

## An evaluation of perceptions of MBBS fourth professional year students on objective structured clinical examination (OSCE) in the subject of General Surgery

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**Abstract:** *Introduction:* The Competency-Based Medical Education (CBME) curriculum, implemented in August 2019, emphasizes a comprehensive approach to learning, integrating cognitive, affective, and psychomotor domains. To address the limitations of traditional assessment methods, the Objective Structured Clinical Examination (OSCE) was introduced to reduce the bias. OSCE is now widely adopted as a gold standard for evaluating clinical skills due to its structured, objective approach and ability to minimize bias. *Objectives:* This study aimed to evaluate the perceptions of MBBS fourth-year students regarding the OSCE in General Surgery at Al-Ameen Medical College. *Materials and Methods:* Conducted over six months, this cross-sectional study involved 144 out of 149 MBBS fourth-year students who participated in an OSCE consisting of six stations: two history-taking, two clinical examination, one with a simulated patient, one with a mannequin, one skill station, and one communication station. Students completed a questionnaire via Google Forms following the OSCE. Responses were recorded on a 5-point Likert scale and analysed using Microsoft Excel, with quantitative data expressed as means and standard deviations, and qualitative data as frequencies and percentages. Statistical significance was assessed using t-tests, with  $p < 0.05$  considered significant. *Results:* The majority of students found the OSCE to be a practical and effective assessment tool. Key findings include that 67.62% of students felt the time for each station was adequate, 69.49% believed the OSCE identified clinical skill deficiencies, and 57.27% found the OSCE stressful. Although most students appreciated the OSCE's relevance and objectivity, concerns about time pressure and stress were notable. *Conclusion:* The OSCE was generally perceived as an effective method for evaluating clinical skills and knowledge. However, students expressed concerns about the associated stress and time management challenges.

**Keywords:** Clinical skill, OSCE, OSPE, CBME

### Introduction

The new Competency Based Medical Education for Undergraduate Course Curriculum is being implemented with the objective of covering all three domains of learning (Cognitive, Affective & Psychomotor).

The new course curriculum introduced in August 2019 enriches the medical student with a sound base and balanced approach to overall aspects of CBME, with the introduction of foundation course which includes Family Adoption Programme, Yoga, meditation, Local Language adaptation and skills to name a few. Competency based medical education includes designing and

implementing medical education curriculum and assessment, that focuses on the desired and observable ability in the real-life Situations. The traditional method which is being presently carried out in most of the colleges is highly subjective and raises concern on its validity and reliability. Learning is assessment based since time memorial, as students learn for what they are assessed. Thus, we need to have a method of assessment more objective than subjective with the inclusion of Objective Structured Clinical Examination (OSCE) in medical science summative clinical exam to overcome the challenges faced by the traditional methods [1-4].

There are also other methods such as essay questions, student projects, constructed response questions, tutor reports, portfolios and log book assessment, to mention a few [5-6]. Many of these assessment methods have the risk of being prejudiced and lack objectivity and structure, which is essential during examinations [7-8]. With the intention of minimizing these limitations, *Harden et al* in 1975, introduced the OSCE, which has now become a standard assessment tool in undergraduate and postgraduate medical school training [9]. The OSCE was developed to reduce the bias in the assessment of clinical competence. OSCE checks the student's comprehension, consistency, and is known for the close attention it pays to the objectivity of the process [4, 10].

OSCE is now considered a gold standard tool for the formative and summative assessment in various medical disciplines worldwide [11-14]. OSCE consists of multiple stations around which students rotate and at each station they perform and are being assessed. OSCE gives uniform marking scheme for all the students, which in turn reduces the examiner's bias [1,15]. This is an assessment format in which the candidates rotate around a circuit of stations, where they are asked for specific tasks to be performed involving a clinical skill, history taking and or examination and decision making of patient management [1, 15-16].

The major strength of OSCE is its ability to measure core competencies desired from a medical graduate. These core competencies are broken down into individual tasks or behaviours, which are then evaluated through a scoring checklist. The checklist includes the main components of the skill being assessed. Objectivity and structure are two major underlying principles of the OSCE. Objectivity focuses on the same trained examiner observing the same task for every student and predominantly depends on the standardized marking scheme whereas structure of OSCE is made up of the specific clinical task that is blue printed before the exam from subject areas within

the curriculum. So, this study was conducted for evaluation objective structured clinical evaluation (OSCE) for MBBS 4<sup>th</sup> professional year.

*Aims and Objectives:* To determine the perception of MBBS 4<sup>th</sup> professional year in subject of General Surgery about objective structural clinical examination (OSCE).

