RESEARCH PAPER | Medical Science | Volume : 6 | Issue : 2 | FEBRUARY 2016 | ISSN - 2249-555X

Study on Objective Structured Practical Examination OSPE in Histo anatomy for I MBBS and Comparison with Traditional Method

KEYWORDS: OSPE , Traditional method, Histology, Evaluation and Comparision.

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ABSTRACT *Background and aims: Assessing teaching-learning outcomes in anatomical knowledge is a complex task that requires the evaluation of multiple domains: theoretical, practical, and clinical knowledge. The assessment of practical knowledge was done by Objective Structured Practical Examination(OSPE) in histology for I MBBS students which 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. The aim of the study was to test the technical skills of the students, to reduce the subjectivity of the marking with respect to examiner and comparison of the OSPE with traditional methods.*

Materials and methods: Materials used are Microscopes – 20, Stained histoslides -20, Stationary, MS office for statistics, Bell, 100 Students & 4 Examiners . 100 students were divided into 2 batches (A&B] with 50 in each. Batch A were assessed by OSPE using a check list, with four examiners assessing student by observation & Batch B with Traditional method (2 examiners). Results were analysed by Coefficient of Variation and Chronback's alpha test.

Results: The Coefficient of Variation showed the degree of subjectivity was more in traditional (23.1) when compared to OSPE (15.4). Chronback's alpha test showed that there was high degree of correlation with OSPE (0.931) when compared to Traditional method (0.757) .

Conclusion: OSPE, a better way of assessing the students performance as it showed reduced subjectivity of marking, less internal variability, improved technical skills of students and more comfortable as the sub tasks are clearly defined and no direct questionnaire from examiners.

INTRODUCTION:

It is a well-known fact that assessment drives learning. A single examination does not fulfill all the functions of assessment, such as assessing knowledge, comprehension, skills, motivation, and feedback(1).Written examinations (essays and multiple choices) test cognitive knowledge, which is only one aspect of the competency. Structuring of questions and assessment through highlighting on objectivity has been emphasized and gained importance in the practical evaluation. The objective structured practical examination (OSPE) is now an accepted tool in the assessment of practical skills in both Pre- and Para-clinical subjects. However, there are no strict or limiting guidelines on the types of scenario that are used in the OSPE examinations. In the advanced countries, and indeed most reputable colleges of medicine, OSPE is the standard mode of assessment of competency, clinical skills, and counseling sessions, satisfactorily complementing cognitive knowledge testing in essay writing and objective examination(2). Several universities adopted a similar pattern of practical evaluation, which is un-uniform and largely subjective. Anatomy departments in many medical schools have been using the OSPE as an assessment method for assessing students performance in Histology practicals and dissection.

Examiner variability significantly affects scoring. The marks awarded generally reflect only the global performance of the candidate and are not based on demonstration of individual competencies. In the university examination, there used to be frequent complaints from students that they are not being assessed properly and examiners insisting that the existing examination pattern is tedious and time-consuming. The OSPE is a versatile multipurpose evaluative tool that can be utilized to evaluate students in practical assessment. It assesses competency, based on objective testing through direct observation. It is comprised of several "stations" in which examinees are expected to perform a variety of practical tasks within a specified time period against criteria formulated to the practical skill, thus demonstrating competency of skills and attitudes. OSPE has been used in histology to evaluate those areas most critical to perform by students, such as technical use of microscope, to focus the given slide, identification and answer related questions . Any attempt to evaluate these critical areas in the old-fashioned practical examination seem to be assessing theory rather than simulating practical performance.(3) An earlier innovation in this regard is the objective structured clinical examination (OSCE) later extended to the OSPE described in 1975 and in greater detail in 1979 by Harden and his group(4). These methods with some modifications have stood the test of time and have largely overcome the problems of the conventional clinical/practical examinations mentioned earlier. In view of this, we tried the system of OSPE for the assessment of practical in the subject of histology for the first time. Students usually learn only the material on which they are assessed. They do not go beyond the learning issues. If a test requires memorization of facts, they are driven to do that. This will lead to a situation where they adopt a surface approach to learning. Research shows that the type of assessment method adopted can influence student learning(5). If the assessment pattern consists of a variety of methods that demand understanding of the subject and technical skills involved, this problem can be solved to some extent. To test the earlier observation that a single exam does not fulfill all the functions of assessment, such as assessing knowledge, comprehension and skills, motivation, and providing feedback, we developed an evaluation system.

Volume : 6 | Issue : 2 | FEBRUARY 2016 | ISSN - 2249-555X

In the OSPE, multiple stations are designed around a specific objective to be tested. The objectives tested in an OSPE assess higher cognitive and psychomotor skills. The usual process of constructing an OSPE starts with identifying key objectives which need to be tested (blueprint). Here OSPE in Histology practical examinations was integrating the students knowledge about Microscope, how to use the microscope, how to focus the slide, correct identification of the given slide and answering the relevant questions on the given slide under observation by four examiners which differs from traditional method of histo practicals where the slide is focussed and he has to identify the slide with viva voce from examiner directly and individually. The aim of the study was to evaluate whether OSPE is a method of learning and assessment of skills involved in Histo anatomy, a tool to improve the technical skills of the student, reduces the subjectivity of marking with respect to student by examiner, to determine student satisfaction regarding the OSPE and compare OSPE from traditional method of practical examinations.

MATERIALS AND METHODS

The first M.B.B.S students admitted for 2013-14 batch in Government Medical College, Nizamabad were the subjects for the study. The ethical clearance from college committee was taken for conducting the study and also the consent of students was taken. The study was conducted in the Department of Anatomy, Government Medical college, Nizamabad in the year 2014 for over a period of six months. After successfully completing the syllabus pertaining to the histology theory and practicals OSPE notification was announced 30 days in advance. A single examination does not fulfill all the functions of assessment. This study was undertaken to determine the reliability and student satisfaction regarding the OSPE as a method of assessment of practical examinations in anatomy before implementing it in the forthcoming university examination. Before administering this tool for evaluation, all the staff members involved in designing and conducting OSPE were trained by attending an "Workshop on OSPE" conducted in the department of anatomy, Government medical college, Nizamabad. The peer agreed upon check list which formed the basis of assessment in procedure station. Structured questions were formed for question stations and key answers for the same were also prepared. Since the assessment was being carried out for the first time, the students were oriented toward such a system in advance before administering the tool. A total of 100 students were assessed..

The materials used are 40 Microscopes, 30 Stained histoslides, Needed stationary, MS office for statistics, Bell, 100 Students and four Examiners . 100 students were divided into two batches of 50 each as Batch A and B by random sampling. Names of the students were not mentioned to reduce the bias.

Batch – A were assessed with **Objective Structured Practical Examination (OSPE) Method**. In this, each student is given a histology slide, was instructed to perform the following task within 5 minutes, and were assessed (according to table 1). All the four examiners observe each candidate at the same time in OSPE method without any direct questioning (model answer script was also given).

Batch B were assessed with **Regular Traditional Method**, in which a slide is focused by the examiner and the student has to identify, draw diagram and then viva will be conducted by the examiners individually.

Results were tabulated and assessed by using Coefficient of Variation and Chronback's alpha test and both methods were compared.

TABLE 1
PERFORMANCE TEST FOR HISTOLOGY SLIDES – CHECK LIST
Task - Identification of histology slides to students

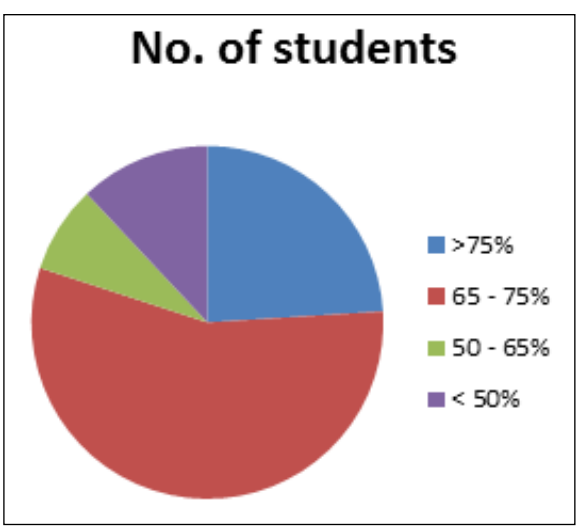
S. NO	SUB TASK	MARKS ALLOTED	PERFORMED	NOT PERFORMED	SCORE
1	Proper slide focusing	2 M			
2	Correct identification	2 M			
3	Two identification points	2 M			
4	Proper diagram	2 M			
5	Related questions	2 M			
TOTAL		10 M			

RESULTS:

Out of the 100 students, 50 from Batch A took this OSPE exercise. Six students failed to achieve an average of 50% . However, 12 students on an average achieved > 75%, 28 students achieved between 65% and 75%, and 4 students scored between 50% and 65%.

This has been shown in Figure 1.

FIGURE - Average scores of students



Marks of 100 students given by examiners were taken, 50 with respect to OSPE method and 50 with respect to traditional method.

Results were analyzed as follows
TABLE 2

Statistical method	OSPE method	Traditional method
Mean	6.66	6.156
Standard deviation	1.03	1.4242
Coefficient of variation	15.4	23.1
Chronback's α test	0.931	0.757

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The coefficient of variation shows the degree of subjectivity is more in traditional method (23.1) when compared to OSPE (15.4).

Chron back's α test shows that the there is higher degree of correlation with OSPE (0.931) when compared to traditional method (0.757).

After the examination perceptions of the students with respect to the objectives of OSPE were taken and analysed (depicted in table 3).

TABLE 3
ANALYSIS OF PERCEPTIONS OF STUDENTS TO VARIED OBJECTIVES OF OSPE

OBJECTIVES	YES (%)	NO(%)
The Questions asked were relevant	86	14
Sufficient time was given to students	90	10
OSPE is fair compared with old method	80	20
OSPE is easier to pass	40	60
OSPE should be followed asmethod of assessment in anatomy	84	16
Effects of OSPE: Helps to improve	96	04
Provides chance to score better	76	24
Less stressful	52	48
Makes student think in more than one way	86	14
Eliminates bias	84	16

DISCUSSION

Over the years, increasing experience with the procedure has led to the use of OSPE not merely as an evaluation tool but as a teaching method. Traditionally the histology part was trained with basics of microscope and to identify a histo slide. Thereafter assessed by spotters and discussion slide which was left to the whims and fancies of examiner. As a result the out coming student was not having even the capacity to focus a slide by himself and identify correctly. This made the author to move towards developing the technical skills of the student with OSPE . This procedure also identified the weaker part of the student during the study where an effective feedback was given to the student in the weakest part to overcome them (6) and assessing them with OSPE method which was more effective in integrating the knowledge of the student acquired during the study . In this study, a practical examination, especially the OSPE, was identified as the most useful method for the assessment of anatomical knowledge of student(7).

This was also assessing the competency of the student with respect to defined objectives (8). With this experience the author felt that this was a highly integrated OSPE , an effective tool to assess the technical skills and histological knowledge. Definitely the subjectivity error between the examiners was ruled out and the scores were consistent by all the examiners as evidenced by the coefficient of correlation which inturn improved the scores of the student tho not considerably significant. This procedure has definitely made a shift in integration of basic medical science, increasing the participation of faculty and encouraged the use of technological and electronic advances (9). This also led to more interactions between students, faculty and technicians where i observed the effective way of implementtion of Interactive teaching and learning strategies which also included the team based learning(10).

Feedback given by students was constructive and showed high acceptance, which are presented in table 3. Feroze and his team have also reported to have got an appreciable feedback (11). Majority of students appreciated orientation toward OSPE, syllabus and relevance of questions asked. Many students found that the manner in which the assessment was conducted was comfortable. Ninety-six percent of students believed that OSPE helps them to improve and 81% felt that this type of assessment fits in as both learning and evaluation tools. The OSPE method focused the weak part of the student thus helping them to rectify their mistake. From the students' point of view, the OSPE was acceptable and generated wide appreciation. This type of assessment serves as a tool for testing multiple dimensions of student performance because it tests both skills as in performance exercises and knowledge as in OSPE.(12)

Majority of faculty felt that such exercises need to be given more frequently.The only limitation was the time constraint where considerable faculty hours had to be adjusted for the construction, review and development of this highly integrative approach(13). The other limitation is to obtain trained faculty when it is to be implemented in full scale.

CONCLUSION

In conclusion, OSPE has several distinct advantages. From our first experience, we found that OSPE was more objective, measured practical skills better, less internal variability and eliminated examiner bias. Student feedback reflects that such assessment helps them to improve as it is effective both as teaching and evaluation tools. Faculty participated in organizing OSPE felt that such exercises can be given frequently for formative evaluation before introducing it in summative evaluation. We have outlined the features of the evaluation system followed in our setup, and based on the feedback, we consider that it would help students to develop different learning skills and make them better learners. Experience and experimentation will inevitably result in the refinement of the OSPE as a tool for learning and evaluation..

OSPE is a better way of analyzing the students compared from traditional method as it has the following advantages.

Results show

1. Reduced subjectivity of marking (by coefficient of variation).
2. Less internal variability (by Chronback's α test).

Observations show

1. Technical skills of the students can be improved (by slide focusing).
2. Student is placed in comfortable position as subtasks are defined and no direct questionnaire from the examiners.
3. Students show improvement according to the feedback given.

ACKNOWLEDGEMENT :
My special acknowledgements to students, technical staff, faculty and Principal in Govt Medical college, Nizamabad ,for their cooperation in doing the study.

Volume : 6 | Issue : 2 | FEBRUARY 2016 | ISSN - 2249-555X

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