

Evaluation By OSPE(Objective Structured Practical Examination) –A Good Tool For Assessment Of Medical Undergraduates – A Study Report From Velammal Medical College, Madurai, Tamilnadu, India.

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Abstract

Aims and Objectives: This study was conducted to know a. How the subjectivity of conventional practical methods of evaluation in Medical education are overcome in OSPE, b. How OSPE helps to find out the lacuna in teaching by teachers and understanding the exercises to the fullest by the students and C. How OSPE acts as a tool for knowing the competency of a student.

Materials and methods: 142 II MBBS students who wrote Model examination in Microbiology were evaluated by both conventional practicals and OSPE. The maximum and minimum marks obtained by the students in both the methods were analysed to see the variations in the marks awarded by each evaluator in both types of evaluation. The observational report by the evaluators in the 5 different steps in the procedural station of OSPE and 5 different questions in the response station of OSPE were also analysed to see the lacuna in any step or any question on the part of students. The marks obtained by the students between 75-100 in Spotters and gram staining in conventional method and procedural and response station in OSPE were analysed to know the knowledge, skill and competency of students in this subject.

Conclusion : It was proved in this study that OSPE had overcome the subjectivity in the conventional methods. The students showed lacunae in some steps of the exercise which were informed to the teachers for more concentration on those steps. The students had good knowledge and skill but less competency recommending for achievement of still more skill and knowledge to improve the competency.

Keywords: OSPE, Skills, competency

I. Introduction

The scheme of OSCE/OSPE (Objective Structured Clinical Examination / Objective Structured Practical Examination)was introduced for Medical UG and PG courses from February 2011 examination onwards by TN Dr. MGR Medical University, the only Medical University in Tamil nadu, India. It is used as an instrument to assess the components in practical skills such as simple procedures, interpretation of lab results, communication, attitude etc. which are tested using agreed check lists and rotating the students round a number of stations some of which have observers with check lists.

Though this method is not a panacea to all the ills of evaluation system, it does bring about considerable and what is more, a meaningful improvement in evaluation methodology. Generally, one of the major perils of an assessment and evaluation of the present system is its subjectivity. When two or more examiners evaluate a student, the variability between them tends to be large and there are differences of opinion based on subjective perception of the examiners. In contrast, the OSCE/OSPE pattern of examination is highly objective and all the candidates are exposed to a pre determined set of questions and thus minimizing the subjectivity.

The most important underlying concept of this method is that it is essential to test the competence of a doctor rather than merely his knowledge. Theory and other conventional examinations tend to examine knowledge component almost to the exclusion of competence component apart from being largely subjective. OSCE and OSPE remedy these aspects. In addition, in conventional clinical and practical examinations, it is not often possible to examine a wide range of clinical competence due to a variety of constraints.

Tamil nadu Dr. MGR Medical University introduced this system of evaluation in the Medical curriculum in 2011 after imparting training to the trainers and after conducting zonal workshops in 3 zones. Velammal Medical College, an affiliated college of this university started this methodology of evaluation from 2015 onwards. This study was conducted on 142 II MBBS students who were evaluated by this system in the subject Microbiology during the model examination conducted during the month of January 2016, one month prior to the University examination.

II. Aims And Objectives

This study was conducted on 142 Second MBBS Students in the subject Microbiology to know the following :

1. The advantage of OSPE over other practicals in evaluating the domain skills of Medical students.
2. How the subjectivity of routine conventional practical methods are overcome in OSPE.
3. How the objectivity adopted in OSPE helps the students in the evaluation.
4. Whether the competency of the students are proved in OSPE.
5. Whether the goal of the university in introducing this system of evaluation was achieved.

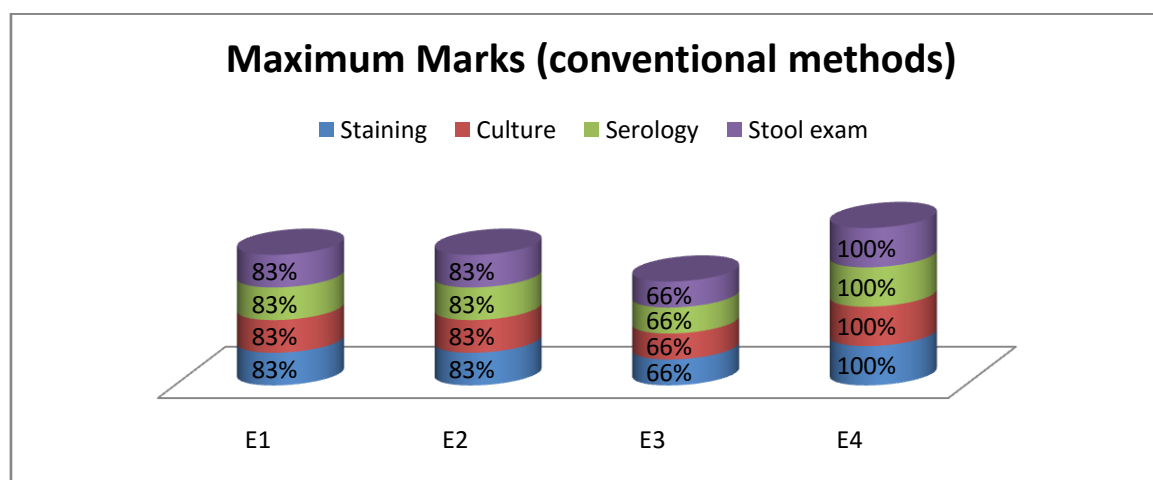
III. Materials And Methods

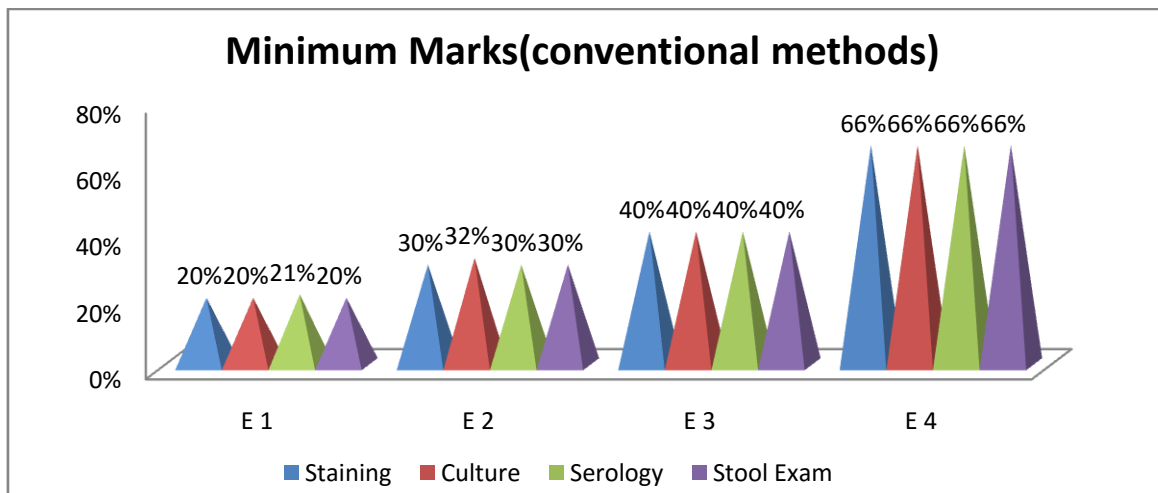
A total of 142 students studied in II MBBS in the subject Microbiology at Velammal Medical College were subjected to both Conventional Practical and OSPE Examination during their Model practicals conducted in the month of January 2016, one month ahead of University examinations. In the conventional practical examinations, two staining techniques were given to evaluate their psychomotor skill and other exercises like immunological interpretation and culture identification were given to evaluate their cognitive skills. In OSPE, 2 procedural stations and one response station were given to evaluate both the skills. In the procedural station, Smear preparation was given on Day1 and 4 and Hanging Drop preparation on day2 and 3. For procedural station, the 5 steps in the procedure done by the students were evaluated by a check list prepared by the evaluators and marks were awarded accordingly. In the response station, a case study followed by 5 objective questions were given and they were asked to answer the questions within a stipulated time. The answer key for the 5 questions was given to the evaluators and they valued accordingly.

The evaluation was done for 5 days, 30 students each day for 4 days and 22 students on the last day. There were 4 evaluators and both the conventional and OSPE were evaluated by them in rotation. The maximum and minimum marks obtained in conventional practical methods were compared with marks obtained in OSPE and the results were analysed. The marks obtained in each step of the procedural station and each question answered in the response station as per the check list were compared to find the step and question in which the students showed lacunae. Spotters is one conventional practical exercise which evaluated the cognitive skill of students and their level of knowledge. Similarly, the gram staining is an exercise which evaluated their psychomotor skill and their level of skill. OSPE detected both knowledge and skills and thus the competency of the student. Scores of 75-100 in spotters, gram staining and OSPE were taken as an index to evaluate knowledge, skill and competency. All the analyses were done using computer software.

