

Hematology Practical Assessment using Objective Structured Practical Examination (OSPE) with the traditional method in Physiology for the first year MBBS students - A comparative study

Thenmozhi R ¹, Selva Sudar Vinojini ²

¹ Professor, Department of Physiology, Government Vellore Medical College,

² Post Graduate, Department of Physiology, Tirunelveli Medical College, Tirunelveli, Tamil Nadu

Abstract

Introduction: Globalization of education and healthcare system is to provide a good quality of medical education to the students. Practicing uniformity in the basic level competencies and assessment of newer learning experiences will be of less stress to the learners. The aim of a formative assessment is to identify areas that may need improvement. At present very limited percentage of marks to OSPE has been allotted in Formative and Summative Assessment. **Aim:** To evaluate the effectiveness of OSPE as an assessment tool. **Materials and methods:** This was a Cross-sectional study and done after getting the approval from the Institutional Ethics Committee. 250 MBBS students of 2019 batch were divided into two groups. One group was given OSPE and the other with the routine procedure TPE. The procedures for OSPE were discussed with the faculty and the laboratory technicians. A detailed Checklist was prepared for each procedural station and were scrutinized by the faculty. **Results:** The mean scores obtained by both groups of OSPE and TPE were compared using paired t test. p value was obtained which was 0.001 and was highly significant. Scoring of marks with OSPE was better. The feedback form implies that OSPE pattern was more objective, it tested the clinical skills and acquiring knowledge was better. **Conclusion:** OSPE assesses all three domains of learning. It can be used as a tool in the formative and summative assessment to achieve the higher standards.

Key words: assessment check list, clinical skills, feedback, objective structured practical examination, questionnaire

Corresponding Author

Dr. Thenmozhi. R, Professor, Department of Physiology, Govt. Vellore Medical College, Vellore, Tamil Nadu.
Contact No: 9840305964, E-mail: thenmozhiramaswamy049@gmail.com

Introduction

A curriculum can develop medical education to produce an efficient Indian medical graduate to the International standard. The assessment of the subjects with a uniformity in the basic level competencies will reduce the stress of the learners.

To initiate active learning, the assessment tools need to be effective. The focus of a formative assessment is to identify areas that may need improvement. The practical and clinical skills can assess the psychomotor, performance, and communication skills of the students. The traditional methods may be time consuming, lead to examiner bias in assessing the students. We

have a very limited percentage of marks to OSPE in our formative and summative examinations. We have to develop the better assessment tool to improve learning and help students to achieve a higher standard. We evaluated OSPE for the assessment of practical skills in physiology hematology practical examination for undergraduate medical students and compared it with traditional practical examination (TPE).

Aim

To evaluate the effectiveness of OSPE as an assessment tool for the hematology practical examination in the first year MBBS curriculum.

Objectives

To study the feasibility and acceptability of OSPE among the students and faculty members.

Materials and methods

After obtaining approval from Institutional Ethical committee, this study was conducted in Department of Physiology

Study design: Cross-sectional study.

Study Group: 250 MBBS students of 2019 batch were included in the study

Methodology: 250 students were divided into two groups and the exams were conducted for ten days with 25 students in one batch. First group of students were given OSPE in the examination and the second group of students were given traditional practical examination. A standard questionnaire was given to each student at the end of the examination. The procedure for OSPE was discussed with the faculty and the laboratory technicians. A detailed checklist was

prepared for each procedural station and were scrutinized by the faculty. The technical staffs were briefed about the procedure. The students were introduced to the OSPE system by short lecture and demonstration by the faculty members. Hemoglobin estimation was taken for this study. Seven stations were divided for the practical procedures. 5 point Likert scale was used for questionnaire preparation. Scores and feedback from the students and faculty were obtained through questionnaire.

Statistical analysis

The mean scores obtained from both the groups by OSPE and TPE were compared using paired t test and p value was obtained. p value was 0.001 and was highly significant.

Statistical analysis of the 5-point Likert scale was done in terms of percentage of students.

Results

All 250 students (100%) completed the questionnaire. The feedback was obtained from the students and the faculty. 88% of the students felt OSPE was useful mode of assessment in their practical examination. 70 to 75% had less physical effort and mental stress while doing the procedure. Fairness of the examination and assessment was about 86%. 85% of the students felt, they had adequate time to perform the procedure. 90% of the students felt OSPE was one of the best methods for assessment. Inference from the faculty showed that, the OSPE pattern was more objective and it tested the clinical skills and knowledge of the students in a better aspect. This method was unbiased and scoring of marks with OSPE was also better than TPE. Feedback given to students after the OSPE session helped them in their further learning process.

