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Perception of Students, Staff and Simulated Patients towards Objective Structured Clinical Examination (OSCE)

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ABSTRACT

Objective Structured Clinical Examination (OSCE) has been widely used to assess the clinical performance of medical and health profession students. The literature has revealed that OSCE is an effective evaluation tool for evaluating the clinical skills of medical students. The objectives of this study were to investigate perception of the students and staff of OSCE as a clinical assessment tool during their clinical years at the Faculty of Medicine, Suez Canal University (FOM-SCU) as well as the perception of both the staff and medical interns regarding their ethical concerns of using medical interns as simulated patients in OSCE stations. Two different questionnaires were used to explore the perception of the students and staff of OSCE; also, semi-structured interviews with the staff and medical interns as simulated patients inside active stations were conducted. The results revealed that 88% of the students agreed that OSCE should remain as a form of performance assessment, and 83% of them agreed that OSCE was a valuable practical exam and provided them a great learning experience. Approximately 80.4% of the staff emphasised that faculty members need specific training to achieve more valid and reliable results when using OSCE as an assessment tool, and 76.5% of them agreed that using OSCE reduced the bias in clinical assessment. Some medical interns agreed to act as simulated patients inside the dynamic stations instead of using real patients. The study population point of view concluded that OSCE is the most valid and reliable tool for assessing the clinical performance of students; however, it requires comprehensive planning and training with collaborative work from all the stakeholders involved in its organisation and implementation.

Keywords: *OSCE, Simulated patients, Perception, Training, Clinical assessment*

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INTRODUCTION

The Objective Structured Clinical Examination (OSCE) was developed to reduce bias in the assessment of clinical competence where various aspects of clinical competence are evaluated in a comprehensive, consistent, and structured manner, paying close attention to the objectivity of the process (1).

The OSCE was hypothesised in the 1960s by Harden and first reported in the British Medical Journal. OSCE has since been used as an existing method of assessing students' clinical performance in medical, dentistry,

nursing and pharm D. schools worldwide (2). The method was designed to improve the validity and reliability of assessment of performance, which was previously assessed using other methods of clinical assessment, such as long case and short case examinations (3).

OSCE consists of a series of stations that examines the competency of students in taking histories, practicing specific clinical tasks, and interpreting some clinical data. OSCE provides a uniform marking scheme for examiners and consistent examination scenarios for students (4). According to Newble, "The OSCE is not a test method in the same way as an essay or multiple-choice questions. It is basically an organisation framework consisting of multiple stations around which students rotate and at which students perform and are assessed on specific tasks" (5).

The two major underlying principles of the OSCE are "objectivity" and "structure." Objectivity predominantly depends on a standardised marking scheme and the same trained examiner observing the same task for every student. A well-structured OSCE station, on the other hand, has a standardised station design assessing a specific clinical task that is blueprinted before the exam, aligned with the curriculum outcomes (3).

The OSCE is an authentic tool for performance-based assessment in simulated and safe environments so it is most commonly used for clinical assessment in undergraduate medical education (6). OSCE is a performance-based assessment tool for testing the minimum accepted performance standards of students as barrier (exit) examinations during the undergraduate clinical years in most of medical schools and is used as an educational tool to provide immediate feedback and improve the students learning progress (7, 8). It also generates formative feedback for both the students and the educational programme. Immediate feedback collected may improve students' competency at subsequent exams and even enhance the quality of the learning experience (4).

Accordingly, an observational cross-sectional study was designed to evaluate the OSCE from the students' and staff's perspectives. Evaluation of the OSCE implementation is necessary to identify strengths and weaknesses and make improvements. The current study raised the following questions:

(a) What is the students' perception of OSCE?

(b) What is the staff's perception of OSCE and the use of the medical interns as simulated patients in OSCE?

(c) What are the medical interns' perceptions regarding their role as simulated patients inside OSCE dynamic stations?

METHODS

Context

The undergraduate medical education at the Faculty of Medicine, Suez Canal University (FOM-SCU) is a student-centred, problem-based and community-based six-year curriculum. The assessment process of clinical skills in the clinical clerkship years is composed of clinical exams (one long case and two short cases) and OSCE (9).

In 2013, a need to introduce OSCE as a more valid, reliable and fair tool in assessing clinical performance emerged (10). In response to this need, the faculty administration assigned a committee responsible for improving clinical teaching as an integral part of graduating a competent physician. One of the clinical teaching committee responsibilities is introducing the OSCE as an assessment tool within the students' assessment methods in the clerkship phase.