### Material and Methods

Permission was obtained from head of institution and after obtaining ethical clearance from the ethical committee and the study was done. Students of MBBS Fourth professional year in subject of general surgery at Al Ameen Medical College were evaluated by OSCE, after taking proper consent OSCE Consists of 6 Stations, 2 History station, 2 Clinical examination stations, one on simulated patient, and one on mannequin, 1 skill station and 1 communication station with checklist. All stations were taught during clinical postings. At the end of clinical postings, students were assessed on OSCE. After taking OSCE students were asked to fill questionnaire about the exam.

*Inclusion Criteria:* All MBBS students of 4th professional year in subject of General Surgery

*Exclusion Criteria:* Student who could not appear for the exam on the day of examination

*Statistical Analysis:* All data obtained was entered in Microsoft office excels. Quantitative data is presented in form of mean and standard deviation and qualitative data would be presented in form of frequency and percentage. Quantitative data is analysed using t - test after assessing normality of data. P value less than 0.05 will be considered statistically significant.

*Questionnaire:* At the end of OSCE students were provided with questionnaire to obtain their view (table-1).

**Table-1: Survey questions**

Sl. No	Feedback items	Strongly Disagree	Disagree know	Don't Agree	Strongly Agree
1.	Stations were easy to understand				
2.	Tasks given in OSCE were demonstrated during ward postings				
3.	Contents of the OSCE stations were relevant to the curriculum				
4.	Time for each station was adequate				
5.	Proper guidelines were given before OSCE				
6.	OSCE is better than viva voce				
7.	OSCE is a practical examination tool				
8.	OSCE helped me to identify my deficiencies in clinical skills				
9.	The OSCE was stressful				
10.	I found OSCE satisfactory				

**Results**

This study involved 144 out of 149 MBBS fourth-year students who participated in an OSCE consisting of six stations: two history-taking, two clinical examination, one with a simulated patient, one with a mannequin, one skill station, and one communication station. Students completed a questionnaire via Google Forms following the OSCE. Responses were recorded on a 5-point Likert scale and analysed using Microsoft Excel, with quantitative data expressed as means and standard deviations, and qualitative data as frequencies and percentages. Table-2 is showing a total of 144 completed questionnaires

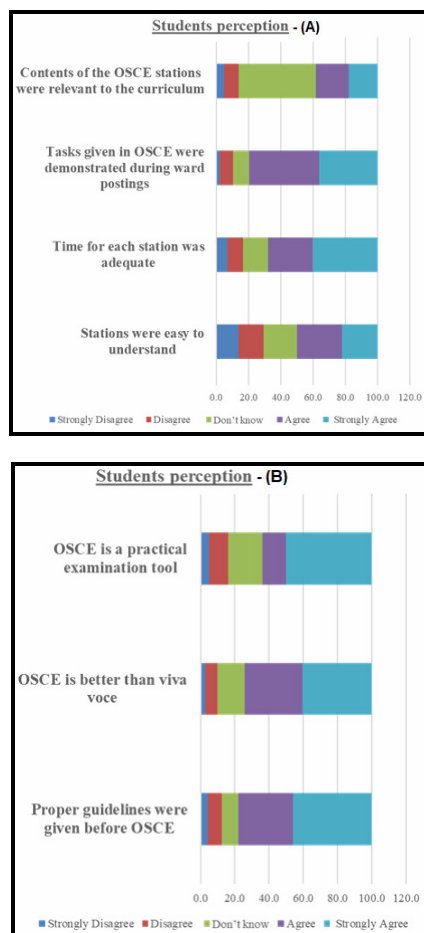
were retrieved. This had a return rate of 96.6%. The feedback on the OSCE revealed a range of opinions. A majority found that the stations were generally understandable, with 27.6% agreeing and 22.08% strongly agreeing, though 13.8% strongly disagreed. Demonstrations of tasks during ward postings were seen positively, with 43.4% agreeing and 35.88% strongly agreeing, though 2.07% strongly disagreed. The relevance of OSCE contents to the curriculum was agreed by 20.01%, 17.94% who strongly agreed, while 4.83% strongly disagreed and 47.6% had given feedback as don't know.

