

Review Article

Assessments of Competence for Health Professional Education

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Abstract

The assessment is a process of judgment or preparing an opinion after considering carefully the academic readiness, learning progress or educational needs of students. Following this argument assessments of competence for health professions are growing in popularity as an alternative path to a postsecondary degree. Freed from the seat-time constraints of conventional higher education programs, competency-based medical education (CBME) students can progress at their own pace and complete their postsecondary education having gained relevant and demonstrable skills by an effective and comprehensive assessment system. That provides students with the opportunity to progress through the requirements of an educational program by demonstrating appropriate knowledge and skills during a series of carefully developed assessments. The evaluations that come up from it are important at the level of the trainee, the program, and the community. When designing an assessment system for CBME, medical education stakeholders must attend to the context of the multiple settings where clinical training occurs. CBME further requires assessment processes that are more continuous and frequent, criterion-based, developmental, work-based where possible. It also uses assessment methods and tools that meet minimum requirements for quality, in making judgments about trainee's progress. Like all changes in medical education, CBME is also in progress. So, medical education society will need more collaborative research to address several major challenges in assessment, including "best practices" in the context of systems and institutional culture and how to train all faculties in a best way, to perform as better evaluators. Our ultimate goal is to remember those expertise peoples with competence and should maintain a career plan that includes ongoing assessment.

Key words: *Competence based education, Evaluation methods for students, Assessment of Competence*

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Introduction

The main aim of medical education is to foster the development of clinical competence in students at all levels. The proficiency assessment of the students is done through different type of examinations in the educational institutes of public and private sector at undergraduate and postgraduate levels. In view of large number of admissions in medical colleges, considerably more and larger groups of students have been admitted in various programmes and it is very difficult now to assess the students under common parameters. The theoretical examinations are used to assess the knowledge of students, whereas the purpose of practical examination is to assess the cognitive, psychomotor and affective domain as well. But this purpose is not met somewhat as most of the time the students are assessed for knowledge only but not for attitude and skill. It is well known fact that the students learn for what they are assessed, i.e., “learning is assessment driven”. A single assessment method is not comprehensive in assessing a student. It is well known that conventional practical examination has several problems.^{1,2,3} Further the subjectivity also effects the correlation negatively between marks given by different examiners and performance of same candidate.⁴ Oral /viva examinations

has been replaced by objective structured practical examination (OSPE) and objective structured clinical examination (OSCE) in Basic Medical Sciences and Clinical Sciences respectively to overcome the problems which are faced in traditional practical examinations in medical institutions.

The past decade has seen an increasing interest in the assessment of clinical and practical skills and it has been recognized that many aspects of medical competence cannot be adequately judged using traditional oral or written examinations. Educators put a lot of time and effort in preparing the assessment and evaluation of their students; and clinical evaluation is one of such intensely prepared assessment. Clinical evaluation in health professional education as stated by Bartfay W J et al.⁵ is an essential requirement with potential implications for student, teachers, recipients and the environment. The conventional clinical and practical examinations as observed by Ananthakrishnan N et al.⁴ is overwhelmed with many problems.

The authors further stated that although marking should depend only on student variability, patient/ experiment variability, but examiner variability significantly affects the scoring. In fact, the subjectivity involved in the use of this assessment method may reduce the overall marks given by the

different examiners for the same candidate to a very low level. In addition, the marks awarded also reflect only global performance of the candidate and does not demonstrate the individual competencies. So, the absolute goal is to find out the specific assessments system/methods for clinical competence of health professional education.

Materials and Methods

1. Objective Structured Clinical Examination (OSCE)

The Objective Structured Clinical Examination (OSCE) has gained acceptance as a benchmark for clinical skills assessment since its development in the 1970s.⁵ OSCE is an assessment tool in which the component of clinical competences, e.g., history taking, physical examination, communication, attitude and simple procedures like wound dressing, administration of drugs, giving a health talk, checking vital signs⁶ etc. are tested using agreed checklists and rotating the student around a number of stations in a circuit by the ring of a bell, preferably in a clock wise direction with some stations having observers and time allowed is the same for all the stations, where at each station; clinical competencies have to be performed. In the year 1975 Harden R M⁷ later by Harden R M and Gleeson F in 1979^{8,9} stated that in evaluating students' clinical competence in OSCE, examiners plan

carefully the area to be examined. Since the stations are independent of each other, the student can start at any of the stations and complete the cycle. Each station is designed to test a clinical competence. At some procedure stations students are given tasks to perform on patients, models or simulators. At all such stations, examiners observed the students with agreed checklists to score performance.^{5,10,11}

