



INTRODUCTION OF OBJECTIVE STRUCTURED CLINICAL EXAMINATION IN 3RD PROFESSIONAL MBBS STUDENTS IN K P C MEDICAL COLLEGE & HOSPITAL, JADAVPUR, KOLKATA FOR EVALUATION OF THEIR COMPETENCIES

General Medicine

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ABSTRACT

Introduction: OSCE has been increasingly used for evaluation of clinical skill in cognitive, psychomotor and affective domain of student's knowledge to avoid disadvantages of traditional curriculum – which examine only the factual knowledge, little clinical skill lacking objectivity.

Aim of the study is to sensitize the students and faculties and introduce OSCE in final MBBS students in the department of Medicine.

Study design: This cross-sectional study was performed in one hundred 3rd Professional MBBS students of K P C Medical College & Hospital in the department of General medicine in collaboration with other faculties of the same department. After proper sensitization the students' performance was evaluated using 11 OSCE stations. Data was collected by Marks obtained from the students in OSCE stations and feed-back Questionnaire by Questionnaire designed by Movaffaghi et al. and check list. The feedback from the 3rd Professional MBBS students and faculties was analyzed with the help of descriptive statistics and the data from the focus group discussion was analyzed by transcription of a focus group, interpret focus group notes, analyze qualitative data to identify common categories and themes.

Result: It was shown that 98% of the students agreed that examination is fair, that examination is according to the proper guideline, 75% of students agreed that the examination was not stressful. More than 90% of students supported that the coverage of the knowledge was good, number of stations were inadequate, examination conduction was good, questions were well-structured, and they were well known about their weakness in clinical, procedural as well as communication skills. 100% respondents agreed about the clear questions, fairness of the tasks to be performed, method of assessment of skills and regarding cooperation of the simulated patients during examination. 90% agree with the relevance of the question with the subject taught, appropriate supervision of the workstations. After focused group discussion with students and faculties, all of them agreed that this examination is unbiased, provides proper judgment, non-stressed.

In conclusion OSCE as a better unbiased, valid reliable but never flawless examination for assessment as compared to viva voce or oral examinations.

KEYWORDS

OSCE, 3RD professional students of K P C M C H, faculties, validated Questionnaire,

INTRODUCTION:

Objective Structured Clinical Examination (OSCE) method has been increasingly used for evaluation of clinical skill in cognitive, psychomotor and affective domain of student's knowledge to avoid a lot of disadvantages of traditional curriculum – which examine only the factual knowledge, a small part of clinical skill and obviously it lacks in objectivity^{1,2}. OSCE was introduced in 1975 by Harden for evaluation of clinical competency of the students^{2,3}. Later on its validity and reliability have been gradually established in many studies^{4,5,6,7,8}. OSCE has important advantages over oral examination as it is a performance-based examination⁹. So this OSCE examination should be undertaken in all the colleges to improve the quality of the exit examination¹⁰. This OSCE can be done in Medicine department during practical examination to evaluate competencies of the medical students. The components of OSCE include effective, empathetic communications, non-judgmental counseling, and elicitation of proper and relevant physical signs and performance of minor procedures. By this method variability and the complexity of the traditional method of examination can be more easily controlled. In different postgraduates examinations, like, MRCP, DNB this OSCE is the essential component. But in West Bengal our college OSCE has not been introduced at any level of Medical graduation. The students are completely in dark regarding this OSCE. As a result our students may be sound in cognitive domain; they know different steps of bed side procedures of demonstrating different signs but may not demonstrate this during examination effectively. On the other hand success of the OSCE depends upon three factors, like, skills of the faculty members, student's co-operation and lastly the availability of adequate number of resources. Hence introduction of OSCE in our college for final MBBS students in Medicine department is essential to evaluate their competencies.