**Table-2: Responses to Survey questions**

Sl. No	Feedback items	Strongly Disagree N (%)	Disagree N (%)	Don't Know N (%)	Agree N (%)	Strongly Agree N (%)
1.	Stations were easy to understand	20(13.8)	22(15.18)	30(20.7)	40(27.6)	32(22.08)
2.	Tasks given in OSCE were demonstrated during ward postings	3(2.07)	12(8.28)	14(9.66)	63(43.4)	52(35.88)
3.	Contents of the OSCE stations were relevant to the curriculum	7(4.83)	13(8.970)	69(47.6)	29(20.01)	26(17.94)
4.	Time for each station was adequate	10(6.9)	14(9.66)	22(15.18)	40(27.6)	58(40.02)
5.	Proper guidelines were given before OSCE	6(4.14)	12(8.28)	14(9.66)	46(31.74)	66(45.54)
6.	OSCE is better than viva voce	4(2.76)	10(6.9)	23(15.87)	49(33.81)	58(40.02)
7.	OSCE is a practical examination tool	7(4.83)	16(11.04)	29(20.01)	20(13.8)	72(49.68)
8.	OSCE helped me to identify my deficiencies in clinical skills	7(4.83)	17(11.73)	19(13.11)	33(22.77)	68(46.92)
9.	The OSCE was stressful	10(6.9)	12(8.28)	22(15.18)	17(11.73)	83(57.27)
10.	I found OSCE satisfactory	21(14.49)	26(17.94)	9(6.21)	19(13.11)	69(47.61)

Regarding the adequacy of time allotted for each station, 27.6% felt it was adequate, and 40.02% strongly agreed, though 6.9% strongly disagreed. The provision of proper guidelines before the OSCE was appreciated by 31.74% who agreed and 45.54% who strongly agreed, while 4.14% strongly disagreed. Most participants preferred OSCE over viva voce, with 33.81% agreeing and 40.02% strongly agreeing, though 2.76% strongly disagreed. OSCE was generally viewed as a practical examination tool, with 49.68% strongly agreeing and 13.8% agreeing, despite 4.83% strongly disagreeing. It was also seen as helpful in identifying deficiencies in clinical skills, with 46.92% strongly agreeing and 22.77% agreeing, although 4.83% strongly disagreed. The OSCE was perceived as stressful by 57.27% who strongly agreed, and 11.73% agreed, while only 6.9% strongly disagreed. Overall, the OSCE was found satisfactory by 47.61% who strongly agreed and 13.11% who agreed, despite 14.49% strongly disagreeing and 17.94% disagreeing [Fig-1 (A, B & C)].

**Fig-1:** Responses to questions students (A), (B) & (C)



### Discussion

The OSCE has been demonstrated in various studies to exhibit excellent validity and reliability in testing knowledge and competence of medical students both in terms of clinical relevance as per what they would encounter in medical practice and also to test a wide range of skills in a controlled environment [17-20].

Objective structured clinical examination (OSCE) measures performance-based outcomes, not otherwise measured by traditional evaluation tools such as viva voce [18]. It has supplanted the traditional long case and short case examinations in many medical schools as the main mode for final examinations in surgery. Its importance however goes beyond summative assessment to usefulness in formative assessment, thus increasing its usefulness in the medical school [17].

Proper planning and preparation goes into the logistics for the OSCE and that includes training of both the examiners and students about the various aspects of the OSCE. Student's preparation is key to ensuring that medical students are able to properly participate in the examinations as the various skills and competencies being tested are necessarily compartmentalized and standardized to the OSCE format for testing. Understanding perspective of the students especially in the case of implementation of new methods or new environment of evaluating is particularly important and valuable. Similarly to other studies of

student's perception of OSCE [22] we tried to acknowledge different aspects of student's perception of this method of examination.

In our study, feedback on the OSCE revealed a wide range of opinions. A majority found that the stations were generally understandable, with 27.6% agreeing and 22.08% strongly agreeing, though 13.8% strongly disagreed. This is consistent with study conducted by Faisal Ghani Siddiqui [21]. In our study demonstrations of tasks during ward postings were seen positively, with 43.4% agreeing and 35.88% strongly agreeing, though 2.07% strongly disagreed. This is consistent with study conducted by Faisal Ghani Siddiqui, in his study only 43% students believed that the tasks given in OSCE were taught to them during ward postings, 9.3 percent strongly disagreed and 20 percent disagreed that rotations in surgical wards helped them in any way in performing tasks during OSCE [21]. In study by Newble, who reported some respondents complaining that OSCE did not examine a wide range of knowledge, skills and clinical competence and the tasks that they learnt during their clinical rotations [23].

In our study the relevance of OSCE contents to the curriculum was agreed by 20.01%, 17.94% who strongly agreed, while 4.83% strongly disagreed and 47.6% had given feedback as don't know. Majority of Students perceived the tasks given in OSCE stations to be irrelevant to the curriculum and the course taught to them. Twenty percent students believed that the content of the OSCE was pertinent to the curriculum and ward tutorials. There is a general agreement that assessment should be aligned with curricular objectives. Such assessment program not only enables the learners to focus their learning on what is envisaged in the curriculum but also precludes feelings of unfairness and stress [21].