Sample and Population

A convenient sample of the clinical clerkship students (Years 4, 5 and 6) at the FOM-SCU were involved (n = 100). The faculty staff members from different clinical departments who participated in OSCE (n = 50) and medical interns who participated as simulated patients in the dynamic stations were also involved in the study (n = 5).

Data Collection

(a) Self-administered questionnaire to assess students' perception about OSCE

The questionnaire items were constructed based on two previous studies: one by Alaidarous et al. (1) to evaluate the OSCE among Saudi Internal medicine residents' perceptions of the OSCE as a formative assessment tool and the other one was by Labaf et al. (11) to assess students' concerns about the pre-internship OSCE in medical education.

The inventory consists of 7 core themes with 30 items (OSCE station preparation, OSCE validity and reliability, proper instructions for OSCE, OSCE effectiveness, OSCE setting, OSCE stations with simulated or standardised patients, and staff readiness).

The questionnaire also included open-ended questions inquiring about the students' own point of view regarding the strengths and weaknesses of the OSCE as a tool of assessment, the major reason for

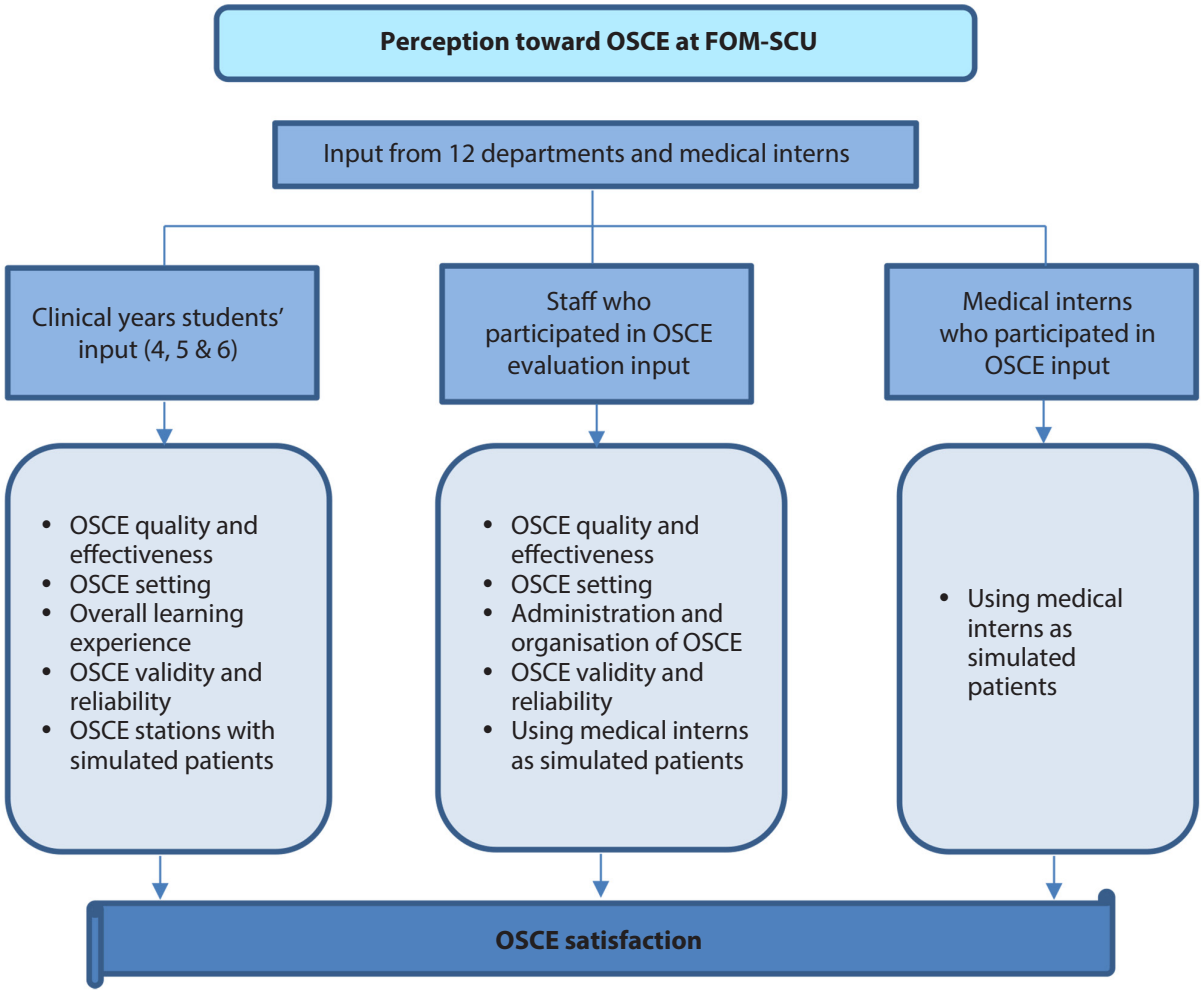

Figure 1: The conceptual framework of the OSCE evaluation process.

their dissatisfaction with OSCE and their suggestions for further improvement. The questionnaire was constructed using a 5-point Likert response scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was tested for validity and reliability using exploratory factor analysis (EFA).

(b) A self-administered questionnaire to assess staff's perception of OSCE

The questionnaire items were constructed based on a previous study by Idris et al. (12), who assessed teachers' and students' perceptions in a surgical OSCE exam. The inventory was constructed using a 5-point Likert response scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire also included open-ended questions inquiring about the strengths and weaknesses of the OSCE as a tool of assessment and suggestions for improving the OSCE.

(c) Semi-structured interviews

Interviews were conducted by the principal researcher with five medical interns. Because all interviews were conducted in English, there were no translation issues. The notes were recorded after receiving permission and typed up immediately after the interview. The interview included (a) Opening (as an introduction): "Please introduce yourself to us and mention how many times you shared in OSCE exams;" (b) Main subject: Their OSCE experience as a simulated patient in dynamic stations, their opinion about the strengths, weaknesses, and suggestions for improvement of OSCE.

Statistical Analysis

The data were analysed using SPSS software Version 22. Data were presented as a mean and standard deviation of each factor. A p-value of < 0.05 was considered statistically significant. Missing data were treated by replacing with a mean of missing variables. EFA using principal component analysis with varimax rotation, was performed to identify the different factors. The number of factors that were extracted and used was based on the Kaiser rule (i.e., eigenvalues > 1.0). Internal consistency of the items was measured using Cronbach's alpha coefficient. The items of the questionnaire represent a measure of satisfactory internal consistency if the Cronbach's alpha value is between 0.7 and 0.9 (13).

