Objective Structured Clinical Examination (OSCE): An Excellent Tool for Testing Clinical Competence

Authors
Dr. Ketan Vagholkar[1], Dr. Minal Doulatramani[2]

[1]MS, DNB, MRCS, FACS, Professor, Department of Surgery, D.Y. Patil University School of Medicine, Navi Mumbai, MS. India

[2]MBBS, Research Assistant, Department of Surgery, D.Y. Patil University School of Medicine, Navi Mumbai, MS. India

Corresponding Author
Dr.Ketan Vagholkar
Annapurna Niwas, 229 Ghantali Road. Thane 400602 MS. India
Email: *kvagholkar@yahoo.com, Mobile: 9821341290*

ABSTRACT

Assessment of clinical competence is the mainstay of any examination process. With the rapid evolution of medical sciences and growing expectations from the patient community, assessment of clinical competence poses the greatest challenge to medical educationists. The search for newer and better methods of assessment continues. OSCE is one such methodology of testing which satisfies most of the criteria to be adopted as a standard testing system. The feasibility of using OSCE pattern for testing clinical competence was studied in undergraduate medical students after completion of their surgical clerkships. The results are tabulated. The advantages and shortcomings of the OSCE pattern are discussed. OSCE is an excellent way of testing clinical competence cutting across all the domains of learning.

Key words*: OSCE, assessment, evaluation*

INTRODUCTION

Attempts to develop an ideal system of evaluation of clinical competence for doctors continues. A new form of testing is developed in almost every decade. Evaluation of doctors should take into consideration the growing expectations of patients as well as advances in any particular branch of medicine. OSCE is one such methodology of assessment of trainee doctors in clinical fields. It assesses all the three domains of learning in a very effective manner. (Figure 1)

AIMS

1. To study the feasibility of using OSCE pattern for evaluation of undergraduate medical students in the branch of surgery.

2. To study the difficulties encountered in the implementation of the OSCE pattern of assessment.

INCLUSION CRITERIA

Final MBBS students who have completed their surgical clerkships and who are due to appear for their final exams.

EXCLUSION CRITERIA

Students from previous batches who have not been sensitized to the OSCE pattern of evaluation.

MATERIALS AND METHODS

20 undergraduate medical students who had completed all surgical clerkships were included in the study. They were divided into two groups A and B each comprising of 10 students. A orientation lecture was taken for all the participants in which they were briefed about the pattern of evaluation.12 stations were set which included 5 clinical stations, 3 procedural stations, 2 basic station and 2 rest stations. (Figure 2) The 5 clinical stations comprised of 3 clinical examination stations, 2 history taking station. Of the 3 procedural stations 1 included an operative station with instruments, 1 included an radiology station and 1 was devoted to pathology. Of the 2 applied basic science stations, 1 was devoted to applied anatomy and 1 was assigned to critical care physiology. Question cards were given to the examiners which contained a list of 5 questions each having 2 subparts. Each station was allotted 10 marks that is 2 marks per question. The duration for each station was 10 min. adequate privacy was ensured by utilizing ward side rooms and curtains to prevent leakage of information. Two sets of question cards were prepared, 1 for batch A, comprising of 10 students and 1 for batch B, comprising of 10 students.

It was ensured that all 10 stations for batch A and B had no contents in common. All students in a particular group were asked the same set of questions thus ensuring uniformity of standard. The results of the examination were evaluated.