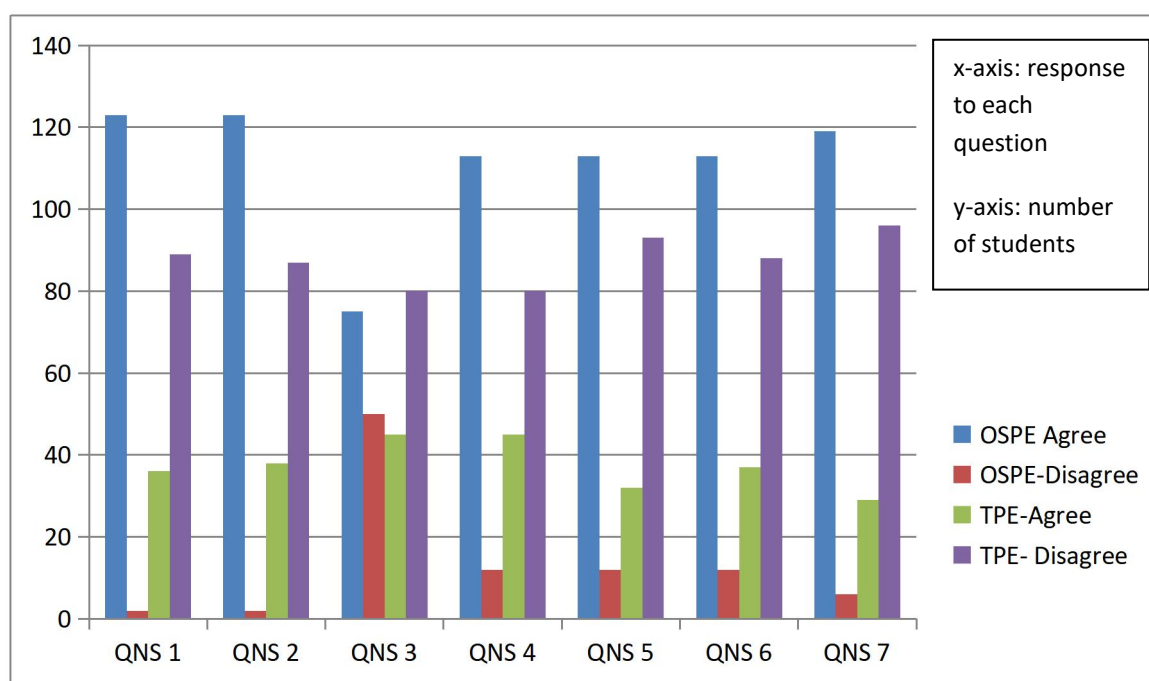
Table 1. Feedback from students

Question number	OSPE RESPONSE		TPE RESPONSE	
	Agree	Disagree	Agree	Disagree
1	123	2	36	89
2	123	2	38	87
3	75	50	45	80
4	113	12	45	80
5	113	12	32	93
6	113	12	37	88
7	119	6	29	96

*Agree – Accepted the assessment method

*Disagree – Not accepted the assessment method

Chart 1. Feedback from students for OSPE and TPE



Discussion

This study was conducted to check the feasibility of adopting OSPE as a mode of assessment in our institution. In our study 88% of the students felt OSPE was useful mode of assessment in their practical

examination. 70 to 75% had less physical effort and mental stress while doing the procedure. Fairness of the examination and assessment was about 86%. 85% of the students felt, they had adequate time to perform the procedure. 90% of the students

felt OSPE was one of the best methods for assessment.

Based on the scores obtained from the students (Table 1), students performance in OSPE was better than the TPE.

The common complaints of students in TPE were

- i) Inequality of marks given by the examiners,
- ii) Selection of experiments were based on picking up lots and
- iii) Lot of uncertainties in assessment.

OSPE, being an objective, valid and reliable tool of assessment, has overcome all the above said drawbacks of TPE.

