PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Attitudes of pharmacy students towards patient safety: a cross-sectional study from six developing countries
AUTHORS	Naser, Abdallah; Alsairafi, Zahra; Awaisu, Ahmed; Alwafi, Hassan; Awwad, Oriana; Dahmash, Eman; Hussain, Salman; Alyami, Hamad; Alsharif, Alaa; Singh, Avinash; Jeragh-Alhaddad, Fatima; Kautsar, Angga; AbuAlhommos, Amal

VERSION 1 – REVIEW

REVIEWER	R Walpola University of New South Wales, Australia
REVIEW RETURNED	14-May-2020

GENERAL COMMENTS	Thank you for the opportunity to review this manuscript. The authors have done a significant amount of work in collecting such a high volume of data from a number of developing countries which hopefully will be used as part of their strategy to advocate for increased patient safety education within the pharmacy programs in their respective countries. General Feedback: In this study, the authors have calculated an overall patient safety attitudinal score and have in parts amalgamated results from multiple countries. Considering that each country has their own health system and organisational culture, I believe that the manuscript would be much stronger if the authors were to compare the scores for each domain and then draw comparisons between countries rather than use the net score as this approach would advocate for education to be targeted towards the specific areas that need to be addressed rather than an arbitrary score. Specific comments: Introduction: Page 5, Lines 53-60 – Please rewrite this paragraph as the authors' messages are not clear. Methods: Survey Instrument – Considering that the tool consists of a Likert scale ranging from Strongly Disagree to Strongly Agree, the authors need to explain why a score range of 0-4 is used when it would be more logical to assign a score from -2 to +2 based on whether the questions were positively or negatively worded. Validity and reliability – The authors have reported the validity and reliability of the original tool, however, have not explained how they have assessed validity or reliability in their study population. Furthermore, a justification of how the results can be

	amalgamated/compared across countries with different health systems needs to be included. Results: Results presented would change if the general feedback is adopted. Discussion: A more detailed discussion of the results would be beneficial for readers, particularly explaining the variation between countries for each of the domains measured. Page 14, Lines 9-11 – Stating that lower scores in senior students is dues to lack of formal teaching is not necessarily true. The literature highlights the professional socialisation plays a big role in shifting students' and interns' attitudes and as such this would be more likely to impact this. – see Am J Pharm Educ. 2017 Feb 25;81(1):5. doi: 10.5688/ajpe8115. Conclusion: The comments about the lack of research regarding the attitudes and implications for practice are not necessarily true. This has been studied in a number of student and professional populations and is understood. Please revise this statement. Ethics Approval: Please state the HRECs that were used to obtain ethical clearance.

REVIEWER	Peter James University of Technology Sydney, NSW , Australia
REVIEW RETURNED	15-Jun-2020

GENERAL COMMENTS	The authors have presented an interesting study on the attitude of pharmacy students towards patient safety. However, there are major issues that need to be addressed to improve this manuscript. 1. INTRODUCTION a) It will be good if the authors can provide the nature of the pharmacy curriculum in each of the countries as it relates to patient safety. Readers will want to know whether patient safety modules or courses are offered in the universities considered in this study. If so, at what level of study are they taught? METHOD a) Can the authors explain why it was not feasible to determine the sampling frame in each of the participating countries? b) The authors mentioned that the calculated Cronbach's alpha value of the questionnaire used in their study. Can the authors provide results for this analysis? c) Can the authors provide the ethical approval number or ID if possible of the various universities? RESULTS a)Table 4: It will be good if the authors to provide data for the comparator. for example B and SE figures for males DISCUSSION a) The authors focussed more on discussing the implications of findings from other studies without discussing the implications of the findings from their study. That should be the focus of their discussion. One key finding that is missing and not discussed is whether attitude varies among pharmacy student from the different countries consider in the study. intercountry variation exists what is

	the possible explanation. which countries show a more positive attitude than the other and why? b) Page 12 Lines 53-56: It is possible that no evidence exists that explains the gender difference in attitude. However, the authors need to proofer logical explanation or hypothesis that may explain these findings. c) Page 13 Lines 5-11: "This could be justified because some health care students believe that patient safety issues cannot be taught and can only be learned through clinical experience when qualified 48. This incorrect belief could have arisen among the students due to a lack of formal teaching that has led to the reluctance to adopt patient safety practices. These results are inconsistent with another study's results among pharmacy students in Ethiopia 47". These two above sentences contradict each other. if the student thought that patient safety issues cannot be taught but can be learnt through post-graduation experience then how can such perception be explained by lack of formal teaching on this subject? c)

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: R Walpola
Institution and Country: University of New South Wales, Australia
Please state any competing interests or state 'None declared': None

Please leave your comments for the authors below
Thank you for the opportunity to review this manuscript. The authors have done a significant amount of work in collecting such a high volume of data from a number of developing countries which hopefully will be used as part of their strategy to advocate for increased patient safety education within the pharmacy programs in their respective countries.

