

Objective Structured Clinical Examination; A Tool For Formative Assessment

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Abstracts: Background & Objective: Conventional examination system mostly assesses student's theoretical knowledge and fails to assess clinical competencies required for future practice. OSCE is objective and reliable method of assessment; if included as formative assessment, can identify student deficiencies and help them to prepare better for summative assessments. **Methods:** The present study was conducted to know the role of OSCE in formative assessment, in comparison with long case discussions in Community Medicine. 126 undergraduate medical students of 2008 admission batch, who had appeared for practical and OSCE exams in pre-final year were included in the study. Mean, S.D. and correlation co-efficient were used for analysis. **Results:** The students performed better in long case discussions (68.60 ± 9.7) compared to OSCE (48.67 ± 10.3) in the present study. 80% of students perceived that OSCE is one of the good methods of assessment. The students felt that it creates an insight on self performance of students and helps them to prepare better in summative assessment. **Conclusion:** OSCE can be included in formative assessments, as there is uniformity in assessment and objectivity in scoring. Majority of students perceived OSCE as one of the good methods of assessment. [Kadeangadi D NJIRM 2014; 5(1) : 111-115]

Key Words: OSCE, Formative Assessment, Undergraduate Medical Students

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Introduction: A "Assessment drives teaching and learning" is very well known and accepted fact. The doctors graduated from medical colleges are not competent enough to practice in the field and are not able to perform basic life saving skills. Existing examination system, most of the times, assesses the theoretical knowledge and fails to assess the clinical competencies which are required for future practice. Conventional assessment consists of written and practical tests. Written tests include Multiple Choice Questions, long essays, short essays and short answer questions. Practical tests include clinico-social case presentations, viva voce and spotters. Written tests scoring are subjected to threats like rater bias, leniency, bluffing and central tendency.¹ Writing skills like handwriting and grammar also influence the scoring. Oral clinical case discussions are known to test deeper levels learning like decision making, critical thinking, sensitivity to contextual issues like age, gender and culture, but the problems encountered are content under sampling, different patients and patient cooperation. Politeness and dressing of examinee is also known to influence scoring.¹

Conventional assessment emphasize on lower levels of Miller's pyramid, that is 'knows' and 'knows how', compromising higher levels of pyramid that is 'shows how' and 'does'.² Clinical

competencies like performing physical examination, clinical manoeuvre and communication skills are not tested with conventional assessments. There is lack of uniformity and objectivity in scoring of students. Core competencies are not assessed in every student and there is no systematic feedback system. There is a need to introduce different teaching and assessment strategies to make graduating doctors from medical colleges competent for future practice.

Medical Council of India's (MCI) Vision 2015 document defines 'skills development and training' as one of the strategies to improve quality of undergraduate medical student's training.³ Certification of skills would be necessary before licensure to practice. MCI's revised graduate medical education regulations- 2010 has also recommended inclusion of OSCE clinical scenarios as a part of internal assessment for learning experience on professional development with ethics and medical humanities.⁴

OSCE stands for 'Objective Structured Clinical Examination'. It is one of the recommended methods of assessment used by various examination boards for medical undergraduate and postgraduate students around the world. This

method of assessment was first introduced in 1975 by Harden at Dundee University, Scotland. OSCE is objective and reliable; it eliminates subjectivity of examiners during assessment.⁵ OSCE as a part of formative assessment can create an insight on student's deficiencies to both teacher and student and helps them to prepare and perform better in summative assessments.⁶ OSCE tests higher levels of Miller's pyramid.

OSCE includes a circuit of 5-20 stations, each station includes one competency to be assessed, which would be predetermined and the performance of students is assessed objectively & independently at each station based on the checklist by the observer. Students move from one station to the next in the same sequence and all students face same set of questions. The area of knowledge covered is extended over many (5-20) stations; unlike just one long case in case of clinico-social case discussions.^{2&7} The students also receive immediate feedback from the faculty observers on their performance about each OSCE station. The present study was conducted to assess the role of OSCE in formative assessment in comparison with long case discussions in Community Medicine.