IV. Results

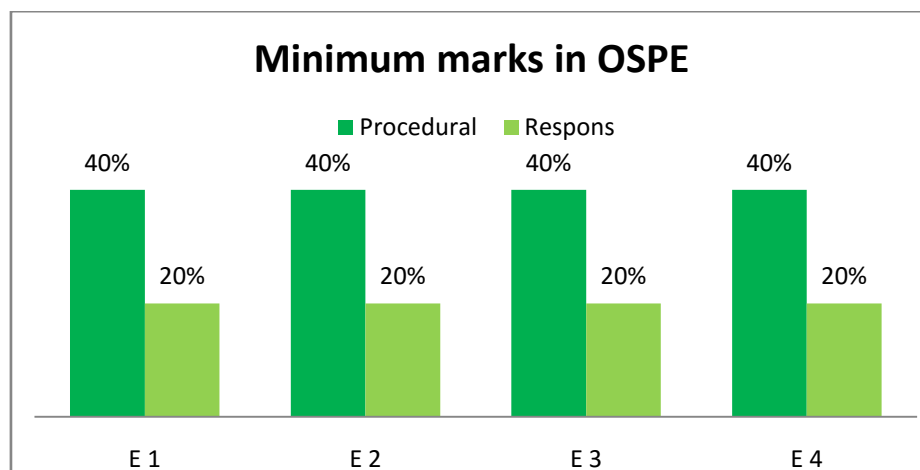
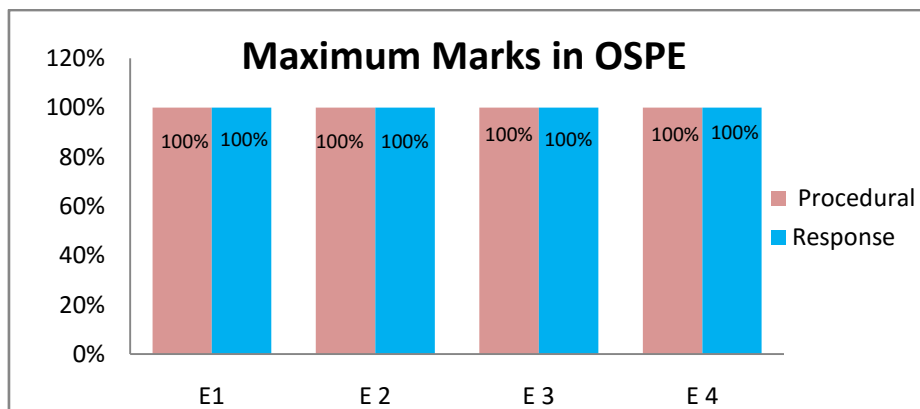
All the 142 students who took up the conventional practicals were evaluated by all the 4 evaluators. The 1st evaluator gave a maximum of 83% marks and a minimum of 20% in all the exercises. The second evaluator gave 83% as maximum and 30% as minimum. The third evaluator gave 66% as maximum and 40% as minimum. The 4th evaluator gave 100% as maximum and 66% as minimum. This is given below.





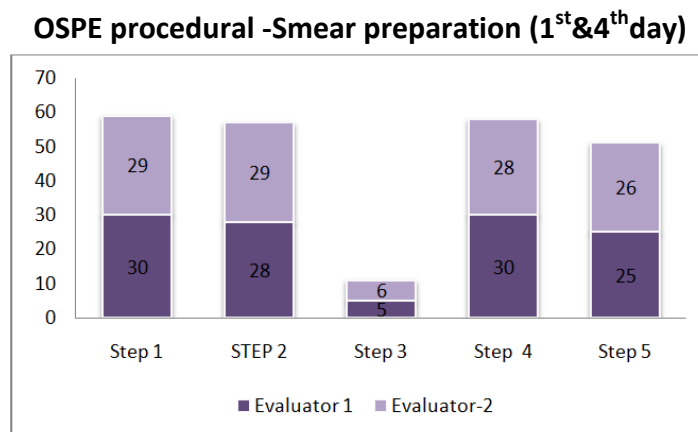
From the above table, it is inferred that **there is a wide variation in the maximum and minimum marks awarded by the 4 evaluators in the conventional methods.**

OSPE with both procedural and response stations were given to all the 142 students and evaluated by the four evaluators. The maximum and minimum marks given by the 4 evaluators are given below.