Review of literatures:

In last two decades in the field of medical education there has been extensive changes occurred in terms of assessment. These newer evolved methods focused mainly on clinical, communication and professional skills as well as professionalism. In spite of availability of these newer methods clinical examination in different medical schools in Eastern part of India remains unchanged. To evaluate the clinical

competence in a comprehensive as well as consistent manner with a special focus on the objectivity of the process OSCE has been introduced^{11,11}. The core competencies are broken down into individual tasks which are then evaluated through checklists which include main components of skills which are being assessed. Some of the institutions use global rating scales. OSCE has a very high reliability and validity index. OSCE has a wide range of reliabilities from 0.19 to 0.89 but the benchmark reliability standard is 0.80^{12,13}. Standardization of questions between students and the ability to test clinical skills in broader range are also the advantages of OSCE, so this OSCE is considered as a gold standard tool for the formative as well as summative assessments in various clinical examinations throughout the world^{1,14,15}.

According to the study of Shamsunnisa Sadia and Saadia Sultana to 51% of the respondents this examination was stressful, whereas to 81% this OSCE was interesting as well as educative. Essay type, multiple choice questions and oral viva examination were easy to 33%, 18%, 5% and educative to 16%, 23% and 30% of respondents¹⁶.

According to Russell B Pierre et al. this OSCE demonstrated excellent acceptance in terms of comprehensiveness, transparency, fairness as well as authenticity to 90%, 87%, 70% and 58%--78% of respondents. But according to the respondents this examination was fairly stressful and anxiety producing¹⁷.

According to Ahmad Khosravi Khorashad et al. OSCE is an appropriate and fair method of testing to 94% -- 95% of students but 79.1% students thought that this examination is stressful irrespective of age and sex¹⁸.

Dharma Rao V et al. demonstrated in their study that there was excellent acceptance of this OSCE in the subject of general medicine in terms of comprehensiveness and transparency in 90% of respondents. According to the students it was a uniform examination as the feedback of the students influences the faculties and faculty teaching curriculum¹⁹.

According to the study of Faisal Ghani Siddiqui 94.6% were respondents, 97.9% were stressed with this OSCE and according to

them inadequate guidelines, new type of assessment format, inadequate time for stations were responsible for this stress²⁰.

AIM OF THE STUDY:

To introduce OSCE in final MBBS students in the department of Medicine

OBJECTIVES:

1. Sensitize students and faculty regarding OSCE.
2. Assess perception of students regarding OSCE
3. Assess Perception of faculty regarding OSCE.

Type of the Study:

This is a cross-sectional study.

Duration of the study:

6 months

Study design:

This study was performed in one hundred 3rd Professional MBBS students of K P C Medical College & Hospital in the department of General medicine in collaboration with other faculties of the same department. First I sensitize the final year students as well as our faculties regarding the method of OSCE, like,

- A. What is OSCE?
- B. What is the aim behind the OSCE?
- C. What part of the subject will be covered in OSCE?
- D. How this examination will be held?
- E. What is the responsibility of examiners in this examination?
- F. How it can be started?
- G. How it will help the student as well as the faculties?
- H. How the results will be declared?
- I. Whether and how this examination will help the both parties?

After this type of sensitization to both students as well as faculties there were group wise discussions between students and myself. Ultimately all of them have been agreed with the above points gave consent to take part in this examination. Written consent was taken prior to OSCE from the students. Then the students' performance was evaluated using 11 OSCE stations. Out of these OSCE stations five were observer orientated, here one faculty was present in each room; five non-observers orientated covering all areas of internal medicine where no faculty was present and one rest station in between the two segments. In observer orientated stations there were interviews with patients, clinical examination involving cardiovascular, respiratory, and gastrointestinal and nervous system, practical skills and process of deliberation of sad news. Time limit set in each station was four minutes and four minutes break in rest station. In the non-observer orientated station there were interpretation of x-ray, instruments, drugs, CT scan and ECG. At the end of examination questionnaire relating to satisfaction level of the students from OSCE was handed out to all the students participated in OSCE. This questionnaire [table 2] are designed by Movaffaghi et al for the evaluation of the students and it was confirmed in terms of content validity (by expert judgment) as well as had a reliability of 88% using Cronbach's alpha coefficient of internal consistency⁴. These questionnaires are based on closed-response questions for evaluation of OSCE and testing of OSCE performance. Five possible choices were strongly agree, agree, neutral, disagree and strongly disagree.

