

Original Research Article

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Objective structured clinical examination for formative assessment of final year part-1 MBBS students

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ABSTRACT

Background: The aim of medical education is to develop overall medical student's clinical competency at all the levels. Practical examinations play a major role in the overall assessment of the cognitive, affective as well as psychomotor domains of the individuals. Different variability in clinical examination, student's variability, the examiner's variability and the patient's variability and the attitude towards disease may have effect on the assessment of the students. Objective structured clinical examination (OSCE) was designed to test the clinical competence by bed side while simultaneously improving objectivity and reliability. The objectives of the study were to assess the effectiveness of OSCE for assessment tool as compared to traditional method of assessment; to know the perception of students participated toward OSCE.

Methods: Study was conducted among a batch of 25 students of VIth semester student posted in Department of Community medicine. After undergoing traditional method of examination, all the participating students underwent OSCE and the marks were recorded. Student's perception regarding OSCE was recorded using a questionnaire.

Results: Marks scored by the students in OSCE were significantly higher than traditional practical examination. 92% students agree that OSCE useful tool in overall assessment of the student, better form of assessment & learning, easy to pass and score better marks than traditional method of examination.

Conclusions: OSCE useful tool in overall assessment of the student, better form of assessment & learning, score better marks and has less emotional stress in OSCE, when compared to viva voce.

Keywords: Domains of assessment, Assessment tool, OSCE, Traditional method of examination

INTRODUCTION

The aim of medical education is to develop overall medical student's clinical competency at all the levels. Students are assessed by theory type questions and practical examinations. Various methods of assessments in theory examinations are long answer questions, short answer questions and multiple choice questions where only cognitive domains of the students are assessed.

Practical examinations play a major role in the overall assessment of the cognitive, affective as well as psychomotor domains of the individuals. It can be used in assessment of interpersonal skills, application of knowledge and attitude of the students.

Traditional methods of assessment may have many lacuna or deficiencies. These may be due to subjectivity

of examiner, patient's subjectivity, biased examiners, time constraints, language issues etc.

Different variability in clinical examination, student's variability, the examiner's variability and the patient's variability and the attitude towards disease may have effect on the assessment of the students.¹ More over marking by same examiner for same examination for similar candidate may differ time to time. Traditional examination tends to overlook the skills of individual competencies and the scoring system measures only the global performance of the individuals.^{2,3} Appropriate assessments in medical education are important part in overall development of medical students as well as faculty. To improve the reliability of clinical examination in USA has led to a tendency to move away from bed side to patients management problems. Objective structured clinical examination (OSCE) was designed to test the clinical competence by bed side while simultaneously improving objectivity and reliability. Earlier innovation in this regard is objective structured clinical examination later extended to practical examination (objective structured practical examination) described in 1975 and 1979.^{1,4,5}

The objective of OSCE is to assess the student's performance without any bias of examiners and assess the student's knowledge, skills, attitude and applications of knowledge. It ensures the evaluation of set of predetermined clinical competencies. The method is more objective because each clinical competency is divided into different segments and the marks are allotted.

Methodology of OSCE

Students move around the examination stations and specific time and task are allotted and are under observation for the skills, attitude or application of their knowledge depending on task given at the station. Assessment is done by examiners with a predetermined examination pattern schedule and check list which includes the testing of ability of the students like obtained detail clinical history, systematic examination, reaching a provisional diagnosis, management of case, impart health education etc

Aim and objective of the study

- (i) To assess the effectiveness of OSCE for assessment tool as compared to traditional method of assessment.
- (ii) To know the perception of students participated toward OSCE.

METHODS

A comparative study was conducted at Department of Community medicine, KAMSR, LB Nagar, Hyderabad, Telangana, India.

Study participants

One batch of VI semester students posted for clinical postings.

All the five faculties who were trained in medical education technology conducted the study

All the participating faculty and students were sensitized regarding traditional method of examination and OSCE.

Exclusion criteria

Students who were not willing to participate in the study.

Ethical clearance

From the institutional ethical committee.

Study period

Study was conducted among the students of VI semester students posted for clinical postings during month of June 2017. In the first week of postings the topics for the viva voce examination and OSCE was announced.

During second week, the viva voce examination was conducted.

During third week the OSCE was conducted among the students who have attended the viva voce.

Data collection

All the data collected was entered and analyzed with MS excel software 2007 and Epi info 3.5.3. All tests were considered significant at $p<0.05$ level.

All the faculty members were involved in planning of OSCE. The questions, guide for assessment, key for solutions or answers, the planning of examination stations were planned by the faculty. A total of 09 stations were finalized which includes 02 rest stations. Thus examinations were conducted for 35 marks. A checklist was prepared and was validated by the senior faculty. Prior information and the topics for the examination were given to the students. Confidentiality of the stations was maintained till the end of examination.

First round of the assessment includes: All the participating students underwent a viva voce examination and the marks were recorded. Questions here were from the question bank prepared by the faculty and these questions were revolved around the topic used in OSCE. Same questions were excluded in the OSCE. Second round of assessment: After undergoing traditional method of examination, all the participating students underwent OSCE and the marks were recorded. A question bank and check list for assessment was prepared which includes viva voce questions as well as solutions for OSCE was

used in order to eliminate the bias. The total marks obtained in Traditional method of examination (viva voce) were compared to marks scored in OSCE.

