

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)	Emergency Nurse Disaster Preparedness during Mass Gatherings: a cross-sectional survey of Emergency Nurses' perceptions in hospitals in Mecca, Saudi Arabia
AUTHORS	ALZHRANI, FUAD; Kyratsis, Yiannis

VERSION 1 - REVIEW

REVIEWER	Dr. Sheila Turris, PhD Vancouver Coastal Health Canada
REVIEW RETURNED	15-Aug-2016

GENERAL COMMENTS	<p>Thank you for the opportunity to review this interesting paper on the disaster preparedness of those working in nursing roles in emergency departments in Mecca. I read the paper with great interest as this topic is important, especially given the annual occurrence of the Hajj.</p> <p>After a careful read and re-read, I do have suggestions to offer, which I hope are helpful.</p> <p>1. General</p> <p>a. Try to keep the language crisp and clear. For example, avoid use of the word "event." Instead use "mass gathering" or "disaster" rather than "disaster event."</p> <p>b. Consider reducing use of "it" and "them" to make things easier for your reader. For example, on Page 6, Line 24 "Despite its importance..." Does "its" represent clinical skills, disaster response knowledge, etc?</p> <p>c. Consider switching out the noun "casualties" for "fatalities." For example, staff in the hospital won't be able to prevent casualties (which have already occurred), but they may be able to prevent fatalities (after the patients arrive in the ED).</p> <p>d. Consider rewording question 1 on Page 7. What is a "mass gathering disaster event?"</p> <p>e. Lots of randomly missing punctuation (e.g., Table 4) and spacing issues (e.g., Page 14, Lines 47 and 51), which I am sure will get adjusted during the production process.</p> <p>f. Page 15, Line 24; consider exchanging the phrase "flicked through" to "flipped through."</p> <p>g. Page 17, Line 32; consider using "national investment" versus "country investment."</p> <p>2. Methodology</p> <p>a. Consider specifically outlining for the reader what you mean by "Emergency Nurse." You have included "nurse technicians," "nursing specialists," and "nurses' aides" in the sample. What are these roles (e.g., educational preparation, scope of practice, etc)? You might highlight the fact that you surveyed a heterogeneous group (e.g., not</p>
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“registered nurses” only) in the limitations section as this has some implications in terms of applicability in other settings.

b. You mention that more than 50% of nurses in Saudi are from other countries; what percent of the study sample were educated outside of Saudi Arabia? Potentially the sample for this study is an unusual group given the proportion of participants in nursing-type roles, educated in other countries.

c. The study was developed based on related published studies. Would you provide a bit more information about study development? For example, how was face validity addressed?

d. You piloted the survey in a single hospital. Were changes made following the pilot?

e. You cite a 30% response rate. How do you think the missing data (e.g., Table 3) may have affected the results?

3. Specific Content

a. Consider adding a few lines describing the Hajj for readers unfamiliar with this mass gathering.

b. Consider defining “disaster” as you have defined “mass gathering.”

c. What is the Saudi Red Crescent? Your readers will want to know.

d. Are you able to provide a link for your readers with regard to the Saudi Emergency Management Course? Or, could you insert a couple of additional lines of description?

e. In the interests of clarity, try and separate when you are writing about disasters/disaster response from when you are writing about mass gatherings (or both). For example, on Page 5, Line 28, “Studies in this area suggest that a number of factors influence the ability of nurses to respond to MGs. Disaster education...” You then cite studies on disaster response preparedness (rather than studies about disaster response specifically in the setting of MGs; see next point).

f. Perhaps open the section on the literature review with the paragraph from Page 6, Line 24-30. Then it will make sense that the studies you cite address disaster preparedness in general rather than disaster preparedness vis a vis MGs.

g. On Page 7, line 51, consider rewording the sentence “potential risk for acute emergency medical and general clinical care” (e.g., could change to something more straightforward such as “...potential risk for a disaster to occur”).

h. I was surprised that there was no mention of tabletop drills or disaster training through field exercises.

i. This reader struggled a bit with the paragraph on Page 18, Lines 18-34. Interested to read about “Hajj medicine;” not sure that it is axiomatic this emerging field means that Saudi Emergency Nurses are the best trained group. Also, at the moment this statement appears to contradict your earlier conclusions that the general knowledge base about disasters was lacking for this group of participants.

j. Page 19, Line 26. By all means abbreviate “Emergency Nurses” to “ENS” just not so late in the paper...

k. Conclusions. Much of the content in the conclusions section could be moved into the discussion (e.g., all of Page 21).

l. On Page 20, Line 22-27 feels a bit strongly stated. Perhaps soften the language a bit to “suggests” rather than “highlights” given the fact that there were many missing responses in Table 3.

