

## ORIGINAL ARTICLE

# Perception of OSCE as An Assessment Tool in Undergraduate Students of Private Medical College in Karachi, Pakistan

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## ABSTRACT

**OBJECTIVE:** To explore the perception of undergraduate students of United Medical and dental college towards objective structured clinical examination as an assessment tool.

**MATERIAL & METHODS:** A cross-sectional observational study included undergraduate medical students,

**RESULTS:** 153 students who completely filled the proforma were included in study among them 31% were male and 69% were females. Mostly agreed that stations in OSCE were simple and easily interpretable and assessed practical skills thoroughly. Majority of students accepted that skills inquired were taught in clinics, stations were according to course and stations were appropriately timed. 66 % confirmed that adequate instructions were provided before exam. 84.31% believed that OSCE is preferable to viva. 57.51% of candidates stated that examiners during OSCE were attentive and gracious but 20.91 % objected it, while 21.57% remained neutral. Almost half of examinees labelled it as comprehensive clinical assessment. Overall, 67.97 % perceived OSCE as demanding and tough assessment. Finally views of students for statement that OSCE is unbiased, reliable and valid were positive in 50.32%. There was a significant difference in the opinion of male and female (p-value is less than 0.05) in statement that OSCE thoroughly assessed practical skills, stations were according to course of instruction, Adequate instructions were provided before exam, superior and preferable to viva, assists in improvement of clinical skills, demanding and tough and finally OSCE was unbiased, reliable and valid

**CONCLUSION:** OSCE was perceived as fair, comprehensive, un-biased format of examination but believed it was more stressful than traditional examination methods.

**KEY WORDS:** Assessment, Attitude, OSCE, Perception, Undergraduate Medical students.

## INTRODUCTION

Proper evaluation of knowledge, competence and proficiency of undergraduate medical students is an important part of their training and assessments and examination<sup>1</sup>. Conventionally undergraduate students are evaluated through theoretical written exam, viva and their clinical performance. OSCE is currently practiced globally to deliver an appropriate means for constructive and summative assessment.<sup>2</sup>

OSCE is a clinical examination tool that assesses the students' capability to utilize their knowledge and skills for diagnosis, management and proper communication as well as counseling of patients.<sup>3,4</sup>

OSCE involves multiple stations for history taking, physical examination, clinical methods, communication skills, interpretation of investigations, diagnosis and management in a specified time.<sup>5</sup>

Stations may be interactive, static and of rest. In interactive stations candidate has to deal with real or simulated patients and are assessed by examiner, who marks them according to provided checklist.<sup>6</sup> While at static stations there may be any clinical scenario, instruments, investigations provided for interpretation and diagnosis. OSCE is considered to be an objective way of judgment that is equitable, non biased, limits element of luck, and reflects the actual scenarios experienced by medical practitioners in practical life. Contrarily conduction

of OSCE is considered to be associated with more consumption of time and cost due to need of purposeful space, multiple examiners, patients and coordinators.<sup>7</sup>

Students perception and feedback is an integral component of OSCE, it is undertaken mainly to know overall perspective of candidates.<sup>8,9</sup> This study was conducted in a private medical college of metropolitan city to explore the perception of undergraduate medical students towards OSCE as a positive criticism for further improvement in planning of upcoming examinations as it is an integral component of current educational system.

## MATERIAL & METHODS

This cross-sectional study included 153 undergraduate medical students of United Medical & Dental college Karachi, who appeared in the clinical evaluation at end of semester in April-May 2019. An ethical approval was attained from ethical Review Board of institute to conduct the study.

All final year (Semester IX- clinical) students (172) enrolled in General Surgery, obstetrics & Gynecology, Medicine and Pediatric module of 2019 session were included in study to assess their perception towards objective structured clinical examination.

The inclusion criteria was completion of clinical rotation in all four above mentioned clinical subjects and completion of proforma at end of OSCE. Students those did

not completed their clinical rotation training or not completely filled the proforma were excluded from the study.

