Author's response to reviews

Title: Development of the Clinical Learning Evaluation Questionnaire for undergraduate clinical education: factor structure, validity, and reliability study.

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Author's response to reviews: see over
09 January 2014

Mr. Tim Wilkinson
Editor, BMC Medical Education

Subject: Revision of manuscript number: 18942287911 00433
Development of the Clinical Learning Evaluation Questionnaire for Undergraduate clinical education: factor structure, validity, and reliability study

Dear Dr. Wilkinson:

The authors of this manuscript (Dr. Ali Al Haqwi, Dr. Jeroen Kuntze, and Prof. dr. Henk T. Van der Molen) would like to express their appreciation for your letter dated November 12, 2013 concerning the comments of the reviewers on the above-mentioned manuscript. The comments and suggestions of the reviewers will certainly contribute to the development of the quality of the manuscript.

In line of this, we are sending the attached responses to the comments of the two reviewers. In addition, the manuscript was reviewed to follow the writing style of the journal.

Thank you again and we look forward to your positive response.

Yours sincerely,

Dr. Ali Al Haqwi

Attachment: a/s
Reviewer's report

Title: Development of the Clinical Learning Evaluation Questionnaire for undergraduate clinical education: factor structure, validity, and reliability study.

Version: 2 Date: 31 August 2013

Reviewer: Danette McKinley

Reviewer's report:
This is a nicely done paper detailing the psychometric characteristics of a measure to evaluate student perception of the effectiveness of their clinical rotations.

Major essential revisions

What is important to report in the paper to facilitate the reader's interpretation is how the rating scale was scored. That is, does 3=undecided? I assumed that the higher the mean, the greater the students' level of agreement with the statements, but that wasn't immediately clear.

The second paragraph is the “Methods” section which now appears as follow:

The items of the CLEQ were phrased in a way that could reflect students’ perception. For example: “I have seen a sufficient number of cases.” Students respond to each item by rating it on a five point Likert scale as (1) strongly disagree, (2) disagree, (3) undecided, (4) agree and (5) strongly agree. The level of agreement of students is indicated by the mean of their responses to the statements of the CLEQ i.e. the higher the mean, the greater the students’ level of agreement. The details of the items of the first version are shown in the appendix.

Also, what were the reliability coefficients with the items deleted from the scale? I understand only three items were deleted, but it would be good to see if the coefficient alpha associated with the scales.

The following text was added on page 11:

Deleting these three items had a minor positive effect on the internal consistency of the whole questionnaire. Cronbach’s α for all forty items of the questionnaire before removing any item was .87. Taking out item 15 did not have any consequence for the value of Cronbach’s α. Eliminating item 12 and 21 raised Cronbach’s α from .87 to .88. So, Cronbach’s α for the whole questionnaire after removing items 12, 15 and 21 was .88.

You reported on the characteristics of the sample - do you have any indication that the respondents are representative of the population to which the survey was distributed?

The following statement was added in the “Methods” Section:

“The participants in this study are likely to represent the population of undergraduate medical students at these three colleges. This is indicated by the fact that the admission of students to these three medical
colleges is based on similar criteria. In addition, the proportion of graduates passing the Saudi licensing examination is similar as well for the three medical colleges.

Please consider reporting standardized mean differences as well as the results of the ANOVA so that readers can see whether there are trends that may not be of statistical significance, but are of practical significance.

On page 12 following statements were added:

‘Effect sizes for the mean differences on Supervision and Organization were respectively large and moderate (\( \hat{r}^2 \) for Supervision = .14 and for Organization = .07).’

and

‘Effect sizes ranged from \( \hat{r}^2 = .00 \) to \( \hat{r}^2 = .01 \). According to Cohen (1973) values of \( \hat{r}^2 \) of .01 are considered as a small effect, of .07 as a moderate effect and of .14 and higher as a large effect.’

Furthermore, on Table 3 a column was added with the values of the effect sizes per factor.

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Minor essential revisions

The view of 'validity' has changed. Validity is no longer a property of an assessment. Rather, we accumulate evidence to support the validity of interpretations we make regarding the results of the assessment. In this investigation, the evidence gathered supports the scoring of the instrument. The authors can refer to 'Criteria for a good assessment' by Boulet and McKinley, a chapter in 'International Best Practices for Evaluation in the Health Professions', edited by William McGaghie.

The following statement in the “Discussion” section has been added:

“Nevertheless, application of the CLEQ in undergraduate students from medical schools in other countries is needed to evaluate whether we could find comparable psychometric properties. The validity of the instrument could be affected significantly by the characteristics of the involved participants.”

Two references were added to support this view.

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Discretionary revisions

When the students reported on the clerkship, were they reporting the last clerkship completed? Since most of the students were in their last year, can it be assumed that most of the sample has completed their required rotations? This information would be helpful in considering the interpretations regarding the quality of the education program.

The following statements were added in the “Methods” section:

“Students who had less clinical exposure in the first two years of the curriculum were excluded.”

“The subjects in the sample of the study had a varying level of clinical exposure.”
The survey is based on student perception of their clerkship experience. Since it seems that motivation and self-awareness were actually intervening variables. Had the authors considered doing factor analysis with structural equation modelling where the construct could be modeled so that these intervening variables could be accounted for?

This statement was added to the “Limitation and Recommendations” section was added as follows:

“More information about other dimensions of the validity of the instrument and the magnitude of the influence of each factor on the clinical learning process could be tested further utilizing techniques as structural equation modeling (SEM).”

A reference was added to support this view.

Can the results be correlated with logbooks (particularly for the 'Cases' factor), so that the variety of cases seen can be analysed as well?

While this research may not be reported in the current article, the issues raised as discretionary revisions could be considered for future research.

More explanation in the “Limitation and Recommendations” section was added as follows:

“So, for example for the factor cases, to have more support for its construct validity, we recommend an investigation in which the scores on this factor in different medical schools with different educational approaches, is correlated with objective data, as logbooks, which helps to gather an objective evidence on how many cases the undergraduate students actually have to deal with.”

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**
I declare I have no competing interests.
Reviewer's report

Title: Development of the Clinical Learning Evaluation Questionnaire for undergraduate clinical education: factor structure, validity, and reliability study.

Version: 2 Date: 12 October 2013

Reviewer: Mariana Hewson

Reviewer's report:

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Minor Essential Revisions

There are minor language issues, e.g., the use of ‘to’ instead of ‘for’ and vice versa.

The manuscript was reviewed to correct the language errors. A full conclusion should be included in the paper.

Conclusion was added as follow:

“The results of this study support the convergent validity and reliability of the CLEQ. It can be utilized as an evaluation tool for clinical teaching activities, both by educators as well as students. Further research is needed into the other dimensions of validity of the CLEQ. Future confirmatory studies of the validity and quantifying the influence of the variables of the CLEQ in the process of clinical learning are recommended, for example by utilizing techniques such as structural equation modeling”

Level of interest: An article of importance in its field

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.