

# STUDENTS' PERCEPTION OF SURGICAL OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE) AT DOW UNIVERSITY OF HEALTH SCIENCES

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## ABSTRACT

**Objective:** To determine the student's perception of reliability and validity of Surgical Objective Structured Clinical Examination (OSCE) in Dow University of Health Sciences.

**Methodology:** Total 109 third year students of Dow International Medical College voluntarily and anonymously completed a self-administered questionnaire at the end of the OSCE examination from January 2012 to March 2013. Main outcome measures were student perception of examination attributes (which included the quality of instructions and organization, the quality of performance, authenticity and transparency of the process).

**Results:** OSCE was considered as a fair examination method by 76% students. More than half of the students rated this examination as one covering wide range of knowledge (86%), clinical competence (72.5%), and well administered and structured (85-87%). Sixty six percent students highlighted OSCE as tool that is reliable and valid in measuring their clinical competencies.

**Conclusion:** OSCE as a tool to evaluate clinical competence among surgical students was highly appreciated by the students. Student believes that this assessment method cover broad knowledge component and clinical competence.

**Keywords:** assessment, Objective Structured clinical examination, perceptions, surgery

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## INTRODUCTION

Clinical skills are the core competencies that are required by the medical students to effectively perform duties in their professional life<sup>1</sup>. One of the main attribute that must be measured in assessments is the clinical skills, and medical profession is enriched with several means for evaluating student performance in this domain<sup>2,3</sup>. A number of assessment methods has been previously used in the medical institutes including multiple-choice and essay questions, but neither of the above methods has proved to be helpful in evaluating the mastery professional skills and communication skills in clinical settings<sup>4,5</sup>.

The Objective Structured Clinical Examination (OSCE) is a modernized approach for conducting examination that is more often used in health sciences<sup>6</sup>. OSCE has been globally recognized as a gold standard of performance based assessment that aids in evaluating the clinical competency of medical and pharmaceutical un-

dergraduate students<sup>7-9</sup>. This is a student assessment approach of objective nature in which the clinical competency aspect of the students is evaluated in a comprehensive, consistent and structured manner<sup>10</sup>. Harden was the first person to introduce OSCE in the year 1975<sup>6</sup>, and since the time of its initiation, this assessment format is providing a formative and summative approach of assessment in the whole world<sup>11</sup>.

Dow University Hospital is a tertiary teaching health care facility that has an affiliation with Dow International Medical College of Dow University of Health Sciences. The traditional assessment formats that have been employed at the institute included long case, short cases and oral examination. But as a result of some major changes in the curriculum as well as to adapt to modern teaching practices<sup>12</sup>, the examination pattern has been altered. For improving the validity and fairness of its examination, a proven approach to assessment, known as OSCE was introduced as a formal method of assessment in all departments. Students and faculty were exposed

to an assessment format that evaluates the competency of students in terms of communication, history-taking and technical skills in a structural and formal manner<sup>9</sup>.

Although psychometric measures are available and should be used to evaluate OSCE examination<sup>13</sup>, student's perception of assessment method is an important quality yardstick and should be evaluated formally<sup>9</sup>. This research study was designed to evaluate overall perception of students at the end of surgical OSCE examination with an aim to determine their acceptability of this assessment process. Furthermore, the feedback that has been taken from students will help in enhancing the performance of the assessment along with the promotion of the faculty training for this assessment method.

## METHODOLOGY

The OSCE comprised of a series of twelve stations on which the participants were required to complete number of tasks including system examination, handling a problem with the help of counseling and communication, performance of problem solving procedure oriented around the patient and laboratory data, radiology interpretation, operative instruments and photographic material all related to surgery (Figure 1). This assessment was based on the theme of ensuring controlled exposure of the students to a wide variety of surgical related clinical skills within a very short time frame. Each station was characterized with duration of 5 minutes. Rest stations were strategically placed to minimize the stress and fatigue of the students and simulated patients.

The assessment used a standardized technique of marking. Furthermore, criterion reference for each station was used to assess the performance of each student. On the basis of criterion based scoring, every check list item was scored as 0 (omitted, incorrect or inadequate), or 1-2 (correct or adequate).

Core group of senior surgeons have reviewed and by consensus developed a check list so as to ensure face and content validity for the assessment. At first step, selection of stations was made to represent the curricular goals and objectives by reflecting authentic clinical situations. In the next stage, most important features were included in the check list by the development committee. Discussion helped in gaining consensus over the check list items and the structure of the assessment.

