

The Effect of a Pre-Objective Structural Clinical Examination Workshop with Clinical Examination Stations on the Performance of Sixth- Year Medical Students in the Final Objective Structural Clinical Examination

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Abstract

Preparatory courses taken before the final exam have been shown to have a positive impact, especially in the postgraduate education field. In this study, a pre-objective structured clinical examination workshop was conducted to prepare students for the clinical examination stations by providing them with a concise review and an orientation to the exam environment. The main objective of this research was to examine the effect of a pre-objective structured clinical examination workshop on a student's clinical performance in the final exam.

The total number of sixth-year medical students was 184, and 101 of these students volunteered to attend the workshop. The grades at the final exam, especially for the clinical examination stations, were compared between the two groups.

The students who attended the workshop received a higher score in the examination stations compared to those who did not attend. The overall performance was better for both groups compared to their performance on the midterm exam.

The pre-objective structured clinical examination workshop proved to be a promising tool for preparing undergraduate students for the final exam. The results were limited to clinical examination skills only. Further studies looking at the overall clinical performance are required to confirm this result.

Keywords: Objective structural clinical examination (OSCE), undergraduate, preparatory course, pre-OSCE.

Introduction

Pre-exam workshops are designed to familiarize candidates with the requirements of the different components of the exam. By replicating the exam environment, candidates are given a feel for the time pressures and stress levels they might face, which helps them to feel less nervous for the actual exam. A pre-objective structured clinical examination (pre-OSCE) workshop, or a preparatory course in medical education, has been used successfully for postgraduate students such as residents and fellows. However, a pre-OSCE workshop for undergraduate medical students has not been used prior to this study. The research team for this study hypothesized that conducting a pre-OSCE workshop for undergraduate students would have a positive impact on their performance in the final exam. The aim of the workshop was to review clinical examination skills with students and to provide preparation and exam tips.

Method

Before the final OSCE, the research team conducted a voluntary pre-OSCE workshop for the examination stations only. All of the participants were sixth-year female medical students in their 2015-2016 academic year. The curriculum for the workshop consisted of a review of the examination of abdominal, respiratory, cardiovascular and neurology systems. The instructors were R4 senior residents who passed the final medical board exam and R4 senior neurology residents in the neurology examination station. During the workshop, there were six lines and each line had four exam stations, one for each of the four major body systems. The duration for each training station was 30-40 minutes. The instructors performed a detailed clinical examination on standardized patients or manikins (a low fidelity simulation), then the students alternated with each other to demonstrate their examination skills. This was followed by an immediate debriefing. After they had completed one station, the students moved to the next station. This format was similar to that of the actual final exam.

The reference textbook used for the examinations of the four major mentioned systems was a clinical examination book by Talley *et al.* ^[1]. The data collected from this workshop was part of an educational assessment and improvement plan. Therefore, approval from the ethical committee at King Abdulaziz University (KAU) was not necessary. The scores for the final OSCE were compared between the students who attended the workshop and those who did not. Also, the study team compared their performance on the final OSCE with their mid-term exam scores, since the mid-term exam took place prior to any intervention. To assess the usefulness of the workshop, voluntary feedback was collected at the end of the final OSCE. A total of 40 out of 184 students answered the feedback questionnaire. The questionnaire was conducted using the *Survey Monkey* online system. The statistical analysis was enumerated using SPSS version 20.0 software (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp).

Results:

The total number of sixth-year students was 184 and 101 of these students chose to attend the workshop. The number of students who did not participate in the workshop was eighty-three (see Table 1).

The students who attended the pre-OSCE workshop had significantly higher mean final exam results for the clinical examination stations compared to those who did not attend (see Table 2). Whereas, the midterm exam for the examination stations, which was taken before the students participation in the workshop, did not show different mean midterm exam results between the two groups (see Table 3). It was also found that the final exam results for the clinical examination stations for both groups were significantly higher compared to their midterm performance. This difference reflects an improvement in the students' clinical skills by the end of the rotation compared to their skills for the midterm assessment (see Table 4).