REVIEWER	Michael J Drescher Beilinson Hospital Rabin Medical Center Petah Tikvah Israel
REVIEW RETURNED	18-Aug-2016

GENERAL COMMENTS	<p>The concept of evaluating the preparedness of emergency nurses for mass gatherings in general and of the Hajj in particular is a worthy endeavor. I believe however that this paper is overly ambitious in that it attempts to assess perceptions of the ENs of their preparedness (relatively easy to do) as well as to objectively assess their actual preparedness which is a much more difficult objective to achieve. As to the latter, it is unclear how these questions were chosen (table 2) and whether they form a valid set by which to judge the general knowledge of ENs on this topic. Furthermore it is not clear what the correct answers actually are. The authors state that "only one in five (20.6%) correctly responded that un-buried dead bodies would create a disease epidemic following an MG disaster." This implies that the correct answer is that dead bodies create disease, a concept not currently accepted. see http://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa8/en/</p> <p>And further "only one in six (16.3%) responded correctly that all victims of a chemical biological radiological (CBR) incident will have dangerous substances removed at the scene of an incident..."</p> <p>Even were the correct answers clarified it is not clear that this is an adequate test of knowledge to draw far reaching conclusion. The perception of the ENs of their role in a mass gathering is straightforward.(table 3)</p> <p>The ENs understanding of their role (table 4) is an interesting description of the nurses perception of their role (the third row in the table is duplicated by mistake)</p> <p>Regarding the statement of the objectives of the paper, the first objective (page 7) states: "1) To assess the level of awareness and knowledge unsuccessfully responding to mass-gathering disaster events of the Emergency Nurses working in public hospitals in Mecca" I do not understand this.</p> <p>In general I think this paper would benefit by refocusing on using some acceptable definition of the role of ENs in preparation for the Hajj, and then comparing the perceptions of ENs of their role as compared to that standard. This could then be used as a tool to direct educational efforts in this area.</p> <p>Thank you for the opportunity to review this paper on a very interesting topic.</p>
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VERSION 1 – AUTHOR RESPONSE

Itemized Responses to Comments from Reviewer 1 Dr. Sheila Turriss

Comment: Thank you for the opportunity to review this interesting paper on the disaster preparedness of those working in nursing roles in emergency departments in Mecca. I read the paper with great interest as this topic is important, especially given the annual occurrence of the Hajj. After a careful read and re-read, I do have suggestions to offer, which I hope are helpful.

Response: Thank you very much for the detailed and constructive comments that have helped improved our work. We are pleased that you find the topic of our article of great interest and importance.

General Comment 1a: Try to keep the language crisp and clear. For example, avoid use of the word “event.” Instead use “mass gathering” or “disaster” rather than “disaster event.”

Response 1a: The text has been revised in response to this comment; the word event has been deleted and replaced by the term ‘mass gathering’

General Comment 1b: Consider reducing use of “it” and “them” to make things easier for your reader. For example, on Page 6, Line 24 “Despite its importance...” Does “its” represent clinical skills, disaster response knowledge, etc?

Response 1b: We revised the text to replace ‘it’ and “them” with more specific wording that hopefully improves clarity and accuracy for the reader.

General Comment 1c: Consider switching out the noun “casualties” for “fatalities.” For example, staff in the hospital won’t be able to prevent casualties (which have already occurred), but they may be able to prevent fatalities (after the patients arrive in the ED).

Response 1c: The word “casualties” was used in the applied survey instrument. In other instances where the word “casualties” was not directly referring to the used questionnaire it has been replaced with the suggested term “fatalities”.

General Comment 1d: Consider rewording question 1 on Page 7. What is a “mass gathering disaster event?”

Response 1d: Our apologies for the misspelling (in the initial text we meant to write ‘in successfully’ instead of unsuccessfully). The question has been reworded and per all changes made in the revision it is highlighted in yellow. The definition of a disaster as discussed in the context of a mass gathering has been added in the text to help clarify this important term. The word event, as per your suggestion, has been removed from the revised manuscript.

