



Research Article

STUDENT AND FACULTY PERSPECTIVE TOWARDS INTRODUCTION OF OBJECTIVE STRUCTURED PRACTICAL EXAMINATION (OSPE) IN ANATOMY - AN OBSERVATIONAL CROSS-SECTIONAL STUDY

Parvaiz Ahmad Lone*, Bashir Ahmad Shah, Yunis Parveiz Malik and Ghulam Mohammad Bhat

Department of Anatomy, Government Medical College, Srinagar

ARTICLE INFO

Article History:

Received 06th March, 2023

Received in revised form 14th April, 2023

Accepted 23rd May, 2023

Published online 28th June, 2023

Key words:

Teaching-learning, OSPE, Like-scale, formative assessment tool.

ABSTRACT

Background: Curriculum Based Medical Education was introduced in India with the aim to develop a learner-centered approach, early clinical exposure, and problem-based learning. Assessing teaching-learning outcomes in Anatomy is a complex process that requires the evaluation of multiple domains such as theoretical, practical, and clinical knowledge. The assessment of practical knowledge was done by Objective Structured Practical Examination (OSPE).

Aims and Objectives: To introduce OSPE as an assessment tool in Anatomy. Analyzing the feedback of students and faculty after the introduction of OSPE. **Methodology:** One hundred eighty, First-year MBBS students were included in the study. Sensitization of all students and faculty was done in the orientation programme for OSPE. Six weeks prior, students were informed about the exam and the topics on which OSPE had to be conducted. A well-structured pre-set Likert- scale-type questionnaire was administered to the faculty, students and feedback was received about the process of OSPE by ticking one of the five alternatives i.e. Strongly agree, Agree, Neutral, Disagree and Strongly disagree.

Conclusion: Implementation of OSPE as a formative assessment tool in Anatomy was well accepted by both students and faculty. Faculty who participated in conducting OSPE felt that such exercises can be given frequently for formative evaluation before introducing it in summative evaluation.

Copyright© The author(s) 2023. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

The Objective Structured Practical Examination is a new concept in practical assessment recommended by medical educationists¹. It is a modified form of objective structured clinical examination. Utmost of the Problem-Based Learning institutes uses OSPE as the primary type of practical examination to assess knowledge and capability in Anatomy rather than simple learned facts that are used in numerous traditional medical schools². Medical education aims to develop clinical competency in students at all levels with the aid of applicable tutoring and assessment methods. However, Objective Structured Practical Examination isn't extensively used in our country³. The practical examination should be designed in such a way that it assesses the cognitive (thinking), psychomotor (watching demonstrations), and affective disciplines (emotions) like attitude, skill, and knowledge. Generally, the written examination is used to test theoretical knowledge by multiple choice questions, and short and long answer questions. Oral examinations, spot, or objective structured practical examinations are used to assess practical knowledge. The use of anatomical knowledge in clinical cases is tested substantially through objective structured clinical examinations⁴. The conception of the OSPE

has evolved and is presently being used to assess the practical sphere of anatomical knowledge in a problem-based curriculum⁵. In addition, it describes the main differences from the spot examination, which is typically used in traditional medical curricula.

The main benefit of OSPE is that it encourages an integrated learning strategy that incorporates information, skills, and communication, which deepens students' grasp of the subject and helps them become more capable clinicians and competent Indian medical graduates.⁶ It may be applied to a large number of students, is trustworthy, reproducible, and valid, and it removes examiner bias. At the conclusion of each session, OSPE also enables students to receive feedback on their areas of strength and weakness.⁷ OSPE motivates and guides students to evaluate and appraise themselves, which ultimately results in self-directed learning. Students can also provide feedback that aids faculty in systematizing the planning of their integrated curricula, integrated teaching schedules, and integrated assessment methodologies.⁸ It helps to distinguish between good and poor performance. Students perform better on this test and feel more at ease. It challenges more advanced cognitive abilities and is exciting, stimulating, and encouraging.⁹ The majority of the research now in

*Corresponding author: Parvaiz Ahmad Lone

Department of Anatomy, Government Medical College, Srinagar

existence argues that OSPE is preferable to traditional examination methods however, each institute must assess the acceptability and feasibility requirements before adopting it. The OSPE is limited by the time-consuming and labour-intensive careful planning that is necessary, as well as the need for skilled, committed people.¹⁰⁻¹³ Additionally, there is a dearth of thorough research on the use of OSPE as a tool for medical education assessment in India, particularly for the subject of anatomy.¹⁴ Therefore, the purpose of the current study was to analyze the feedback of students and faculty after the introduction of OSPE in the practical examination of first professional undergraduate students.

