

Original research article

## A Trial of the Objective Structured Practical Examination in Anatomy.

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### Abstract

**Background:** As teaching methodology has been going through a methodological transformation to a problem-based learning and early clinical exposure. Evaluation of medical students is always desirable to be uniform and reliable during practical examination. Objective structured practical examination (OSPE) have been tried by few medical universities in Anatomy subject.

**Aim and objective-** The present study is aimed to determine the accuracy, practicality and prospect of Objective Structured Practical Examination as a tool for assessment of teaching-learning outcome in anatomy.

**Material and Method:** Eighty first year MBBS students were evaluated using OSPE during the pre-university examination. 11 OSPE stations was prepared; from which 10 was OSPE stations and 1 was the resting station which was interspaced in-between. Mean marks of student in traditional (TPE) and objective structured practical examination (OSPE) were compared using paired t test.

**Result:** The significant improvement was noted in 58 students. No significant change was observed in performance of 17 students, significant deterioration in performance of 5 students was observed.

**Conclusion:** Use of both OSPE and traditional practical examination should be there for better assessment of the students.

**Keywords:** OSPE, assessment, embryology, traditional examination

### Introduction

Medical council of India had introduced the competency based medical education for undergraduate MBBS students in India. The focus was to test cognitive, psychomotor, and affective domains. Objective structured practical examination is very useful to assess psychomotor domain of the students.

Objective structured clinical examination was first introduced in medical education by Harden in Scotland in 1975 and later on objective specific practical examination (OSPE) for Para clinical subjects. Few Universities have adopted Objective Structured Practical Examination (OSPE) format in Anatomy.<sup>[1]</sup> Very few medical institutions in India have tried the format of

OSPE. In Present Practical examination pattern of first MBBS Anatomy, students are tested by conventional method of taking table viva. In this conventional method of examination, assessment becomes subjective and sometimes biased. Reforming traditional teaching methodology to a student centric approach, problem based learning and early clinical exposure has great benefits for learning.

The present study was undertaken to determine the accuracy, practicality and prospect of OSPE as a tool for assessment of teaching-learning outcome in anatomy.

### **Materials and methods:**

Undergraduates at People's college of medical sciences and research centre undergo two sessional examinations before undergoing the university examination. In each of these exams they have a written examination followed by a practical assessment. Traditional practical exams (TPE) consist of spotting, surface marking, histology slides, radiology and gross anatomy assessment. Eighty undergraduate students were evaluated using OSPE. These was followed by filling of questionnaire for their respective views about both TPE and OSPE. Their performance and responses were then be analysed.

Prior to the exams the students were geared up with the methodology of OSPE with suitable examples and also we have answered their relevant queries.

11 OSPE stations were prepared; from which 10 were OSPE stations and 1 was resting station which was interspaced in-between. Each OSPE station was of 3 minutes duration including the resting station. Each day we took 40 students for evaluation. Each day the OSPE questions were re-structured to retain confidentiality. Assessment was done using preserved anatomical specimen both wet and dry, embryology models, plain radiographs and contrast films, histological slides and cadavers. Out of these 10 OSPE stations, 8 stations was structured in a way to test the cognitive skill with analytical thinking in a problem based scenario and 2 observed OSPE stations to test the psychomotor skills i.e. surface marking, testing of a particular group of muscle. At the observed OSPE stations an observer gave marks to the student in a predesigned sheet based on their performance.

The students were well informed beforehand about the questionnaire to clear their doubts about each of these 10 points. Performance of the students was evaluated statistically using paired t-test; and the outcome of the questionnaire was analysed subjectively as well as statistically.

### **Results:**

The table 1 is showing mean marks of student in traditional (TPE) and objective structured practical examination (OSPE). It shows the mean marks obtained are higher in the OSPE as compare TPE. Maximum marks were 36. Statistically significant difference was found between 2 groups.

Study shows that improvement (marks were more in OSPE in comparison to TPE) was noted in 58 students. No change (marks were equal in TPE and OSPE in both the type of examination) in performance of 17 students, deterioration (means marks was more in the TPE as compare to the OSPE) in performance of 5 students.

**Table 1: Comparison of marks between traditional practical exam and Objective Structured**

Practical Exam

	Traditional Practical Exam (TPE) n=80	Objective Structured Practical Exam (OSPE) n=80	P value
Marks	28.5 ±1.33	31 ± 1.699	<0.001

Values – mean ± S.D.

**Discussion:**

This study was conducted to see the feasibility and effectiveness of an OSPE in anatomy undergraduate practical examination. The objective structured practical examination have proved to be a reliable assessment tool. [2,3] The OSPE have been reported as an effective tool in discriminating between good and poor performers in practical examinations of medical subjects. [4]

Computer Assisted OSPE (COSPE) in anatomy was introduced by Saju Binu Cherian et al to the 100 students at the same time where hehe presentation was projected on an LCD screen with an auto display that projected a new slide every 3 min. Specimens were well labeled. Answer key was prepared during the test itself and handed over to examiners with answer scripts. Student responses towards COSPE were collected which were favorable . This method of evaluation enabled uniform assessment of the whole class as COSPE was administered in one session. It was less cumbersome, less time consuming and also less taxing for faculty and students. [5]

OSPE was emerged as a better tool in terms of assessment and performance as well as from the student's point of view. In these studies, feedback was taken from the students by feedback questionnaire and likert scale questionnaire. In these studies, answer keys were prepared and marking were done based on answer keys. This was also followed in present study. [6,7] Students like a new innovative idea which supports their learning and study which directly or indirectly project on their performance. [7]

In a study by Yaqinuddin A\_ et al, OSPE were compared with spot examinations. OSPE remains the most efficient tool to assess the practical aspects of anatomical knowledge in a system where basic knowledge is integrated with the clinical or functional part of anatomy. However, this contention only holds true if the OSPE process revolves around structured objectives. [8]

Gaekwad AP et al was conducted study to test OSPE in students as well as faculty. Feedback was also taken and suggestions were asked. Seventy six % of the students were of the opinion that absence of the examiner during examination increased student performance; this was supported by 58.3% of the faculties. OSPE was transparent, free from bias and both students and faculty were comfortable with it. Both groups favoured it over traditional examination. Objectivity and reliability of assessment was also increased due to OSCE and OSPE. [10,11]

We have been using traditional Practical Examination over the last many years. There is a need to study this format of examination on large scale to find out its validity and reliability, Objective Structured Practical Examination (OSPE) may act as a very good tool for the assessment. The proficiency of OSCE as a tool of evaluation is well established and even the

role of OSPE as an adept method for practical evaluation is proven in different subjects and settings. <sup>[10,12-18]</sup>

However Traditional Practical Examination TPE has an edge over OSPE like better coverage of topics, less space needed, teacher student interaction, the hint-factor; hence they favour a admixture of both, <sup>[17,19,20]</sup> but some favoured OSPE. <sup>[8,15]</sup> OSPE are also considered to be time consuming and it may affects the students performance as selective questions are asked out of vast portion.

Hence need for an elaborate and structured OSPE bank was stressed. <sup>[16]</sup> Our opinion is that OSPE should be combined with traditional practical examination, and effort should be made to create OSPE bank.

We had came across the various studies where problem based learning is found to be very much useful, further studies should be done to compare OSPE and Problem based learning. <sup>[21,22]</sup>

### Conclusion:

In conclusion, the present study revealed that the OSPE was positively welcomed by students in anatomy. The study provided scope for refining the method before it was implemented for the first time in the forthcoming university examination. We suggest for the use of both OSPE and traditional practical examination should be there for better assessment of the students and that OSPE should be completing it not replacing conventional teaching.

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