General Comment 1e: Lots of randomly missing punctuation (e.g., Table 4) and spacing issues (e.g., Page 14, Lines 47 and 51), which I am sure will get adjusted during the production process.

Response 1e: Our apologies for this. We have reviewed and proof read the text to minimize these errors.

General Comment 1f: Page 15, Line 24; consider exchanging the phrase “flicked through” to “flipped through.”

Response 1f: The phrase has been changed as suggested.

General Comment 1g: Page 17, Line 32; consider using “national investment” versus “country investment.”

Response 1g: The text has been amended as suggested.

Methodology Comment 2a: Consider specifically outlining for the reader what you mean by “Emergency Nurse.” You have included “nurse technicians,” “nursing specialists,” and “nurses’ aides” in the sample. What are these roles (e.g., educational preparation, scope of practice, etc)? You might highlight the fact that you surveyed a heterogeneous group (e.g., not “registered nurses” only) in the limitations section as this has some implications in terms of applicability in other settings.

Response 2a: We have provided much more detail on the scope of practice and education with respect to the different roles of the registered Emergency Nurses in Saudi Arabia; the additional text appears as highlighted text on page 7. The section on study’s limitations on page 20 has been amended to reflect on the heterogeneity of our population sample.

Methodology Comment 2b: You mention that more than 50% of nurses in Saudi are from other countries; what percent of the study sample were educated outside of Saudi Arabia? Potentially the sample for this study is an unusual group given the proportion of participants in nursing-type roles, educated in other countries.

Response 2b: In response to this comment we have amended the limitations section to stress the unusual/non-typical nature of our nursing sample. However, in the modern era of globalization a significant percentage of the healthcare workforce in many countries in the West and the Middle East are born abroad. For example, almost a third of the doctors and nurses in the UK NHS are born abroad <http://www.telegraph.co.uk/news/uknews/12071030/More-than-a-third-of-NHS-doctors-born-abroad.html>. A similar situation to Saudi Arabia regarding a high proportion of nurses coming from abroad is also seen in the other Arab countries along the Persian Gulf. This is partly cultural since the nursing profession in has been traditionally seen as non-very desirable or socially prestigious among citizens of the Arab countries in the region: e.g. <http://www.arabnews.com/news/521966>, or <http://onlinelibrary.wiley.com/doi/10.1111/j.1466-7657.2011.00890.x/full>

Methodology Comment 2c: The study was developed based on related published studies. Would you provide a bit more information about study development? For example, how was face validity addressed?

Response 2c: Much more detail has been provided on study development, including the piloting and pre-testing of the questionnaire. The additional text has been added under ‘Data Collection’ on pages 8 and 9.

Methodology Comment 2d: You piloted the survey in a single hospital. Were changes made following the pilot?

Response 2d: As per the previous response this additional information has been provided in the revised text under ‘Data Collection’ on pages 8 and 9.

Methodology Comment 2e: You cite a 30% response rate. How do you think the missing data (e.g., Table 3) may have affected the results?

Response 2e: We do acknowledge the small sample size in the study’s limitations section as we could not speculate on how the missing data might have affected the results.

Specific Content Comment 3a: Consider adding a few lines describing the Hajj for readers unfamiliar with this mass gathering.

Response 3a: We have inserted text to describe the Hajj under ‘Study Objectives’ on page 6.

Specific Content Comment 3b: Consider defining “disaster” as you have defined “mass gathering.”

Response 3b: The term ‘disaster’ has been defined under ‘Background’ on page 4.

Specific Content Comment 3c: What is the Saudi Red Crescent? Your readers will want to know.

Response 3c: A definition of the Saudi Red Crescent and details on its role and function has been added on page 11.

Specific Content Comment 3d: Are you able to provide a link for your readers with regard to the Saudi Emergency Management Course? Or, could you insert a couple of additional lines of description?

Response 3d: Some additional description of the course has been added on page 14.

Specific Content Comment 3e: In the interests of clarity, try and separate when you are writing about disasters/disaster response from when you are writing about mass gatherings (or both). For example, on Page 5, Line 28, "Studies in this area suggest that a number of factors influence the ability of nurses to respond to MGs. Disaster education..." You then cite studies on disaster response preparedness (rather than studies about disaster response specifically in the setting of MGs; see next point).

