

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)	Magnitude and determinants of road traffic accidents in Northern Ethiopia: A cross sectional study
AUTHORS	Woldu, Awtachew; Desta, Abraham; Woldearegay, Tewolde

VERSION 1 - REVIEW

REVIEWER	ETONGOLA PAPY-STEVE MBELAMBELA Kochi University Medical School, Department of Environmental Medicine, Nankoku, Japan
REVIEW RETURNED	31-Oct-2019

GENERAL COMMENTS	<p>Dear Editor in chief 2019/10/31 BMJ open</p> <p>Thank you for associating me in this work entitled: Magnitude and determinants of road traffic accident in Mekelle city, Tigray, Northern Ethiopia: A cross sectional study (BMJ Open) (manuscript number: bmjopen-2019-034133). I think that this work is an original and good study but contains major's comments in results and discussions section, than can be accepted after the improvement of manuscript by the comments of the different reviewer. Please consider my modest comments and recommendations.</p> <p>Magnitude and determinants of road traffic accident in Mekelle city, Tigray, Northern Ethiopia: A cross sectional study (BMJ Open) Manuscript ID bmjopen-2019-034133</p> <p>Q: question S: suggestion</p> <p>Introduction S1: Line 56: It's better to continue with the figure as you used in the beginning. Please write 23% instead of Twenty three percent S2: Please you need to add the objective of study in the end of introduction.</p> <p>Statistic analysis section Q1-For multivariate analysis, what confounding factors used in the adjusted model?</p> <p>Results section</p>
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	<p>S3- Tables (1-3): Please use the p value in all tables. We need to know if the difference was statistically significant between different variables distributed</p> <p>S4-Table 2: Better to write accident experience in the previous 2 years instead of accident occurrence</p> <p>S5-Better to write day of accident instead of date of accident</p> <p>Q2-What the proportion or prevalence of the RTA among drivers who used the substances, mobile during their driving service and who didn't use the seat belt?</p> <p>S6-Table4: Please improve the title: e.g Multivariate analysis of association between the RTA, socio-economic status and life style.</p> <p>Discussion section</p> <p>Q3-Line 64: Poor conditions of quality of vehicles and less road safety are determinant factors for RTA in Africa including Ethiopia as reported in your introduction. Why you didn't evaluate those factors? It's will be better to compare the prevalence of RTA for quality of vehicles, state of road and human behavior in Ethiopia and other countries.</p> <p>Q4-Previous study conducted in Mekelle city reported 4% of RTA related to vehicle conditions. What is the proportion of RTA related to vehicle conditions in your study?</p> <p>Q5-Road infrastructure is one of risk factor of the RTA ; why you didn't evaluate the proportion of RTA in asphalted road, in cobble stone road and gravel road?</p> <p>Q6-Why you didn't search to know whether Lack of general safety awareness of pedestrians, Violation of traffic rules and regulations, Violation of speed limit, lack of vehicle maintenance were associated with the RTA?</p> <p>Q7-Please improve the sentences on 224-226 lines: But a study done in Ibadan town Nigeria showed that drivers who had part time jobs were 2.6 times more likely to have traffic accident [3]. Similarly the study of Ibadan indicated that drivers who had visual impairment were 1.6 times more likely to have traffic accident [3].</p> <p>S7- Please you need to add some references in your discussion for to improve this part because your discussion is slightly poor.</p> <p style="text-align: center;">Good Luck</p>
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REVIEWER	Krzysztof Goniewicz Polish Air Force Academy
REVIEW RETURNED	06-Nov-2019

