

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)	Factors Influencing Receipt of an Antibiotic Prescription Among Insured Patients in Tanzania: A Cross-sectional Study
AUTHORS	Khalfan, Mohamed; Sasi, Philip; Mugusi, Sabina

VERSION 1 – REVIEW

REVIEWER	Luis Paredes, Jose Universidad Peruana Cayetano Heredia, Av honorio delgado
REVIEW RETURNED	06-May-2022

GENERAL COMMENTS	<p>Thsnk you for your study. It is a very important topic and you have important findings. However, there are some issues that need to be addressed to improve the quality of your work.</p> <p>1. In your key messages you refer to "lower qualifications". This should be reformulated.</p> <p>1. Abstract: I believe that you need to describe better the source of the data. I understsnd that it arises from claims but the time frame is not stated and it is not clear how the process of the claims is done. Also, it is not clear why to use OR instead of PR if the prevalence of your outcome is hiher than 10/20%.</p> <p>INTRODUCTION</p> <p>Line 69. Typo on "humana" Line 69. The isolates derived from whom? If it is from health care workers or from children, the interpretation would be different. Line 82. What is the purpose of mentioning the one health approach if your study is about humans. Line90. I would write the justification before the aims.</p> <p>MATERIALS AND METHODS</p> <p>Lines 96-102. I think that it is important to describe how the claims are done. Who has access to them and which percentage of users submit claims.</p> <p>Line 126. Explain what do you mean by "when appropriate". Lines 127-129. The reader should be able to understand how the multivariable model was built. Do you include every single factor from univariable analysis? did you use a cut-off value for including values? was it a stepwise regression model?</p> <p>RESULTS</p> <p>Line 138. Explain in the methods how you cathegorized adults. Also you can rephrase it to: Most participant were adults (n=535, 54%). That phrasing could be used for the rest of the sentences.</p>
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	<p>Line 141. What do you mean by national level? Lines 145-151. This is confusing. Why are you mentioning hypertension if your paper is about antibiotic use. Maybe just include this data as an appendix. Line 153. I recommend making comparisons with percentages in the other categories. You are describing the percentage of children receiving antibiotics, but not the percentages for the other categories. Line 157. I think that the language should be revised, "lower qualifications" does not seem appropriate. I would rephrase it. Line 167. This could be an appendix. It is confusing to include all this information if your study is about antibiotics. Line 169. I would rephrase it from "independent predictors" to "factors associated with". Line 177. It is not the probability, it is the odds of receiving antibiotics.</p> <p>Lines 170-195. Overall I think that you need to reconsider your analysis. You need to define how you constructed your multivariable analysis and make it clear in the table what you adjusted for. What does L1, L2 and L3 mean. In Table 3. Are we adjusting for the other diseases or for some factors such as age and/or gender. What is the rationale for adjusting for other diseases. How would be the interpretations for these findings.</p> <p>DISCUSSION. Line 200. I would start by highlighting the most important findings from your research. Line 215. Do you routinely take cultures for acute URTI? And if so, do you perform antimicrobial sensitivity testing for every person with an acute URTI? What do the national guidelines say? Line 227. Again, I believe that the terms "less qualified" and "lower level" are very pejorative, this should be rephrased. Line 277. I would expand more on the limitations and how you tried.</p>
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REVIEWER	Asmamaw, Getahun Arba Minch University, Pharmacy
REVIEW RETURNED	13-May-2022

GENERAL COMMENTS	<p>Comments for the author I appreciate the objective of this study could help to understand context of problem in Tanzania and model for future studies in the country as well as outside the border, particularly in African settings. But I do have some suggestions which only need minor revision. I believe it will benefit to strengthen your article.</p> <p>Abstract Objective Better to briefly describe the statement problem for selecting study groups (insured) and/or focus on why it is so important to do such study among insured patients. I think, it would make your objective clearer and understand your context of study</p> <p>Method, result and conclusion Some abbreviations were placed without a word or phrase. I think abbreviations should come with phrase/words when comes for the first time even though it was stated in the body of manuscript</p> <p>Materials and methods I suggest to state the rationale of focusing on antibiotics prescription to patients insured instead of another patient group. I believe, It will strength the finding values of the study.</p>
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	<p>Since your study aimed on factors associated with antibiotics prescriptions, you should specify the sources and /or your rationale to select the possible factors. For example, you could express (... were selected on the theoretical basis of similar studies/any reason you considered....)</p> <p>Result The table and figures are not linked that made challenging to cross check the narration with the tables and figures</p> <p>Discussion I have not observed enough statements of comparison of your findings with local, continental as well as global evidences thorough the discussion session. I believe it will help the reader what new information you provide and understand the implications you have discussed.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1 comment 1: In your key messages you refer to "lower qualifications". This should be reformulated.