OSCE was conducted in four days, each discipline was allocated one day, and students were segregated in groups involving evaluation of almost 40 undergraduates per day. Each group was further divided into two shifts for intention of convenience, availability of staff and space. Detail orientation was provided to candidates before start of exam. Fourteen stations were arranged in OSCE exam, including interactive, static and rest stations, time duration at each station was 5 minutes. Candidate had to deal with real or simulated patients during an interactive station in front of examiner, who had answer key checklist for marking. While at static stations clinical scenario, investigations for interpretation and diagnosis, clinical skills were provided which students had to answer on given sheets and insert in the closed boxes kept at every station before leaving from station. Candidates were rotated in clockwise fashion in the OSCE circuit. A standardized criterion-based scoring format was used for marking at each station

Just after completion of OSCE, students were briefed regarding objective and importance of this study. Questionnaires were provided to students to assess their feedback and perception regarding OSCE. Students completed the forms in presence of investigator to explain any difficulty, if encountered and returned it before leaving examination hall. Anonymity of candidates' identification was reassured to them. Questionnaire was filled and returned by all undergraduate medical students, but 19 of them were incomplete so excluded therefore n=153. Questionnaire was designed to gather information from students regarding OSCE, composed of following feedback items, stations in OSCE were simple and easily interpretable, OSCE thoroughly assessed practical skills, skills inquired were taught in clinics, OSCE stations were according to course of instruction, OSCE stations were appropriately timed, Adequate instructions were provided before exam, OSCE is superior and preferable to viva, examiners during OSCE were attentive and gracious, OSCE is comprehensive clinical assessment, OSCE assists in improvement of clinical skills, OSCE was demanding and tough, finally OSCE is unbiased, reliable and valid. Response were rated by students for each statement as strongly agree, agree, no idea, disagree or strongly disagree.

**DATA ANALYSIS:** The data was entered and analyzed in Statistical Package for Social Science (SPSS), version 19 and the results were expressed in proportions and percentages. The data was stratified by males and females and statistical significance determined.  $P < 0.05$  was used for significance.

## RESULTS

One hundred and seventy two students were inquired to determine their attitude and perception towards objective structured clinical examination, out of 172 questionnaires 153 were completely filled and remaining were incomplete so excluded from study. Out of 153, 106 (69%) students were females and 47 (31%) were males. (FIGURE 1)

Among 153 students, 44 (28.76%) strongly agreed, 58(37.90%) agreed, 6 (3.92%) had no idea, 28(18.30%) disagreed and 17(11.11%) strongly disagreed that stations in OSCE were simple and easily interpretable. 24.84 % and 47.05% strongly agreed and agreed respectively that OSCE assessed practical skills thoroughly. Regarding view of students that skills inquired were taught in clinics majority of them that is 18.95% strongly agreed and 44.44% agreed and OSCE stations were according to course of instruction 28.10 % strongly agreed and 46.40% agreed.

76.47 % (strongly agreed & agreed) accepted that stations were appropriately timed, in contrast 4.58% strongly disagreed and 5.22% disagreed from same statement, while 13.73 % were not sure. 66.01% confirmed that adequate instructions were provided before exam, but 21.57% were in disagreement to it. Most (84.31%) of them believed that OSCE is superior and preferable to viva. 57.51% (strongly agreed & agreed) of candidates stated that examiners during OSCE were attentive and gracious but 20.91 % (strongly disagree & disagree) objected it, while 21.57% remained neutral. 58.82% realized that OSCE is a comprehensive clinical assessment. 39.87% accepted that OSCE assists in improvement of clinical skills. 67.97 % perceived OSCE as demanding and tough assessment. Finally views of students for statement that OSCE is unbiased, reliable and valid were positive in 50.32% (strongly agree & agree), negative in 24.84% (strongly disagree & disagree) and 24.84 % remained neutral. (TABLE I)

Stratification with respect to Gender was conducted (TABLE II) and p-values calculated.

