

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Standard Precaution Practice and Associated Factors among Health Professionals Working in Addis Ababa Governmental Hospitals, Ethiopia: A cross-sectional study using Multilevel Analysis
<b>AUTHORS</b>	Angaw, Dessie; Gezie, Lemma Derseh; Dachew, Berihun

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Azeb Gebresilassie Tesema, Research Associate The George Institute for Global health, Australia
<b>REVIEW RETURNED</b>	17-May-2019

<b>GENERAL COMMENTS</b>	<p>Overall, the authors tried to assess an important research gap in health facility service provision in Ethiopia and I would like to appreciate for their effort. However, the study was conducted in 2015 and the standard precaution practices presented in this paper may deviate from the current practices due to routinely implemented health facility improvement activities. The authors need to explain what kind of facility improvement activities were done afterward and how likely the current findings affected by those actions. With this major consideration, still the manuscript requires further work especially on the following areas/points.</p> <p>Comments on the title:</p> <ul style="list-style-type: none"><li>• It is not a common practice to write the data collection method in the title (cross-sectional questionnaire survey) and it would be good the authors remove this.</li></ul> <p>Comments on the abstract</p> <ul style="list-style-type: none"><li>• In line 34, the phrase “response for reported incidences” is not clear and it is good if it replaced by “measure for reported incidences”. Nevertheless, this finding is not included in the main body of the results that the authors need to be consistent in presenting findings in the abstract and always drive from the main body of the results.</li><li>• In 1st bulletin of the strengths and limitations section, the last word ‘and’ need to be removed</li></ul> <p>Comments on the Background</p> <ul style="list-style-type: none"><li>• In line 43, eighty eight percent (88%), the bracket does not have any importance and the author need to present findings in an informative way.</li><li>• In page 5, line 8 the sentence need editing, especially the name of cities not properly written.</li><li>• Generally, the background lack sufficient argument why the study was needed and why health care worker’s standard precaution adherence is important to reduce hospital-acquired infection. Most importantly, the authors didn’t cited the few studies done before (in page 5, line 11) and didn’t properly argue the need</li></ul>
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	<p>for the current study. Eg. there is a similar study done by Biniyam et al and what new things added because of the use of multilevel analysis <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016341/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016341/</a></p> <ul style="list-style-type: none"> <li>• Consistent use of terms like health professional vs health care workers is needed throughout the paper.</li> </ul> <p>Comments on the method</p> <ul style="list-style-type: none"> <li>• Page 7, line 8-10 while the authors describing about hospital level variables, they listed ‘ self-reported practice on standard precaution” as one variable. However, the outcome of interest is the standard precaution practice itself and the author need to see this again.</li> <li>• Page 7, line 31, the use of abbreviation, SPP, is not informative. Abbreviations with its description need to be presented in the first use.</li> <li>• In the data management and analysis section, the presentation of ideas lack natural and practical flow. The last sentence about data coding (line 35) should come before the data analysis plan.</li> <li>• Paragraph spacing and editorial correction is needed in this section as well.</li> <li>• The Authors did not provided enough description on how they measured some of the independent variables, for instance no measurement was presented on the attitude variable.</li> </ul> <p>Comments on the results</p> <ul style="list-style-type: none"> <li>• The use of ‘SPP’ abbreviation is random and Authors need to work on this.</li> <li>• Starting sentence with numbers and prepositions need to be modified throughout</li> </ul> <p>Comments on the discussion</p> <ul style="list-style-type: none"> <li>• In the 1st paragraph of the discussion section, line 10, the study mentioned from Northern Ethiopia lack citation. In the same paragraph, the justification for varied findings probably don't make a sense and need a detail argument/explanation why the findings were different(the same is true for the others justification explained by the authors, which need further work)</li> <li>• It is not a common practice to present new findings in the discussion section that didn't shown up in the result section. Eg. no finding about glove use and needle recapping in the result section which you tried to discuss in this section.</li> <li>• Generally, the discussion should depend on the empirical findings presented in the result section and the argument should be based on the scientific evidences or authors experiences. Hence, this section need major modification in terms of scientific arguments, flow of writing and proper citation of used literatures.</li> </ul> <p>Conclusion</p> <ul style="list-style-type: none"> <li>• The conclusion could be interesting if further interpretations provided and authors see the infection prevention guideline and other hospital guidelines to summarize the implication of this study in achieving the standards.</li> </ul> <p>In terms of paper write-up, considerable editing is needed to improve use of language. Moreover, the manuscript have significant typographic errors that need further works throughout the paper.</p>
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<b>REVIEWER</b>	Mohammad Tahir Yousafzai Aga Khan University Pakistan
<b>REVIEW RETURNED</b>	19-May-2019