General Feedback:
In this study, the authors have calculated an overall patient safety attitudinal score and have in parts amalgamated results from multiple countries. Considering that each country has their own health system and organisational culture, I believe that the manuscript would be much stronger if the authors were to compare the scores for each domain and then draw comparisons between countries rather than use the net score as this approach would advocate for education to be targeted towards the specific areas that need to be addressed rather than an arbitrary score.

- The scores for each domain stratified by country is now added to the manuscript in pages 11 (lines 261 – 267) and 13.

Specific comments:
Introduction:
Page 5, Lines 53-60 – Please rewrite this paragraph as the authors' messages are not clear.

- The paragraph is now rewritten to make it clearer in page 5, lines 138 – 143.

Methods:
Survey Instrument – Considering that the tool consists of a Likert scale ranging from Strongly Disagree to Strongly Agree, the authors need to explain why a score range of 0-4 is used when it would be more logical to assign a score from -2 to +2 based on whether the questions were positively or negatively worded.

- As Walpola et al. adapted their survey instrument based on the Patient Safety/Medical Fallibility Curriculum Survey that was developed by Madigosky et al., we referred to the original instrument's

scoring procedure (the instrument developed by Madigosky et al.) and found that they did not assign a score that is below zero and they have used a five point Likert scale that ranged between 1 to 4. Therefore, we did not assign a negative score for the responses “strongly disagree and disagree” [Reference: Madigosky WS, Headrick LA, Nelson K, Cox KR, Anderson T. Changing and sustaining medical students' knowledge, skills, and attitudes about patient safety and medical fallibility. Acad Med. 2006;81(1):94-101.doi:10.1097/00001888-200601000-00022]. In addition, we presented the score for each subscale and for the overall scale out of 100% to make it easier for comparison with other studies.
Beside this, negatively worded questions were reversely scored during the analysis, where 0 meant “strongly agree” and 4 meant “strongly disagree”.

Validity and reliability – The authors have reported the validity and reliability of the original tool, however, have not explained how they have assessed validity or reliability in their study population. Furthermore, a justification of how the results can be amalgamated/compared across countries with different health systems needs to be included.
- We have now mentioned in the “Method section” under the sub-heading “Pre-testing of the questionnaire” the details of the piloting study that we have conducted prior to start the questionnaire distribution on the large scale among all countries. In addition, we assessed the internal consistency of the original questionnaire using Cronbach’s alpha measures among the pilot study sample, please refer to page 7 lines 214 – 218.

Results:

Discussion:
A more detailed discussion of the results would be beneficial for readers, particularly explaining the variation between countries for each of the domains measured.

- We have now further discussed the variation between countries for each domain in the discussion part in page 16, lines 345 – 375.
Page 14, Lines 9-11 – Stating that lower scores in senior students is dues to lack of formal teaching is not necessarily true. The literature highlights the professional socialisation plays a big role in shifting students’ and interns’ attitudes and as such this would be more likely to impact this. – see Am J Pharm Educ. 2017 Feb 25;81(1):5. doi: 10.5688/ajpe8115.

- We have highlighted this point in the discussion in page 17, lines 380 – 385.

Conclusion:
The comments about the lack of research regarding the attitudes and implications for practice are not necessarily true. This has been studied in a number of student and professional populations and is understood. Please revise this statement.

- We have now revised the statement in page 19, lines 446 – 447.

Ethics Approval:
Please state the HRECs that were used to obtain ethical clearance.
- We have now added the full name of each ethics committee that approved our study in the submission system and the manuscript in page 21, lines 506 - 509.

Reviewer: 2
Reviewer Name: Peter James
Institution and Country: University of Technology Sydney, NSW , Australia
Please state any competing interests or state ‘None declared’: None

Please leave your comments for the authors below
The authors have presented an interesting study on the attitude of pharmacy students towards patient safety. However, there are major issues that need to be addressed to improve this manuscript.

1. INTRODUCTION
a) It will be good if the authors can provide the nature of the pharmacy curriculum in each of the countries as it relates to patient safety. Readers will want to know whether patient safety modules or

courses are offered in the universities considered in this study. If so, at what level of study are they taught?
- We have now add background information about the nature of the pharmacy curriculum in each of the countries as it relates to patient safety in pages 4 and 5, lines 122 – 132.
METHOD
a) Can the authors explain why it was not feasible to determine the sampling frame in each of the participating countries?

- Unfortunately, we did not count the number of students who received an invitation for participation in this study. Therefore, we were not able to estimate the response rate for our questionnaire study, which might lead to non-response bias, as we could not demonstrate how well the sample drawn from the population of interest.
b) The authors mentioned that the calculated Cronbach's alpha value of the questionnaire used in their study. Can the authors provide results for this analysis?
- The Cronbach's alpha analysis results are available in page 7, lines 211 – 213.
c) Can the authors provide the ethical approval number or ID if possible of the various universities?
- We have now added the full name of each ethics committee that approved our study in the submission system and the manuscript in page 21, line2 506 - 509.