Material and Methods: The curriculum for Community Medicine at KLE University, Belgaum, which is based on Medical Council of India's undergraduate medical education regulations, consists of teaching community medicine for three and half years from Phase I to Phase III.⁸ Formative assessments of students include written tests, practical tests and OSCE. The University has established common OSCE lab for conducting these exams.

Every student was allotted a long case in the teaching hospital wards. The relevant public health cases included for the exams were numbered and chits were prepared a day before. Randomly the students picked up chits. The students were given time for 45 minutes to complete the case details under the supervision of tutors. Bedside case interrogation was carried out for 15-20 minutes.

Two faculty members from Department of Community Medicine, KLE University's J.N. Medical

College, Belgaum, underwent OSCE training by external resource persons and these two persons in turn, trained the other faculty persons within the department. Blue printing was done by the entire department faculty, who finalised the topics to be included in the OSCE stations. Topics were divided among faculty and the drafted stations were presented in the departmental faculty meetings; the modifications suggested by faculty members were incorporated in the final version. The three C's of OSCE like content sub-domains, competencies to be assessed and characteristics of the patients were considered in framing the OSCE stations. Each checklist competency was broken down into specific tasks which were expected to be performed by each examinee. OSCE bank in community medicine included thirty interpretation stations with 'model keys' and thirty performance stations with 'checklists' was prepared. The performance stations included testing skills of history taking, physical examination skills and communication skills like, advice on treatment and counseling skills assessing higher levels of Miller's pyramid. The interpretation stations included questions addressing the problem solving and analytical skills.

OSCE in Community Medicine is conducted in common OSCE laboratory as a part of formative assessment at the end of ten weeks' clerkship postings (MBBS Phase III Part I i.e. sixth & seventh semesters). Clerkship postings in Community Medicine consist of 30-32 students. For conducting OSCE, each batch was further sub-divided in to three batches consisting of 10-11 in each batch. These students were asked to rotate for total ten stations including five performance stations & five interpretation exercises and one or two rest stations. The faculty member responsible for conducting OSCE briefed about the details of OSCE one day before to the examinees and also arranged all the logistics required to conduct the exam.

Every student had to complete all the stations compulsorily and the time given for each station was five minutes, which carried 10 marks each. Timer was operated by an assistant to maintain time during the session. Five faculty members were the observers for five performance stations and

total duration for each batch was 50 minutes and 10 minutes for feedback. Each session included two-three rounds of rotation and was completed in three hours session. There were one to two rest stations in between to complete written left over tasks in previous stations for students and also to avoid monotony. Standardized patients were used to conduct exams; they were instructed and trained earlier to particular OSCE sessions. The faculty scored separately for each student with the 'checklist' provided to them for five performance stations and 'model key answers' for five interpretive stations. There was no communication between the observer and student as per the guidelines of OSCE. A weightage of 10% in internal assessment was given to OSCE scores obtained, which was also informed prior to the students. Semi-structured written feedback with open ended questions was collected from all the students immediately after the completion of OSCE. Faculty members, who participated as observers, also gave their feedback on the student's performance on the same day.

For the present study, the performance of students in OSCE and practical case discussions, which were conducted on different days at the end postings, was included. All the students of 2008 admission batch (126 student's batch of MBBS Phase III Part I) who had appeared for practical and OSCE examinations from January to December 2011 were included. Chronic absentees were excluded from study. 15 students in OSCE and 7 students in practical exams remained absent, so they were excluded from analysis. Students' data was analyzed for 111 in OSCE and 119 in long case discussions. Students' scores were converted into percentages. Mean, standard deviation & correlation co-efficient were calculated. 95% confidence interval was considered as significant. Feedback from the students & faculty observers was also analyzed separately.

Result: The student's performance score in long case discussions was 68.60 ± 9.7 and in OSCE was 48.67 ± 10.3 in the present study. The students' OSCE scores were distributed evenly in the range of 27-75 as seen in graph I in scatter diagram, whereas clustering of scores was seen around the

passing 60-80 in long case discussions as seen in graph II in scatter diagram. The OSCE scores did not correlate positively with long case discussion scores ($r = 0.205$, $p=0.033$).

