Author's response to reviews

Title: Optimum Number of Procedures Required to Achieve Procedural Skills Competency in Internal Medicine Residents

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Author's response to reviews: see over
Executive Editor, 

BMC Medical Education Journal.

Dear Sir,

I, the undersigned, am pleased to re-submit my article titled “Optimum Number of Procedures Required to Achieve Procedural Skills Competency in Internal Medicine Residents” bearing ID Number 1754531989113202 in your prestigious journal after receiving a complete waiver of processing fees from the waiver department on January 5th 2014.

I believe that this revised manuscript answers all the relevant concerns raised by the editorial committee as well as the reviewers. Our study will add to the literature on Medical Education and Internal Medicine Residents’ procedural skills competency development.

We are attaching two copies of the manuscript. One of them has changes tracked while the other one is the final clean copy with all the changes incorporated.

The following is the point-by-point response to the Reviewer’s report:

Reviewer # 1: Jeff Druck

1. The data needs to be placed in a format that is clear.

Response:

This has been corrected in the manuscript.

2. The phrasing is awkward and unclear in a number of places; a native English speaker should revise the content.

Response:

This has been corrected in the manuscript.

3. A discussion of how an unqualified focus group is superior to an expert focus group needs to be included.

Response:

The name for the focus group is Expert group only to denote that the members had years of experience and relevance to the residency program. There is no demarcation of qualified/unqualified individuals in the expert group.

4. The methods section needs to be more clear how the survey was done and how the number of procedures/level of involvement/level of training.

Response:
Details about the study design and methodology for clarification is as follows. This was an explanatory sequential mixed methods design, where we had collected quantitative and qualitative information sequentially. We had first collected quantitative data through cross-sectional study and then qualitative data to help refine the quantitative results, so that the study design should capture the best of both quantitative and qualitative data. We obtained quantitative data from questionnaires filled out by the faculty and the residents, and then elaborated on these findings through in-depth qualitative exploration focus group discussions.

5. A discussion of a less than 50% response rate overall needs to be included.

Response:

This has been corrected in the manuscript.
Reviewer #2: Gerald Arnold

Major Compulsory Revisions

1. Clarifying requests: Methodology section: Page 6. First paragraph, third sentence the authors write: “The list was designed in the form of a questionnaire in order to yield 2 different pieces of information from faculty and residents separately: (1) what the residents and faculty felt was the adequate number of times each procedure listed is to be performed in order to achieve competency and (2) the status of the individual resident while performing the procedure in their opinion at a given year in the residency program.” 1) The questionnaire (given in the supplementary material) shows a two-way arrangement of residency year by competency status and with separate groups providing the ratings (i.e. faculty versus residents). You really have a four-way factor arrangement (i.e. procedures by groups by residency year by competency status) with the possibility of differential response patterns between factors (i.e. interactions). Yet you did your analysis comparing the groups separately across competency status. It seems like you are throwing away considerable information especially about the two factors, procedures and residency year, and the possible interactions among the factors. Because respondents are actually completing a table of responses residency year by competency status, it would seem there would have been considerable co-variation among factors. What is your rationale for this?

Response:

*Initially the response that we had received from the faculty and residents did not include the year of training during which the procedure must be performed, however, only the adequate numbers for each level of expertise were defined hence the respective year was not taken into account. All the responses that were received were then compiled only with respect to the optimum number and procedure status. As per the year of residency training during which each procedure must be performed was discussed in the focus group and a consensus was made on it. This is the reason that we do not have 2x2 or 4x4 tables. However, this is a potential area for further research for our group which will be taken up in the future. Changes have been made in the tables to not cause confusion.*

2. The outcome measures are persons estimated frequencies, you report a median for groups (faculty or residents) and the interquartile range because the values were considered “non-parametric” Did you actually examine the data to see if your assumptions (i.e. normality and homogeneity of variance) were violated?

Response:

*Data was determined to be non-parametric with K-S testing showing that data was not normally distributed.*

3. You used a series (76) Mann-Whitney tests on the same data and reported p-values from these tests (shown in Table 1). What steps did you take to correct for multiple testing? With
8 significant results using a significance criteria of # = .05, the likelihood of getting 8 significant findings by chance is not small.

Response:

Bonferroni correction to p-value was 0.0007 and none of the values came to be significant. Therefore this has been incorporated as such in the manuscript. This does not however affect the guidelines development process as the focus group did adjudicate on all procedures in order to develop the consensus procedure list.

4. I recommend that you simply mention in a sentence that you received approval from the Ethics Committee and create a separate section called “Statistical procedures” to cover the remaining parts of the paragraph in the one labeled as “Ethical approval”. I would recommend that you discuss the issues raised in 1 to 3 above in the “Statistical procedures” section.

Response:

This has been corrected.

5. How was the data collected from faculty and residents presented to the “Focus group” page 6 paragraph 4? Were members in the focus group also participants in the faculty and residents samples or were that a separate and independent group?

Response:

The response for the first part of the questions has been mentioned in response 1. As per the second part, the faculty and residents who were sampled were separate from the focus group participants.

6. Page 6, first paragraph, sentence: “The list was sent to all faculty members of the department as well as all residents enrolled in the program.” Was the questionnaire sent out once and was there any efforts to contact faculty and residents who did not respond? If so, how many follow-up contacts did you do? Were there any correction efforts for non-response (e.g. weighting)? If so, state it and describe any sensitivity analyses for accounting for missing data. Was there any item non-response? How was this dealt with?

Response:

Yes, the questionnaires were sent out once and a reminder was sent the following week. We had 44 responses out of the 48 residents enrolled into the program, while 20 faculty members responded. All the forms were returned by the faculty and residents with no missing items.

7. Results 1) First sentence: "A total of 64 responses were obtained from the questionnaire, in which 44 (with a total number of faculty being 74) (68.8%) were residents while 20 (31.3
% were faculty members." How many residents are there and what is the overall response rate among residents?

Response:

This is was a typo mistake. This has been corrected in the manuscript. The response rate for the residents was 91.6%. 44 out of 48 residents completed the questionnaire.

8. Tables should be numbered with descriptive titles so the reader knows what they are looking at.

Response:

This has been corrected.

9. I do not see a reason to keep Table 2. You have highlighted the results from the Mann-Whitney tests in Table 1

Response:

This is needed because it shows significant differences between the faculty and the residents.

10. Table 3, did you have some variation in the focus groups’ decisions about Minimum Residency Level or Number Required? Some of the patterns of numbers required are much different from what the faculty and residents reported (e.g. Urethral Catheterization). Why? Again a description of the process for making the determinations shown in Table 3 would be helpful in the Methods section.

Response:

Yes, there was a variation in the focus group’s decision; however, a consensus was developed via discussion. The process for making the determination has been explained in response 1.

11. Please use the same labels for the procedures and put the procedures in the same order in all tables.

Response:

This has been corrected in the manuscript.

12. Limitations: Please include the limitation of non-response to the procedures questionnaire. Discuss the potential biasing effects of non-response on your results.

Response:
The only potential bias is information bias which has been mentioned.

13. Suggest another review of the literature, many of the references are more than 10 years old.

Response:

This has been corrected in the manuscript.

The contributions are made by the following Authors:

1. Muhammad Tariq
2. Nizar Bhulani
3. Asif Jafferani
4. Quratulain Naeem
5. Syed Ahsan
6. Afaq Motiwala
7. Jan Van Dalen
8. Saeed Hamid

I would be happy to provide you with any relevant details you may need for the manuscript.

Your’s truly,

Muhammad Tariq