Ethical Consideration

The aim of the study and the use of its results were communicated to the participants. The students completed the questionnaire anonymously after consenting to contribute to the research. Oral consent was obtained from the medical interns before conducting the interviews. All data were analysed confidentially. The research received approval from the Ethics Research Committee at FOM-SCU.

RESULTS

The students' questionnaire response rate was average (100 clinical year students). After performing EFA, the questionnaire items were sorted into 7 factors and 30 items as shown in Table 1.

Student Perception

Initially, in Factor 1 (stations preparation), most of the students (79%) agreed that the OSCE contains an appropriate number of stations, and 78% of them agreed that the OSCE stations were well structured. In addition, 75% of them agreed that the OSCE tested appropriate skills mapped to the learning outcomes. Regarding Factor 2 (OSCE validity and reliability), 88% of the students agreed that the OSCE should remain as a form of assessment, and 78% of them agreed that the OSCE tested a wide range of clinical skills. In Factor 3 (proper instructions for OSCE), 82% of the students agreed that the instructions to perform each activity were clear, and 72% of

Table 1: Rotated component matrix of students' satisfaction about OSCE questionnaire (n = 100)

Items	1	2	3	4	5	6	7	Factor labelling
33. The OSCE tested appropriate skills mapped to the learning outcomes.	.785							
13. Tasks asked to perform were fair.	.653							
27. The OSCE allowed me to concentrate on areas of weakness and consolidate areas of strength.	.596							F1 Stations preparation
16. The OSCE stations were well structured.	.577							
25. The OSCE contained an appropriate number of stations.	.486							
17. The stations were well prepared for each activity.	.322							
32. The OSCE should remain as a form of assessment.		.735						
35. The OSCE covered a wide knowledge range.		.706						F2 OSCE validity and reliability
34. The OSCE tested a wide range of clinical skills.		.478						
38. The OSCE score is a true the measure of clinical skills.		.426						
6. Instructions to perform each activity were clear.			.741					
8. Briefing instructions prior to start were helpful.			.649					F3 Proper instructions for OSCE
7. Sufficient information about the OSCE was provided well in advance.			.636					
28. I was aware of the information needed for each task.			.421					
1. The OSCE helped to identify gaps in knowledge.				.770				
2. The OSCE helped to identify weaknesses in communication and patient-care skills.				.658				F4 OSCE effectiveness
11. The OSCE offered more learning opportunities than other exams.				.522				
31. The OSCE was a valuable practice and learning experience.				.426				