Analysis was done using descriptive statistics like frequency & percentage. Paired t-test was applied to the data. The $p < 0.05$ considered significant.

Table 1: Topics/questions used in the study.

| S. no | Question/station | Domain assessed | Material used |
|-------|--|--------------------------------------|--|
| 1 | Identify the clinical condition for history given | Cognitive | Clinical case sheet scenario |
| 2 | Explain the management and preventive measures for a given condition to the patient | Cognitive and Affective | Clinical case scenario with photograph |
| 3 | A 2 years old child was brought to the OPD with the history of fast respiration, nasal flaring, use of accessory muscles and bluish discolouration of fingers. Diagnose the given condition | Cognitive, affective and psychomotor | Clinical case scenario with photograph |
| 4 | Rest | Rest | Rest |
| 5 | A pregnant woman was diagnosed with breech presentation. Counsel the women regarding institutional delivery | Cognitive and affective | Clinical case scenario with diagram |
| 6 | List out various reasons for high risk pregnancy | Cognitive | Written question |
| 7 | A 2 months old baby was brought to the OPD with history of loose stools since 3 days, lethargic, do not taking feed since last night. How do you examine the baby and make the diagnosis or provisional diagnosis? | Cognitive, affective and psychomotor | Clinical case scenario with photograph |
| 8 | A case of diphtheria was found in family. Counsel the mother regarding prophylaxis treatment to other family members. | Affective | Clinical case scenario with photograph |
| 9 | Rest | Rest | Rest |

RESULTS

All the students participated in both the rounds of traditional method of assessment (viva voce) and OSCE.

The mean marks obtained by students by traditional methods were 19.04 ± 3.14 as compared to score in OSCE was 24.84 ± 3.16 . Student's scoring was significantly more in OSCE than viva voce ($p < 0.00$) (Table 2).

Table 2: Marks obtained by students in viva voce and OSCE (n=25).

| | Mean | Standard deviation | t-value | P value |
|------------------|-------|--------------------|---------|---------|
| Viva voce | 19.04 | 3.14 | | |
| OSCE | 24.84 | 3.16 | -9.021 | 0.00 |

Table 3: Perception of students towards OSCE was analyzed using a questionnaire.

| Opion | Agree (%) | Doesn't agree (%) | Do not know (%) |
|--|-----------|-------------------|-----------------|
| Traditional method of examination is more subjective type than OSCE examination | 80 | 12 | 08 |
| Less changes of examiner's bias in OSCE | 88 | 0 | 12 |
| OSCE Cover wide range of knowledge of topic | 72 | 20 | 08 |
| OSCE cover all the domains of assessment | 96 | 04 | 0 |
| OSCE useful tool in overall assessment of the student | 92 | 04 | 04 |
| Better Form of assessment & learning | 92 | 04 | 04 |
| OSCE is a lengthy process | 96 | 04 | 0 |
| Easy To pass and score better marks than traditional method of examination | 92 | 08 | 0 |
| Viva voce should be continued in assessment process | 32 | 60 | 08 |
| Less emotional stress in OSCE, when compared to viva voce | 92 | 08 | 0 |

In the study 80% of the students feel that traditional method of examination is more subjective type than OSCE examination. 88% of students feel that examiners biased can be reduced by OSCE. More than 70% and 96% students says that OSCE covers wide range of knowledge and all the domains of assessment.

92% students agree that OSCE useful tool in overall assessment of the student, better form of assessment & learning, easy to pass and score better marks than traditional method of examination, less emotional stress in OSCE, when compared to viva voce. Only 32% participant's feels Viva voce should be continued in assessment process. 96% feels the OSCE is a lengthy process.

DISCUSSION

In the present study, students scored better marks in OSCE (24.84 ± 3.16) than in traditional method of examination (19.04 ± 3.14). Results found in the study conducted by Relwani et al and Trivedi et al shows that similar results and OSCE as an assessment tool and OSCE students have a chance of better performance.^{6,7}

In the study 80% of the students feel that traditional method of examination is more subjective type than OSCE examination. 88% of students feel that examiners biased can be reduced by OSCE. More than 70% and 96% students says that OSCE covers wide range of knowledge and all the domains of assessment. In a study more than 70% students strongly OSCE is fairer than traditional method of examination and 90.5% students agreed that variability of examiners and patients can removed.⁶

In the present study, 92% students agree that OSCE useful tool in overall assessment of the student, better form of assessment and learning, easy to pass and score better marks than traditional method of examination, less emotional stress in OSCE, when compared to viva voce. Study conducted by Relwani et al and Wani et al found students perception on OSCE that majority of the students were relaxed during OSCE.^{6,8} Results of studies shows OSCE is revalent as they assess cognitive, psychomotor and affective domains.^{9,10}

In this study only 32% participant's feels Viva voce should be continued in assessment process. 96% feels the OSCE is a lengthy process. Only 39.6% and 36.6% of students disagreed that viva voce is better than OSCE in respective studies.^{6,11}

CONCLUSION

OSCE is an useful tool in overall assessment of the student, better form of assessment and learning helps score better marks and easy to pass. Examiner bias, variability of examiners and patients can be minimized by OSCE. Student's perception regarding OSCE was, it less

emotional stress, when compared to viva voce. Hence use of OSCE as assessment tool helps the teachers and examiners in enhancing the teaching and learning modalities.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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