Reviewer’s report

Title: The Impact of Trained Patient Educators on Musculoskeletal Clinical Skills Attainment in Pre-Clerkship Medical Students

Version: 1 Date: 21 April 2011

Reviewer: Meridith Marks

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Peer review of:

The impact of trained patient educators on musculoskeletal clinical skills attainment in pre-clerkship medical students

Research question

The research question was well outlined in the abstract stating that the aim of this study was to determine if differences exist in MSK physical exam skills between non-MSK specialist physicians and PPIA taught students. However, within the body of the paper, three additional research questions were added, related to the differences between the two study groups - acquisition of interpersonal skills, interests in MSK medicine and comfort with MSK clinical skills. Student evaluations of instructors were also assessed for discrepancies.

The research methods used in the study were appropriate. The two study groups were well defined. The two groups were similar to each other at the start of the study. Group 1 used a non-MSK specialist physician, who was accompanied by a patient who had rheumatoid arthritis, allowing demonstration of the examination procedures. The test group was taught by patient educators (PPIA), without a physician being present. Data collection for the primary outcome of the study consisted of a test-OSCE – evaluated by patient educators. All other research questions were answered using a retrospective student questionnaire.

The data collected for the test-OSCE appears to be sound. Other researchers from other Faculties used the same OSCEs in the past. In fact, the power calculations for this study were done using those results. The fact that this study is powered sufficiently to confirm no difference in outcomes is a notable strength. However, it does not appear that power calculations were repeated using the data collected in this actual study.

The use of a retrospective assessment pre-post knowledge and skills, as assessed by participants is typically used when higher levels of evaluation are not available. It is somewhat redundant given that an OSCE has already been done. The survey data reported could probably have been limited to an evaluation of student interest in MSK medicine and a sense of confidence with the physical exam. More detailed conclusions based on this data set must be tempered by the fact that no correction was made to account for the multiple
comparisons being considered.

Manuscript does adhere to standards for reporting of data. However, there seems to be more data than needed and sometimes it becomes a little overwhelming for the reader. I would recommend reviewing the secondary data sources and being more selective as to the detail that needs to be included.

The author’s conclusions are appropriate:

1. There is no difference between the two groups in terms of skills or interest in MSK medicine, and
2. One should consider the use of patient educators to supplement MSK education for medical students.

The authors clearly acknowledge the work that they are building upon. They are adding to the literature in that they use non-MSK trained specialist to teach the students in this study, as opposed to MSK specialists. This is more in keeping with what would often be found in a number of medical schools for pre-clinical students.

In general, this is a very good study, which assesses students’ skills at Kirkpatrick’s second level of being able to demonstrate skills. The study appears to be sufficiently powered to be confident that there was essentially no difference between the study groups.

Discretionary revisions

• The title of this study could be modified to indicate its focus on peripheral joint examination as opposed to the general musculoskeletal examination. Something such as: “Comparison of Patient Educators vs. Non-MSK-specialists physicians: Impact on the Attainment of Peripheral Joint Examination Skills of Medical Students”.

• The abstract is clearly written and easy to follow, but does not fully reflect the manuscript, which addressed additional objectives and outcomes. In actual fact, I think it would be wiser to stick closer to the content of the abstract than adding all the extra information; At a minimum, detailed secondary outcomes should be limited to those that are most important.

Minor essential revisions

• The name of the author following Dr. Geoffrey Wiseman has not been included in Authors’ Contributions.

Major compulsory revisions

This manuscript is very long, including seven tables and three appendices. It should be shortened to maintain the readers’ interest:

1. The introduction could be reduced in size by approximately half. Although the points raised are relevant to the study, some could be presented in a more concise fashion and simply referenced.
2. This study appears to have sufficient power, based on results from previous studies. However, these calculations should be repeated using the data collected in this study.

3. The discussion is supported by the data; however it is also quite long. Again, I think it could be condensed to about half the size and still address the most relevant points. The theory section in the discussion would better be placed in the introduction, if it is used.

4. The number of tables can be reduced; for example, tables 1, 2 and 3 could be combined.

5. Is table 5 really needed? Would any patient really be comfortable having a medical student have their physician after only two hours of training?

6. One of the issues that should be included in the discussion is the fact that this program focuses on a basic introduction to the peripheral joint exam. It does not constitute an overall introduction to MSK exam. Issues such as muscle strength testing, testing for tendinitis and assessing for overuse syndromes have not been included. Focusing on peripheral joints is not unreasonable given a two hour session, but the reader must be clear as to what was covered. We cannot extrapolate to assume that the outcomes would be similar if the groups spent 2 hours doing a detailed examination of a specific joint or some other aspect of the MSK examination.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests