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COMPARISON OF TRADITIONAL PATHOLOGY PRACTICAL EXAMINATION VERSUS OBJECTIVE STRUCTURED PRACTICAL EXAMINATION (OSPE) AMONG II MBBS STUDENTS.

Pathology

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ABSTRACT

Introduction: Assessment is an important factor that drives student learning.[1] Evaluation of teaching and learning in medical field is best done by the assessment method which tests not only knowledge but also comprehension and psychomotor skills.

Aims and objectives: 1.To compare the effectiveness of Objective Structured Practical Examination (OSPE) with traditional Practical Examination as an assessment tool in Pathology practical examination among 2nd year MBBS students. 2. To study the perception of students for OSPE in comparison with traditional method. 3. To study the perception of faculty for OSPE as compared to traditional method.

Materials and methods: OSPE was introduced for formative assessment in the hematology practicals. Assessment of 125 students were done by both traditional and OSPE method. Performance of the students for practical skills and knowledge were compared by both methods. Feedback was taken using prevalidated questionnaire from students and faculty to know their perceptions.

Results: According to our study, OSPE showed higher scoring than traditional method. The preferred method of assessment by students was OSPE (70.6%), Traditional method (19.8%), Both (7.1%). 50% of faculty preferred traditional method over OSPE due to its acceptability and feasibility.

Conclusion: OSPE can be considered as an effective tool for practical skills, understanding and interpretation. Faculty needs to be motivated to design and modify the stations of OSPE with innovations to make it more acceptable and feasible.

KEYWORDS

Introduction

Undergraduate medical education in India is now in the process of transformation from conventional method to competence based medical education in which more emphasis is given to how a student performs i. e. combination of knowledge, attitudes and more importantly skills rather than just knowledge.[1] This calls for the need to change from subjective to objective methods of assessment to judge the practical skills of the students.

Pathology is a subject dealing with etiology, pathogenesis, morphology and laboratory diagnosis of the disease process which explains the rational base to understand the clinical course, manifestations, complications, diagnosis and end result of the disease. This in turn explains the importance of teaching learning and assessment methods in designing competence based curriculum of pathology in II MBBS.

Traditional pathology practical examination mainly reflects global performance of the students.[2] It mainly tests the knowledge of the students. It is more subjective with examiner bias. Objective structured practical examination is an innovative method of assessment which can overcome the limitations of traditional practical examination. It helps to test the cognitive, affective and psychomotor domains and test the comprehensive and interpretation skills which are essential components in medical teaching. It is objective, unbiased, valid and reliable tool for assessment.[3]

The objectives of the present study were to compare the effectiveness of Objective Structured Practical Examination (OSPE) with traditional Practical Examination as an assessment tool in Pathology practical examination among 2nd year MBBS students and to study the perception of students and faculty for OSPE in comparison with traditional method.

Materials and methods:

This was a cross sectional comparative study carried out at Dr. D. Y. Patil Medical College, hospital and research center, Pune. It was a pilot study carried out for formative assessment of hematology practical exercises as a part of revision test.

Permission of head of the department of Pathology was taken to organise formative assessment of Blood grouping and haemoglobin estimation practicals of II MBBS students in both traditional and objective structured practical examination methods. Institutional ethical committee clearance was also taken.

All students who have appeared for both traditional practical examination and OSPE were included in the study. Students who were absent for any of the above methods were excluded from the study. Informed written consent was taken from the students to participate in this study.

Theory classes were taken on disorders of haemoglobin and blood transfusion. This was followed by details of correct method of haemoglobin estimation and blood grouping during practical demonstration class. Students were informed about the revision test two weeks in advance with detailed plan of two different methods of assessment i. e. traditional method and objective structured practical examination. Detailed instructions regarding the OSPE, including number of stations, time and marks for each station were displayed.

In the traditional practical examination method, students were asked to perform the blood grouping and haemoglobin estimation followed by viva with the faculty. The markings were given for practical skill and viva separately. 5 marks each for practical skills for Hemoglobin and blood group estimation were given. Viva was also of for 5 marks each. Total 20 marks were given for traditional method. This was done in the first week during the practical class.

In the following week, OSPE as organised during the practical class for revision test. Students were divided in three sets and were asked to rotate through twelve stations. Station 1 and 7 were procedural stations where students were asked to perform haemoglobin estimation and blood grouping respectively with 10 marks each. Their practical performance skills were observed by the observer with checklists to score the student's performance. (Table 1 and 2). Rest of the stations were response or unobserved stations composed of objective type of questions to test the knowledge. Few stations were designed where

charts with clinical history and investigations were put up for diagnosis and interpretation of data which test their higher level cognitive domain and analytical skills. Appropriate rest stations were designed during the OSPE rounds. OSPE marks were proportionately reduced to 20 to compare it with the traditional method for statistical analysis.

Student perception about these two methods was taken based on prevalidated questionnaires with Likert scale.[4,5] after appearing for both types of revision tests.

Faculty feedback was also taken by questionnaire. Open ended questions were also asked for comments.

Analysis: Mean and standard deviation were calculated of scores of both methods of assessment using SPSS and Medcalc trial version for statistical analysis. Feedback were evaluated qualitatively and quantitatively.

Observations and Results:

Total 125 students of the second year MBBS took both traditional method and OSPE tests. The mean total score of both methods along with separate scores of practical examination and viva/ unobserved questions are shown in Table 3. OSPE observed station marks were compared with practical marks of traditional method. OSPE unobserverved station marks were compared with viva marks of traditional method. Total scores were also compared and analysed. Preferred method of examination by students and faculty is shown in figure 1. It was shown that mean OSPE scores were 1.3 marks more than traditional method as shown by Bland Altman plot in Figure 2. The difference of scores between the two methods are within the limits of agreement (1.96 standard deviation). Also the differences do not increase as the average score between the two methods increase (plotted on x axis)

In response to the questions asked to the students in feedback, 70.6 % of the students preferred OSPE over traditional method of assessment. The reasons given by them were that they found it less stressful, more structured and unbiased method. They also agreed that practical skills were better assessed by this method along with higher level cognitive domains in the unobserved stations. They felt that it offers the possibility of high scoring. It increases the confidence level and is a very good tool for formative assessment. Varied OSPE stations also helped to cover appropriate knowledge area consistent with learning objectives of the syllabus. Few students preferred this method as they had fear of viva. The disadvantage of this method narrated by few students was insufficient time for procedural skill stations. (Figure 3)

On the other hand, faculty feedback showed that 50% of them preferred traditional method of assessment. 77.3% faculty felt that traditional method is an easy , simple method of assessment and is a good tool of practical examination; though 81% agreed that it is more objective and 72.7% felt that it is unbiased. They found OSPE to be more time consuming, difficult to design with less acceptability and feasibility.

Discussion:

It is said that 'Assessment is the tail that wags the curriculum dog'. This statement emphasises the importance of assessment as well as it cautions us about the pitfalls that can occur due to its improper use. It means that the students will learn the things and ways in which they are assessed. In competence based medical curriculum, methods of assessment play very important role in learning the correct practical skills and analytical skills of diagnosis. Formative assessments should be designed to provide feedback to students and teachers. OSPE is one of the new exam system designed to make assessment objective, valid and reliable. It can be used as one of the methods for formative assessment in pathology practical examination.

The results of our study showed that the marks obtained by OSPE were more than the traditional method. Practical skills demonstrated wide range of marks with increase in mean. This can explain the objectivity of OSPE method and proves to be a better tool for assessing the detailed practical skills. Other studies have also shown that OSPE is more objective method to assess the practical skills. [4,5] It was noted that in the unobserved stations which were compared to viva, mean marks were slightly less in OSPE than traditional method. The reason found for this was few stations of OSPE designed for analytical skill was not answered by most of the students. This also helps us to get the feedback for faculty that the students have not understood that particular aspect of the topic. Hence this proved that OSPE is a good tool for formative assessment to know the strengths and weakness of students and also to provide feedback to students and faculty.

Perceptions of the students about OSPE were similar to those found in other studies. [5,6] Most of them preferred OSPE over traditional method. They felt that it is well structured, unbiased, less stressful and with possibility of high scoring. They found it to be useful for revisions and helpful in preparation for final exams also. Few students preferred traditional method, as they found that there was more scope for answering questions in great details which will have better scope for higher scoring by good students over an average student. Limited time in practical skill assessment was also limitation of OSPE. Qualitative analysis of the feedback helped us to know that the students with viva phobia preferred OSPE. This can be taken as a limitation of OSPE in pathology which will not promote development of communication skills.

On the other hand, in our study, we found that only 50% of the staff preferred OSPE over traditional method. This highlighted the gap between student's and faculty's perception regarding the newer method of assessment. This in turn proves the need for faculty development programmes. OSPE needs lot of ground work, extensive planning for preparation of station map, equipments, Blueprinting for preparing stations, manpower and time management for large number of students appearing for examination. These limitations may affect the acceptability and feasibility of OSPE over traditional method. However, it was found that though more staff is required for ground work of OSPE, Observed stations can be attended by resident doctors using the checklist. This will help for better utilisation of the time of faculty in designing OSPE stations.