Aims and Objective

1. To introduce OSPE as an assessment tool in Anatomy.
2. Analyzing the feedback of students and faculty after the introduction of OSPE.

METHODOLOGY

One hundred eighty, first-year MBBS students were included in the study in the Department of Anatomy, Government Medical College Srinagar, India during Formative assessment. Faculty and students were sensitized in the orientation program. Six weeks prior, students were informed about the exam and the topics on which OSPE had to be conducted. The OSPE blueprint (Table 1) was prepared. The present study comprised of total twelve OSPE stations which included four response stations, six observer stations, and two rest stations. The OSPE stations included Embryology models, Histology slides, Bones, Dissection spotters, Surface anatomy, and Digital X-rays. Students were allocated a time of five minutes for each OSPE station and each OSPE station carried five marks. Students were instructed to attend all 12 stations. Observation was done by faculty and structured questions were asked in OSPE stations. Care was also taken to see that those who finished did not communicate with the rest of them. Pre-set well- structured Likert- scale type questionnaire was administered to the faculty, students and feedback was received. The faculties were asked to provide their opinion about OSPE in comparison with the routine examination. The students provided their overall views on the OSPE process by ticking one of the five alternatives i.e. Strongly-agree, Agree, Neutral, Disagree, and Strongly-disagree. The faculty feedback questionnaire had a total of 7 questions, 6 closed and 1 open-ended question and the student’s questionnaire had a total of 10 questions, 9 closed and 1 open-ended. The respondents had to indicate their position of agreement/disagreement on this new tool based on a five-point Likert scale. The overall experience was also gathered through open-ended questions and data was analyzed.

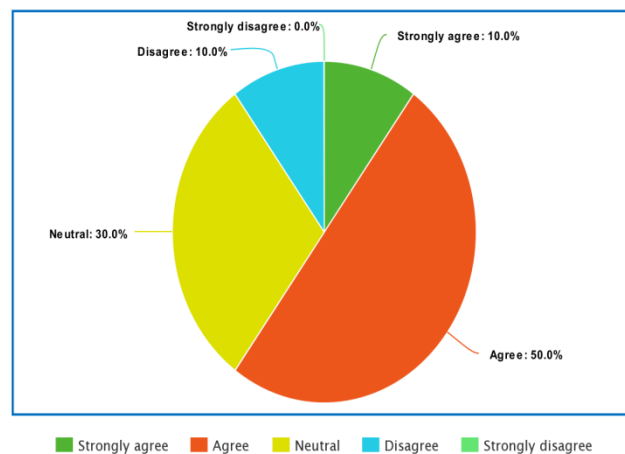
Table 1 OSPE blueprint

Histology slides	Focus on and Identify the given slide
Embryology models	Model Analysis and Questions
Dissection spotters	
Bones and Joints	
Radiological anatomy(Digital X-rays)	
Surface anatomy	

RESULTS

Objective Structured Practical Examination (OSPE) is a tool that is used to assess the skills of students in the preclinical stage of a medical curriculum. OSPE is a new concept in the practical assessment of basic medical sciences. In OSPE, multiple stations are designed and each station has a specific objective that needs to be tested.