There was a significant difference in the opinion of male and female( p-value is less than 0.05) in statement that OSCE thoroughly assessed practical skills, stations were according to course of instruction, Adequate instructions were provided before exam, superior and preferable to viva, assists in improvement of clinical skills, demanding and tough and finally OSCE was unbiased, reliable and valid. Whereas the stratification showed that the opinions of both genders were almost same and the p-value revealed that insignificant relation between male and female in remaining OSCE stations.

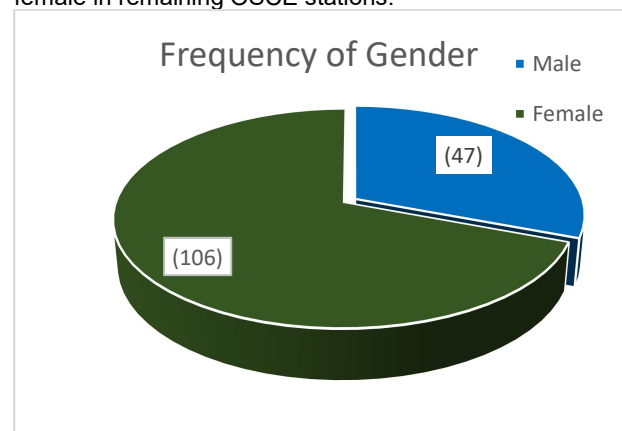


Figure 1 Frequency of Gender

TABLE 1: Students attitude and perception towards OSCE.

Statements	Strongly Agree n (%)	Agree n (%)	No idea n (%)	Disagree n (%)	Strongly Disagree n (%)
stations in OSCE were simple and easily interpretable	44 (28.76%)	58 (37.90%)	6 (3.92%)	28 (18.30%)	17 (11.11%)
OSCE thoroughly assessed practical skills	38 (24.84%)	72 (47.05%)	12 (7.84%)	15 (9.80%)	16 (10.46%)
skills inquired were taught in clinics	29 (18.95%)	68 (44.44%)	24 (15.69%)	18 (11.76%)	14 (9.15%)
OSCE stations were according to course of instruction,	43 (28.10%)	71 (46.40%)	20 (13.07%)	12 (7.84%)	7 (4.58%)
OSCE stations were appropriately timed	41 (26.79%)	76 (49.67%)	21 (13.73%)	8 (5.22%)	7 (4.58%)
Adequate instructions were provided before exam	35 (22.87%)	66 (43.14%)	19 (12.42%)	17 (11.11%)	16 (10.46%)
OSCE is superior and preferable to viva	51 (33.33%)	78 (50.98%)	9 (5.88%)	11 (7.19%)	4 (2.61%)
examiners during OSCE were attentive and gracious	31 (20.26%)	57 (37.25%)	33 (21.57%)	14 (9.15%)	18 (11.76%)
OSCE is comprehensive clinical assessment	37 (24.18%)	53 (34.64%)	33 (21.57%)	12 (7.84%)	18 (11.76%)
OSCE assists in improvement of clinical skills	30 (19.61%)	31 (20.26%)	49 (32.02%)	18 (11.76%)	25 (16.34%)
OSCE was demanding and tough	41 (26.79%)	63 (41.18%)	23 (15.03%)	15 (9.80%)	11 (7.19%)
OSCE is unbiased, reliable and valid	33 (21.56%)	44 (28.75%)	38 (24.84%)	21 (13.73%)	17 (11.11%)