2. Objective Structured Practical Examination (OSPE)

On the other hand, "The OSPE is a way of organizing tests of communication skills, decision-making skills and knowledge. Certainly a well-designed OSPE would test the students' ability in all these areas."¹² It has similar characteristics as the OSCE assessment method. The students rotate through a series of stations and undertake a variety of procedure, for instance chemical analysis, use of an instrument, or communication with someone. In some stations, the students may be asked to recall their findings or interpret what was done in the previous station. There may also be examiners in some stations while other stations may have no examiners. The number of stations normally vary from 14-20 and the time allocated in each station is about 5 minutes. Examiners use checklists and scoring cards to assess the student. At question stations, the student may be asked to answer short questions, and multiple-choice questions.⁶

Advantages of OSCE/OSPE

The OSCEs/OSPEs are potentially more reliable method of assessment because of the following reasons:

- It reduces the chances of examiners' bias and assesses the students' skills perfectly.⁸
- Large samples of students' clinical abilities can be assessed.
- The examiner can specify in advance what has to be assessed.
- The use of checklist encourages a more objective assessment.
- Each student has a number of examiners.
- All students have the same, nearly identical patients/simulations.

The benefit of OSPE as observed by Rentschle D D et al.¹³, is that it provides a formative evaluation for both students and the educational institute. Following a research study carried out by these researchers on the use of OSCE, they arrived at a conclusion that the faculty, students and standardized patients found OSCE to be significant experience.

Limitations of OSCE/OSPE

The process of conducting OSCE/OSPE on the other hand is not without limitations. They include likely the risk of observer/examiner fatigue especially where the examiner has to record the performance

of several candidates on lengthy checklist. Since all stations invariably require equal time, care must be taken to organize the stations. Some educators feel that breaking clinical skills into individual competence is artificial and not meaningful.¹⁴

Views about perceptions of the introduction of (OSPE)/(OSCE) :

A structured questionnaire pilot study was carried out in the Government Medical College, Ananthapuram, Andhra Pradesh, India, during the period from May 2014 to July 2014.⁴ This study was conducted on 50 members of medical education trained (MET) faculties for the perceptions of the introduction of objective structured practical examination (OSPE)/objective structured clinical examination (OSCE)¹⁵: as mentioned in (Table 1-VI).

Table I: Faculty of the Different Departments Involved

Department	No. of Faculty	Department	No. of Faculty
Pediatrics	8	Social and preventive medicine	
Radiology	1	Pathology	4
Obstetrics and gynecology	3	Forensic	7
General surgery	1	Pharmacology	4
General medicine	2	Microbiology	2
Orthopedics	2	Anatomy	3
Anesthesia	1	Physiology	2
Ophthalmology	1	Biochemistry	3
Ear, Nose and Throat	1		5
Total			50

Table II: Faculty with Different Number of Years of Teaching Experience Involved

Teaching Experience	No. of Faculty
<5 years	8
5-10 years	17
10-15 years	17
>15	8

Table III: The views of the trained faculty regarding acceptance of OSCE/OSPE

Acceptance of OSCE/OSPE	Faculty (%)
Comprehensiveness	80
Transparency	98
Authenticity of required tasks	40
Fairness	94

Table IV: The views of the trained faculty regarding concern of OSCE/OSPE

Concerned Regarding	Faculty (%)
Anxiety producing experience	30
Ambiguity of questions	10
Fixed time allotment for stations	100
Taxing mentally and physically	80

Table V: The views of the trained faculty regarding rating of OSCE/OSPE

Rating of OSCE/OSPE	Percentage (%)
Reliability	80
Effective	70
Interesting	90
Challenging	20

Table VI: The views of the trained faculty regarding OSCE/OSPE workshop (feedback)

OSCE/OSPE as	Excellent	Good	Satisfactory	Poor
Teaching technique	8	90	2	
Accuracy of teaching	2	98		
Rationale		90	10	
Insight		92	8	

Discussion

The OSCE was first described by Harden R M¹⁶ as a means to assess the clinical skills of final year medical students. This type of examination got an international popularity. People observed that, it can also be used to measure preclinical skills that other test does not perform.¹⁷ So, OSPE and OSCE developed in many countries is a gold standard in clinical skills assessment. This method of examination completely eliminates subjectivity, favoritism and simultaneously the student gets greater chances to express their knowledge. This experience provided an opportunity to know the students' and teachers' responses about OSCE. They raised some issues about advantages and disadvantages of this method of examination and also gave some suggestions for further improvement of

OSCE. Both students and teachers acknowledged that this type of examination is better than the traditional examination. The conventional university examination usually held in both morning and afternoon session and all the examiners are supposed to take examination of every student. The examiners complain about extensiveness of exam and students complain about variability and irrelevance of questions by examiners. Most of the students and teachers agreed that examiners' bias may be eliminated by following this type of assessment. They also approved that it is easier to pass OSCE/OSPE as compared to conventional practical exam. Several studies have proved the Objective Structured Clinical/Practical Examination as a reliable assessment tool.^{8,18-21} Van Der Vleuten AJJA et al.²² confirmed that any examination like OSCEs is a well known source of

stress and anxiety, considered as quite stressful. But student disagreed that OSCE/OSPE is a stressful examination in contrast with the opinion of the authors/teachers. Our students seemed to be comfortable with this type of examination. They argued that this type of examination may be exhausting and stressful if number of stations will be increased. These findings were contrary to the findings of Smee S¹⁹ where he observed that OSCE is less stressful than traditional examination. However, students found difficulty in management of time at some stations so they demand more time to be given for the stations. But basic science students expressed their experiences that repeated practice in formative assessment exams self-indulgent their dissatisfaction with time available. The student may get practice for management of time if there will be prior demonstration of one or two mock examination (“dry run”). Our faculty members and students agreed that this method of assessment should follow in basic science education which will be helpful to improve the teaching methods. But in our experience it was obvious that the students sometimes were encountered with the examiner; they wanted examiners to ask some questions. Even the teachers also suggested that should be allowed to ask some questions related to the task at station.

The examiners should be involved in teaching a skill prior to assess it, which may be helpful in enhancing the quality of OSCE/OSPE. The examiners and assessors should be trained to ensure reliability and consistency in scoring criteria.²³

Recommendations

Some health professional institutions in the country are still using the conventional practical examination, adopted long time ago. Although, the deficiencies observed in this examination are well known. The objectivity and validity in practical examination like any other examination is necessary to be pragmatic. The method for practical examination is recommended for the evaluation of individual competencies of students with reliability. Considering the advantages of OSCE / OSPE as against few limitations, there is great need for the medical students, nursing and other health students to make deliberate efforts and commitments to adopt OSCE/ OSPE as a tool for assessing students’ clinical skills. The following implementation processes are suggested:

Medical educators should take a leaf from Center for Medical Education (CME) and start the OSCEs utilizing some pilot study programmes. OSCE/OSPE demonstration workshops for educators are advocated for competence in structuring valid and reliable blueprint for clinical/practical evaluation in

general medical education, e.g., basic, clinical and other health professionals teaching areas.

With a sound blueprint as suggested, this will ensure that different domains are evaluated equitably and the balance of subject areas tested is fairly decided. Educators, who are already knowledgeable and conversant with the process of OSCE/OSPE, should be invited to work in collaboration with health professional educators to structure the procedure and question stations including their checklist with accuracy.

Conclusion

This attempt has been made to discuss the current conventional clinical evaluation methods and explain the acronyms OSCE/OSPE, view their methodologies, advantages and limitations. Recommendations are also made. It has highlighted many interesting findings; some are in equivalence with literature. The OSCE/OSPE type of evaluation has been widely used in various health institutions, because it has several advantages. All the researchers were in favour of using this assessment method, because it has been proved to provide a valid and reliable means of assessing the clinical skills of students and also afford feedback to students and teachers during course assessment. Many

institutions prefer using this type of assessment because of wide coverage of skills during the assessment. So it is applicable in any subject where practical skills are obligatory. Therefore it is recommended that OSCE/OSPE should be used on pilot basis before fully adopted. A good assessment requires continuous efforts and sufficient resources like manpower, money and time.

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