RESULTS

10 marks were allotted for each encounter with a maximum of 100 and minimum of 0 marks. The scores of individual students were tabulated. (Table 1) All 3 domains of learning were evaluated which included the cognitive domain, affective domain and psychomotor domain. (Figure 1) Every candidate was marked for each station. The mean score was 49.56 +/_ SD of 18.79. The median score was 57. Seven candidates failed to score 50% marks. Based on the scores a proper counseling was done with areas of weakness and strength highlighted.
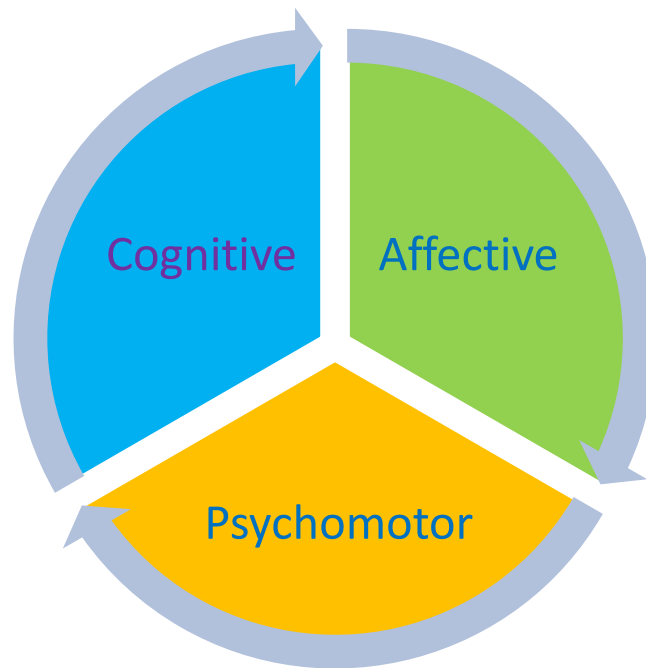
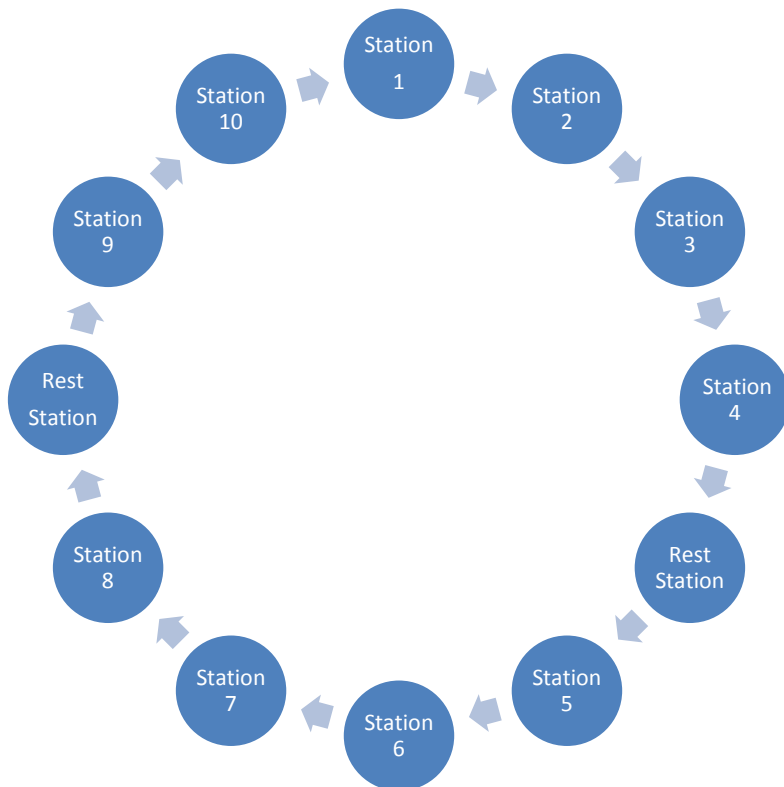**Figure 1 Domains of learning**

Figure 2 Outlay of the stations

Table 1 : Results of the assessment.

Station no.	1	2	3	4	5	6	7	8	9	10	
Candidate no.											Total Marks
1	4	6	6	4	6	5	3	6	6	7	54
2	5	6	4	4	6	7	6	6	6	6	58
3	4	6	7	8	8	8	5	5	5	6	62
4	6	6	6	6	6	7	8	8	8	7	68
5	3	3	2	2	5	4	4	4	5	2	34
6	7	7	7	7	8	6	6	6	7	8	69
7	2	2	2	3	1	2	2	1	4	3	22
8	3	2	3	1	1	1	3	3	3	2	22
9	4	4	4	6	6	7	8	8	5	5	57
10	6	6	6	6	7	7	9	5	4	4	60
11	2	2	2	1	4	3	3	5	3	3	28
12	6	6	7	6	7	8	8	7	6	7	68
13	6	6	6	7	7	8	5	9	8	6	68
14	8	8	8	7	6	8	8	8	7	6	75
15	2	2	4	2	4	2	3	3	1	1	24
16	1	1	4	3	3	2	3	3	3	2	25
17	2	2	2	2	5	5	3	3	2	2	28
18	6	6	6	8	8	6	6	7	8	6	67
19	3	3	3	7	6	6	5	7	6	6	52
20	5	5	6	6	8	4	6	3	6	6	55

Yellow: History and physical examination stations.

Green: Procedural stations.

Blue: Applied basic sciences.

Mean: 49.56 +/- S.D 18.79.   Median: 57

DISSCUSSION

The search for an ideal method of assessment continues unabated. Various methods of assessment have evolved over a period of time. The traditional long case and short case pattern was pertinent in an era during which the number of students were less. As a result the number of patients available for assessment were adequate. However the traditional method had a disadvantage that the students had a prior idea about the type of patients kept. As a result the sanctity of the evaluation process was completely eroded.

With the increasing requirement of doctors in our country the number of medical seats has gone up exponentially, at expense of the quality of doctors produced. Therefore the need for a good assessment system which takes into consideration the number of students, the number of patients available and the extent of evaluation of clinical competence is pivotal for evolving a system. [1,2] The OSCE pattern which has emerged over a last few years and has been adopted in the western world is an excellent solution to the problem.