TABLE 2: Stratification with Respect to Gender

Statement	Gender		Satisfaction Level					P-Value
			Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Stations in OSCE were simple and easily interpretable	Male	Count	3	9	1	21	13	0.592
		% of Total	2.0%	5.9%	0.7%	13.7%	8.5%	
	Female	Count	14	19	5	37	31	0.022
		% of Total	9.2%	12.4%	3.3%	24.2%	20.3%	
OSCE thoroughly assessed practical skills	Male	Count	0	6	3	21	17	0.380
		% of Total	0.0%	3.9%	2.0%	13.7%	11.1%	
	Female	Count	16	9	9	51	21	0.001
		% of Total	10.5%	5.9%	5.9%	33.3%	13.7%	
skills inquired were taught in clinics	Male	Count	7	6	9	17	8	0.099
		% of Total	4.6%	3.9%	5.9%	11.1%	5.2%	
	Female	Count	7	12	15	51	21	0.003
		% of Total	4.6%	7.8%	9.8%	33.3%	13.7%	
OSCE stations were according to course of instruction,	Male	Count	2	5	1	16	23	0.001
		% of Total	1.3%	3.3%	0.7%	10.5%	15.0%	
	Female	Count	5	7	19	55	20	0.099
		% of Total	3.3%	4.6%	12.4%	35.9%	13.1%	
OSCE stations were appropriately timed	Male	Count	4	5	4	21	13	0.003
		% of Total	2.6%	3.3%	2.6%	13.7%	8.5%	
	Female	Count	3	3	17	55	28	0.001
		% of Total	2.0%	2.0%	11.1%	35.9%	18.3%	
Adequate instructions were provided before exam		Count	4	9	0	26	8	0.001
	Male	% of Total	2.6%	5.9%	0.0%	17.0%	5.2%	
		Count	12	8	19	40	27	0.183
	Female	% of Total	7.8%	5.2%	12.4%	26.1%	17.6%	
OSCE is superior and preferable to viva		Count	6	8	3	19	11	0.083
	Male	% of Total	3.9%	5.2%	1.9%	12.3%	7.1%	
		Count	0	3	6	59	40	0.001
	Female	% of Total	0.0%	1.9%	3.9%	38.1%	25.8%	
examiners during OSCE were attentive and gracious	Male	Count	1	5	12	19	10	0.083
		% of Total	0.7%	3.3%	7.8%	12.4%	6.5%	
	Female	Count	17	9	21	38	21	0.001
		% of Total	11.1%	5.9%	13.7%	24.8%	13.7%	
OSCE is comprehensive clinical assessment	Male	Count	3	2	7	23	12	0.083
		% of Total	2.0%	1.3%	4.6%	15.0%	7.8%	
	Female	Count	15	10	26	30	25	0.001
		% of Total	9.8%	6.5%	17.0%	19.6%	16.3%	
OSCE assists in improvement of clinical skills	Male	Count	2	9	11	17	8	0.001
		% of Total	1.3%	5.9%	7.2%	11.1%	5.2%	
	Female	Count	23	9	38	14	22	0.004
		% of Total	15.0%	5.9%	24.8%	9.2%	14.4%	
OSCE was demanding and tough	Male	Count	1	2	2	23	19	0.004
		% of Total	0.7%	1.3%	1.3%	15.0%	12.4%	
	Female	Count	10	13	21	40	22	0.001
		% of Total	6.5%	8.5%	13.7%	26.1%	14.4%	
OSCE is unbiased, reliable and valid	Male	Count	1	0	20	15	11	0.001
		% of Total	0.7%	0.0%	13.1%	9.8%	7.2%	
	Female	Count	16	21	18	29	22	0.001
		% of Total	10.5%	13.7%	11.8%	19.0%	14.4%	

Applied Chi-Square test

## DISCUSSION

The results of current study express overall positive perception of undergraduate medical students towards objective structured clinical examination. They well agreed that stations in OSCE were simple and easily interpretable, assessed practical skills that were taught in clinics and were according to syllabus, which is in agreement with previous studies.<sup>2,10</sup> In contrast to it, study conducted by Siddiqui FG, 43% students believed that the skills inquired in exam were explained in clinics.<sup>11</sup>

