

## Traditional Clinical Examination vs Objective Structured Practical Examination in Physiology of 1<sup>st</sup> Year MBBS Students: Examiner's Bias

Aparna Debbarma<sup>1</sup>, Debina Sarkar<sup>2</sup>, Soma Choudhuri<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Physiology, Tripura Medical College & Dr. B.R. Ambedkar Memorial Teaching Hospital, Agartala

<sup>2</sup>Assistant Professor, Department of Biochemistry, Tripura Medical College & Dr. B.R. Ambedkar Memorial Teaching Hospital, Agartala

<sup>3</sup>Associate Professor, Department of Physiology, Tripura Medical College & Dr. B.R. Ambedkar Memorial Teaching Hospital, Agartala

---

Received: 21-01-2023 / Revised: 17-02-2023 / Accepted: 26-03-2023

Corresponding author: Dr. Soma Choudhuri

Conflict of interest: Nil

---

### Abstract

**Objective:** The competency-based medical curriculum put in place in 2019 places a strong emphasis on assessment frameworks that are in line with the teaching-learning process. The learning process is driven by evaluation, hence assessment methods must be impartial, consistent, dependable, and valid. Conventional practical testing is less objective, more susceptible to examiner bias, and less valid and reliable. OSPE has been recommended as a tool for CBME use because it meets the requirements for the optimal assessment tool. Nevertheless, OSPE is not commonly utilized in our nation.

**Method:** The performance of one MBBS student in the regular practical exam and the OSPE was compared in this study, and the students' attitudes regarding it were assessed. There were 100 1<sup>st</sup> year MBBS students from the 2021–22 class. The topic of "Blood sugar Estimation" was evaluated using standard and OSPE methods. Two observer stations and three response stations were used for OSPE. MS Excel was used to determine the mean and analyze it for statistical significance. The same students were given a well-designed questionnaire, and responses to the OSPE method were received.

**Results:** The mean ratings for the standard format and OSPE differed statistically significantly ( $P < 0.002$ ). According to an analysis of student comments, more students thought that OSPE was better in terms of scoring, passing, and accommodating psychomotor domain evaluation. Many students said OSPE was more practical and comfortable than the standard exam format. The majority of students said OSPE should be preserved as a form of assessment in internal and university exams because they did not find it to be intimidating.

**Conclusion:** This study found that OSPE scores were superior to those from the conventional format. By integrating the cognitive, psychomotor, and affective domains, OSPE decreased examiner bias. So, it is concluded that OSPE, albeit being labor- and time-intensive, should be used as an assessment tool.

**Keywords:** Evaluations, Learning Domains, OSPE, Practical Examination Trustworthy, Valid.

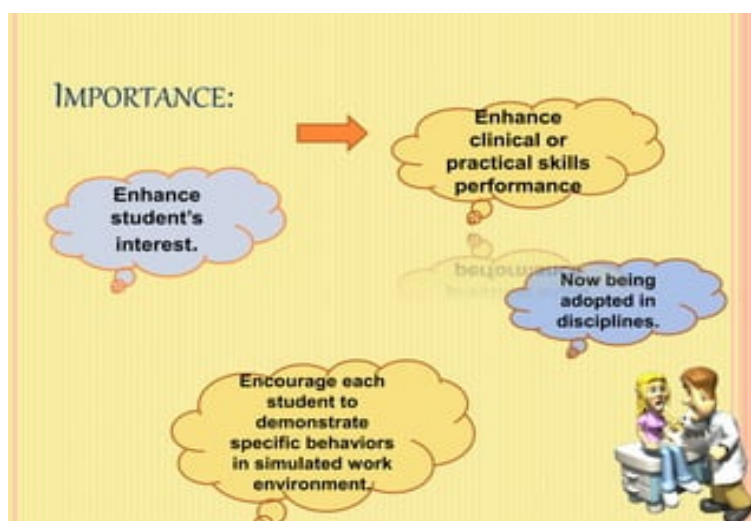
This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

---

## Introduction

Assessment instruments must be valid and reliable if they are to be used to measure the fulfillment of educational objectives. Together with the knowledge domain, assessing practical skills is a crucial component that must be done in a consistent, reliable manner with proper (1) discrimination between different performance levels. After the establishment of competency-based curricula in medical

education, many institutes are experimenting with the objective structured practical examination (OSPE) scheme, however the majority of centres are still using the conventional practical-based evaluation method. In 1975, a new version of the current objective structured clinical examination (OSCE) called OSPE for pre- and paraclinical subjects was introduced (Figure 1; 2).



