

# Study of OSPE as a Method of Assessment in the Anatomy: Implementation and Attitude among MBBS students

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## ABSTRACT

**Introduction:** Competency-based medical education (CBME) emphasizes outcome-based learning evaluation and assessment. Objective Structured Practical Examination (OSPE) is a valid, reliable, and objective tool suggested in the anatomy curriculum. OSPE modules were developed and implemented in anatomy for first-year MBBS Students, and the perception of first-year MBBS students about OSPE was studied.

**Methods:** This study was conducted on 50 MBBS students of the 2021 admission year in the Department of Anatomy after approval from the Institutional Ethics Committee. Feedback survey questionnaires were prepared and validated by the subject experts and MEU members to study students' perceptions of OSPE. Students' perceptions were noted on a 5-point Likert scale. Data was entered through Google Forms and analyzed.

**Results:** 93.2% of students believed that OSPE made learning competencies easier for them. Only 13.7% of students felt that time devoted to OSPE assessment was inadequate. 79.6% of students were of the opinion that It made them confident in all aspects of addressed competencies. 88.6% of students felt that OSPE improved their ability to demonstrate knowledge and skills of addressed competencies. 88.6% of students were of the view that OSPE is a satisfactory method of assessing their capabilities as a student. 83.7% of students' opinion was that it would help them in learning the competencies of Anatomy. In the opinion of 93.2% of students, OSPE should be a regular method of assessment. 81.8% of students agreed that OSPE was a feasible exercise.

**Conclusions:** The study concluded that implementing OSPE as a method of assessment in Anatomy for first-year MBBS Students is feasible and acceptable. 93 percent of students believe this method makes learning competencies easier for them.

**KEYWORDS:** OSPE, Assessment, Anatomy, Perception, Competency, Curriculum.

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## INTRODUCTION

Competency-based medical education (CBME) has been implemented by the National Medical Commission. It emphasizes outcome-based learning evaluation and assessment. Objective Structured Practical Examination (OSPE) is one such valid, reliable, and objective tool suggested in the anatomy curriculum.

It is stipulated that as a part of successful implementation of CBME, each student would be assessed by a measurable standard which is objective and independent of the performance of other students [1]. CBME Identifies the level of competency required based on Miller's pyramid [2].

For a large number of competencies in anatomy, the level of competency needed to be achieved is up to the level of "Show How." "Shows how" refers to the demonstration or display of a skill or ability. It assesses a person's capability based on their ability to perform a task or exhibit a particular skill. Traditionally, viva voce is used more often in practical assessment. The disadvantages of viva voce are serious and include subjectivity, limited scope, time constraints, lack of practical context, and inadequate feedback [3].

Moreover, viva voce is anxiety-inducing. Thus, for the assessment of competencies with a "Show How" level, assessment methods need to be objective and structured and should be suitable for assessing a wide range of practical skills within a single examination. OSPE meets these criteria. Objective Structured Practical Examination (OSPE) is a valid, reliable, and objective tool suggested in the anatomy curriculum. It is a suitable assessment method for outcome-based learning evaluation and assessment required in the CBME curriculum. It emphasizes outcome-based learning evaluation and assessment. Objective Structured Practical Examination (OSPE) is one such valid, reliable, and objective tool suggested in the anatomy curriculum. Although OSPE has been used for practical examinations in anatomy, it usually has only a component of simple identification of specimens. Implementation of OSPE is expected to sensitize faculty towards the advantages of this method and pave the way for routine implementation by most of them in the future. The involvement of faculty in this project will develop their interest in OSPE and will go a long way in making the concept clear. OSPE as a method of assessment cannot be overemphasized in view of CBME.

OSPE was first introduced to test practical knowledge in basic medical sciences in India by Nayar et al. However, for anatomy as well, OSPE was identified as the most useful method for assessment at multiple levels of instruction: student, resident, and specialist by Rowland et al. [4,5].

There are strong recommendations to assess anatomy through practical methods, includ-

ing OSPE. OSPE is an objective and effective tool to assess anatomical knowledge in a competency-based learning curriculum. OSPE is now used in many medical schools to assess students' practical skills [6]. Students' perceptions of OSPE have been found to be favorable [7]. OSPE ensures the integration of teaching and evaluation [8].

There is research evidence that OSPE is a feasible as well as acceptable assessment method for formative assessment. Formative assessment is integral to the success of the CBME curriculum as it is student-centric and outcome-based, and not time-based [9]. The objective structured clinical examination (OSCE) is one of the established, valid, reliable, formative, and summative tools for assessing clinical skills [10]. With this background, OSPE modules were developed and implemented in the anatomy for 1st year MBBS Students, and the perception of the Anatomy teachers and first-year MBBS students about OSPE was studied.