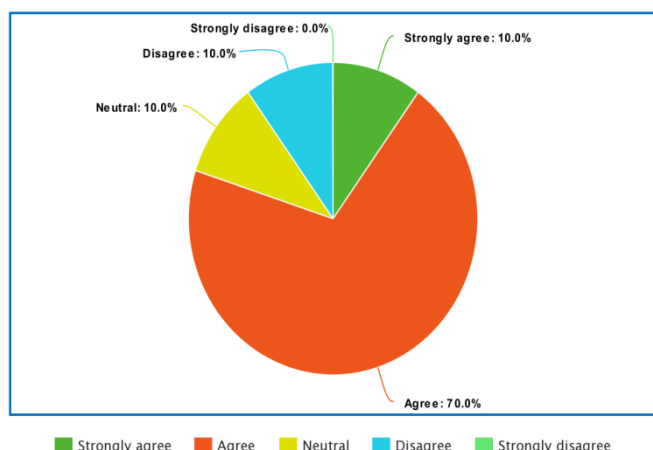
Feedback from faculty



The majority of the faculty gave positive feedback and felt that OSPE is more objective. 90% said the Time allotted for each station was adequate, 80% said the instructions during the examination were clear, 70% of faculty said OSPE was conducted systematically, it is the more objective form of Assessment and needs to apply to students regularly to get acquainted with this new tool. 60% said OSPE can assess the depth of understanding and concept of the topic. Faculty also suggests that Students need time and more exposure to get oriented to the new format. Feedback given by faculty motivates us to implement OSPE in routine exams. In due course of time department can have its own OSPE question bank for the future. Initially, OSPE can be used for formative assessment. The main advantage of OSPE for any subject is that both the examination process and the examinee are evaluated by giving importance to individual competencies. OSPE can test both knowledge and skills better than a conventional examination. It was a comparable test for all students. In addition, the structured nature of this evaluation method offers less opportunity for factual recall and luck. OSPE was a learning experience, the stress of managing time, and the efforts required in the process were expressed as monotonous and needs a lot of physical, and mental effort by faculty.

Feedback from Students

In general, students’ feedback on OSPE was overwhelmingly positive. 90% of students felt that the Instructions given and briefing on the new method were clear, 82% said OSPE should be followed as an assessment tool in the anatomy department, 80% said the time given for stations was sufficient, very much suited to Competency-based medical education curriculum and OSPE tests a wide range of knowledge and skills,75% said Stations were difficult, 70% said OSPE helps to learn in-depth, 60% said we were comfortable with the new method 60% said OSPE is more stressful, 52% said the observer stations were threatening and Fearful.



They were not only satisfied with the process of OSPE i.e. a number of stations, time allotted, clarity of instructions and observers, but also felt that it could test a wide range of knowledge and skills in greater depth. It was a comparable mode of examination to the Conventional system.

Feedback of Faculty and Students Are Illustrated In Tables 2 and 3 Respectively

Table 2 Faculty feedback on OSPE

S. No.	Your Observation	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
1	OSPE was conducted systematically.	11	59	27	3	0
2	The instructions during the examination were clear.	10	70	15	5	0
3	The time allotted for each station was adequate.	27	63	7	3	0
4	OSPE is the more objective form of Assessment.	24	46	28	2	0
5	OSPE can assess the depth and understanding of the topic.	13	47	33	7	0
6	OSPE should be continued as an assessment tool for evaluation.	10	50	30	10	0
7	Give your valuable comments and suggestions to improve OSPE (Maximum 100 words)					

Table 3 Student feedback on OSPE

S. No.	Your Observation	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
1	The instruction given was clear.	62	28	8	2	0
2	The time given for each station was adequate.	19	61	2	18	0
3	OSPE is easier to score passing marks	5	70	22	3	0
4	OSPE is more stressful than traditional examination.	18	42	36	4	0
5	OSPE helps to learn in depth.	13	57	24	4	2
6	OSPE tests a wide range of knowledge and skills.	22	58	18	2	0
7	The observer stations were threatening and Fearful.	12	40	40	8	0
8	OSPE should be continued as an assessment tool for evaluation.	10	70	10	10	0
9	Overall we were comfortable with the new method.	7	53	31	9	0
10	Give your valuable comments and suggestions to improve OSPE. (Maximum 100 words)					

DISCUSSION

Medical education is constantly redesigning the evaluation process to achieve educational objectives to make medical graduates more competent. Designing assessments as per the needs of the new curriculum is required at every institution. An ideal assessment tool must be acceptable, feasible, reliable and valid.