DATA COLLECTION METHOD:

1. Marks obtained from the students in OSCE stations.
2. Feedback Questionnaire

Data collection tool:

1. Questionnaire designed by Movaffaghi et al.
2. Check list

Validation of the tool:

Validity of content (expert judgment) and reliability of 88% will be measured by Cronbach's alpha coefficient of internal consistency

Data analysis:

Data analysis plan:

The feedback from the 3rd Professional MBBS students and faculties will be analyzed with the help of descriptive statistics and the data from the focus group discussion will be analyzed by transcription of a focus

group, interpret focus group notes, analyze qualitative data to identify common categories and themes.

Third Professional MBBS students

Medicine ward posting

Sensitization of MBBS students during ward posting

OSCE introduction for Ward leave exams

Feedback through questionnaire and FGD

TABLE: 1. Results of evaluation of OSCE: n=100

Questions	Strongly Agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
Examination is fair (A)	80	7	5	6	2
Wide area of knowledge covered (B)	90	6	3	1	0
Proper guideline given (C)	68	12	10	8	2
Appropriate number of stations (D)	90	8	2	0	0
More time than that was given at each station is required (E)	90	10	0	0	0
Well administered examinations (F)	92	6	2	0	0
Examinations are stressed (G)	2	3	5	15	75
Well-structured and sequenced examinations (H)	90	6	4	0	0
Chance of failing in detecting the clinical, procedural and communication skills (I)	70	20	2	8	0
It allowed students to learn few areas which require more skill (J)	85	10	5	0	0
Areas of weakness in the clinical, procedural and communication skills are highlighted (K)	90	6	4	0	0
Wide range of clinical skills are covered (L)	92	6	2	0	0

Bar chart of table 1:

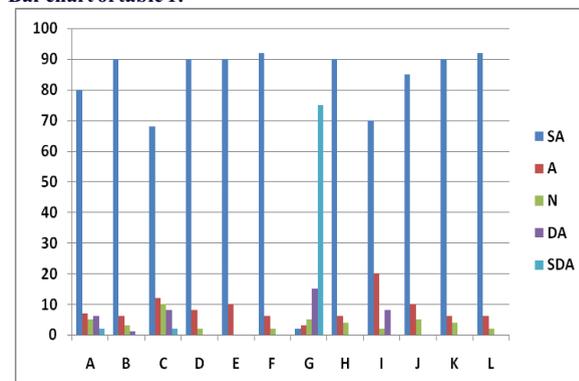
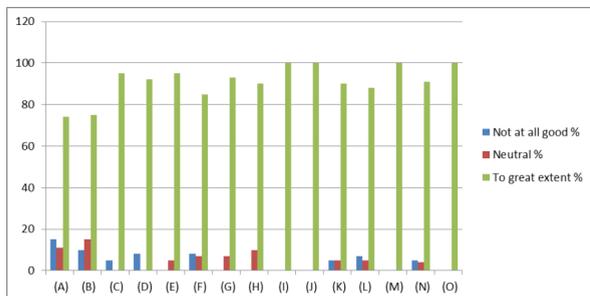


TABLE 2: Results of testing of OSCE performance: n=100

Questions	Not at all good %	Neutral %	To great extent
Appropriateness (A)	15	11	74
Regarding nature of examinations full awareness (B)	10	15	75
Tasks reflected those which was taught (C)	5	0	95
Adequate number of stations (D)	8	0	92
Appropriate supervision of the stations (E)	0	5	95
Setting and context at each station are authentic (F)	8	7	85
Comprehensiveness (G)	0	7	93
Assessment of practical skills (H)	0	10	90
Clear and unambiguous instructions (I)	0	0	100
Fairness of the tasks asked to be performed (J)	0	0	100
Whether sequence of stations are logical and appropriate (K)	5	5	90
Appropriateness of examples to learn (L)	7	5	88
Assessment of clinical skills (M)	0	0	100
Appropriate simulation of clinical environment (N)	5	4	91
Cooperation with the stimulated patients (O)	0	0	100



STATISTICAL ANALYSIS:

After data collection analysis was done by using SPSS software, version 11.5. The data of ordinal variables will be presented as median, mode and range. Result was described as percentage.