Regarding feedback for adequate time allowed at each station, most of examinee were satisfied, same observed in studies conducted by Khan M et al and Moeen-uz-zafar et al<sup>2,12</sup> but study conducted by Majumder et al reported that majority of the Students (66.7%) needed more time at stations.<sup>13</sup>

In justification of statement that adequate instructions were provided before exam, majority

(66.01%) of candidates well agreed. This is in line with Khan M et al<sup>2</sup> and Iqbal haider et al,<sup>14</sup> but in disagreement with Siddiqui FG.<sup>11</sup>

In current study when inquired whether OSCE is preferable method of assessment and superior to conventional viva, 84.31% (strongly agree & agree) were in favour to this statement. This is consistent with the findings reported by other studies where majority of students appreciated OSCE as an appropriate examination system compared to other conventional methods of examination.<sup>8,15,16</sup> while study conducted by Rahil H et al, 47% students preferred it over other forms of assessment.<sup>17</sup>

In this study 57.51% examinees believed that examiners during OSCE were attentive and gracious, but 21.57% remained neutral and 20.91% denied the fact. While Pratima jaiswal et al concluded that 38.8% of examinees stated that the examiners were polite and professional, and 37.6% were neutral for same statement.<sup>5</sup> Study conducted by Iqbal Haider et al concluded that Examiners have a tendency to get tired over time in a long OSCE leading to a decline in their ability to concentrate.<sup>18</sup>

In current study 58.82% students reported that OSCE is comprehensive clinical assessment and 39.87% thought that OSCE assists in improvement of their clinical skills (strongly agree & agree), which is in accordance with previous work.<sup>2,5,8</sup> In study by Abidullah khan et al, 88% stated that exam was fair and comprehensive.<sup>8</sup> In this series, 67.97 % students declared that OSCE was demanding and tough, which is in agreement with Rahil H et al study in which 48% found it to be stressful, and 40% found it not easy.<sup>17</sup> More high numbers were observed in other study in whom 94% believed that OSCE was stressful and mentally tougher.<sup>8</sup> Similar results observed in other studies with candidates facing increased stress during OSCE were documented.<sup>11,16,19</sup>

Finally OSCE declared as unbiased, reliable and valid assessment tool in our study by 50.32% of students while 24.84% remained neutral and similar percentage (24.84%) reported negatively.

Ninety-six percent considered OSCE as valid and reliable in Khan A et al study.<sup>8</sup>

Reliability, no bias and validity of OSCE appreciated by students in other studies as well.<sup>2,20,21</sup> This study was

first of its kind from this private medical college located in metropolitan city, that included comprehensive set of questions and their stratification according to gender. Few limitations observed including relatively smaller sample size and inclusion of only final year students. Further studies are recommended in this regard, with a larger sample size, inclusion of students from all five years, perception of examiners,<sup>18</sup> collection of data from multiple institutes for comparison and to have better assessment outcome regarding OSCE as tool.

## CONCLUSION

OSCE was perceived as unbiased, reliable and valid tool of assessment and examination of under graduate medical students. Negative perception like stress and difficulty can be improved by better orientation and taking regular feedback from students.