RESULTS
a)Table 4: It will be good if the authors to provide data for the comparator. for example B and SE figures for males

DISCUSSION
a) The authors focussed more on discussing the implications of findings from other studies without discussing the implications of the findings from their study. That should be the focus of their discussion. One key finding that is missing and not discussed is whether attitude varies among pharmacy student from the different countries consider in the study. intercountry variation exists what is the possible explanation. which countries show a more positive attitude than the other and why?

- We have now discussed further the variation between countries for each domain in the discussion part in page 16, lines 345 – 375.

b) Page 12 Lines 53-56: It is possible that no evidence exists that explains the gender difference in attitude. However, the authors need to proofer logical explanation or hypothesis that may explain these findings.

- We have discussed this point in the discussion part in page 16, lines 342 – 344.

c) Page 13 Lines 5-11: "This could be justified because some health care students believe that patient safety issues cannot be taught and can only be learned through clinical experience when qualified 48. This incorrect belief could have arisen among the students due to a lack of formal teaching that has led to the reluctance to adopt patient safety practices. These results are inconsistent with another study's results among pharmacy students in Ethiopia 47".
These two above sentences contradict each other. if the student thought that patient safety issues cannot be taught but can be learnt through post-graduation experience then how can such perception be explained by lack of formal teaching on this subject?
- We have now rephrased the sentence to make it clearer in page 17, lines 380 – 385.

VERSION 2 – REVIEW

REVIEWER	Peter James University of Technology Sydney, NSW , Australia
REVIEW RETURNED	15-Aug-2020

GENERAL COMMENTS	1. I asked that the authors provide an analysis of the calculated Cronbach's alpha value of the questionnaire used in their study. Their response was not adequate. I was expecting a detailed

	startisitically analysis of how they arrived at calculated Cronbach's alpha value. It will be good for the authors to provide an analysis of the calculated Cronbach's alpha value either in the results section or as a supplementary file. 2. The authors failed to respond to my comment regarding the provision of data for the comparator in Table 4 . for example B and SE figures for males. It will be good that is addressed.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 2
Reviewer Name: Peter James
Institution and Country: University of Technology Sydney, NSW , Australia
Please state any competing interests or state 'None declared': None

Please leave your comments for the authors below

1. I asked that the authors provide an analysis of the calculated Cronbach's alpha value of the questionnaire used in their study. Their response was not adequate. I was expecting a detailed statistically analysis of how they arrived at calculated Cronbach's alpha value. It will be good for the authors to provide an analysis of the calculated Cronbach's alpha value either in the results section or as a supplementary file.
- We would like to thank the reviewer for his comment, we have now added the full details for Cronbach's alpha value for each subscale and for the whole questionnaire as a supplementary file and referred to it in the main document in page 7, line 202. The Cronbach's alpha value was calculated for each subscale separately by entering the items (questions) that belong to the same subscale at the same time to the reliability analysis test in SPSS. For the whole scale we entered all the items (all questions of the questionnaire) at once to the reliability analysis test and calculated the overall Cronbach's alpha value for the whole questionnaire.

2. The authors failed to respond to my comment regarding the provision of data for the comparator in Table 4. for example, B and SE figures for males. It will be good that is addressed.
- We would like to thank the reviewer for his comment. In order to make our Multiple linear regression model clearer for the reader, we have now highlighted the reference categories in our Multiple linear regression model and added the 95% confidence interval.
In Table 4 in the main document while we were presenting the results for the Multiple linear regression analysis we presented the gender as "female" [males were the reference category], year of study [first year was the reference category] in the case of "having prior experience in healthcare" ["No" was the reference category] and "being involved in or witnessed harm to patients while practicing" ["No" was the reference category]. When we calculated the data for the comparator of these dummy variable we found that the B, SE and ß figures are identical to what we reported in Table 4, however, with the opposite of the direction of the relationship, example for clarification:
When we calculated the B, SE and ß figures for the category "females" the values were:
B SE ß
0.96 0.292 0.06**

And when we calculated the B, SE and ß figures for the category "males" the values were:
B SE ß
-0.96 0.292 -0.06**

Which is expected as they are the opposite to each other (dummy variable).

Usually, when authors perform multiple linear regression analysis they use one category as “reference category” and they calculate the B, SE and ß figures for the other category and present it in the manuscript which indirectly give information about the other group [1]. For example, if I am saying that females have better attitudes towards patients’ safety “interpreted based on their attitude score”, then it means that males have worse attitude (compared to females).

References:

1. Institute for Digital Research & Education. REGRESSION ANALYSIS | SPSS ANNOTATED OUTPUT. 2020 October 15, 2020]; Available from: https://stats.idre.ucla.edu/spss/output/regression-analysis/.