## METHODOLOGY

This study was conducted on 50 students in the Department of Anatomy. The current sample size in this study was arrived at by the availability sampling type of non-probability sampling [11]. In educational research involving the implementation of a new assessment method, the availability sampling method is the only pragmatic option. An alternative to this involves a very big sample size, which will require a multicentric study. Multicentric study in the implementation of new methods of assessment as other centers practically cannot be persuaded to implement a new method of assessment.

The approval from the Institutional Ethics committee was taken before starting the project vide letter no. BREC/21/46 dated 21.06.2021. Sensitization sessions were conducted for students as well as faculty separately. A core committee of 4 faculty members was constituted to develop the OSPE module and feedback questionnaires. Student information sheet and Informed consent proforma was prepared according to the requirement of the Ethics Committee.



**Photograph 1:** Conduct of OSPE module.

Feedback survey questionnaires for students as well as faculty were validated by the MEU committee and approved by the anatomy faculty. Consenting faculty were trained for the implementation of OSPE during a formative practical assessment session of consenting students.

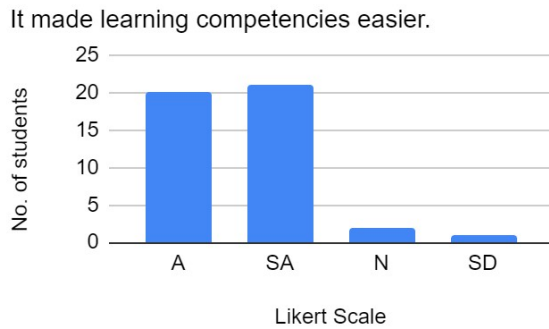
**Development of OSPE Modules:** Competencies mentioned in the undergraduate curriculum (Anatomy) for the Indian medical graduate volume-I of the abdomen region were identified by Core committee members for developing OSPE modules. Stations were designed for assessment of such competencies using OSPE by the core committee. A structured checklist was prepared which acted as a guide for teachers to assess the OSPE performance of the students. The checklist was validated by the whole faculty of the Anatomy department in a meeting following the Focus Group Method [12]. All stations were “observed OSPE stations,” and faculty participating in OSPE gave marks on the predesigned sheet having a checklist as mentioned above.[13] After the OSPE session was conducted, responses from students and faculty were taken on the feedback questionnaires (Photograph-I). Data was entered through Google Forms and analyzed.

## RESULTS

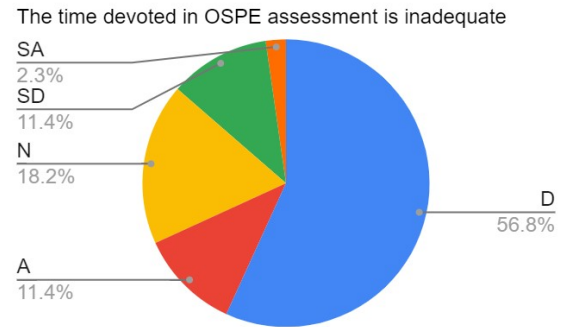
Out of the 50 students of the Phase I MBBS batch, 44 submitted their responses to the feedback questionnaire. The rest, being absent during the module implementation or not willing to give consent, were excluded. Six faculty members (including three demonstrators) who were sensitized participated in the module.

93.2% of students believed that OSPE made learning competencies easier for them. Only 13.7% of students felt that time devoted to OSPE assessment was inadequate. 79.6% of students were of the opinion that It made them confident in all aspects of addressed competencies. 88.6% of students felt that OSPE improved their ability to demonstrate knowledge and skills of addressed competencies. 88.6% of students were of the view that OSPE is a satisfactory method of assessing their capabilities as a student. 83.7% of students’ opinion was that it would help them in learning the competencies of Anatomy. In the opinion of 93.2% of students, OSPE should be a regular method of assessment. 81.8% of students agreed that OSPE was a feasible exercise.

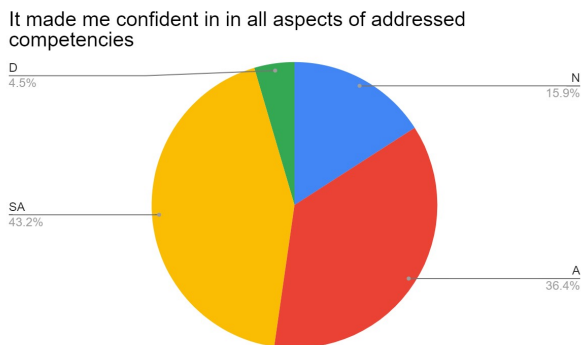
The perception of the students about the OSPE is depicted by the following charts.