The majority of student feedback regarding the workshop and its effectiveness in preparing them for the final OSCE was that it was "excellent" and "very good" (Figure 1). Moreover, students strongly recommended making the pre-OSCE workshop a mandatory course (Figure 2). However, the number of the students who completed the online feedback questionnaire was only 40 out of 184 students. Since the survey was conducted after the release of the final OSCE grades, and students were busy with the start of their surgical rotation, the number of survey responses received was, unfortunately, lower than expected.

Discussion

This workshop was designed to provide sixth-year medical students with a brief review of the clinical examination skills in the four main human body systems and to prepare them for the final OSCE. The workshop also gave students the opportunity to practice the clinical examination and to receive constructive and concise feedback on their performance.

Our results show that participating in pre-OSCE training for the clinical examination significantly improves a student's performance in the actual exam. These results are similar to the findings in another report that showed improvement in a pharmacy student's performance in the final exam after attending a pre-rotation workshop ^[2].

One of the strengths of this study was that the examiners at the final OSCE were not informed about the pre-OSCE workshop, or about students' participation in any preparatory course. Another strength was that there was no difference in the level of performance of the groups of students at the midterm exam (prior to the pre-OSCE workshop). This, indeed shows the significance of the workshop on the performance of students at the final OSCE, and eliminates any selection bias.

The goal of the workshop was to review only the clinical examination skills; this was a limitation of our study. However, including other clinical skills such as history taking and the diagnostic approach would not have changed the results significantly and would have required extensive preparation and availability of the clinical faculty staff.

In order for medical students to acquire certain clinical skills, they need to practice those skills repeatedly in a well-structured setting with effective feedback. Unfortunately, our students lack the repetitive exposure to patients in order to build their clinical skills and this is mainly due to the large

number of students and the limited number of patients available for practice. Since organizing and preparing a pre-OSCE workshop for all clinical skills is challenging, simulation provides the optimal environment for the development of clinical experience through repetitive practice, self-reflection and debriefing ^[3].

Furthermore, these results may show the need to integrate simulation-based teaching in the curriculum of undergraduate medical students. Simulation-based teaching integration in the undergraduate curriculum has been shown to have a significant learning impact on various clinical skills ^[4, 5, 6, 7].

Conclusion

A pre-OSCE workshop proved to be an effective method for preparing students for the final exam. The workshop provided a tension-free environment and the opportunity to practice clinical skills with constructive feedback. A further study looking at the value of a pre-OSCE workshop for all clinical skills is required to confirm these results. Furthermore, the introduction of simulation-based teaching in the undergraduate medical student curriculum may eliminate the need to organize a pre-OSCE workshop in order to prepare students for the final OSCE and this deserves further study.

Acknowledgment

I would like to acknowledge the help and support provided by Dr. Hind Fallatah consultant gastroenterologist and hepatologist at King Abdulaziz University (KAU).

Conflict of Interest

The author has no conflict of interest.

Disclosure

The author did not receive any type of commercial support either in forms of compensation or financial for this study. The author has no financial interest in any of the products or devices, or drugs mentioned in this article.

Ethical Approval

The data collected from this workshop was part of an educational assessment and improvement plan. Therefore, approval from the ethical committee at King Abdulaziz University (KAU) was not necessary.

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Tables

Table 1: The total number of the student who Attended and did not attend the Workshop (1-Yes; 2-No)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	101	54.9 %	55.8 %	55.8 %
	2	80	43.5 %	44.2 %	100.0 %
	Total	181	98.4 %	100.0 %	
Missing	System	3	1.6 %		
Total		184	100.0 %		

Table 2: The mean final exam results for the clinical examination stations for the student who attended the Pre-OSCE workshop compared to those who did not attend.

Group Statistics					
	Attended Workshop (1-Yes; 2-No)	N	Mean	Std. Deviation	Std. Error Mean
Exam Final	1	101	17.4553	2.42483	.24128
	2	80	16.4423	2.92767	.32732

P= .014

Table 3: The mean midterm exam results between the student who attended the workshop and the student who did not attend.

Group Statistics					
	Attended Workshop (1-Yes; 2-No)	N	Mean	Std. Deviation	Std. Error Mean
Active Case E1 Out of 18 marks	1	101	13.46	4.372	.435
	2	80	13.75	3.623	.405

P= .62

Table 4: The mean final exam results for the clinical examination stations for both groups.