Response: We agree. This phrase has been reformulated in the main text as the editors have commented to remove key messages as it is not part of the BMJ format

Reviewer 1 comment 2: Abstract: I believe that you need to describe better the source of the data. I understand that it arises from claims but the time frame is not stated and it is not clear how the process of the claims is done. Also, it is not clear why to use OR instead of PR if the prevalence of your outcome is higher than 10/20%.

Response: The claim forms contain inpatient and outpatient information filled by healthcare providers for the month of September 2019 and submitted to the insurance fund for reimbursement. Corrected and bolded in the text. As for the use of OR instead of PR for this prevalent binary outcome, we acknowledge the limitation of our choice and we have re-analyzed our data so as to compute Prevalence Ratio (PR) instead of odds ratio

Reviewer 1 comment 3: Line 69. Typo on "humana"

Response: Corrected. See attachment

Reviewer 1 comment 4: Line 69. The isolates derived from whom? If it is from health care workers or from children, the interpretation would be different.

Response: It is the isolate from inpatients and outpatients attending a tertiary healthcare facility. Corrected in text and bolded

Reviewer 1 comment 5: Line 82. What is the purpose of mentioning the one health approach if your study is about humans?

Response: We thought One Health Approach has a role to play in antibiotic resistance, especially at the human-animal interface. However, we have rephrased the statement to elaborate our point

Reviewer 1 comment 6: Line90. I would write the justification before the aims

Response: Agreed. We have switched the justification and the study aim. Corrected and bolded. See attachment

Reviewer 1 comment 7: Lines 96-102. I think that it is important to describe how the claims are done. Who has access to them and which percentage of users submit claims?

Response: More information on claim forms and their processing has been added in text and bolded accordingly. See attachment

Reviewer 1 comment 8: Line 126. Explain what you mean by "when appropriate"

Response: We have rephrased the term to be clearer. The meaning has been added and bolded in the text

Reviewer 1 comment 9: Lines 127-129. The reader should be able to understand how the multivariable model was built. Do you include every single factor from the univariable analysis? did you use a cut-off value for including values? was it a stepwise regression model?

Response: We used a cut-off value of $p < 0.2$ to include factors from the univariable analysis to be entered in the multivariable poisson regression model. We did not adjust for specific confounders and we have acknowledged this in our limitations. Corrected and bolded. See attachment

Reviewer 1 comment 10: Line 138. Explain in the methods how you categorized adults. Also, you can rephrase it to Most participants were adults (n=535, 54%). That phrasing could be used for the rest of the sentences

Response: Age categories are explained in the methods and bolded. We have rephrased the rest of the sentences accordingly. Bolded in text. See attachment

Reviewer 1 comment 11: Line 141. What do you mean by national level?

Response: National referral hospital facility. Revised and bolded in the text. See attachment

Reviewer 1 comment 12: Lines 145-151. This is confusing. Why are you mentioning hypertension if your paper is about antibiotic use? Maybe just include this data as an appendix.

Response: Agreed. We have removed this information from the main text

Reviewer 1 comment 13: Line 153. I recommend making comparisons with percentages in the other categories. You are describing the percentage of children receiving antibiotics, but not the percentages for the other categories.

Response: Agreed. Revised, corrected, and bolded in the main text accordingly. See attachment

Reviewer 1 comment 14: Line 157. I think that the language should be revised, "lower qualifications" does not seem appropriate. I would rephrase it.

Response: Agreed. We have rephrased the term throughout in our revision. See attachment

Reviewer 1 comment 15: Line 167. This could be an appendix. It is confusing to include all this information if your study is about antibiotics.

Response: Agreed. We have removed it from the main text.