(*Continued on next page*)

Table 1 (*Continued*)

Items	1	2	3	4	5	6	7	Factor labelling
21. An environment where the OSCE was conducted was noise free.					.698			
22. The light was adequate in OSCE stations.					.691			F5 OSCE setting
23. Temperature is comfortable in OSCE stations.					.671			
20. The OSCE is conducted inadequate space.					.484			
37. Observer acts fairly.						.690		
36. The standardised patient plays his/her role realistically.						.634		
19. Having staff as "patient" actors were un-nerving annoying.						.500		F6 OSCE stations with simulated or standardised patients
18. The "patient" actors were believable and realistic.						.464		
12. Settings and contexts of stations were authentic.						.462		
26. There was appropriate supervision of stations.							.704	
15. The staff was helpful in guiding us through the process of OSCE.							.468	F7 Staff readiness
24. The sequence of stations was logical and appropriate.							.444	

them agreed that enough information about the OSCE was provided well in advance. However, 47% were dissatisfied with the briefing instructions given prior to the start of OSCE.

Regarding Factor 4 (OSCE effectiveness), 83% of the students highlighted that the OSCE was a valuable and practical learning experience, and 71% of them emphasised that the OSCE helped them identify gaps in their clinical knowledge. In Factor 5 (OSCE setting), most of the students were satisfied with the OSCE set as 88% of the students agreed that the light was adequate in OSCE stations. In addition, 75% of the students agreed that the OSCE was conducted in adequate space. Furthermore, 72% of students stated that the environment where the OSCE was conducted was quiet.

Concerning Factor 6 (OSCE stations with simulated or standardised patients), 64% of students agreed that the simulated patients were believable and realistic. In addition, 59% of the students agreed that the observers were fair. Finally, in Factor 7 (staff readiness), 82% of the students agreed with the appropriateness of the stations' supervision and 69% emphasised that the staff was helpful in guiding them through the process of OSCE as shown in Table 2.

Staff Perception

The staff questionnaire response rate was average (50 clinical staffs). The questionnaire items consisted of five factors, including OSCE quality and effectiveness, OSCE setting, administration and organisation of OSCEs, OSCE validity and reliability, and using medical interns as simulated patients.

Table 2: Frequency of students' satisfaction regarding the OSCE implementation process (n = 100)

Items	Disagree	Neutral	Agree	Factor labelling
33. The OSCE tested appropriate skills mapped to the learning outcomes.	12%	13%	75%	F1 Stations preparation
13. Tasks asked to perform were fair.	18%	8%	74%	
27. The OSCE allowed me to concentrate on areas of weakness and consolidate areas of strength.	19%	17%	64%	
16. The OSCE stations were well structured.	16%	6%	78%	
25. The OSCE contained an appropriate number of stations.	14%	7%	79%	
17. The stations were well prepared for each activity.	17%	9%	74%	
32. The OSCE should remain as a form of assessment.	3%	9%	88%	F2 OSCE validity and reliability
35. The OSCE covered a wide knowledge range.	18%	11%	71%	
34. The OSCE tested a wide range of clinical skills.	6%	7%	87%	
38. The OSCE score is a true the measure of clinical skills.	20%	20%	60%	
6. Instructions to perform each activity were clear.	11%	7%	82%	F3 Proper instructions for OSCE
8. Briefing instructions prior to start were helpful.	47%	13%	40%	
7. Sufficient information about the OSCE was provided well in advance.	19%	9%	72%	
28. I was aware of the information needed for each task.	20%	13%	67%	
1. The OSCE helped to identify gaps in knowledge.	17%	12%	71%	F4 OSCE effectiveness
2. The OSCE helped to identify weaknesses in communication and patient-care skills.	22%	10%	68%	
11. The OSCE offered more learning opportunities than other exams.	15%	15%	70%	
31. The OSCE was a valuable practice and learning experience.	2%	15%	83%	
21. An environment where the OSCE was conducted was noise free.	21%	7%	72%	F5 OSCE setting
22. The light was adequate in OSCE stations.	7%	5%	88%	
23. Temperature is comfortable in OSCE stations.	27%	7%	66%	
20. The OSCE is conducted inadequate space.	11%	14%	75%	