The traditional domains of learning are cognitive, affective and psychomotor. (Figure 1) Medical education in the initial few years focuses predominantly on the cognitive domain which is theoretical in nature. The middle years of education are in the twilight zone between basic sciences and their applications wherein perceptive understanding of the subject is necessary. This falls into the affective domain of learning. The terminal years of medical education are restricted purely to diagnosis and management of patients. This involves predominantly the psychomotor

domain of learning, but also requires a strong foundation of both cognitive and affective domain of learning .The biggest catch in assessment of doctors is that they are expected to have all the 3 domains of learning, actively functioning. All 3 domains are mutually inclusive therefore this puts more pressure on medical educationist to develop a system which tests all the domains within the physiological restrains of availability and acceptability.[3]

Applied basic sciences always need to be tested on any medical exam. It is a reflection of the sound understanding of fundamentals. The traditional teaching in basic sciences was extremely boring with pure memorization of facts. Therefore over a period of time the teaching has transpired into the concept of applied basic sciences. [4] Therefore this particular area has to be examined in an assessment. OSCE enabled the assessment by having relevant stations whereby candidates can be easily assessed. In the present study the topics assessed in this area were surgical anatomy of anterior abdominal wall and fluid and electrolyte physiology, for both the batches in the form of different questions. (Table 1)

History taking is an integral part of the process of arriving at a diagnosis. A diagnosis can be arrived at in 90 % patients just based on the history. However this area of testing has been neglected over a period of time due to availability of fancy diagnostic and radiological facilities. In order to recreate an awareness pertaining to its importance this component has to be actively tested. This can be easily achieved by keeping stations on history taking in the assessment of the program. In the

present study 2 stations were devoted to history taking where in the candidate was asked to elicit relevant history. The questionnaire included assessment of the understanding and interpretation of the history taking component. The OSCE pattern ensured limited time for it as happens in a routine OPD. [5,6]

Having understood the importance of history taking one has to proceed to a physical examination. Interpretation of signs found on physical examination is undoubtedly important. But more important than this, is bedside manners which can create a significant impact on the mind of the patient. Maximum stress was laid on bedside manners during the physical examination stations.[6] Therefore assessing both history taking and physical examination skills by way of OSCE evaluates a large spectrum of significant areas of learning required to be a competent doctor. They begin with good communication skills which help in developing a good rapport with the patients thereby gaining the patients confidence. Once this has been achieved, the patients himself or herself will come out with all the necessary information as well as allow a good physical examination in a relaxed manner. This is invaluable to the clinician for arriving at a diagnosis. This part of OSCE exam therefore covers almost all the three domain of learning. (Table 1)

The procedural stations test the psychomotor domain of learning. [7] It is predominantly a skill based assessment wherein the candidate is asked to carry out a procedure on a mannequin followed by assessment of technical details. In the present study the candidates were asked to demonstrate peripheral venous access, per urethral catheterization, and insertion of Ryle's tube. These are basic procedures which a medical graduate has to perform as soon as he qualifies. Having addressed all the issues pertaining to assessment of all 3 domains of learning, the next issue which takes the centre stage is fairness of assessment.

In the traditional system of examination students raised the issue that few got easy cases while others did not. This was a justifiable complaint for which a solution had to be found. OSCE addresses this grievance as all the 10 students in a particular group were asked the same set of questions so there was no reason for any sort of grievance to be voiced by any student on grounds of fairness. Even the assessing examiners can be kept under surveillance by CCTV footage. This can totally eliminate any sort of bias or unfairness during the course of assessment. This gives a fair chance to every candidate to outperform or demonstrate his or her capabilities. The chances of scoring by chance are significantly reduced as a wide spectrum of the scope of the syllabus can be assessed by including more stations in the assessment pattern.[8]Therefore this form of assessment ensures proper assessment of all the skills required to be a competent doctor. At the same time it also ensures fairness in marking during the course of assessment in a country like ours wherein few institutions have more than 100 students to be assessed. There is always a problem in getting adequate number of cases. This problem can be easily resolved by adopting the OSCE

pattern wherein 2-3 batches can be assessed in a day without the need for excessive patient load.

The only disadvantage of OSCE pattern is that it requires good amount of effort from the faculty to setup relevant stations. It also requires a highly motivated, robust and intelligent faculty to develop relevant questions for assessment. Medical schools will therefore have to ensure that there is a strong will and motivation amongst its faculty to implement the OSCE pattern of assessment.

CONCLUSION

The OSCE pattern is an excellent tool to assess all 3 domains of learning at the same time.

It ensures fairness with respect to scoring by candidates.

Large number of students can be assessed in a short period of time taking care to ensure proper assessment with fairness.

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