**Conflicts of Interest:** None

## REFERENCES

1. Elfaki OA and Al-Humayed S. Medical Students' Perception of OSCE at the Department of Internal Medicine, College of Medicine, King Khalid University, Abha, KSA. JCPSP. 2016, Vol. 26 (2): 158-159.
2. Khan M, Noor SM, Siraj MU. Students' perceptions of OSCE in dentistry: A study from Khyber College of Dentistry, Pakistan. Adv Health Prof Educ. 2015;1(1):30-36.
3. Nasir AA, Yusuf AS, Abdur-Rahman LO, Babalola OM, Adeyeye AA, Popoola AA, et al. Medical students' perception of objective structured clinical examination: a feedback for process improvement. JSE. 2014;71:5:701-06.
4. Edward, M. I., F. Okanlawon. Perception of objective structured clinical examination and traditional practical examination in assessment of nursing students clinical competencies by nursing students in south west Nigeria. IJMRR 2016;4(8):1340-50.
5. Jaiswal P, Mehta RK. Medical students' perception regarding objective structured clinical examination in medical college, Chitwan. JCMC. 2019; 9 (27): 52-60.
6. Akhtar N, AyazSB, Khan AA, Qamar K. Objective structured clinical examination (OSCE) - A better dimension to measure clinical competencies. PAFMJ. 2017; 67 (4): 677-80.
7. Khan M, Haider I, Humayun M, Khan A. Objective structured clinical examination (OSCE)
8. as a tool of conducting examination. J Med Sci. 2016; 24: (4) 273-274.
9. Khan A, Ayub M, Shah Z. An audit of the medical students' perceptions regarding objective structured clinical examination. Education Research International. 2016 Jan 1;2016.
10. Alaidarous S, Mohamed TA, Masuadi E, Wali S, AIMalki A. Saudi Internal Medicine Residents' Perceptions of the Objective Structured Clinical Examination as a Formative Assessment Tool. Health Professions Education 2016; 2:121-9.
11. Khurshheed I, Usman Y, Usman J. Students' feedback of objectively structured clinical examination: a private medical college experience. J Pak Med Assoc 2007; 57:148-9.
12. Siddiqui FG. Final year MBBS students' perception for observed structured clinical examination. JCPSP 2013; 23:20-4.
13. Moeen-uz-zafar, Al Shammari O, Aljarallah B. Evaluation of Interactive OSCE for Medical Students in the Subject of Medicine; Reliability and Validity in the Setting of Internal vs. External Examiners. Ann Public Health Res 2015; 2(4): 1030.

14. Majumder AA, Kumar A, Krishnamurthy K, Ojeh N, Adams OP, Bidyadhar SA. An evaluative study of objective structured clinical examination (OSCE): students and examiners perspectives. *AMEP*. 2019;10:387–397.
15. Haider I, Khan A, Imam M, Ajmal F, Khan M, Ayub M. Perceptions of final professional
16. MBBS students and their examiners about objective structured clinical examination (OSCE): a combined examiner and examinee survey. *J Med Sci*. 2016; 24: (4) 206-211.
17. Khan AS, Javaeed A, Rasheed RA, Ghauri SK, Mustafa KJ. Perceptions of Undergraduate Medical Students regarding Objective Structured Practical Examination and Objective Structured Clinical Examination as an Assessment Method. *IJP*. 2016; 14(2)60-65.
18. Khorashad AK, Salari S, Baharvahdat H, Hejazi S, Lari SM, Salari M et al. The Assessment of Undergraduate Medical Students' Satisfaction Levels With the Objective Structured Clinical Examination. *Iran Red Crescent Med J*. 2014;16(8):e13088.
19. Raheel H, Naeem N. Assessing the Objective Structured Clinical Examination: Saudi family medicine undergraduate medical students' perceptions of the tool. *J Pak Med Assoc* 2013;10:1281-84.
20. Haider I, Badshah A, Khan AR, Abidullah. Fatigue level of examiners during objective structured clinical examination (osce); a single institution based survey. *J Med Sci*. 2018; 26: (3) 207-210.
21. Bevan J, Russell B, Marshal B. A new approach to OSCE preparation -PrOSCEs. *BMC Medical Education* (2019) 19:126.
22. Shitu B, Girma T. Objective structured clinical examination (osce): examinee's perception at department of pediatrics and child health, Jimma university. *Ethiop J Health Sci*. 2008; 18(2):47-52.
23. Bhat VS, Prasad K, Bhat SP. A Study of effectiveness of OSCE in the formative and summative assessment of medical students- a student centered study. *IERJ*. 2016(3).