(*Continued on next page*)

Table 2 (*Continued*)

Items	Disagree	Neutral	Agree	Factor labelling
37. Observer acts fairly.	27%	14%	59%	F6 OSCE stations with simulated or standardised patients
36. The standardized patient plays his/her role realistically.	17%	18%	65%	
19. Having staff as "patient" actors were unnerving annoying.	24%	19%	57%	
18. The "patient" actors were believable and realistic.	21%	15%	64%	
26. There was appropriate supervision of stations.	9%	9%	82%	F7 Staff readiness
15. The staff was helpful in guiding us through the process of OSCE.	18%	13%	69%	
24. The sequence of stations was logical and appropriate.	21%	14%	65%	
26. There was appropriate supervision of stations.	9%	9%	82%	

Regarding Factor 1 (OSCE quality and effectiveness), 90.2% of the staff agreed that the OSCE stations were clearly written. Additionally, 82.4% agreed that the time allocated for each station was adequate. Furthermore, 70.6% emphasised that the OSCE is a fair assessment method. Concerning Factor 2 (OSCE setting), 72.5% of the staff agreed that the OSCE had the appropriate number of stations. In addition, 66.7% of the staff agreed that the sequence of stations was logical and appropriate and the OSCE was conducted in adequate space.

Regarding Factor 3 (administration and organisation of OSCEs), 82.4% of the staff understood the marking scheme and 80.4% of them emphasised that the exam instructions were clear. Factor 4 (OSCE validity and reliability), 80.4% of the staff agreed that faculty staff members need specific training to achieve more valid and reliable results when using OSCE as an assessment tool, and 76.5% of them agreed that using OSCE reduces the bias in clinical evaluation.

Finally, for Factor 5 (using medical interns as simulated patients), 60.8% of the staff agreed that medical interns' cooperativeness affects performance, and 52.95% of them agreed that adequate training of medical interns was given prior to the OSCE exam as shown in Table 3.

Qualitative Analysis of the Open-Ended Questions and Semi-Structured Interview

Four themes with their subthemes were discussed with the students, staff and medical interns as shown in Table 4.

DISCUSSION

Although there has been widespread use of OSCE worldwide over the last 60 years, debate continues concerning the possible reasons for using such a demanding format of performance assessment regarding cost and feasibility. The main use of the OSCE, until now, has been to assess student competence at the level of "shows how" according to Millar's pyramid or clinical simulation in a safe learning environment (2). OSCE can be used for both formative and summative purposes, to provide feedback to students and staff, and for certification, revalidation and progression purposes (4).

Table 3: Frequency of staff satisfaction regarding the OSCE implementation process (n = 50)

Items	Disagree (%)	Neutral (%)	Agree (%)	Factors
The OSCE helped to identify gaps in knowledge.	9.8	21.6	68.6	F1 OSCE quality and effectiveness
The OSCE helped to identify weaknesses in communication and patient-care skills.	13.7	21.6	64	
The exam was well designed and structured.	9.8	27.5	62.8	
The exam was administered well.	9.8	19.6	70.6	
The time allocated at each station was adequate.	3.9	13.7	82.4	
Sufficient information about the OSCE was provided well in advance.	11.8	19.6	68.6	
The OSCE was a fair assessment method.	3.9	19.6	70.6	
The OSCE offered more learning opportunities than other exams.	17.7	29.4	52.9	
Settings and contexts of stations were authentic.	7.9	29.4	62.7	
The OSCE stations were clearly written.	0	9.8	90.2	
The "patient" actors were believable and realistic.	23.5	47.1	29.4	F2 OSCE setting
The OSCE was conducted inadequate space.	11.8	21.6	66.7	
An environment where the OSCE exam conducted was noise free.	11.8	39.2	49	
The light was adequate in OSCE stations.	11.8	23.5	64.7	
The temperature was comfortable in OSCE stations.	45.1	17.6	37.3	
The sequence of stations was logical and appropriate.	5.9	27.5	66.7	
The OSCE contained an appropriate number of stations.	11.8	15.7	72.5	
The exam instructions were clear.	2	17.6	80.4	F3 Administration and organisation of OSCEs
I understood the marking scheme.	2	15.6	82.4	
The exam briefing gave me the information I needed.	3.9	25.5	70.6	
OSCE is an effective tool to assess communication skills and patient management.	7.8	29.5	62.7	F4 OSCE validity and reliability
OSCE provides an objective evaluation of the student clinical competencies.	3.9	27.5	68.6	
OSCE reduces the bias in clinical evaluation.	3.9	19.6	76.5	
OSCE is useful and relevant to study and the type of work students will be doing after graduation.	3.9	25.5	70.6	
OSCE is more time consuming compared to other methods of assessment of clinical skills.	39.2	23.5	37.3	
OSCE with simulated patients is better than ward assessment with real patients.	49	21.6	29.4	