Paired Samples Statistics							
Attended Workshop (1-Yes; 2-No)			Mean	N	Std. Deviation	Std. Error Mean	Sig
1	Pair 1	Active Case E1 Out of 18 marks	13.46	101	4.372	.435	<.001
		Exam Final 2	17.4553	101	2.42483	.24128	
2	Pair 1	Active Case E1 Out of 18 marks	13.75	80	3.623	.405	<.001
		Exam Final 2	16.4423	80	2.92767	.32732	

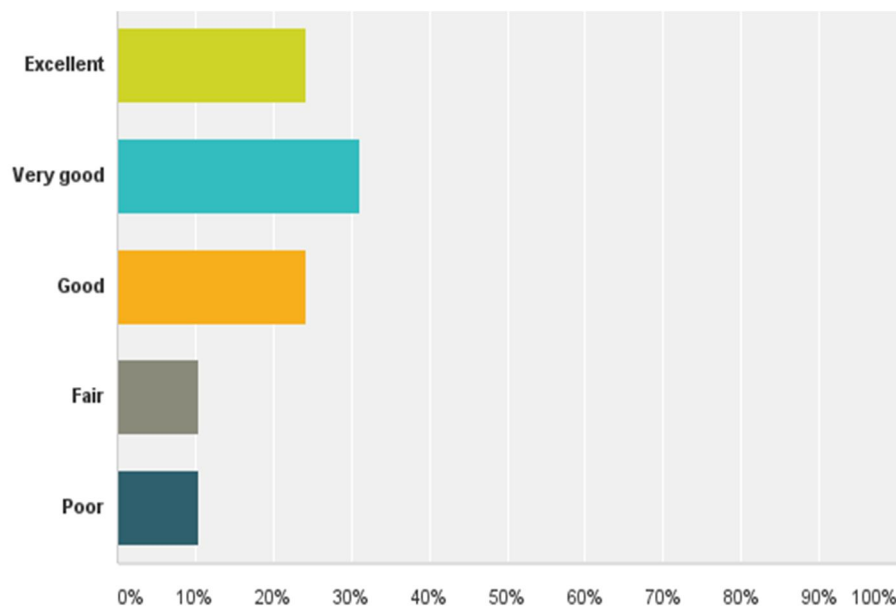


Figure 1. Student rating of the overall quality of the pre-OSCE workshop

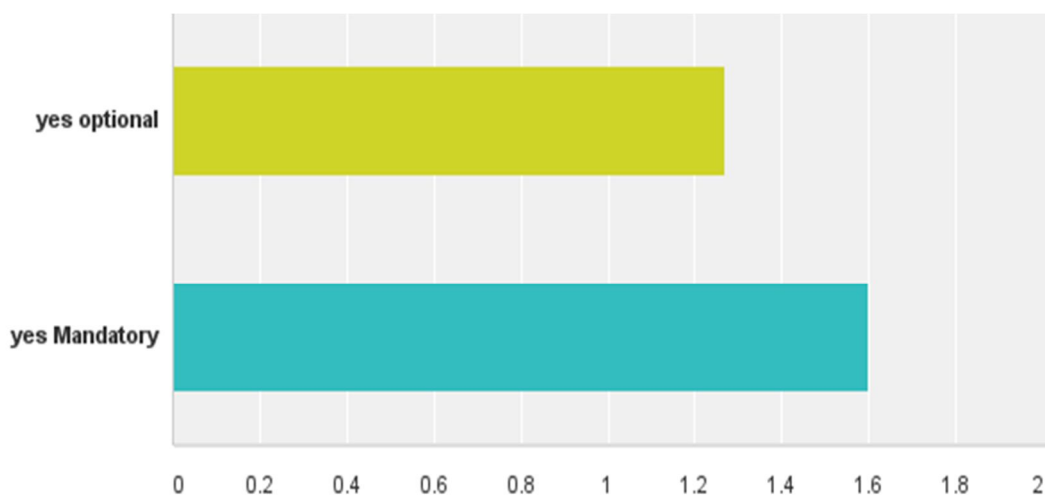


Figure 2. Student recommendations for making the course (or a similar course) mandatory: 5 strongly recommended and 1 was against making it mandatory.