V.Suganthi (2019) felt that OSPE has helped the students to learn procedures in a systematic manner and she recommended OSPE can be used as a teaching/learning tool. According to her, the objective and clinical skills were tested better and it has eliminated examiner bias.¹

Seyed Ali Mard Samireh Ghafouri registered that TPE method involves performing a particular experiment randomly and the assessment is based on the performance of the whole rather than individual skills. According to Miller's framework of "knows" and "knows how" aspects the OSPE questions had a relevant wider area of knowledge, and comprehensive skill in comparison to the TPE group.²

Revathi M (2019) felt the students perceived that the OSPE examination as an unbiased and easy way to score marks. It had a better content which was relevant to the topics. It also helped the students in achieving application skills than memorizing and recalling.³ Farkhanda Jabeen et. al., has

studied that most of the students took OSPE as a reliable method of examination.⁴

In Hasan S (2009) study, showed that Objective Structured Practical Evaluation appears to be important for performance discrimination of individual learning competencies and attitude towards learning.⁵ Radhika Gujjala (2015) suggested that OSPE is a better tool of assessment as it can assess all the three domains – Cognitive (analytical questions in unobserved stations), psychomotor (step-wise demonstrations of procedures) and affective (Communication skills).⁶

Prerana P, Bhinganiya et. al felt that Student's feedback on this pattern of assessment was positive and they felt that the clinical skills and knowledge were adequately and uniformly tested. The examiner bias was eliminated. Some students have given feedback that it was stressful as this was the first time they were exposed to OSPE.⁷ S.D. Mamatha et. al, studied that both the Students and the Faculty have recommended the usage of OSPE as a better assessment tool of assessment than TPE.⁸

Conclusion

This study proved that the assessment methods of more objective and competence based was helpful to the students. It can improve the skills of all domains among the students. The students achieved the competencies well and it showed that understanding of the subject was good with OSPE.

Acknowledgement

I thank our Dean who permitted me to conduct this study in our department. I sincerely thank my faculty, technician and I MBBS students who helped me for the

smooth conductance of this study for days together in the department.

Conflict of interest: Nil

References

1. Suganthi V (2019) "Introduction and Implementation of OSPE as a Tool for Assessment & Teaching / Learning in Physiology" National Journal of Basic Medical Sciences | Volume 9 | Issue 3 | 2019 p 138-142.
2. Seyed Ali, Mard Samireh Ghafouri" Objective Structured Practical Examination in Experimental Physiology Increased Satisfaction of Medical Students" Advances in Medical Education and Practice 2020;11 651–659.
3. Revathi M. "Student's perception of objective structured practical examination versus traditional practical examinations for hematology physiology practicals" National Journal of Physiology, Pharmacy and Pharmacology 2019 | Vol 9 | Issue 9 p912-916.
4. Farkhanda Jabeen et. al., "Objective Structured Practical Examination (OSPE), As A Tool For The Assessment Of Practical Skills Of Undergraduate M.B.B.S Students" JUMDC Vol. 7, Issue 2, April-June 2016 p1-6.
5. Hasan S, "Conventional/Traditional Practical Examination (Cpe/Tdpe) Versus Objective Structured Practical Evaluation (OSPE)/Semi Objective Structured Practical Evaluation (SOSPE)" Pak J Physiol 2009;5(1) p58-64.
6. Radhika Gujjala, "Perceptions of the introduction of objective structured practical examination (OSPE)/objective Structured clinical examination (OSCE)": A pilot study carried out in Government Medical College, Ananthapuramu, Andhra Pradesh, India Journal of Dr. NTR University of Health Sciences 2015;4(3)p145-149.
7. Prerana P, Bhinganiya et.al., "Hematology OSPE In the First Year MBBS Curriculum-A Feasibility and Acceptability Study" NJIRM 2015; Vol. 6(5) Sept – Oct, p71-75.
8. Mamatha SD et.al., - "First Year MBBS Student's Perception of Objective Structured Clinical Examination and Objective Structured Practical Examination" Indian J Physiol Pharmacol 2017; 61(4): 440–444.
9. Pinaki Wani, Vrinda Dalvi "Objective structured practical examination vs. Traditional clinical examination in human Physiology: student's perception" International Journal of Medical Science and Public Health | 2013 | Vol 2 (3) 543-547.
10. Fasna KA, Neenu V "Objective structured practical examination as an assessment tool in physiology". J.Evid. Basic medi: Health c2017; 4(43) 2630-2632.