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Table 3 (*Continued*)

Items	Disagree (%)	Neutral (%)	Agree (%)	Factors
The less the stations the higher the specificity and clarity of answers.	45.1	23.6	31.4	
A large number of examiners and patients can be removed to a large extent by OSCE.	23.5	37.3	39.2	
OSCE requires specific training and standardisation of faculty member.	6.8	12.8	80.4	
Using medical interns as simulated patients in OSCE stations is effective.	17.7	37.3	45.1	F5 Using medical interns as simulated patients
Medical interns' cooperativeness affects performance.	9.8	29.4	60.8	
Adequate training of medical interns was given prior to the OSCE exam.	19.6	27.5	52.9	

Table 4: OSCE perception semi-structured interview quotations with students, staff, and medical interns

Theme	Subthemes	
OSCE strengths	**OSCE validity and reliability**	
	"The OSCE is an awesome way for the assessment as it allows us to practice certain clinical skills during the round as well as it guarantees everyone has a fair chance for being evaluated on a specific justifiable basis without leaving a chance for bias or discrimination to interfere in the evaluator's judgement"	Students quotes
	"Objective, effective, strong and reliable tool of clinical assessment that assesses a wide range of clinical skills"	Staff quotes
	"Cover a wide range of clinical skills" "Clear, unbiased"	Medical interns quotes
	OSCE fairness	
	"Fair, better than MCQs and oral, less stressful"	Students quotes
	"Fair and reliable, which overcome the pitfalls of oral and long case examination"	Staff quotes
	"Fair when the examiners stick to checklists"	Medical interns quotes
	OSCE effectiveness	
	"Test a wide range of clinical skills and allow for more patient contact" "Make us more confident when dealing with patients"	Students quotes
	"Effective method for assessment of communication skills and professionalism within clinical setting"	Staff quotes
	"OSCE is very beneficial being close to real life patient interaction"	Medical interns quotes

(*Continued on next page*)

Table 4 (*Continued*)

Theme	Subthemes	
OSCE suggested areas of improvement	**OSCE Setting**	
	"Improve the setting by using fans and air conditioning"	Students quotes
	"The exam place needs more preparation regarding using more fans and air condition"	Staff quotes
	"Require wide comfortable setting of OSCE exam"	Medical interns quotes
	OSCE Organisation	
	"OSCE should be managed by the medical education with quality assurance team" "OSCE is very helpful exam but it needs more organisation"	Students quotes
	"Using the inward as a site for examination as it is difficult to transport the ill patients to the examination site"	Staff quotes
	OSCE Preparations	
	"I guess, there should be some kind of orientation sessions from clinical departments for their evaluators and instructors just as there are for the students to make both parties comprehend how the exam should really proceed"	Students quotes
	"Staff training, simulated patients training, and using a fixed trained team of simulated patients not using medical interns" "Construction of OSCE station bank under the supervision of medical education staff"	Staff quotes
	OSCE implementation	
	"No oral questions just adherence to the checklist with feedback about our performance in each station" "It's a good idea to replace the doctors in charge of assessment with recording camera and videotapes then are used to assess the student performance fairly away from the tension and stress caused by the doctor"	Students quotes
	"Using more number of stations to improve the exam reliability"	Staff quotes
	"It's preferable not to ask oral questions during OSCE stations"	Medical interns quotes
Causes of stress and dissatisfaction among students	**OSCE Setting** "No ventilation, lack of light"	Students quotes
	OSCE as a clinical exam "A large number of stations" "Frequent exams in the final exam" "High scores on OSCE exam"	
	Examiners "Once a doctor is completely silent and didn't make any comments on my performance at all!!! I was doing badly yet he didn't guide me or tell that I forgot something, I know it's not his role but this was very nerve-wracking for me"	
	Stations' issues "Some real patients may be misguiding" "Simulated or real patients become annoyed"	