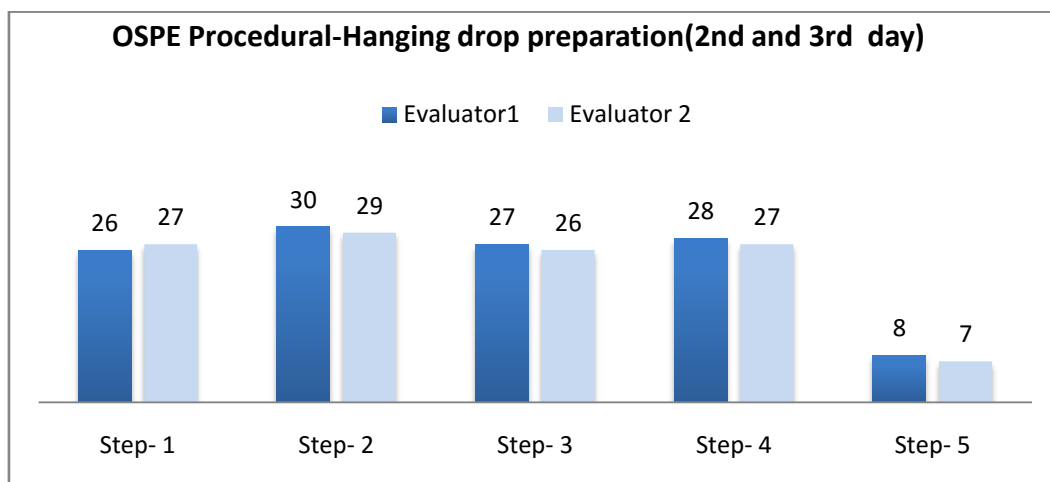


From the above table, it is found that all the four evaluators had given 100% as the maximum marks for both the stations and 40% as minimum marks in the procedural station and 20% as minimum in the response station. Thus it is found that **there is no deviation in the marks awarded by the 4 evaluators. All the four evaluators evaluated the students uniformly.**

Smear preparation was given for the procedural station on 1st and 4th day of examination, Hanging Drop on 2nd and 3rd day, 30 students on each day, evaluated by 2 different evaluators. In the smear preparation, only 5 students on day1 and 6 students on day 4 performed the 3rd step well and it is given below.



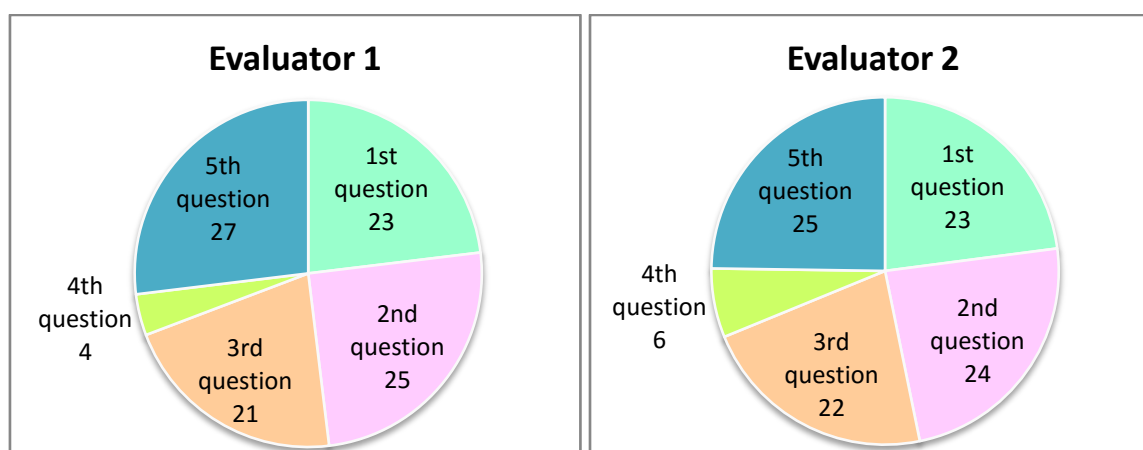
It was obviously seen that **both the evaluators have pointed out that the students had less skill to perform the 3rd step in smear preparation.**