Response 3e: Thank for pointing out these inconsistencies in the text. We have amended the text to clarify the focus on disaster response in the context of mass gatherings. Hopefully the revised text clearly separates the two concepts.

Specific Content Comment 3f: Perhaps open the section on the literature review with the paragraph from Page 6, Line 24-30. Then it will make sense that the studies you cite address disaster preparedness in general rather than disaster preparedness vis a vis MGs.

Response 3f: Thank you for this suggestion. We have moved the paragraph to the beginning of the background section where we present the literature review to better guide the reader on the topic upon which we focus our paper.

Specific Content Comment 3g: On Page 7, line 51, consider rewording the sentence "potential risk for acute emergency medical and general clinical care" (e.g., could change to something more straightforward such as "...potential risk for a disaster to occur").

Response 3g: The sentence has been reworded.

Specific Content Comment 3h: I was surprised that there was no mention of tabletop drills or disaster training through field exercises.

Response 3h: Tabletop drills were mentioned in the free text responses and they have been added to the text that discusses educational efforts on page 18.

Specific Content Comment 3i: This reader struggled a bit with the paragraph on Page 18, Lines 18-34. Interested to read about "Hajj medicine;" not sure that it is axiomatic this emerging field means that Saudi Emergency Nurses are the best trained group. Also, at the moment this statement appears to contradict your earlier conclusions that the general knowledge base about disasters was lacking for this group of participants.

Response 3i: The paragraph has been deleted.

Specific Content Comment 3j: Page 19, Line 26. By all means abbreviate "Emergency Nurses" to "ENs" just not so late in the paper...

Response 3j: In the revised text we use Emergency Nurses in full in the beginning of the manuscript and the abbreviation EN is used in the remaining of the paper consistently.

Specific Content Comment 3k: Conclusions. Much of the content in the conclusions section could be moved into the discussion (e.g., all of Page 21).

Response 3k: Most of the text on education previously reported on page 21 has been moved into the discussion section.

Specific Content Comment 3l: On Page 20, Line 22-27 feels a bit strongly stated. Perhaps soften the language a bit to “suggests” rather than “highlights” given the fact that there were many missing responses in Table 3.

Response 3l: The language has been softened as suggested.

Itemized Responses to Comments from Reviewer 2 Dr Michael J Drescher

Comment 1: The concept of evaluating the preparedness of emergency nurses for mass gatherings in general and of the Hajj in particular is a worthy endeavor. I believe however that this paper is overly ambitious in that it attempts to assess perceptions of the ENs of their preparedness (relatively easy to do) as well as to objectively assess their actual preparedness which is a much more difficult objective to achieve. As to the latter, it is unclear how these questions were chosen (table 2) and whether they form a valid set by which to judge the general knowledge of ENs on this topic.

Response 1: Thank you for pointing out these valid points. We hope that we have made it clear that the paper reports on ENs' perceptions and self-reported accounts rather than claiming an assessment of actual preparedness, which is definitely beyond the scope of this study. The questions were informed by an identified gap in the empirical literature and by similar published studies in this area, namely, studies 3, 7, and 8 in our reference list.

Comment 2: Furthermore it is not clear what the correct answers actually are. The authors state that "only one in five (20.6%) correctly responded that un-buried dead bodies would create a disease epidemic following an MG disaster." This implies that the correct answer is that dead bodies create disease, a concept not currently accepted. See http://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa8/en/

Response 2: Thank you very much for spotting this important error in the reporting of the findings. The text both in the manuscript and in Table 2 has been amended to reflect the correct wording, as it was used in the field questionnaire. We are sorry for the misspelling.

Comment 3: And further "only one in six (16.3%) responded correctly that all victims of a chemical biological radiological (CBR) incident will have dangerous substances removed at the scene of an incident..." Even were the correct answers clarified it is not clear that this is an adequate test of knowledge to draw far reaching conclusion.

Response 3: The action indicated in the specific statement is included in the hospital emergency action plans and therefore the question also checks the nurses' awareness of the planned procure.