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Table 4 (*Continued*)

Theme	Subthemes	
Participation of medical interns as simulated patients in dynamic OSCE stations	**The frequency of participation as a simulated patient** "I shared in Orthopaedics OSCE two time" "I participated in OSCE three times one in orthopaedic and other two in Surgery OSCE"	Medical interns quotes
	Using either simulated or real patient	
	"It's better using real patients but after getting their consent" "I think using medical interns as simulated patients in OSCE is better as most of the real patients are too ill"	Medical interns quotes
	"I think it's a good idea to use medical interns as a simulated patient instead of real patients as they are good simulator in communication skills, history taking, and health education stations"	Staff quotes
	Training of medical interns "No planned training on our roles from the clinical staff and only debriefing words about the station and the role that I will play"	Medical interns quotes
	"I think it isn't matching their job description, and they need good training"	Staff quotes
	Your Experience	
	"It was boring and exhausting due to a large number of students and no benefits for me" "It was fun being at the OSCE exam having no stress and seeing all the students' reactions"	Medical interns quotes
	"Medical interns are not cooperative during dynamic stations and not interested, with more bias than using paramedical persons" "They give some clues to the students"	Staff quotes

The students' perceptions in this study showed more positive reaction toward OSCE regarding station preparation, organisation, validity and reliability, OSCE setting, proper instructions, and effectiveness, and these findings were congruent with previous studies on OSCEs in the medical literature (1). This finding is similar to positive results regarding students' perception of the organisation of the exam presented in a study assessing surgical OSCE in Pakistan (14).

The OSCE is a preferable method for assessing clinical competence and is considered a valid and reliable method of examination. This study revealed that the students were highly satisfied regarding its validity and reliability, which is consistent with the results of other studies in which the students felt that OSCE was more valid and reliable than other traditional clinical examination methods because everyone is assessed on the same type of stations, using same examiners and with the same level of case difficulty (15, 16). Additionally, a study conducted at King Saud University, Saudi Arabia, on 95 students demonstrated that the OSCE is a highly reliable method of student assessment (17). Our study revealed that the students' responses revealed a high reliability regarding station preparation and proper instructions provided for OSCE.

The study findings revealed that a large proportion of the students agreed that OSCE provided them useful and practical learning experiences and they appreciated the learning experience they had during the exam. These results are consistent

with a similar study conducted in Saudi Arabia concerning Saudi internal medicine residents' perceptions towards OSCE. Their study reported the highest level of satisfaction was regarding the instructions given for the OSCE. The fairness of tasks to be performed, the logical sequence of the stations, and the satisfaction about the adequacy of the time allocated at each station was average (1). A study conducted in the Paediatrics Department of Jimma University about the student perception toward OSCE reported that OSCE gives them a good chance for a clinical learning experience (15). Additionally, student evaluation of the OSCE in the Paediatrics Department of West Indies University reported similar responses from their students (16).

There were different causes of stress and dissatisfaction among students regarding OSCE, such as timing for stations not enough to complete the task, no feedback received from the staff in some stations after the end of the exam, and real patients being annoyed and maybe misleading them. This finding is consistent with the results of the study conducted at Jimma University concerning the student perception toward OSCE, as several students felt that the examination was stressful and intimidating (15). Other studies surveying student attitudes during the OSCE have documented that the OSCE can be a strong anxiety-producing experience and that the level of anxiety changes little as students' progress through the examination (12, 14).

The staff satisfaction regarding the OSCE revealed that they agreed to use OSCE to measure the clinical competencies of the students, reduce the bias in clinical exams and that its stations were clearly written and reviewed. This finding is consistent with those of the Sloan et al. study, which revealed that the staff considered the OSCE to be a suitable tool for assessing the students' individual skills and that it is a useful performance-based assessment tool (18). Most of the staff suggested that they required more training for their role as an OSCE examiner to achieve more valid and reliable results, and they agreed that OSCE is more time consuming compared to other methods of performance assessment. This finding is consistent with what was reported in a systematic review about OSCE feasibility, in which staff perception toward OSCE was uncertain concerning using the OSCE as an assessment tool, and they may be discouraged due to its complexity, associated costs and time required. This time demand is justified both by the need to assess students' clinical competence and by the provision of an important learning experience for students with feedback being given after the OSCE (19). Therefore, OSCE, in this case, aims to assess learning and not only learning. In a study aimed to evaluate the surgery OSCE exam from the teachers' points of view, most of the examinees were satisfied with the examination and thought that it should be continued to be used as an assessment tool (12).