<p>GENERAL COMMENTS</p>	<p>The paper describes the analysis of traffic accident data. The topic is relevant and the general solution approach sound.</p> <p>From this perspective, the paper lacks a thorough structure and content: The methods are chosen rather ad-hoc, the statistical significance of the analysis results are not analyzed, the authors work with one data set only and the generalization capabilities of the results) are not verified and no theoretical verifications are given. The importance of the results from a traffic perspective are hard for the reviewer to judge, but the paper does not read like it either: No solution are suggested, no deeper analysis of the underlying traffic problems are given. The bottom line is that the goal of the paper and therefore its main contribution remains unclear.</p> <p>The strength of this paper is that it presents some useful analysis that might not otherwise be available for international readers. However, there are several problems with the paper in its current form. It's long and I recommend that the authors consider the overall organization of the paper</p> <p>Abstract – the content of the abstract is unbalanced. Abstract should be rewritten based on contribution, novelty and findings work. And it could be presented in a way that is easier to follow for the reader. The authors should carefully check the summary of results presented in this abstract to ensure that it matches information presented in the results section.</p> <p>From a scholarly standpoint, it's important that the references be fully and accurately cited according to the Journal's format instructions. At the moment, references reach the position from many years ago and nowadays new articles have appeared.</p> <p>Results – this section could be organized better. With so much data you have to make it more interested to readers</p> <p>Also Authors are strongly encouraged to have the manuscript proofread by a native speaker of a English or a language professional, before it is resubmission</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1: The points raised by reviewer 1 was very essential to make a valid contribution from the study. I made correction regarding the suggestions 1 to 6. In regard to the Question (Q) 1: confounders was assessed using a backward and forward eliminations techniques and any variable above 20% in change of the coefficients of the variable was considered as a confounder (Line no 151-153). In the result section Table 1 and 2 are descriptive statistics for the independent variables and hence it is impossible to compare the differences. However, in Table 3 we used to compare categories of the independent variables with the outcome variable and hence it is possible to compare the statistical differences among the categories of the different independent variables with the outcome variable. Therefore, we used p-values to show the differences as you have suggested. The prevalence of RTA was also stated in different risky behaviors (Line no 200- 202).

Reviewer 2: You raised a valid concerns and thank you very much for your contributions you made on behalf all authors of this study. Accordingly, slight modifications was made to the abstract section. The key recommendation to the responsible bodies was raised and the abstract was structured that

can attract readers. In addition to that I have removed most of the old references that we have cited before.

VERSION 2 – REVIEW

REVIEWER	ETONGOLA PAPY-STEVE MBELAMBELA Kochi University Kochi medical School, Department of Environmental Medicine, Nankoku, Japan
REVIEW RETURNED	25-Dec-2019

GENERAL COMMENTS	<p>Q: question S: suggestion</p> <p>Statistic analysis section Q1- Table4: Multivariate analysis. What are variables used in the adjusted model (AoR)?</p> <p>Results section S1- Tables (1-2): Please use the p value in all tables. Because we need to know if the difference was statistically significant between different variables distributed</p> <p>Discussion section Q2-Poor conditions of quality of vehicles and less road safety were determinant factors for RTA in Africa including Ethiopia as reported in your introduction. Why you didn't evaluate those factors? It's will be better to compare the prevalence of RTA for quality of vehicles, state of road and human behavior in Ethiopia and other countries.</p> <p>Q3-Previous study carried out in Mekelle city reported 4% of RTA related to vehicle conditions. What is the proportion of RTA related to vehicle conditions in your study?</p> <p>Q4-Road infrastructure is one of risk factor of the RTA ; why you didn't evaluate the proportion of RTA related to asphalted road, cobble stone road and gravel road?</p> <p>Q5-Why you didn't search to know whether the lack of general safety awareness of pedestrians, Violation of traffic rules and regulations, Violation of speed limit, lack of vehicle maintenance were associated with the RTA?</p> <p>S2- Please you need to add some references in your discussion for to improve this part because your discussion is slightly poor.</p> <p>Good Luck</p>
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REVIEWER	Krzysztof Goniewicz Polish Air Force Academy, Poland
REVIEW RETURNED	10-Dec-2019

GENERAL COMMENTS	<p>The authors have creatively utilized secondary sources and made a good effort to revise the second submission taking into account the reviewer comments but the paper still need few improvements</p> <p>Firstly, conclusion is excessively short(needs to be more synthetic and self-explicative)</p> <p>In addition, a closing paragraph or two with summative insights, or overarching principles garnered from this work would make the manuscript more complete.. Please see and include this references in final paragraphs which seem an abrupt end to the work and the paper lacks a sense of closure Bener, A., Abu-Zidan, F. M., Bensiali, A. K., Al-Mulla, A. A., & Jadaan, K. S. (2003). Strategy to improve road safety in developing countries. Saudi medical journal, 24(6), 603-608. Khan, M. A., Agarwal, P. K., & Chaki, S. (2017). Strategies for Safety Evaluation of Road Intersection to have Sustainable Development. Journal of Advanced Research in Automotive Technology and Transportation System, 2(1&2), 65-77. Goniewicz, K., Goniewicz, M., Pawłowski, W., & Fiedor, P. (2016). Road accident rates: strategies and programmes for improving road traffic safety. European journal of trauma and emergency surgery, 42(4), 433-438. Clifford, J., THEOBALD, C., Atkinson, S., & Burger, C. (2016). Evaluating the costs of incidents from the public sector perspective: a road safety policy research paper.</p> <p>Also some additional copy editing, both to smooth out the areas of clumsy prose due to translation and to use translated terms that are consistent with current vernacular will also be required</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1

The comments and suggestions raised by reviewer 1 were very valid to strengthen the study. We thank you very much for you contribution you made.