The achievement of all the competencies as well as adjustability in the learning and feedback processes are made possible by well-planned, constructed and implemented assessment systems.¹⁵ It is a widely accepted technique for practical exams in the majority of developed nations, as well as in a select few Indian medical schools for both preclinical and Para-clinical disciplines.¹⁶ An attempt has been undertaken

in the current study to introduce OSPE and assess its feasibility in the Anatomy department of our Institute. In addition to serving as an evaluation tool, OSPE also aids in improving learning techniques.

180 students participated in the current study and underwent OSPE evaluations. Since OSPE necessitates extensive planning and cooperative effort, faculty assisted in its organization. It has twelve total stations, of which two were rest stations. Students and faculty were asked to complete the feedback form after the OSPE was successfully conducted. Most of the student’s feedback on OSPE was overwhelmingly positive. 90% of students felt that the Instructions given and briefing on the new method were clear, 82% said OSPE should be followed as an assessment tool in the Anatomy department, 80% said the time given for stations was sufficient, very much suited to Competency-based medical education curriculum and OSPE tests a wide range of knowledge and skills, 70% said OSPE helps to learn in-depth, 60% said we were comfortable with the new method, 60% said OSPE is more stressful, 52% said the observer stations were threatening and fearful.

They were not only satisfied with the process of OSPE i.e. number of stations, time allotted, clarity of instructions and observers but also felt that it could test a wide range of knowledge and skills in greater depth. It was a comparable mode of examination to the Conventional system.

Written tests use case studies, multiple choice, short answer, and long answer questions to evaluate core knowledge. On the other hand, practical skills are crucial and must be properly learned in order to be an effective practitioner.¹⁷ Previous research has demonstrated the effectiveness of OSPE as a tool for assessment, although relatively few investigations have been conducted independently on Anatomy.^{18,19} Rai N and K Nair S. OSPE not only enhance evaluation but also offers a platform for feedback-based teaching and learning enhancement.²²

According to Rajkumar KR *et al*, OSPE is a better assessment method for students studying anatomy, physiology, and biochemistry since it encourages students to think in a variety of ways.²⁰Yaqubuddin *et al* also found OSPE to be a useful instrument for evaluating the application of anatomical knowledge.³Cherian SB demonstrated how computer-assisted OSPE can be used to enable a consistent evaluation of students for evaluating practical Anatomy skills among undergraduates.²¹Feroze and Jacob used OSPE to test practical skills in pathology and discovered that it was more objective and more accurately measured practical skills than traditional techniques.¹⁸As a result of the current study, we came to the conclusion that OSPE was preferred by both students and faculty since it allows for a more thorough examination of all the domains while also increasing student satisfaction. It not only enhances evaluation but also offers a platform for feedback-based teaching and learning development.²¹

CONCLUSION

The implementation of OSPE as an assessment tool was well accepted and appreciated. Constructive feedback from Faculty and Students for improvement justifies the inclusion of OSPE as an important assessment tool. Thus, this study demonstrates that OSPE is a meaningful and feasible tool for the assessment of practical skills in undergraduate students in anatomy. Student feedback reflects that such assessment helps them to improve as it is an effective evaluation tool. Faculty who participated in conducting OSPE felt that such exercises can be given frequently for formative evaluation before introducing it in summative evaluation. Various assessment methods that test a range of competencies are available for examiners. The choice should be dictated by fitness for purpose and a number of utility criteria. The importance and weighting of these criteria depend on the purpose of the assessment method, i.e. either summative, formative or both.

Acknowledgements

We would like to thank the Head of the department, faculty of the postgraduate department of Anatomy and first-year MBBS students at Government Medical College, Srinagar, India and all the scholars whose articles are cited and included in references.