Comment 4: The perception of the ENs of their role in a mass gathering is straightforward (table 3). The ENs understanding of their role (table 4) is an interesting description of the nurses' perception of their role (the third row in the table is duplicated by mistake)

Response 4: Thank you for the comment and we are pleased to note that the two tables communicate the information we intended to. The duplicate entry has been deleted.

Comment 5: Regarding the statement of the objectives of the paper, the first objective (page 7) states: "1) To assess the level of awareness and knowledge unsuccessfully responding to mass-gathering disaster events of the Emergency Nurses working in public hospitals in Mecca" I do not understand this.

Response 5: Our apologies for the misspelling – (we intended to write 'in successfully' instead of the incorrect 'unsuccessfully'). The question has been reworded.

Comment 6: In general I think this paper would benefit by refocusing on using some acceptable

definition of the role of ENs in preparation for the Hajj, and then comparing the perceptions of ENs of their role as compared to that standard. This could then be used as a tool to direct educational efforts in this area.

Response 6: This was an excellent suggestion, thank you very much. The revised version focuses more this point rather than reflecting a more generic assessment of EN's disaster response knowledge.

Comment 7: Thank you for the opportunity to review this paper on a very interesting topic.

Response 7: Thank you very much for the thoughtful comments and for the time and effort dedicated to review our paper.

VERSION 2 – REVIEW

REVIEWER	Sheila Turris Vancouver Coastal Health Canada
REVIEW RETURNED	15-Oct-2016

GENERAL COMMENTS	<p>Thank you for the opportunity to review this manuscript after revisions.</p> <p>The authors have carefully addressed the feedback provided on a previous draft.</p> <p>My few comments:</p> <ol style="list-style-type: none"> 1. On page 31, second paragraph, the term should be “nascent” (not ascent). 2. Consider adding a statement in the limitations section that highlights the fact that the study population may be unique given the broad mix of educational backgrounds (e.g., certificate, diploma, degree). This is optional because the authors have done an excellent job describing the variety of providers in the study sample (page 33). 3. Consider breaking the content on page 33 (study site and population) into a different order. I make this suggestion because this is a very important section of the paper, allowing readers to compare the extent to which the study population is similar to that within their own practice settings. The content itself is perfect. Please consider revising the order of the content presented, as follows. “The setting... (N=350).” Then, “Registered nurses in Saudi...position.” Then, “Registered ENs work in... questionnaires.” This will require only minor readjustment in the narrative. Reordering the content in this way will make it easier for the reader to digest. <ol style="list-style-type: none"> a. Site/setting b. Defining the population c. Describing the responsibilities of the EN role <p>Congratulations on completing your study!</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1 (Sheila Turris):

Comment R1: On page 31, second paragraph, the term should be “nascent” (not ascent).

Response to R1: Thank you for spotting the typo error; this has been corrected in the revised version.

Comment R2: Consider adding a statement in the limitations section that highlights the fact that the

study population may be unique given the broad mix of educational backgrounds (e.g., certificate, diploma, degree). This is optional because the authors have done an excellent job describing the variety of providers in the study sample (page 33).

Response to R2: We had already stated in the study limitations section in the previous draft that our sample is heterogeneous and rather non-typical as it includes nurses with different grades and half of the sample population comes from abroad. The study population is not unique since similar patterns can be found in other countries in the region with respect to the makeup of the nursing workforce, especially in the Arab Gulf countries; with the advance of the globalization project this is not atypical even in health systems in Western countries such as for example the UK NHS where 40% of new nurses come from overseas. <http://www.telegraph.co.uk/news/2016/10/21/four-in-10-new-nurses-are-from-overseas-amid-warnings-nhs-faces/>

Comment R3: Consider breaking the content on page 33 (study site and population) into a different order. I make this suggestion because this is a very important section of the paper, allowing readers to compare the extent to which the study population is similar to that within their own practice settings. The content itself is perfect. Please consider revising the order of the content presented, as follows. "The setting... (N=350)." Then, "Registered nurses in Saudi...position." Then, "Registered ENs work in... questionnaires." This will require only minor readjustment in the narrative. Reordering the content in this way will make it easier for the reader to digest.

- a. Site/setting
- b. Defining the population
- c. Describing the responsibilities of the EN role

Response to R3: Thank you very much for this suggestion. We agree that restructuring the content of the aforementioned section as outlined above improves the readability for the reader. We have incorporated the change in the presentation of the text.