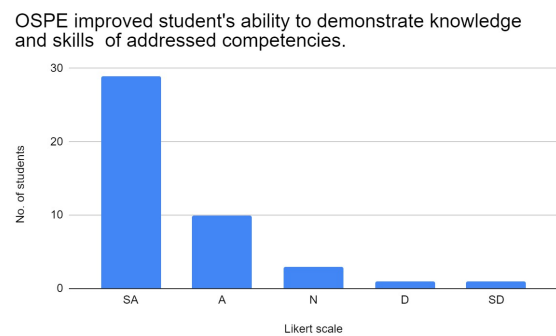
**Fig. 1:** Perception of students on whether OSPE made learning competencies easier



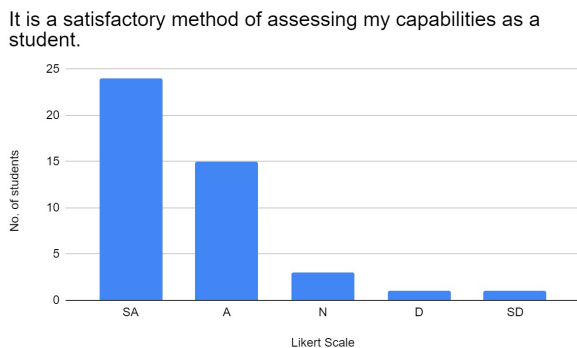
**Fig. 2:** Perception of students on whether time devoted in OSPE assessment is adequate.



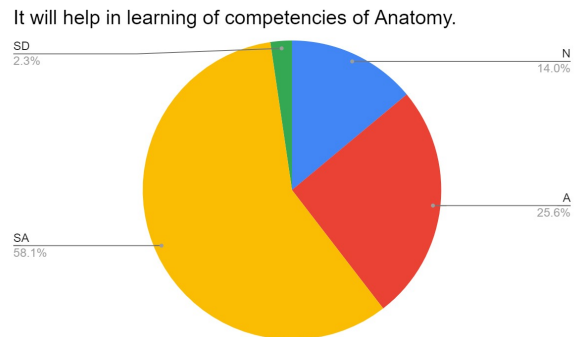
**Fig. 3:** Perception of students on whether OSPE made students confident in all aspects of addressed competencies



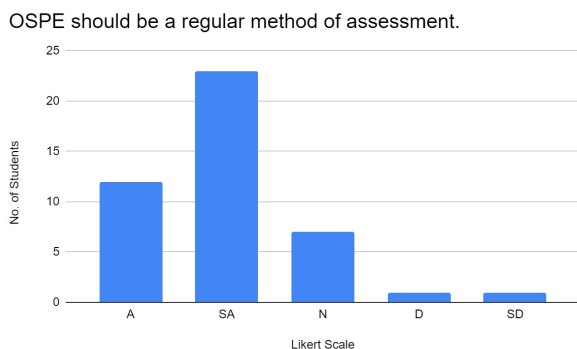
**Fig. 4:** Perception of students on whether OSPE improved my ability to demonstrate knowledge and skills of addressed competencies.



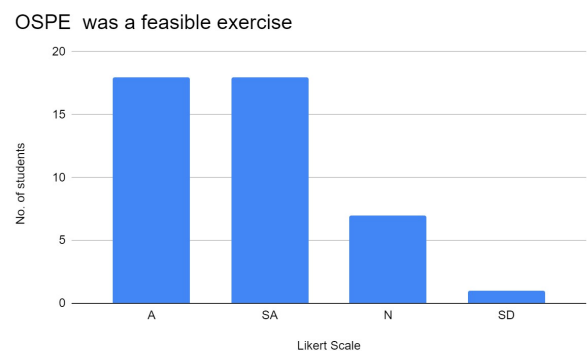
**Fig. 5:** Perception of students on whether OSPE is a satisfactory method of assessing my capabilities as a student.



**Fig. 6:** Perception of students on whether OSPE will help in learning the competencies of Anatomy.



**Fig. 7:** Perception of students on whether OSPE is a satisfactory method of assessing my capabilities as a student.



**Fig. 8:** Perception of students on whether OSPE was a feasible exercise.

Students reported to have been exposed to traditional methods of assessment. In theory, they have been exposed to MCQs, SAQs, and LAQs. In practical assessment, no student reported to have been exposed to any other method of practical assessment but viva and spotting. The main themes of open questions asked in the feedback questionnaire of students are tabulated as below:

**Table 1:** Main themes emerged from the study.

Themes emerged to reply to open questions	Important verbatim quotations
<b>Shortcomings of the OSPE in comparison to other methods</b>	
1. Time at particular stations inadequate	1. "Time not sufficient at some stations" "boredom as same questions are repeated"
2. Verbal feedback is lesser	2. "We do not come to know about weather we are right or wrong about our answers,"
3. Many find no shortcomings (may be novelty of the method preoccupies them)	3."I don't think there are any shortcoming in sope as it gives each student with same questions so it is a good method"
4. Less interactive	4. "OSPE is a very good method but some questions should be asked from our professors. with the other method such as viva, we don't have interaction with our professors"
<b>Strong points of the OSPE in comparison to other methods</b>	
1. Students are more confident.	1. "It made us confident about"
2. Less stressful	2. "Anxiety level was decreased confidence level boosted, got to know many points about Viva about how to behave and perform" " OSPE removes agitation help to make learn competencies easier build self confidence"
3. Unbiased	3. "We all all feel equal because everyone is asked standard questions it is not on professor that he or she can ask is easy or difficult questions"
<b>Any other comments/suggestions:</b>	
1. Implement OSPE regularly	1. "More such sessions should be conducted" "It should be regular method of assessment so that we can get Rid of fear of viva and also learn to manage time and other manners in front of teachers" "OSPE should be done in every part"
2. Should be used for main exam (summative also)	2. "this should be made our main method of assessing competencies as this actually brings out best from us"

## DISCUSSION

The purpose of this study was to train faculty of the Anatomy Department to conduct OSPE. For satisfactory conduct of OSPE, it was necessary to sensitize students about its structure and purpose. The perception of both stakeholders regarding OSPE as a method of formative assessment is very important for sustainable implementation. This study found that students want OSPE to be implemented as a regular method of formative assessment. Roy et al. studied student perception students' perception of 'objective structured practical examination (OSPE)' in internal assessment

examination of anatomy [8]. They concluded that OSPE can be successfully implemented in a properly structured fashion in anatomy in internal assessment. The focus of the present study was on formative assessment, whereas in a study conducted by Roy et al., it was on whether OSPE could be satisfactorily implemented for internal assessment. Although the formative value of internal assessment can not be denied, the summative component is a more important part of internal assessment, and in the absence of proper feedback, the formative value of internal assessment is not realized to its full potential. The feedback

questionnaire of that study was different except for a few items like whether time is sufficient or not.

Ranjan et al. in a study conducted on 150 undergraduate students, concluded that OSPE emerged as a better tool in terms of assessment and performance as well as from the student's point of view [13]. They compared the mean marks of students who scored in OSPE as compared to traditional practical examination (TPE). The authors of the present study are of the opinion that better preparation, as concluded from better mean marks of the OSPE group, might be related to the novelty of the method and not to the inherent quality of the method itself. Items of feedback questionnaires administered to students are not mentioned in the article. Further, the perception of faculty about OSPE was not studied in this study. The present study also analyzed the perception of faculty regarding feasibility, relevance, and other parameters described in the result section.

82 percent of students believed that OSPE should be followed as a regular method of assessment in anatomy, as concluded by Rajkumar et al. in a study in which combined OSPE for anatomy, physiology, and biochemistry was conducted in 100 medical students. The present study underscores the importance of OSPE in learning, i.e., formative assessment, as 93.2% of students felt that it made their learning easier, and only 2.3 % disagreed [14].

The authors could not find published articles on faculty perception of OSPE in anatomy after an extensive systematic search. This increases the relevance of this article. However, in other preclinical branches, studies on faculty perception of OSPE have been published [13-15]. In the present study, students' perception of OSPE is clearly favorable. The concept of OSPE in anatomy has evolved a lot since Yaqinuddin et al. published their study in 2013 [6].

The present study supports their belief that the 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. Their concern is that structured

objectives are a prerequisite for the successful implementation of OSPE.

## CONCLUSION

Students' perception of OSPE is found favorable in this study. Thus, OSPE should be regularly conducted as a method of formative assessment, but other methods like viva should also be conducted to cover all aspects of addressed competencies. Furthermore, the successful implementation of OSPE shows that OSPE is a feasible method of assessment in Anatomy. The favorable perception of students for OSPE is expected to sensitize more and more faculty to the frequent use of OSPE as an effective and feasible method of assessment. De-stressing nature of this method makes it even more attractive. Once stations are developed, it is much easier than traditional viva. In view of the above, the authors recommend the optimum utilization of OSPE as a method of assessment for undergraduate students in the anatomy department.

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## Author Contributions

**VM:** Contributed in plan, protocol writing, implementation, data collection, interpretation of data and conclusion. **NG:** Contributed in plan, protocol writing, implementation, data collection, interpretation of data and conclusion. **VG:** Contributed in plan, protocol writing, implementation, data collection, interpretation of data and conclusion. **GS:** Contributed in plan, protocol writing, implementation, data collection, interpretation of data and conclusion.

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## Conflicts of Interests: None

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