<p><b>GENERAL COMMENTS</b></p>	<p>This study aimed to assess standard precautions and its determinants among healthcare workers in public sector hospitals of Addis Ababa Ethiopia. The study is important as non-compliance with standard precautions among healthcare workers in the developing countries is growing concern of global public health. The study requires some major revisions before this can be accepted for publication in this journal.</p> <p>Revisions:</p> <ol style="list-style-type: none"> <li>1. The manuscript requires proofreading and corrections by a native English speaker. There is a number of errors in sentence structure and grammar.</li> <li>2. Abstract: please include a brief statement regarding the data collection tool especially measurement of standard precautions in the method section.</li> <li>3. Article summary: one of the major limitations of this study is the measurement of standard precautions using unvalidated tool. There are validated tools available or at least some of the researchers have validated such tools in US and developing countries which could have been requested and used rather than using unvalidated tool. This can be added as a limitation at this stage.</li> <li>4. Methods: some more details are needed e.g.       <ol style="list-style-type: none"> <li>a. Sampling frame: What was the total sampling frame in all of those 8 hospitals from which the authors recruited the required number of study participants.</li> <li>b. Inclusion and exclusion criteria: What was the inclusion and exclusion criteria used for the selection of the required number of study participants.</li> <li>c. Sampling technique: What sampling technique was used by the authors to select and enroll the study participants in this study. Was this a convenient kind of sampling or random sampling. Also, how did the authors approach the study participants for inclusion into the study.</li> <li>d. Sample size calculation: The authors have not provided any statistical details such as assumptions for the calculation of the sample size. Please provide all these details to justify that the required minimum sample size used in this study.</li> <li>e. Data collection tool: The authors need to provide more details about the data collection tool especially about the measurement of attitude and/or any other variables along with the standard precautions. Also, the authors should include the data collection tool as an appendix or supplementary material with this manuscript.</li> <li>f. Reliability assessment of the data collection tool: The authors are suggested to perform reliability assessment of their data collection tool especially the tool for measuring the standard precautions. Cronbach's alpha score should be reported.</li> </ol> </li> <li>5. Discussion: The authors have not provided sufficient literature to compare their findings and explain their results further. Please provide some more literature from the developing countries to compare and contrast and explain your results.</li> </ol>
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## VERSION 1 – AUTHOR RESPONSE

Reviewer 1 (Azeb G/Selassie)

Comments on title

1. It is not a common practice to write the data collection method in the title (cross sectional questionnaire survey) and it would be good the authors remove this

Authors response: Dear reviewer thank you for the informative comment. Of course, according to the journal style, the title needs to include the design of the study. Therefore, after your valuable comment, we have modified the title in such a way that it reflects the design of the study than the data collection methods. We have also mentioned the method of analysis of course.

Comments on the abstract

2. In line 34, the phrase “response for reported incidences” is not clear and it is good if it replaced by “measure for reported incidences”.

Authors response: Dear reviewer, Thank you for your concern. We replaced response for reported incidences by measure for reported incidences (see abstract, result part, line 6).

□ Nevertheless, this finding is not included in the main body of the results that the authors need to be consistent in presenting findings in the abstract and always drive from the main body of the results

Authors response: Dear reviewer, thank you for your concern. The variable was available in the result part, table 3, page 13, under hospital level variables, raw 3 second variable with the name of ‘do not give solution for incidents’ and now (after your constructive comment) it is replaced with ‘measure for reported incidences’.

3. In 1st bulletin of the strengths and limitations section, the last word ‘and’ need to be removed

Authors response: it is done accordingly at the main document (see page 3, article summary)

Comments on the Background

4. In line 43, eighty eight percent (88%), the bracket does not have any importance and the author need to present findings in an informative way.