**Figure 1: Importance of OSCE**

Traditional practical exams are more subjective, which raises questions about their validity and reliability. By contrast, OSPE overcomes these weaknesses because it is objective, evaluates knowledge through direct observation, and tests through analysis of that knowledge. As universities have yet to adopt OSPE, it is now used for formative assessment during internal exams in several institutes.

This study compares how first-year MBBS students performed on traditional practical exams and OSPE formats, as well as how they were used as assessment methods (3).

Its objectives include:

1. To compare the results of the OSPE and the traditional practical examination in the subject of biochemistry in order to determine the viability of OSPE in our system.

2. To get student comments on this structured evaluation tool.

### Methods:

**Study Design:** The study was carried out at the Physiology department of Tripura Medical College & Dr. B.R. Ambedkar Memorial Teaching Hospital in Agartala from June 2021 to July 2022.

**Methodology:** Assessment, teaching, and learning must be well coordinated. When instruction is evaluated, its overall aims and level of preparation are taken into account. Historically, evaluation methods have focused on the cognitive domain and not the affective and psychomotor domains when evaluating students.

Both tests were performed using the most recent lesson plan, which was the Estimation of Blood Glucose Level. There

were five stations total for OSPE, of which three were response stations and two were observer stations. The student's psychomotor skill is evaluated at the procedure station. The cognitive abilities are evaluated at the response stations. The examiner utilizes a checklist to record the performance. There were 2 minutes given for each station. The combined score for the two examination schemes was 20.

**Sample Size:** For the practical classes, all 100 students are divided into 2 groups (A, and B) of 50. Each group was first evaluated using the OSPE, then a week later, they were evaluated using the standard practical test.

**Statistical analysis:** Each station has a 2-minute allotment of time. In both

examination schemes, the total score was 20. The grades were tabulated, and a paired student's t-test was used to compare the means of the two marking schemes. Feedback from the students about OSPE and TPE was obtained using a validated questionnaire Using Microsoft Excel, the feedback results were analyzed.

### Results

Table 1 compares the students' average scores from regular practice tests and OSPE. There was a noticeable difference between the traditional practical exam and OSPE scores, i.e. (OSPE > CPE). Students said the questions were clear and simple to grade, however several of them complained that there wasn't enough time.

**Table 1: a comparison of regular examination and OSPE scores**

Test	Mean $\pm$ SD	P-Value
Traditional Practical Examination	14.1 $\pm$ 14.5	P < 0.002
OSPE	16.5 $\pm$ 14.3	

The majority of students (81%) agreed that the OSPE is clearly and uniformly structured, while only 5% of students disagreed. The majority of students (71%) believed that OSPE is a useful and practical examination pattern, and 61% believed that OSPE was less intimidating than the traditional format and could continue to be used in university exams. 20% of students reported that they felt slightly self-conscious and a little embarrassed by the observers' presence in the observation station. Seventy-one percent of students believed that pass rates would be higher with OSPE because it is systematic and objective.

### Discussion

A week prior, the students were made aware of the OSPE marking scheme and procedure. The student's psychomotor skill is evaluated at the procedure station. The response stations evaluate a person's cognitive abilities. The examiner records the performance using a checklist. When

compared to marks obtained using the traditional format, the performance of students as measured by their marks in the OSPE format was better. In the old technique, the mean scores were 14.1 and 1.45, but in the OSPE format, they were 16.5 and 1.43. ( $p = 0.002$ ) The difference was statistically significant. Depending on the kind of assessment tool being used, students' performance and scoring capabilities change. Students' talents can be tested using a variety of evaluation instruments (4,5).