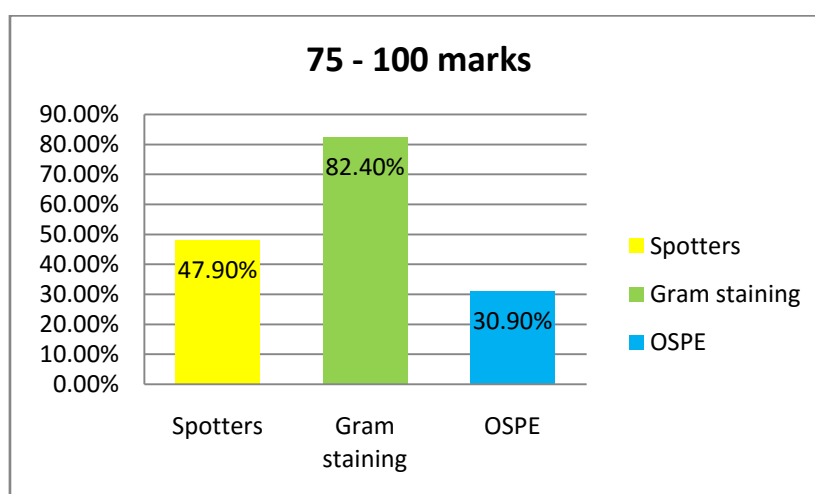
It was also noted by the two evaluators that **the students had less skill to perform the 5th step of Hanging drop preparation.**

Similarly, in the response station of OSPE, 5 objective questions on Bacterial growth curve were evaluated by 2 evaluators on the 1st and 4th day, 30 students on each day and the result is given below. Both the evaluators noted that the students **had less knowledge about the fourth question.**

Thus in OSPE, by both procedural and response stations, it was found out on which step in procedural station and on which question in the response station, the students showed lacuna.



The student's scores in spotters,(determining their knowledge) in gram staining (determining their skills)and in OSPE determining both (competency) were evaluated and the scores 75-100 was taken as the index for determining their knowledge, skill and competency. The result is given below.



It is inferred from the above that 47.9% had good knowledge about the subject and 82.4% were skilled in practicals whereas only 30.9% were competent. **Thus, it has been proved that even though the students had knowledge about the subject and good skills to perform exercises, their competency was less. As OSPE determined both knowledge and skill, it can be considered as a best method to evaluate the competency of the student.**

V. Discussion

In this study, it has been pointed out that there was great deviation in the marks awarded by the evaluators in the conventional practical examination. It was already explained by Alia Bashir et al (6)that conventional practical methods involve questioning by the evaluators and this varies according to their own wish and will of the evaluators and depend upon their own perceptions. According to their perception, they pass or fail the candidates. There will not be any transparency in the conventional practical methods and the evaluators cover the topics of their own choice. This has been proved in this study also by the wide variation of marks awarded by the 4 evaluators. Also the conventional methods reflect the exercise variability, examiner variability and problems in communication by the students as indicated by Priyadarsini et al (8)and their study also showed significant difference in the scores of OSPE and Conventional methods which is in supportive of this study.

In this study, it has been shown that in OSPE the step in which the students lack knowledge was clearly pointed out by the evaluators by the check list they used for the evaluation. It is mandatory to evaluate not only the students but also the teachers whether all steps in an exercise are uniformly concentrated and taught. Similarly, OSPE helps the evaluators to assess the students in all the steps of the exercise and to have a better

understanding of specific lacunae in student's performance. This helps the teachers to take appropriate steps to correct them. This was also confirmed in the study conducted on OSCE by Priyadarsini et al.(8) Since OSPE and OSCE are similar in their contents, this study supports our present study.

In this study, it was found that 47.9 % showed good knowledge in the subject and 82.4% were skilled in the practicals when tested separately by conventional methods whereas in OSPE only 30.7% scored good marks concluding even though the students were skilled and knowledgeable, they were less competent. Competency measures both knowledge and skills. In OSPE technical skills and attitudes are measured. Also both the process and product are tested giving importance to individual competencies .Manjula et al (7)in their study also pointed out that OSPE is a tool for testing multiple dimensions of both student's skills and knowledge thus determining their competencies.

Summary:

In this study, it was proved that OSPE was effectively used to evaluate both cognitive and psychomotor skills in the II MBBS Medical students in the subject Microbiology at Velammal Medical College, Madurai. It was also proved that the subjectivity of conventional methods was overcome in OSPE. The students were evaluated for individual steps done in the exercise as per the check list and the lacuna in a particular step was identified and informed. Also it indirectly evaluated the teachers whether all the steps in an exercise were equally cared for and taught. The conventional methods showed that the students had more skills and knowledge but OSPE pointed out that their competency was less suggesting that their skills and knowledge are to be improved still more to make them more competent enough. It can also be concluded from this study that the Tamilnadu Dr.MGR Medical University, Chennai has achieved the goal of introducing this system of evaluation for MBBS students.

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