Source of funding: None

Conflicts of Interests: None

References

1. AartiSoodMahajan, Nilima Shankar, O.P. Tandon. The Comparison of OSPE with Conventional Physiology Practical Assessment. *JIAMSE* Vol: 14: No 2
2. Yaqinuddin A, Zafar M, Ikram MF, Ganguly P; What is an objective structured practical examination in anatomy?. *Anatomical Sciences Education*, 2013; 6(2):125-33.
3. Hasan S, Malik, Hamad A, Khan H, Bilal M. Conventional/Traditional Practical Examination (CPE/TDPE) Versus Objective Structured Practical Evaluation (OSPE)/Semi Objective Structured Practical Evaluation (SOSPE). *Pak J Physiol* 2009; 5 (1): 58-64.
4. Harden, R.M and Gleeson, F.A. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Medical Education*. 1979; 13: 41-54.
5. NayarU. Objective structured practical examinations. In: R.L. Bijlani and U. Nayar (Eds) *Teaching Physiology, Trends and Tools*. All India Institute of Medical Science. New Delhi. 198; 151-59.
6. Ranjan R, Jain A, Bhujade R. OSPE in anatomy: New dimensions in Assessment. *Int J Anat Res*. 2016;4(1):1789-94.
7. Mokkalapati A, Pavani G, Dass SM, Rao MS. Objective structured practical examination as a formative assessment tool for IInd MBBS microbiology students. *Int J Res Med Sci*. 2016;4:4535-40.
8. Badyal DK, Bala S, Kathuria P. Student evaluation of teaching and assessment methods in pharmacology. *Indian J Pharmacol*. 2010;42(2):87-89.
9. Jaswal S, Chattwal J, Kaur J, Gupta S, Singh T. Assessment for learning with Objectively Structured Practical Examination in Biochemistry. *Int J Appl Basic Med Rese*. 2015;5(1):71-75. Suppl.
10. Petrusa ER, Blackwell TA, Rogers LP, Saydjari C, Parcel S, Guckian JC. An objective measure of clinical performance. *Am J Med*. 1987;83:34-42.
11. Newble DI, Entwistle NJ. Learning styles and approaches: implications for medical education. *Med Educ*. 1986;20:162-75.
12. Seale JK, Chapman J, Davey C. The influence of assessments on students' motivation to learn in a therapy degree course. *Med Educ*. 2000;34:614-21.
13. Tooth D, Tonge K, Mcmanus IC. Anxiety and study methods in preclinical students: causal relation to academic performance. *Medical Education*. 1989; 23:416-421.
14. Ananthakrishnan N. Objective structured clinical/practical examination (OSCE/OSPE). *J Postgrad Med*. 1993;39:82-82.
15. Tabish SA. Assessment Methods in Medical Education. *Int J Health Sci*. 2008;2(2):3-7.
16. Gowri TLS, Janaki V. Study on objective structured practical examination OSPE in Histo anatomy for I Mbbs and comparison with traditional method. *Indian Journal of Applied Research*. 2016;6(2):136-39.
17. Drake RL, McBride JM, Lachman N, Pawlina W. Medical education in the anatomical sciences: the winds of change continue to blow. *AnatSci Educ*. 2009;2(6):253-59.
18. Feroze M, Jacob AJ. OSPE in pathology. *Indian J Pathol Microbiol*. 2002;45(1):53-57.
19. Rahman N, Ferdousi S, Hoq N, Amin R, Kabir J. Evaluation of objective structured practical examination and traditional practical examination. *Mymensingh Med J*. 2007;16(1):7-11.
20. Rajkumar KR, Prakash KG, Saniya K, Sailesh KS, Vegi P. OSPE in anatomy, physiology and biochemistry practical examinations: perception of MBBS students. *Indian J ClinAnat Physiol*. 2016 Oct;3(4):482-4.
21. Cherian SB. COSPE in anatomy: An innovative method of evaluation. *Int J Adv Res*. 2017;5(5):325-327.
22. Rai N, K Nair S. Evaluation of perception regarding the feasibility of introducing objective structured practical examination (OSPE) in the department of anatomy. *Indian J ClinAnatPhysiol* 2019;6(3):315-20.