In studies conducted by other authors, it was also stated that OSPE was a well-structured, simple assessment format that the students thought to be well-organized, simple, and less stressful and that it adequately covered the learning domains and curriculum compared to conventional examination (6-8). Due to the segmentation of competencies into several stations—something rarely seen in a traditional format—students are more alert while

moving around numerous OSPE stations and show interest.

While different examiners have their own favourite questions or prejudices, many students also fear taking exams. When fear causes trivial blunders during table vivas, or a lack of confidence may significantly effect the outcome (1). In these current circumstances, the OSPE directly observes students' performance and is objective, with equal time allotted to each student and uniform grading. Thus, OSPE might be the solution. On the other hand, a traditional approach could be useful in determining a student's full knowledge.

The students have embraced OSPE as a fair system of evaluation that removes examiner prejudice. According to some experts, 90% of student participants rated OSPE as a superior test since it was more structured and standardised than traditional exams. Students understood that OSPE evaluated practical abilities that were pertinent and covered knowledge that was pertinent to the learning objectives (9,10).

Similar to how OSPE was favourably received in our study, students found OSPE to be less demanding than CPE and easier to evaluate. The children were highly appreciative of OSPE. There are numerous flaws in traditional practical examinations that make it possible for the practical abilities to not be properly observed during the course of performance. The inquiries are made at the conclusion of the practical performance.

By having students exhibit their practical talents rather than just responding to viva questions, OSPE aids in the development of practical skills. This increases its dependability. While being time- and labor-intensive, OSPE can be used because of its excellent reliability as an impartial instrument for evaluating laboratory exercises (11).

## Conclusion

The study showed that by including a prevalidated checklist, OSPE can be utilised as an assessment method with less experienced examiners. We emphasize the necessity of integrating OSPE with traditional exams in both formative and summative evaluations for a more thorough and global assessment of students' skills and knowledge, and we propose the creation of a regular faculty program with an OSPE that is uniformly standardized globally.

## References

1. Frank JR, Snell LS, Cate OT, Holmboe ES, Carraccio C, Swing SR, Harris P, Glasgow NJ, Campbell C, Dath D, Harden RM. Competency-based medical education: theory to practice. *Medical teacher*. 2010 Aug 1;32(8): 638-45.
2. Seale JK, Chapman J, Davey C. The influence of assessments on students' motivation to learn in a therapy degree course. *Medical education*. 2000 Aug;34(8):614-21.
3. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Medical education*. 1979 Jan;13(1):39-54.
4. Ashok NS, Prathab AG, Indumathi VA. Objective Structured Practical Examination as a tool for evaluating competency in Gram staining. *J Educational Res & Med Teach*. 2013;1(1):48-50.
5. Harden RM, Stevenson M, Downie WW, Wilson GM. Assessment of clinical competence using objective structured examination. *Br Med J*. 1975 Feb 22;1(5955):447-51.
6. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Medical education*. 1979 Jan;13(1):39-54.
7. Ashok NS, Prathab AG, Indumathi VA. Objective Structured Practical

- Examination as a tool for evaluating competency in Gram staining. *J Educational Res & Med Teach.* 2013;1(1):48-50.
8. Ananthkrishnan N. Objective structured clinical/practical examination (OSCE/OSPE). *Journal of postgraduate medicine.* 1993 Apr 1;39(2):82.
  9. Watson AR, Houston IB, Close GC. Evaluation of an objective structured clinical examination. *Archives of Disease in Childhood.* 1982 May 1;57(5):390-2.
  10. Dandannavar VS, Schwartz A. A comparative study to evaluate practical skills in physiology among 1st phase medical under graduates at JNMC Belgaum: Traditional practical examinations versus objective structure practical examinations (TPE v/s OSPE). *Int J Educat Res Technol.* 2014 Mar;5(1):126-34.
  11. Bairy KL, Adiga S, Shenoy S, Magazine BC, Amberkar MB, Kumari MK, Nayak V. OSPE in pharmacology: Comparison with the conventional method and students' perspective towards OSPE. *British Biomedical Bulletin.* 2014;2(1):218-22.