Methods section: Multivariate analysis

Q1. What are variables used in the adjusted model (AoR)?

Response: This is a valid question. We used variables on risky behaviors, traffic safety rules and some other personal characteristics to seek the association with Road Traffic Accidents (RTA) and we have used these to interpret the Adjusted Odds Ratio (AOR) in the multivariate analysis with the socio-demographic variables. See on page 7 line # 153- 155.

Results section

S1. Tables (1-2): Please use the p value in all tables. Because we need to know if the difference was statistically significant between different variables distributed.

Response: This is good suggestion and we have tried to see the statistical difference among the independent variables with RTA in Table 1 page #9. However, it is impossible to see the statistical difference in Table 2 since it is description for RTA characteristics (for one variable).

Discussion section

Q2. Why you didn't you evaluate poor conditions of quality of vehicles and less road safety as determinant factors of RTA?

Response: Thank you again, this is very important question. Although we did not evaluate the road quality and quality of vehicle directly, we tried to relate these issues with the service of the car according to the recommendation of the manufacturer and infrastructure of the road. These can provide an indications for the vehicle condition and quality of the road. We have only compared the RTA based on the road infrastructure and vehicle service (table 3)

Q3. What is the proportion of RTA related to vehicle conditions in your study?

Response: As it stated in the above response, we tried to relate vehicle condition with the vehicle service. As it shown in table 3 the proportion of RTA among vehicles which have no service provision as per the manufacturer recommendation was 3.66%.

Q4. Why you didn't evaluate the proportion of RTA related to asphalted road, cobble stone road and gravel road?

Response: As per your recommendation we have included this result in Table 3.

Q5. Why you didn't search to know whether the lack of general safety awareness of pedestrians, Violation of traffic rules and regulations, Violation of speed limit, lack of vehicle maintenance were associated with the RTA?

Response: This question is very essential question and we have tried to show the strength of the associations of violation of speed limit and lack of vehicle maintenance (in this case vehicle service as per the manufacturer recommendation) with the outcome variable RTA. Moreover, lack of general safety awareness of pedestrians and violation of traffic rules and regulations were described in the RTA description table based on the reported causes of RTA by the respondent drivers (table 2).

S2. Please you need to add some references in your discussion for to improve

this part because your discussion is slightly poor.

Response: This is right, to strengthen the discussion part we have included some additional references.

Reviewer 2

Thank you for your unreserved comments and we have tried to improve the manuscript based on your comments. We kindly hereby responded for each of the pointes raised by you.

Suggestion (S) 1: Firstly, conclusion is excessively short (needs to be more synthetic and self-explanative). In addition, a closing paragraph or two with summative insights, or overarching principles garnered from this work would make the manuscript more complete.

Response: This is a valid concern, we have tried to synthesize again in better way that can address and impress the overall meaning of the manuscript.

S2. Please see and include this references in final paragraphs which seem an abrupt end to the work and the paper lacks a sense of closure

Response: This is also a valid concern and hence we have included some additional references. We have also focused to answer what is so in the final paragraphs of the discussion.

S3. Some additional copy editing, both to smooth out the areas of clumsy prose due to translation and to use translated terms that are consistent with current vernacular will also be required.

Response: We have tried to extensively look again the whole manuscript. In addition to that the manuscript was edited by a colleague from a native English speaker to improve the quality of the grammars and flow of ideas. Hence, this version of the manuscript has a better quality compared to the previous versions.

VERSION 3 - REVIEW

REVIEWER	DR Mbelambela Papy Etongola Kochi University Kochi Medical School Department of Environmental Medicine
REVIEW RETURNED	01-Feb-2020

GENERAL COMMENTS	Thanks so much for accepting to improve your paper regarding the comment from reviewers
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REVIEWER	Krzysztof Goniewicz Polish Air Force Academy
REVIEW RETURNED	27-Jan-2020

GENERAL COMMENTS	Thank you for the revised version, which has incorporated my comments and suggestions.
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