables are still inconsistent. Please fix.</li> <li>- Add a footnote to Table 2 that column percents do not total 100 due to rounding.</li> <li>- Reporting the response rate for neonates and mothers separately is confusing. Presumably, you would not have one enrolled without the other. Suggest adding information about this requirement to the paper.</li> <li>- Line 40 page 8 reports normal birth weight as 524 (88.23%) but Table 2 reports it as 470 (79.12%)</li> <li>- Small rounding errors in Table 1 and Table 2. Please confirm all column percents.</li> <li>- Table 4 is missing the 95% CI for Antenatal follow-up, Cephalic fetal presentation, vertex fetal position. The crude OR for antenatal care is incorrect (should be 0.56).</li> <li>- Please add the method used to provide the 95% confidence interval for the proportion of birth traumas to the statistical methods section.</li> <li>- Overall, writing is improved although there are still sections that are awkward (such as the data processing and analysis section)</li> </ul>
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### VERSION 2 – AUTHOR RESPONSE

Reviewer: 3

Dr. C. Christina Mehta, Emory University School of Medicine

Comments to the Author:

The revised manuscript addresses many of the comments from the previous review. Nevertheless, a few issues remain that should be addressed:

- Some of the information in the response to reviewers should be added to the methods section of the manuscript, such as how multiple births were handled, when birth trauma was assessed, and the recruitment date range.

Response: All the relevant comments from the reviewers are incorporated in the main manuscript (see the main document).

- The literature review provided suggests that birth trauma seems to be within the range observed in African countries. Not sure that the comment in the abstract the "prevalence of birth trauma was higher than in most African countries" is supported.

Response: The prevalence of birth trauma described in the literature are not the overall prevalence, it is the proportion of types of birth trauma from the overall prevalence. The overall prevalence of birth trauma is higher than most of the African countries.

<https://www.worldlifeexpectancy.com/africa/birth-trauma-cause-of-death>

- Agree that the goal should be zero birth trauma newborns but not sure that is the "expected rate"

Response: Every fetus is expected to be born free of injury/trauma. Literature have revealed that most of the cause for birth traumas are preventable and implies the fetus is born injury free.

- Remove the description of how birth traumas was coded (defining the levels as yes/no is sufficient)

Response: corrected (see the main document)

- Decimals reported in text and tables are still inconsistent. Please fix.

Response: corrected (see the main document).

- Add a footnote to Table 2 that column percents do not total 100 due to rounding.

Response: corrected (see the main document)

- Reporting the response rate for neonates and mothers separately is confusing. Presumably, you would not have one enrolled without the other. Suggest adding information about this requirement to the paper.

Response: yes, we didn't involve one without the other, so we have corrected the response rate accordingly (the response rate were 97% mother-newborn pairs).

- Line 40 page 8 reports normal birth weight as 524 (88.23%) but Table 2 reports it as 470 (79.12%)

Response: corrected (see the main document).

- Small rounding errors in Table 1 and Table 2. Please confirm all column percents.

Response: corrected (see the main document)

- Table 4 is missing the 95% CI for Antenatal follow-up, Cephalic fetal presentation, vertex fetal position. The crude OR for antenatal care is incorrect (should be 0.56).

Response: corrected (see the main document).

- Please add the method used to provide the 95% confidence interval for the proportion of birth traumas to the statistical methods section.

Response: corrected (see the main document)

- Overall, writing is improved although there are still sections that are awkward (such as the data processing and analysis section)

Response: We have improved the writing and typographical errors