Authors response: the bracket (88%) is removed from the main document (see page 4, paragraph 3, line 3)

5. In page 5, line 8 the sentence needs editing, especially the name of cities not properly written.

Authors response: accordingly, it is edited (page 5, 1st paragraph, line 5-9)

6. Generally, the background lack sufficient argument why the study was needed and why health care worker’s standard precaution adherence is important to reduce hospital-acquired infection. Most importantly, the authors didn’t cite the few studies done before (in page 5, line 11) and didn’t properly argue the need for the current study. Eg. there is a similar study done by Biniyam et al and what new things added because of the use of multilevel analysis

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016341/>

Authors response: dear reviewer thank you very much for your comments. After your valuable comment, we checked the document and found that it lacks some argument on the significance of adherence towards standard precaution practice for health professionals. Therefore, we tried to address the issues on the main document (background, page 5, paragraph 1, line 1-2).

6.1. The background lacks sufficient argument why the study was needed.

Authors response: Dear reviewer thank you for your concern. regarding to this issue there is already in the main document (see page 5, paragraph 2 &3).

6.2. authors didn’t cite the few studies done before

Authors response: done accordingly

6.3. there is a similar study done by Biniyam et al and what new things added

because of the use of multilevel analysis

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016341/>

Authors response: we reviewed the article you mentioned which is done in Addis Ababa Governmental health care facilities. We really appreciate the work. However, there are some additional useful findings that are reported by our work. For example, our finding can give a clue for readers or policy makers about the effect of hospital level variable on the standard precaution practice (it addresses ecological fallacy) and individual level effect on the outcome (avoid atomistic fallacy) separately as well as jointly. Additionally, the population in the two studies are different. In our study, populations (health professional) were those who were working only governmental hospitals, whereas, the study you mentioned included private hospitals. Moreover, the sample size in our study is also large and hence it would be more representative for hospital workers (has good power)

7. Consistent use of terms like health professional vs health care workers is needed throughout the paper.

Authors response: Thank you dear reviewer. it is edited as health professionals throughout the whole document.

Comments on the method

8. Page 7, line 8-10 while the authors describing about hospital level variables, they listed 'self-reported practice on standard precaution' as one variable. However, the outcome of interest is the standard precaution practice itself and the author need to see this again.

Authors response: we really appreciate your detail observation of the whole document. self-reported practice on standard precaution is our interest of an outcome. We consider it as one variable which was measured or scored. Since it may be confusing the readers we removed from the list (see page 7, paragraph 2, line 1-3).

9. Page 7, line 31, the use of abbreviation, SPP, is not informative. Abbreviations with its description need to be presented in the first use.

Authors response: it is edited as Standard precaution practice (SPP) in the document (see page 7, paragraph 2, line 5-7, yellow color on track version)

10. In the data management and analysis section, the presentation of ideas lacks natural and practical flow. The last sentence about data coding (line 35) should come before the data analysis plan.

Authors response: Thank you very much for your concern. it is edited accordingly (see page 8, under Data management and analysis, line 1-2)

11. Paragraph spacing and editorial correction is needed in this section as well

Author response: done accordingly

12. The Authors did not provide enough description on how they measured some of the independent variables, for instance no measurement was presented on the attitude variable

Author response: dear reviewer, thank you very much for your constructive comments. We incorporated how the attitude of respondents were measured (see page 7, paragraph 3, line 1-6)

Comments on the results

13. The use of 'SPP' abbreviation is random and Authors need to work on this.

Authors response: we did accordingly

14. Starting sentence with numbers and prepositions need to be modified throughout

Authors response: Done accordingly

Comments on the discussion

15. In the 1st paragraph of the discussion section, line 10, the study mentioned from Northern Ethiopia lack citation. In the same paragraph, the justification for varied findings probably don't make a sense and need a detail argument/explanation why the findings were different (the same is true for the others justification explained by the authors, which need further work)

Authors response: Dear reviewer thank you for your constructive comment. We have done both citation and possible justification accordingly (see page 15, discussion part, paragraph 1, line 3-5)

16. It is not a common practice to present new findings in the discussion section that didn't shown up in the result section. Eg. no finding about glove use and needle recapping in the result section which you tried to discuss in this section.