Utility of assessment as suggested by van der Vleuten and Schuwirth depends on validity, reliability, acceptability, educational impact and feasibility. [7] OSPE is higher on validity, reliability and educational impact; it had low acceptability and feasibility in our study. We conclude that OSPE is preferred method of assessment by the students, it is objective, valid and reliable tool to assess the higher level cognitive domains and psychomotor skills. This feedback is considered valuable for further development and enhancement of OSPE with new innovations. It can be used regularly for the formative assessments of pathology practical examinations. Faculty needs to be sensitised and motivated for acceptance of competence based assessment for a competent Indian medical graduate who will improve the global health system.

Table 1. Check list for blood grouping:

Sr. No.	Steps	YES	NO
1.	Take the slides and clean it with tissue paper		
2.	Mark anti A and anti B sera. Mark another slide for anti H		
3.	Add one drop of anti sera on the slide at respective areas		
4.	Select the sample. Check the name and other identification numbers of the sample		
5.	Add one drop of washed 20% red cell suspension to each antiserum correctly		
6.	Mix each cell serum mixture separately with applicator stick		
7.	Rock the slide gently		
8.	Read for the agglutination macroscopically within 5 minutes		
9.	Identify the blood group correctly and writes the report.		
10.	Disposes the slides, gloves in the bio waste containers		

Table 2: Check list for haemoglobin estimation (1 mark for each step)

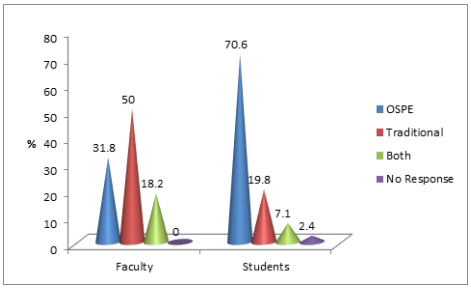
Sr. No.	Steps	YES	NO
1.	Keeps all necessary items ready (Sahli's Haemoglobinometer containing Hb tube, Hb pipette, Comparator & stirrer, 0.1N HCL, gloves, distilled water, dropper, Biowaste container		

2.	Washes hands, wears gloves and checks that all the apparatus are clean & dry		
3.	Fills Hb tube with 0.1N HCL up to mark 2g% with dropper.		
4.	Takes blood from given EDTA sample vacutainer with Hb pipette up to 0.02ml mark while making sure that no air bubbles enter into the pipette		
5.	Wipes the tip of Hb pipette, transfers blood to Hb tube containing 0.1N HCL and rinses the pipette 2-3 times with HCL.		
6.	Leaves the solution undisturbed in Hb tube for 10 minutes		
7.	After 10 minutes, places Hb tube in comparator and start adding distilled water drop by drop and mixing it with stirrer till its colour matches with that of comparator.		
8.	Notes down the reading of Hb in gm%.		
9.	Cleans all the apparatus thoroughly.		
10.	Disposes the used gloves in red colour bio-waste container& washes hands		

Table 3: Comparison of marks scored by Traditional method and OSPE

	Minimum	Maximum	Mean	Std. Deviation
Traditional total	6	18	13.13	2.35
OSPE total	8	20	14.36	2.34
Traditional practical	3	9	6.58	1.21
OSPE observed	3	10	8.26	1.54
Traditional viva	2	9	6.48	1.41
OSPE unobserved	2	10	6.14	1.71

Figure 1. Preferred Assessment method



Fisher's exact test p= 0.002.

Figure 2. Bland Altman plot

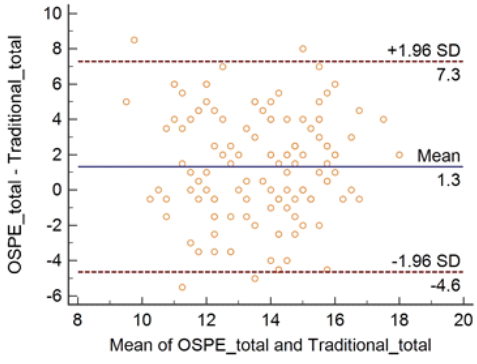
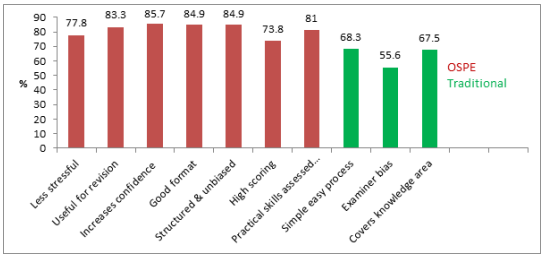


Figure 3: Students' perception for two methods



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