Author's response to reviews

Title: Simulated learning in musculoskeletal assessment and rehabilitation education: Exploring its benefits on skills and confidence development, as well as motivation for future learning

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Author's response to reviews: see over
Simulated learning in musculoskeletal assessment and rehabilitation education: Exploring its benefits on skills and confidence development, as well as motivation for future learning

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We thank the reviewers for their valuable input of our manuscript. We respectfully re-submit our revised manuscript newly titled “Simulated learning in musculoskeletal assessment and rehabilitation education: Exploring its benefits on skills and confidence development, as well as motivation for future learning.” We have listed their comments (italicised) and provided our response for each of them.

Response to reviewers’ comments

Reviewer 1

Well performed study with a precise research question limited to a small but specific aspect of medical training (peer vs. SP) in one well defined topic (musculoskeletal assessment and rehabilitation). The design is good in offering a triangulation looking at the results from various angles including qualitative data from participants and actors.

Thank you.

Major compulsory revisions

1. There is some control for confounders (two groups with comparable results in the pre-test). As the major outcome was the clinical skill this should have been the measure as base to randomize (not to merely allocate) the participants and would have meant to perform a practical assessment prior to the randomization and intervention. This needs to be addressed in the limitations section. Please also give information on gender and age in both groups.

We thank the reviewer for pointing this out and have addressed this issue in the limitations section. Additionally, we have added information on gender and age in both groups in the Procedures section.

2. Major drawback is the assessment of clinical skills with the same method of training. All students should have been assessed with one method, ideally with SPs. Now there remains a doubt whether the difference in clinical skills may be attributed to the difference in the assessment tool itself; i.e. lack of seriousness when being examined assessing a peer, or other aspects.

Both methods, using only a SP for the SP group practical skills assessment and PP for the PP group practical skills assessment (as we did) or using SP for both groups in the practical skills assessment was carefully considered whilst designing the study. It was decided to assess all students based on what they had been exposed to because the PP group would be at a disadvantage when performing an assessment in a scenario they were not familiar with. With regard to seriousness, we observed that students in both groups took the assessment seriously as it formed a component of their grade/mark. Furthermore, during the practical skills assessment both groups were paired with either an SP or a PP they were not familiar with or had not worked with during the lab sessions. In other words, students who practiced with a PP were not paired up with the same fellow student they had worked with previously. So, it can be argued that all students were tested on their clinical skills with
a person they were not familiar with—albeit the students did know if it was a PP or SP due to some familiarity with their classmates.

3. It is a pity no qualitative data on peers as actors were collected. There are more data than discussed on this issue—comparing SP and peer training. These should be included.

We agree that this is important and did address this from the qualitative data from PPs perspective (how PPs perceived students’ performance).

4. Results: table 4: “Clinical skills self-confidence - Peer-patient - Standardised patient” etc. are included twice with different data. Probably pre and post results are mean but not indicated as such.

We have altered Table 4 to specify the pre and post results.

Reviewer 2

This study looks at the use of standardized patients for teaching a musculoskeletal session. This might be interesting to those working in the very same field. However, beyond that scope not a lot more information is gained, i.e. there has already been a lot of general research around SP and their usage in medical education.

Thank you. As highlighted by Reviewer 1, the intention was to focus on one well defined topic (which to date has a paucity of research in this area) and to explore the results from various angles and data sources.

Major Compulsory Revisions

1. Methods, subheading “data analysis”: The authors describe a mixed-method study combining qualitative and quantitative research. This is a well-respected approach. However, in their description of methods used, they do not specify which kind of qualitative data analysis has been used. There is also no table or something similar showing the main findings (i.e. categories and subcategories for example if content analysis was used).

We refer the reviewer to the Data analysis section which reports the use of thematic analysis. Additionally, we have prepared two tables displaying the themes.

2. Results, 11th paragraph: the lack of feedback is mentioned as a negative statement given by students. It would have been nice to know why exactly this hasn’t been included considering the fact that we all know feedback to be a crucial part of any successful simulation setting (see for example Issenberg et al. 2005, McGaghie et al. 2010). The authors themselves discuss the importance of feedback, too, but I can’t really find anything as to why they decided not to make it part of their teaching.

We agree with the reviewer and have addressed this in the Discussion section.

3. Table 4: Is there a reason for the fact that there are no p-values given?

These have been added to Table 4.

Minor Essential Revisions

4. Methods, subheading “simulated patients”: The authors consider volunteers from a
chiropractic programme as ideal candidates for the job of being the SP. It might have been helpful to phrase it more cautiously as lots of knowledge can also be a hindrance if it comes to act as a patient.

We agree and have addressed this in the suggested section.

**Discretionary Revisions**

1. **Background, 2nd paragraph:** The authors talk about variation in content of curricula. However, their following example describes only differences in hours. It might be interesting to know if there are real big differences in actual content.

   We agree with the reviewer and note that it is difficult to determine the actual content and determine how the hours are being utilized and did provided an addition to the Background section.

2. **Results, 12th paragraph:** A student is quoted on the aspect of the SPs being older students, which makes him or her feel quite uncomfortable. It would have been nice to see this point about choosing who becomes an SP in the discussion section.

   We agree and addressed this issue in the Discussion section.

3. **Results, 13th paragraph:** In all other parts, the authors start with positive feedback first and then come to negative aspects. Why have they chosen to do it the other way round here?

   We agree; this was an oversight and we altered the format.

4. **Results, 14th paragraph:** There is the aspect of how peers or SPs felt about the students. I was wondering if the authors tried to correlate it with the feelings of the matched students.

   This is an interesting comment. We concluded that this would be difficult due to the mixed perceptions reported by the PPs and SPs about the student. In other words some students were reported as having both a positive and negative theme whilst they were being assessed by the PPs and SPs. For example, “Seemed quite confident, however had some nervous moments where he lost his train of thought and professionalism” (student 13). This student, despite being reported as being confident (positive), also wavered on their professionalism.

5. **Conclusions:** It sounds quite harsh to start with the limitations. Maybe it could start like “This study looked at XYZ. Despite multiple limitations due to XYZ, the findings of this study...”

   We agree and have altered this section

**Minor issues not for publication:**

1. **Background, 5th paragraph:** “SPs is defined” – either “SPs are” or “SP is”. In general (throughout the manuscript), there seems to be a wild mixture as to when “SP” and when “SPs” is used.

   We had edited the manuscript to include only the use of SPs.