However, a review of the syllabus booklet, handed over to this batch of students at the start of academic session, supported student's concern; none of the core competencies that the students were asked to perform in OSCE was mentioned in the syllabus [21]. With one textbook of surgery Bailey and Love we can pass MBBS, MS, MRCS, FRCS but the teaching learning method and assessment methods are different. Regarding CBME for undergraduate 2019 batch NMC

already has put forth teaching learning method and assessment methods and university also put forth that internal assessment should have been conducted by OSCE station, still most of the students are unaware of this and are stuck with a traditional curriculum. One more strong reason is that the students have to face NEETPG exam, whose format is totally different from this exam so most of the student were less interested.

In our study regarding the adequacy of time allotted for each station, 27.6% felt it was adequate, and 40.02% strongly agreed, though 6.9% strongly disagreed. Similar observations made by Wadde S. K. et al., where students found difficulty at some stations so they demanded more time to be given for these students. Lack of practice at being examined in the OSCE format might be the cause of dissatisfaction with time available. The students may get practice for management of time if there will be prior administration of one or two mock examinations ("dry run") [2]. Similar observations were also made by Dharma Rao et al., where few students felt that the time provided was not sufficient [15].

In Faisal Ghani Siddiqui et al., the opinions of the students were varied regarding the sufficiency of the time allocated at each OSCE station. While 76% responded strongly felt that the time given was adequate, 11.3% felt that the time was not sufficient. Short time periods at each OSCE station requiring hurried responses greatly reduce the reliability of OSCE. During interviews, students suggested increasing the time limits at each station. Some students also thought that different tasks require different time limits [21]. The provision of proper guidelines before the OSCE was appreciated by 31.74% who agreed and 45.54% who strongly agreed, while 4.14% strongly disagreed. Similar observations were made by Dharma Rao et al., few students felt that the instructions were not clear and were ambiguous [15].

In Asser Sallam et al., most of the students reported that the OSCE exam was well-administered and well-structured and they were aware of the level of information required at each station and the difficulty

levels of the tasks were acceptable [24]. Most participants preferred OSCE over viva voce, with 33.81% agreeing and 40.02% strongly agreeing, though 2.76% strongly disagreed. Similar observations were made by Saadeldin A. Idris et al., both students and teachers accepted that this type of examination is better than the traditional clinical examination [25]. OSCE was generally viewed as a practical examination tool, with 49.68% strongly agreeing and 13.8% agreeing, despite 4.83% strongly disagreeing. Similar observations were made by Faisal Ghani Siddique et al., in which students appreciated the skills tested in OSCE were of practical nature [21].

It was also seen as helpful in identifying deficiencies in clinical skills, with 46.92% strongly agreeing and 22.77% agreeing, although 4.83% strongly disagreed. Similar observations were made by Rajesh Kumar Jha et al., where 70% of the students felt that OSCE helped them identify areas of weakness in their practical and clinical skills [1]. According to [26] the students felt that the OSCE covers a wide range of topics and allows them to make up for any areas they might have performed poorly [26]. Similar observations were made by Faisal Ghani Siddique that the OSCE helped them in identifying their areas of weakness [21].

The OSCE was perceived as stressful by 57.27% who strongly agreed, and 11.73% agreed, while only 6.9% strongly disagreed. Similar observations were made by Saadeldin A. Idris et al., where any examination is a well-known source of stress and anxiety and OSCE in particular is considered as stressful. Similarly, students agreed that OSCE is a stressful examination [25] this is a new assessment method and students are not accustomed to this method. Here answer is to the point and students cannot fabricate stories.

Overall, the OSCE was found satisfactory by 47.61% who strongly agreed and 13.11% who

agreed, despite 14.49% strongly disagreeing and 17.94% disagreeing. Similar observations were made by Faisal Ghani Siddique et al., the satisfaction levels is low compared to other such observations in which the students acceptability was as high as 90% [27-28] these studies report that the students find the experience during the OSCE to be realistic, challenging and of value to their program of study. Low student acceptability for OSCE in the institution could be attributed due to stress, lack of proper guidelines, untrained faculty and newness of the examination [21].

### Conclusion

The majority of students found the OSCE to be a valuable assessment method that effectively tested their clinical skill and knowledge. Some students did express concerns about the time pressure and stress associated with the OSCE.

*Take-Home Message:* OSCE is generally well received by students, it is important for the educators to consider ways to mitigate stress and anxiety levels during the examination process. Providing adequate preparation and support to students can help optimize their performance and overall experiences with the OSCE.

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