Feedback from students: 80% of students perceived that OSCE is one of the good methods of assessment, 10% were neutral and 10% did not like this method of assessment. The advantages listed by students were that everyone gets same questions and time, more systematic and specific, less bias with fair grading, covers many topics, develops better communication skills and helpful in future for students who opt for competitive exams. They felt that OSCE also assesses students' self performance for improvement. The disadvantage reported by 42% of the students was lack of time. 10% of them felt that OSCE covers more topics with ten stations, unlike the long case where only one topic is covered. Three fourth of them (73%) wanted OSCE to be included in final university exams.

Feedback from the faculty: Faculty felt that the time given to students was adequate, but the students were not prepared to face OSCE compared to long case discussions. Since there was no communication from the expert observer, students were expecting some prompting in the OSCE, which they are used to in traditional long case interrogation. Faculty perceived that it is not feasible to include OSCE in final exams as the time and skilled manpower required to prepare and conduct OSCE stations is huge & external examiners are not trained for it.

Discussion: The students performed better in long case discussions compared to OSCE in the present study. The OSCE scores were distributed evenly and more widely, whereas in long case discussions, the clustering of marks was more around the passing 60-80, which highlights the role of central tendency, leniency and rater bias in scoring. These findings were similar to the studies in Indore⁹ and Kerala¹⁰. The other reasons could be that long case discussions were not uniform and structured compared to OSCE. 80% of students perceived OSCE as one of the good methods of assessment and enjoyable one, which was similar to earlier

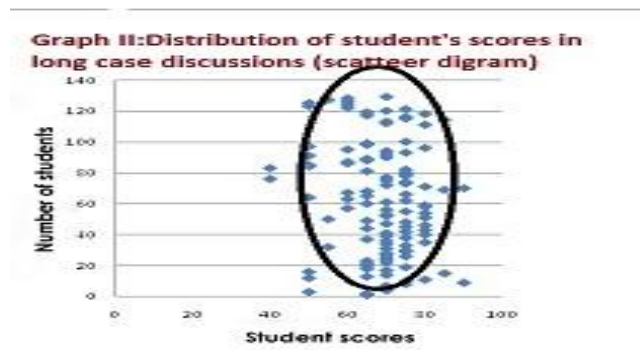
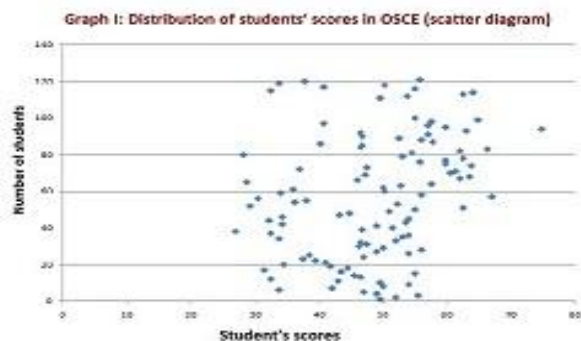
studies done by Kavita in Indore⁹ and Feroz in Kerala¹⁰.

Table 1: Mean scores of students in OSCE and conventional long case discussions

S. No.	Assessment methods	'n'	Mean \pm SD	Range
1.	OSCE	111	48.67 \pm 10.3	27 - 75
2.	Long case discussions	119	68.60 \pm 9.7	40 - 90

Table 2: Correlation between OSCE and conventional long case discussions

OSCE	'n'	'r' value	'p' value
Long case discussions	109	0.205	0.033



Conclusion: OSCE is one of the good methods to be included in formative assessments, as there is uniformity in assessment and objectivity in scoring. It identifies student deficiencies and provides opportunity to perform better in summative assessments. Students felt that there is uniformity in assessment and is more systematic with

feedback system. Majority of students perceived OSCE as one of the good methods of assessment.

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