Author response: Really thank you. The finding related to glove used and sharp management were missed during manuscript preparation. By now I have incorporating in the result part with text form (see page 11, under Standard precaution practice, paragraph 1, line 2-4).

REVIWER 2 (Mohammad Tahir Yousafzai)

1. The manuscript requires proofreading and corrections by a native English speaker. There is a number of errors in sentence structure and grammar.

Author response: Dear reviewer thank you for your concern. We did it accordingly. After fluent English speaker has read and correct it, we all authors also correct the grammars and some other errors of the whole document.

2. Abstract: please include a brief statement regarding the data collection tool especially measurement of standard precautions in the method section.

authors response: Dear reviewer thank you very much for your constructive comments. brief statement regarding to the data collection tool measurement for standard precaution is added in the abstract method section (see page 2, abstract, method section, line 4-7). For the other variables like attitude is briefly described in the method part under data collection tools and quality control issues (see page 7 paragraph 3).

3. Article summary: one of the major limitations of this study is the measurement of standard precautions using unvalidated tool. There are validated tools available or at least some of the researchers have validated such tools in US and developing countries which could have been requested and used rather than using unvalidated tool. This can be added as a limitation at this stage. Authors response: we did it accordingly (see summary part, last bulletin).

4. Methods: some more details are needed e.g.

4.1. Sampling frame: What was the total sampling frame in all of those 8 hospitals from which the authors recruited the required number of study participants.

Authors response: Dear reviewer great thanks for your comment. It is incorporated in the method part. (see page 6, method part, under Study setting, study design, participants and sampling procedure, the whole paragraph, especially line 8-12).

4.2. Inclusion and exclusion criteria: What were the inclusion and exclusion criteria used for the selection of the required number of study participants.

Authors response: Thank you for your concern. The inclusion is already available in the document (see page 6, method part, under Study setting, study design, participants and sampling procedure, line 2-4). Based on your input concerning the exclusion criteria we addressed in the main document. (see page 6, method part, under Study setting, study design, participants and sampling procedure, line 4-5)

4.3. Sampling technique: What sampling technique was used by the authors to select and enroll the study participants in this study. Was this a convenient kind of sampling or random sampling. Also, how did the authors approached the study participants for inclusion into the study

Authors response: Dear reviewer thank you for your concern (see page 6, method part, under Study setting, study design, participants and sampling procedure, line 8-12)

4.4. Sample size calculation: The authors have not provided any statistical details such as assumptions for the calculation of the sample size. Please provide all these details to justify that the required minimum sample size used in this study.

Authors response: really thank you for the comment. Relevant detail information is added based on the comment as follow: However, those health professionals who were severely ill to fill the questionnaire were excluded from the study. The sample size was determined by using single

population proportion formula with the assumptions of 95% confidence level ( $Z= 1.96$ ), margin of error 5%, proportion 42.9 % (19), design effect 2 and 15% non-response rate (9). (see page 6, method part, under Study setting, study design, participants and sampling procedure, line 4-8).

4.5. Data collection tool: The authors need to provide more details about the data collection tool especially about the measurement of attitude and/or any other variables along with the standard precautions. Also, the authors should include the data collection tool as an appendix or supplementary material with this manuscript.

Authors response: done accordingly (see page 7, paragraph 3). Regarding to data collection tool, the English version is attached as supplementary material for the editor

4.6. Reliability assessment of the data collection tool: The authors are suggested to perform reliability assessment of their data collection tool especially the tool for measuring the standard precautions. Cronbach's alpha score should be reported.

Author response: Dear reviewer I really thank you for your comment. It is Incorporated in the main document as follow: The reliability coefficient for knowledge, attitude, and practice items had a Cronbach's Alpha of 0.732, 0.725 and 0.797, respectively. (Page 7, paragraph 2, line 4-5)

5. Discussion: The authors have not provided sufficient literature to compare their finding and explain their results further. Please provide some more literature from the developing countries to compare and contrast and explain your results.

Authors response: it is done accordingly. We incorporated some studies which were conducted since 2015 and before.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Mohammad Tahir Yousafzai Aga Khan University, Karachi, Pakistan
<b>REVIEW RETURNED</b>	26-Aug-2019
<b>GENERAL COMMENTS</b>	The authors have sufficiently addressed all my review comments. The revised manuscript is acceptable for publication.