**Reviewer's report**

**Title:** Knowledge and Attitude of Healthcare Workers about Middle East Respiratory Syndrome in multispecialty hospitals of Qassim, Saudi Arabia

**Version:** 3  
**Date:** 17 September 2014

**Reviewer:** Dawn Jenkin

**Reviewer's report:**

Review Comments

1. The question posed is well defined, looking at the knowledge and attitude of healthcare workers about MERS in multi-specialty hospitals in Qassim, Saudi Arabia. It clearly addresses an area where little research has yet been completed, and of importance as the knowledge and attitude of front line workers in Middle Eastern health settings will be critical to the effective management and control of MERS in an outbreak situation.

2. The methods appear to be appropriate and well described in the study, although I would appreciate a brief explanation of the choice to use non-parametric statistical approaches, which use less of the information available from the data collected than an equivalent parametric test. The use of a 2 step approach to validate the questionnaire tool was a strength of the methodology and improves the reader’s confidence in the findings that result from this tool. It is not clear from the description of the sample size calculation, whether the final sample used in the sample was adequately powered to detect significant associations.

3. The data appear sound, and they are presented clearly, in the expected format, giving demographic characteristics, clear significance tests etc. However, the authors have not explained how they have accounted for the statistical errors which may arise through multiple significance testing, as seen in their use of multiple tests for association between study variables.

4. The discussion and conclusions are broadly balanced, with good reference to appropriate existing evidence base published in relation to SARS. However the main conclusion the authors draw is that the significant association between knowledge and positive attitude towards aspects of MERS healthcare should be interpreted as “correct knowledge results in positive attitude”. The evidence as presented does not support this as the only viable conclusion, and this conclusion cannot be drawn based on the cross-sectional study design which does not allow inference on causality. This point must be adequately addressed, with alternative conclusions presented in balanced manner. For example it may reasonably be the case that those health care workers with a more positive attitude towards management of MERS are motivated to seek information and develop their knowledgebase around the disease. Further research would be required to develop an understanding of what underlies both the patterns of knowledge and the expressed attitudes of the healthcare workers.
5. The authors do not describe any limitations to their approach. The use of a self-administered tool inevitably has drawbacks which should be explored in the discussion. The authors have not explained whether they think that any bias has been introduced by the sample of health care workers being formed of those who self-selected to participate. The demographic characteristics of the sample are well described in table 1. But the authors have not commented on to what extent they believe the sample can be considered representative of the views of all health care workers at the multi-speciality hospitals, and any implications of this for how the study results should be interpreted in general.

6. The authors have clearly acknowledged the existing evidence base in this topic area on which they are building.

7. The title and abstract accurately convey what has been found by the study.

8. The writing is of an acceptable standard, however there are a number of grammatical and spelling errors which should be addressed, as detailed under minor essential revisions.

Major Compulsory Revisions
1. Include in the discussion the limitations of the study.
2. Provide a balanced explanation for the association found between knowledge and positive attitude towards MERS healthcare, as the authors currently interpret this as a causal relationship, with knowledge leading to attitude. This cannot be supported as the only viable conclusion of the findings, due to the limitations of a cross-sectional survey design.

Discretionary Revisions
1. Provide a brief explanation of the choice to use non parametric statistical approaches, which use less of the information available from the data collected than an equivalent parametric test.
2. Explain how authors have accounted for the statistical errors which may arise through multiple significance testing, as seen in their use of multiple tests for association between study variables.
3. It would be of interest for the authors to discuss any insight they feel is available from the study on the appropriate channels to use for a proposed information campaign, given the findings in Figure 1: source of MERS information reported by HCW.
4. Review the description of sample size calculation.

Minor Essential Revisions
1. Abstract: Methodology paragraph – grammatical error, should read “Descriptive statistics were carried out…”
2. Background, paragraph 1. “however, since the last update on 27 March, 2014, 290 of 330 cases reported in Kingdom of Saudi Arabia” sentence is unclear and
grammatically incorrect.
“…MERS-CoV in community or in healthcare settings could be a huge threat for public health implications” grammatically incorrect.

3. Methodology, study design, site and participants paragraph – should read “…in two multispecialty hospitals…”

4. Results, paragraph 3, should read “Assessment of attitude was carried out through ….”

5. Discussion, paragraph 2 should read “This difference could be explained by the fact that a lot of advancement has been made in the last 10 years and the healthcare workers are more reliant on internet…”

6. Discussion, paragraph 4. “Another issue that needs to bring into light” – incorrect use of phrase. Next sentence should read “Although, research has revealed….”

7. Discussion, paragraph 5 spelling error – “googles” should read “goggles”

8. Discussion, paragraph 5, should read “… however other research does not support the association of gender…”

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests