

## Objective structured practical examination in undergraduate pathology course – A trial study in a teaching medical college in Western Uttar Pradesh

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### Abstract

**Introduction:** Objective Structured Practical Examination (OSPE) is a widely accepted tool to evaluate the practical skills of the medical students. Objectively Structured Practical Examination (OSPE) is gaining wide appreciation and acceptance in practical examination in Basic and Para –clinical medical subjects. OSPE has been proposed in Pathology for undergraduate medical students.

**Aims and Objectives:** The present study was undertaken to determine the student perception and satisfaction regarding OSPE as a method of assessment of laboratory exercise in pathology.

**Materials and Method:** The present study was carried out among M.B.B.S. students at a teaching medical college in Western Uttar Pradesh. A total of 126 students during their second year of MBBS course participated in the study. They went through the OSPE based practical examination and then a close ended questionnaire was distributed to assess student's perception regarding the OSPE based examination.

**Results:** According to our study, OSPE was seen as a positive and useful practical experience by 66.67% of the students. Feedback from the students suggested that 83.33% students felt that OSPE was an objective tool in evaluating practical skills. Only 11.9% students perceived it as a stressful experience.

**Conclusion:** OSPE proved to be an efficient, acceptable and useful assessment tool for evaluating practical skills of the students. Such a promising feedback opens the ways for newer innovative modifications in the conventional teaching and evaluating medical education systems. The aim is to groom the medical education system into a more objective and student friendly system.

**Keywords:** Evaluation, Medical education, OSPE, Pathology, Tool of assessment

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### Introduction

Teaching and learning is a complicated process, especially in context of Medical education.<sup>(1)</sup> Pathology is the subject which tells about the pathogenesis of disease process, thus it forms the rational base for understanding the clinical manifestations, course, complications and end results of the disease. It is not only the beauty of the building one should look at; it is the construction of the foundation that stands the test of time. Thus, teaching and properly evaluating the gained knowledge is of crucial importance.

Evaluation is an important step in the assessment of gained knowledge of the learners and acquired new skills.<sup>(2)</sup> Student assessment is seen as the single strongest determinant of what students have learned as compared to what they have been taught. It is determined as a uniquely efficient tool for improving the education process.<sup>(3)</sup> Crucial role of assessment in learning has been emphasized by various workers in the field of medical education.<sup>(4,5)</sup>

There were continuous attempts to make assessment more objective and reliable rather than subjective. Traditional tools for assessment (e.g. essay type questions etc) had a drawback of being more subjective than objective. Newer objective methods of assessment (like OSCE/OSPE) assess the students in a better way for their clinical skills thus leading to

enhanced clinical skills training, better student's performance and improved teaching methodologies following faculty feedback by students by proper assessment of their cognitive domain.<sup>(6)</sup>

Moreover, the conventional marking system also has many flaws. Marking should ideally depend only on student variability. Unfortunately, examiner variability significantly affects scoring. The marks awarded to candidates show only their overall performance. They fail to highlight their individual competencies or weaknesses. Communication skills and attitudes are not judged by the conventional system.<sup>(7)</sup>

These defects in the assessment procedure in Medical education gave rise to the development of new examination systems that can evaluate all the objectives systematically.<sup>(8,9,10,11,12)</sup> Harden et al (1975) from Dundee described the promising role of Objective Structured Clinical Examination (OSCE) for assessment in clinical subjects. They found it as a reliable approach in assessing the basic clinical skills.<sup>(13)</sup> Hall –Turner observed that the Professional examinations should be fair, comprehensive, objective, and appropriate to the discipline. It will be better if examinations are simultaneously being made administratively easier, interesting and in itself a teaching/ learning experience. They experimentally designed a system of Objectively Structured Clinical

Examination (OSCE). It came out to be an efficient, easy and innovative strategy.<sup>(14)</sup>

Subsequently, some modifications in OSCE were done and applied in various subjects of medical teaching. Objectively Structured Practical Examination (OSPE) is gaining wide appreciation and acceptance in practical examination in Basic and Para-clinical medical subjects.<sup>(15)</sup>

OSPE was proposed for undergraduate medical students in Pathology in 1990 by Ramnarayanan.<sup>(16)</sup>

### Aims and Objectives

The present study was undertaken to determine the student perception and satisfaction regarding OSPE as a method of assessment of laboratory exercise in pathology.

### Materials and Method

The Present study was undertaken with the permission of the Principal and the Head of the department of Pathology. The study took place in the department of Pathology at Muzaffarnagar medical college in 2014.

In the present study, OSPE module was introduced for 126 undergraduate medical students during the second half of their second professional MBBS course. We used it on a *trial basis* for formative assessment of practical exercises as a part of revision tests only.

126 students were divided into nine groups. Examination was conducted in three sessions per day with 14 students in each session of 60 minutes duration for three consecutive days (nearly three hours per day).

During the OSPE, students were made to rotate through 10 stations.

Two stations were procedural stations (Station 1 and station 6; five minutes each) to test the practical performance skills that students had to perform before the examiner. At the procedure stations, there were observers with agreed check lists to score the student's performance.

Eight stations were response or unobserved stations composed of five objective questions regarding the chart/ instrument/ gross/ slide that tested their cognitive domain. (05 minutes each).

Two additional rest stations (labeled as 'Rest— A' and 'Rest — B' were kept to complete the answer sheet. (05 minutes each). One rest station was after the fifth working station and second was at the end after the tenth station.

**Start**→

1→2→3→4→5→

**Rest A**

→6→7→8→9→10→

**Rest B**

→ **Submit copies**

In the present study students perception towards OSPE was assessed by means of their response to standard questionnaire so that its value as an assessment tool can be evaluated. Students were given a standard questionnaire with ten questions.

Students were asked to carefully read the questions, think and then tick the option they feel most appropriate. They were not allowed to discuss or cross talk during this 20 minute exercise.

Students were instructed to indicate their opinion by ticking one of the three alternatives:

1. Agree,
2. Can't Say And
3. Disagree.

#### Standard questionnaire for students:

1.	Exam process has uniformity for all
2.	Exam is well structured
3.	Covers appropriate knowledge areas
4.	Assessed relevant practical skills
5.	It was stressful/difficult
6.	It is better than conventional exam
7.	Decreases the chances of failing
8.	Highlighted the areas of weakness
9.	Needs more time at each station
10.	Decreases subjective bias

### Observations and Results

OSPE module was introduced for 126 undergraduate medical students. The results are as follows- (Table 1).

**Table 1: Show student's perception regarding OSPE (Feedback form for OSPE exercise)**

	Questionnaire	Agree	Can't say	Disagree
1.	Exam process has uniformity for all	84(66.67 %)	33(26.19%)	09(7.14%)
2.	Exam is well structured	123(97.62%)	03(2.38%)	—
3.	Covers appropriate knowledge areas	63(50%)	51(40.48%)	12(9.52%)
4.	Assessed relevant practical skills	105(83.33%)	18(14.29%)	03(2.38%)
5.	It was stressful/difficult	15(11.9%)	57(45.24%)	54(42.86%)
6.	It is better than conventional exam	99(78.57%)	24(19.05%)	03(2.38%)
7.	Decreases the chances of failing	72(57.14%)	54(42.86%)	—
8.	Highlighted the areas of weakness	105(83.33%)	18(14.29%)	03(2.38%)
9.	Needs more time at each station	57(45.24%)	42(33.33%)	27(21.43%)

10.	Decreases subjective bias	105(83.33%)	21(16.67%)	—
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- Eighty four (66.67%) students felt OSPE as an evaluation tool for the practical exercise is fair and brings uniformity. Only nine (7.14%) students disagree.
- 123 (97.62%) students perceived it as well structured practical examination pattern.
- Sixty three (50%) felt that structured pattern of evaluation covers the appropriate cognitive domain in assessing the knowledge and comprehension. Forty percent were confused. Only nine percent disagree.
- 105 (83.33%) felt relevant psychomotor skills were assessed using agreed check list.
- Fifty four (42.8%) students perceived OSPE to be less stressful. 45.23% were confused. Only 11.9% of students found it stressful.
- Ninety nine (78.57%) felt it to be useful than the conventional examination pattern.
- Seventy two (57.14%) students felt that OSPE decreases the chance of failing in the exam.
- 105 (83.33%) felt it highlighted the area of weakness.
- Fifty seven (45.24%) of the students felt that more time should be given and twenty seven (21.43%) felt that the time is adequate, while 33.33% students were confused on this matter.
- 105 (83.33%) felt they could comprehend the OSCE pattern of examination in comparison to traditional method.

**Discussion**

OSPE is a practical examination system in which there are a series of work stations. The students are rotated through different predefined response stations, at which the students perform task designed to test various skills. They are asked to answer the given short objective type question or identify the given instrument/ gross or interpret the provided data or perform some short practical exercise in a specified period of time. They are tested using various agreed checklists with the observers sitting at stations.

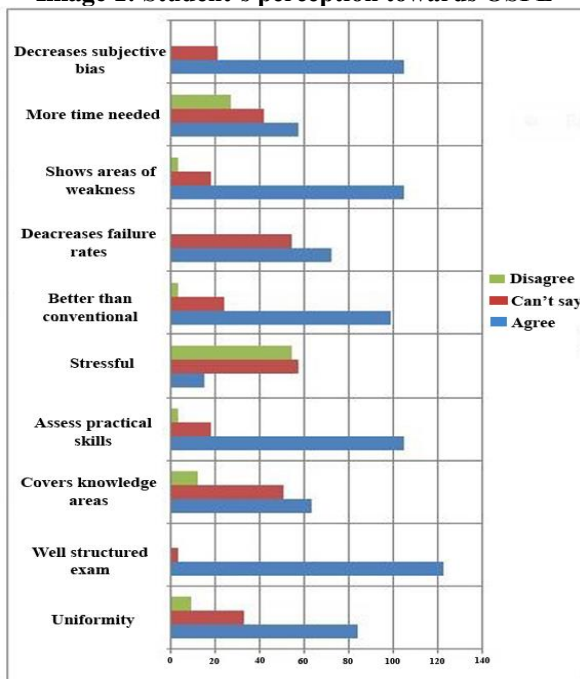
Increasing experience with the Objective Structured Performance Evaluation has devised its use not only as an evaluation tool but also as a teaching method. This has greatly been attributed to the feedback that is received from both the students and teaching faculty. The conventional practical examinations have several problems. The final score indicating overall performance gives no significant feedback to the candidate and are not based on demonstration of individual competencies.

Observations drawn from the results were interpreted and discussed:

- OSPE was seen as a positive and a useful practical experience by most students (66.67%).
- Feedback from students (83.33%) suggested that OSPE is an objective tool in evaluating practical skills.
- Students perceived OSPE scores as a true measure for essential practical skills being evaluated, standardized and not affected by student personality.
- Standard to check the competencies were made earlier and agreed check lists were used for marking and evaluation.
- Students provided positive feedback about the quality of OSPE performance in terms of the instructions of the exam and individual competencies being assessed.
- Examiner variability was reduced by adopting structured practical examination.
- In addition to the above points, OSPE ensured integration of teaching and evaluation.
- The evaluation of OSPE by students highlighted some areas that needed to be enhanced in future, such as –
  1. Inadequate time at procedure stations.
  2. More elaborate areas of knowledge needed to be assessed.
- OSPE was perceived as a stressful experience by 11.9% of students. This perception could be due to the fact that this was the first time that OSPE has been implemented in Pathology.

In an International conference proceeding at Ottawa (1985), worldwide medical education scholars

**Image 1: Student’s perception towards OSPE**



discussed and interchanged their experiences with OSCE and OSPE.<sup>(17)</sup> OSPE qualifies all the qualities of a good efficient assessment tool. It is found to be an objective, feasible, valid, reliable and acceptable tool.<sup>(17)</sup> Many studies have proved OSPE as a very reliable tool to assess practical skills of medical students. It assesses knowledge as well as attitude towards learning. Moreover it also eliminates the examiner bias.<sup>(19,20,21)</sup>

Feedback from the students indicated that students were in favor of OSPE. Feroze et al have also reported to have got an appreciable feedback.<sup>(4)</sup>

Kundu et al, in their study found that 99.0% of students believed that OSPE was helpful. Eighty one percent felt that OSPE fits both as a learning and evaluation tool. Sixty five percent students expressed their wish that OSPE to be introduced partially in final examinations.<sup>(22)</sup>

Madakshira,<sup>(23)</sup> in his study on post graduate students in Pathology, found that 80% of the candidates were aware of the level of information asked about. Sixty percent of the candidates felt that the time duration at each station was insufficient. In the present study, 45.23% candidates felt that the time was insufficient.

OSPE gets rid of variation due to examiner bias and has demonstrated to have better discrimination index on merit.<sup>(4)</sup>

In a study by Malhotra et al, only 10% students perceived OSPE as more difficult and stressful than conventional practical examination.<sup>(15)</sup> In our study, only 11.9% students found OSPE as stressful and difficult.

The feedback provided scope for improvement and refining the method. It serves as a tool for testing multiple dimensions of student performance because it tests both skills as in performance exercises and knowledge. Present study was helpful as an introduction exercise for the students towards OSPE.

## Conclusion

OSPE was a new, yet useful practical experience for medical MBBS students. The feedback received regarding this evaluation tool provides fair evidence that OSPE is an acceptable, useful assessment tool for Practical skills. Such feedback is considered valuable for further development and enhancement of OSPE with new innovations. In future, OSPE can also be used in future as a tool for testing multiple dimensions of post graduate student's performance as it tests the skills acquired during a course.<sup>(24)</sup>

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