The open-ended questions during the interviews performed in this study with some students, staff and medical interns revealed that those participants had positive perceptions of OSCE strengths as it guarantees everyone a fair chance for being evaluated on a specific justifiable basis without leaving a chance for bias or discrimination to interfere in the evaluator's judgement. Additionally, OSCE overcomes the pitfalls of oral and long case examinations. The OSCE allows different aspects of clinical competence to be assessed in a comprehensive, consistent, controlled, and objective manner. The interviews revealed that the weak points of OSCE as reported by staff include that OSCE is an intensive and demanding exam that requires human, physical and financial aspects. This finding is consistent with those reported in a review article, which demonstrated that the high costs are primarily related to manpower (examiners, patients, coordinators), resources, time, space, and the extensive organisation required (20).

Many suggestions for improvements were revealed from these interviews as the staff, students, and medical interns all suggested that the OSCE location needed more organised preparations regarding the using of air conditioning and that OSCE halls need good ventilation. Additionally, one of staff suggested that the OSCE needs more training for all staff and simulated patients.

Regarding the participation of medical interns as simulated patients inside the dynamic stations of OSCE, the interview with some of the staff and medical interns revealed positive results as they agreed that the use of medical interns in communication, health educations and history taking stations was better than using real patients. Another staff member did not support this idea as he reported the medical interns were not cooperative with the students inside the stations and need more training concerning their simulation roles. A review article reported that the simulated patients' candidates must be intelligent, flexible, quick thinking, and reliable as the standardised patients' understanding of the concept of the OSCE and the role given to them is critical to the overall process (20).

One of the medical interns agreed with the idea of playing the role of a simulated patient inside the dynamic station instead of using real patients, who may be too ill. Another intern was dissatisfied with this idea because they received no planned training before the exam and he added that it was boring and exhausting and outside of their role as a medical intern. These results were inconsistent with other studies with medical students who were used as simulated patients in OSCE at Sydney Medical School, the University of Sydney, Australia, which revealed that students perceived the value of acting as simulated patients. The learning activity of this OSCE allowed students to apply and build on prior knowledge and develop confidence in their clinical skills (21).

This study was the first to obtain the perception of students, staff and medical interns on OSCE implementation in all clinical departments at FOM-SCU and receive feedback and suggestions for improvement from the staff, who share in this type of exam. Both staff and students became familiar with this type of clinical exam after a long period of resistance from both populations, and the results showed that OSCE can be successfully implemented considering the different suggestions provided by staff, students and medical interns regarding OSCE organisation, preparation, and implementation. This study confirms that OSCE is a reliable, valid, honest and fair method of medical examination. The objective to reduce resistance was achieved, as staff and students' attitudes became increasingly positive towards OSCE during the implementation and evaluation process.

A positive implication of the OSCE implementation was an increased interaction between clinical departments and with the clinical teaching committee. The most important limitations of this study are that it requires increasing the study population, especially in the qualitative section, to obtain more in-depth information about OSCE evaluation. We suggest that further research be conducted at FOM-SCU on the use of well-trained simulated patient personnel from non-medical backgrounds and compare the results with the use of medical interns as simulated patients.

CONCLUSION

The medical students' and staff's satisfaction using OSCE as a performance assessment tool at the level of "shows how" according to Millar's pyramid in undergraduate medical education is still debatable in the literature. Therefore, the current study has added evidence regarding the OSCE evaluation from both students, staff, and medical interns' points of view.

The study revealed that OSCE is a valuable practical learning experience and most of the students agreed that OSCE helped them to identify gaps in their clinical knowledge. There were different causes of stress and dissatisfaction among students regarding the OSCE exam, including a shortage of time for stations to complete the requested task and no feedback received from the staff in some stations after the end of the exam.

Additionally, the study concluded that the staff members agreed that OSCE reduces the bias in other clinical exams, such as oral and long cases, and OSCE provides a fair assessment of the students more than long cases but they suggested that staff members involved in OSCE need more practical training sessions on their roles as OSCE examiners to achieve more valid and reliable exam results.

Some of the medical interns liked sharing in the dynamic stations of OSCE as it helps them play an educational role and refresh their clinical backgrounds. Alternatively, one medical intern disagreed, as he or she required additional training for their role as a simulated patient and stated that role playing was not included in their job description.

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