The study was conducted from January 2012 to March 2013 in Dow International Medical College, Karachi. Ten clinical groups of third year medical students were part of the assessment and evaluation process. Before OSCE, briefing sessions were conducted including an orientation session in which the participants were introduced to the assessment process along with the

commonly assessed competencies. Students were also informed about the worthy contribution that they can make towards the betterment of assessment and thus, were encouraged to actively participate in the evaluation.

At the end of OSCE, a cross sectional survey using a 32-item self-administered anonymous questionnaire was conducted to analyze the perception of students regarding this assessment procedure. Participation in the survey was on voluntary basis. Students were asked to provide their evaluation on the following items: 1) content, structure, and organization of the OSCE, 2) quality of performance and objectivity of the OSCE process, 3) validity and reliability of OSCE tool.

Data collected was analyzed by SPSS Version 17 for descriptive statistics.

## RESULTS

Questionnaire collected response from 109 students, representing 90.8% of those who have successfully completed the OSCE. The majority of students (76%) have considered OSCE as a fair examination method. OSCE was also rated as a comprehensive assessment format, covering a wide range of knowledge (86%) and clinical competencies (72.5%) in surgery. Ninety five students (87.2%) responded that the questions were well administered, and 93 (85.3%) respondents highlighted the assessment format as well structured. Most (66.1%) students agreed that that the assessment process helped to identify weaknesses and gaps in their competencies (Table 1).

Fifty-eight percent were aware of the level of information required at each station, yet 62.4% felt that the examination process minimized their chances of failing. OSCE was considered 74% less stressful as compared to other assessment formats to which they were previously exposed. More time was needed to complete the stations by 36.7%.

Performance testing and Perception of validity and reliability

The majority of students (72.5%) expressed that they were well oriented about the examination and that the tasks were a clear reflection of the curriculum that was taught to them. Setting and context at each station was felt authentic by 76% respondents. In addition, OSCE was recognized as a useful learning experience by 77% participants, highlighting that the examination provided them with an opportunity to learn and get an exposure to real life situations in surgery (Table 2).

Majority of the students asserted that the OSCE scores were standardized, providing a practical and useful experience of clinical examination. More than half of the students considered that OSCE scores do not show

**Figure 1: Plan of OSCE Circuit**

Station	Skill
1	History Taking (E, SP)
2	Clinical (E, P)
3	Radiograph Interpretation
4	Clinical (E, SP)
5	Clinical Picture
6	Patient Data
7	Clinical (E, P)
8	Instruments
9	Radiograph Interpretation
10	Procedure (E, Manikin)
11	Communication (E,SP)
12	Patient Data

E= Examiner, SP= Standardized Patient, P=Patient

**Table 1: Assessment of Objective Structured Clinical Examination (OSCE)**

Question	Agree n (%)	Neutral n (%)	Disagree n (%)	No comment n (%)
Exam was fair	83 (76.1)	21 (19.3)	3 (2.8)	2 (1.8)
Wide knowledge area covered	94 (86.2)	14 (12.8)	1(0.9)	-
Needed more time at stations	40 (36.7)	32 (29.4)	35 (32.1)	2 (1.8)
Exams well administered	95 (87.2)	8 (7.3)	2 (1.8)	4 (3.6)
Exams very stressful	51 (46.8)	44 (40.4)	14 (12.8)	-
Exams well structured & sequenced	93 (85.3)	9 (8.3)	3 (2.8)	4 (3.7)
Exam minimized chance of failing	68 (62.4)	22 (20.2)	14 (12.8)	5 (4.6)
OSCE less stressful than other exams	81 (74.3)	20 (18.3)	7 (6.4)	1 (0.9)
Allowed student to compensate in some areas	71 (65.1)	24 (22.0)	6 (5.5)	8 (7.3)
Highlighted areas of weakness	72 (66.1)	27 (24.8)	5 (4.6)	5 (4.6)
Aware of level of information needed	64 (58.7)	30 (27.5)	7 (6.4)	8 (7.3)
Wide range of clinical skills covered	79 (72.5)	24 (22.0)	2 (1.8)	4 (3.7)

bias on the basis of personality, ethnicity or gender and thus, provide true measure of essential skills in surgery (66.1%) [Table 2].