Reviewer 1 comment 16: Line 169. I would rephrase it from "independent predictors" to "factors associated with".

Response: Agreed. We have rephrased it accordingly.

Reviewer 1 comment 17: Line 177. It is not the probability; it is the odds of receiving antibiotics.

Response: Agreed. Now, we computed the prevalence ratio instead of the odds ratio, and we have changed interpretation throughout the text. See attachment.

Reviewer 1 comment 18: Lines 170-195. Overall, I think that you need to reconsider your analysis. You need to define how you constructed your multivariable analysis and make it clear in the table what you adjusted for. What does L1, L2 and L3 mean.

Response: Agreed. We have re-analyzed our data using Poisson regression analysis with a robust estimator to obtain prevalence ratio. L1, L2, and L3 means level 1 clinic, level 2 clinic, and level 3 clinic. To minimize confusion, we have removed these terms in the text. See attachment

Reviewer 1 comment 19: In Table 3. Are we adjusting for the other diseases or for some factors such as age and/or gender. What is the rationale for adjusting for other diseases. How would be the interpretations for these findings.

Response: We have adjusted for all other variables with a p-value < 0.2 from the univariable analysis. For example, when we were looking for the effect of age on receipt of an antibiotic prescription, we adjusted for all other variables including diagnosis with p < 0.2. We did not adjust for specific confounders and we have acknowledged this methodological limitation. That's why we cautiously interpret our findings

Reviewer 1 comment 20: Line 200. I would start by highlighting the most important findings from your research.

Response: Thanks for this observation. We have revised the start of our discussion. See attachment

Reviewer 1 comment 21: Line 215. Do you routinely take cultures for acute URTI? And if so, do you perform antimicrobial sensitivity testing for every person with an acute URTI? What do the national guidelines say?

Response: No. culture and sensitivity testing is not done routinely. The national guideline is not recommending that. That's why we are recommending for its establishment and strengthening. Bolded in text. See attachment

Reviewer 1 comment 21: Line 227. Again, I believe that the terms "less qualified" and "lower level" are very pejorative, this should be rephrased.

Response: Agreed. Rephrased accordingly as from the previous comment

Reviewer 1 comment 21: Line 277. I would expand more on the limitations and how you tried.

Response: We have expanded more on strengths and limitations of our study. See attachment

RESPONDING TO REVIEWER 2 COMMENTS

Reviewer 2 comment 1: ABSTRACT: Objective: Better to briefly describe the statement problem for selecting study groups (insured) and/or focus on why it is so important to do such study among insured patients. I think, it would make your objective clearer and understand your context of study
Response: We have revised and summarized the objective section so as not to exceed the 300-word limit for the abstract. We would have liked to include the statement problem.

Reviewer 2 comment 2: ABSTRACT: Method, result and conclusion: Some abbreviations were placed without a word or phrase. I think abbreviations should come with phrase/words when comes for the first time even though it was stated in the body of manuscript

Response: Agreed. We have pre-defined the abbreviation on the first use. See attachment

Reviewer 2 comment 3: I suggest to state the rationale of focusing on antibiotics prescription to patients insured instead of another patient group. I believe, It will strength the finding values of the study. Since your study aimed on factors associated with antibiotics prescriptions, you should specify the sources and /or your rationale to select the possible factors. For example, you could express (.... were selected on the theoretical basis of similar studies/any reason you considered....)

Response: Agreed. More information on the rationale on selecting insured patients as our study population and sources of possible factors has been added

Reviewer 2 comment 4: The table and figures are not linked that made challenging to cross check the narration with the tables and figures

Response: Tables are intext whereas the figures are after the references. We think we have cited them appropriately

Reviewer 2 comment 5: I have not observed enough statements of comparison of your findings with local, continental as well as global evidences thorough the discussion session. I believe it will help the reader what new information you provide and understand the implications you have discussed.

Response: We have added new comparisons. Bolded in text. However, there is a paucity of data specifically related to factors among insured patients.

VERSION 2 – REVIEW

REVIEWER	Asmamaw, Getahun Arba Minch University, Pharmacy
REVIEW RETURNED	03-Sep-2022
GENERAL COMMENTS	I appreciate you openness to reviewer comments to improve the paper