## DISCUSSION

Sample of this study has provided favorable responses for OSCE in the context of surgical clinical examinations. The research findings indicated that OSCE is overwhelmingly perceived positively by the students of Dow University in terms of its transparency, fairness and authenticity. The research studies that were previously conducted has shown excellent acceptance of OSCE examination by the students.<sup>14-17</sup> However, one important concern that remains in those studies was uncertainty

regarding the examination process that whether the results will be a true reflection of the clinical competencies that are required from the students.

Examination was considered as stressful by some of the students, but on the other hand the experience was quiet enjoyable by many of the students. Studies that have surveyed attitude of students during OSCE have asserted that the assessment has been considered as an anxiety producer that is not reduced to great extent during the process of examination.<sup>18</sup>

The research findings have clearly asserted that majority of the students views OSCE as a fair assessment method. However, this result is not consistent with the

**Table 2: Evaluation of quality of performance testing along with the perception of students regarding test validity and reliability**

<b>Quality of Performance Testing</b>				
<b>Question</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>No response</b>
Fully aware of nature of exam	79 (72.5)	19 (17.4)	5 (4.6)	6 (5.5)
Tasks reflected those taught	67 (61.5)	28 (25.7)	6 (5.5)	7 (6.4)
Time at each station was adequate	70 (64.2)	16 (14.7)	20 (18.3)	3 (2.8)
Setting and context at each station felt authentic	83 (76.1)	15 (13.8)	4 (3.7)	7 (6.4)
Instructions were clear and unambiguous	83 (76.1)	16 (14.7)	3 (2.8)	7 (6.4)
Tasks asked to perform were fair	84 (77.1)	15 (13.8)	2 (1.8)	8 (7.3)
Sequence of stations logical and appropriate	87 (79.8)	13 (11.9)	2 (1.8)	7 (6.4)
Exam provided opportunities to learn	84 (77.1)	14 (12.8)	3 (2.8)	8 (7.3)
<b>Student perception of validity and reliability</b>				
OSCE exam scores provide true measure of essential clinical skills in surgery	72 (66.1)	27 (24.8)	5 (4.6)	5 (4.6)
OSCE scores are standardized	75 (68.8)	23 (21.1)	3 (2.8)	8 (7.3)
OSCE practical and useful experience	89 (81.7)	14 (12.8)	0	6 (5.5)
Personality, ethnicity and gender will not affect OSCE scores	74 (67.9)	18 (16.5)	8 (7.3)	9 (8.3)

studies published previously. In one of the researches conducted at Newcastle Medical School regarding perception of students for OSCE assessment, findings have provided constructive criticism regarding the structure and organization of the stations.<sup>19</sup> Participants asserted that the instruction were ambiguous at some of the stations and the time allocated at each of the station was very short. As per perception of the faculty, the students have faced the problem of time allocation and stressful conditions at the station because of the insufficient preparation of the examination, specifically regarding the competencies that were not previously considered in the curriculum.

In this research study, high response rate from the students helped us to ensure that OSCE serves as a valid representation of the opinion and perceptions of the students. The perceptions of students can serve as a good parameter for the better implementation of OSCE in future endeavors. However, implementing OSCE remains a challenging task and the results of the study cannot be generalized to other departments or institutes as perception varies from department to department because of quality of stations and organizational issues.

The feedback that has been collected from the students have been valuable as it will help in ensuring improvements in the process and can highlight the importance of teaching and evaluating the competencies of history taking, communication and technical aspects. It also provides a clear message to the students that the

current clinical environment requires competencies on an overall level.

Future research studies can take help from the results provided in this study and can compare OSCE with other assessment methods. In addition, researchers can also compare the results of students' perception and psychometric analysis so as to get an idea about the variations in the two major means of OSCE evaluation.

## LIMITATIONS

The sample size is not very large to generalize the findings. Student's perception is one of the measures for any assessment tools quality. Other psychometric parameters like cronbach alpha, validity, generalizability theory should also be assessed which is beyond of the scope of the current study.

## CONCLUSION

In summary, the findings highlight that OSCE is a valid examination tool to evaluate the clinical competencies of the surgical students. Their perceptions and authentic feedback helps in improving the transparency, authentication and validity of the assessment formats.

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### CONTRIBUTORS

MJ conceived the idea, planned and wrote the manuscript of the study. ZM helped in the data analysis and revision of the paper. FJ helped in the literature search and revision of the paper. All the authors contributed significantly to the research that resulted in the submitted manuscript.