RESULTS:

In case evaluation of results [table 1], it was seen that 98% of the students agreed that examination is fair, that examination is according to the proper guideline whereas 75% of students agreed that the examination was not stressful and only 2% stated that the examination was stressful. More than 90% of students supported that the coverage of the knowledge was good, number of stations were inadequate, examination conduction was good, questions were well-structured, and they were well known about their weakness in clinical, procedural as well as communication skills, but inadequate time allotment in each station. Only 20% of the students failed to detect the clinical, procedural skills. 10% of the students were confused about the guidelines of the examination.

In case of testing the OSCE performance [table 2], 100% respondents agreed about the clear questions, fairness of the tasks to be performed, method of assessment of skills and regarding cooperation of the simulated patients during examination. Nearly 90% agree with the relevance of the question with the subject taught, appropriate supervision of the workstations, assessment of the particular skills, and logical sequence of the stations as well as appropriate simulation of clinical environment. Only 75% of respondents agreed about appropriateness and nature of the examination. 15% of the respondents did not agree with the appropriateness of this examination. Very few students are neutral regarding the test of OSCE performance.

In the focused group discussion a group of ten students and five faculties were selected randomly and following questions were discussed:

1. What do you know about OSCE?
2. Which method do you think is better to assess clinical skills?

3. Are there any advantages of OSCE over the traditional method? If so what are they?
4. According to you do you find any limitations in the OSCE examination?
5. Do you think this examination will cover all the chapters?
6. Has the proper time been allotted in each station?
7. Is there any stress in this examination?

After extensive group discussion following points were highlighted. The students were acquainted with the OSCE for the first time. They extensively praised about this examination as because:

1. Extensive covering of the subject
2. It will judge all the students at the same level because there is no conversation in between the room.
3. In case of non-observer's room since all the questions have to be written point wise and it will be documented.
4. But this should be started from the 1st MBBS level so that they will come across the type of examination from the very beginning.
5. In case traditional examination there is chance of repeated question and there will be chance of biasness and students' request which will not be present in this examination.
6. Since this examination has been started from 3rd Professional batch hence there should be presence of stress as this examination is time bound. But this stress can be avoided with repeated practice.
7. Since it has been started first in this College time should be more in each room. But with practice this time allotment can be reduced.
8. At last they are very much enlightened with this type of examination and they will practice this type examination from now.

Similarly faculties after getting acquainted with this method of examination and extensive discussion they supported it as because:

1. This method is extremely unbiased because all the students come across the same questions and they have to answer in a definite period of time.
2. There is no chance of separate question for different students.
3. There is chance of examining the same core competencies and skills to all the students so that the faculties come to know who are definitely weak in showing the definite skills.

DISCUSSION:

OSCE measures performance based outcomes which can be measured by traditional methods of evaluation like, viva voce²¹. This type of evaluation is very important as high level of competency is required from medical graduates. In spite of reliability and validity of OSCE there is evidence of examiner bias²². This method has been accepted all over the world²³. OSCE has been introduced for the first time our medical college for the 3rd Professional MBBS students in Medicine department as it has not ever been introduced in West Bengal. Since the introduction of OSCE in Liaquat University of Medical Sciences there was mixed reaction amongst the students regarding the covering the knowledge in the subject in the OSCE examination. In their study 43% students only agreed that the task given in OSCE examination were taught during clinical postings and this findings was similar to the study done by Newble who demonstrated that this OSCE did not cover wide range of knowledge, clinical skills that they taught during their clinical postings^{20,24}. This is contrary to this study where 90% students agreed about the covering of wide area of knowledge in the examination. Again absence of all components of clinical competence in OSCE was responsible for changing their teaching strategies as well as the assessment modality²⁵.

In the study done by Siddiqui and Dadger et al. 67.9% and 62.9% students were very stressed with the OSCE examination, the identified factors for this stress included prior proper guidelines (59.1%), inadequate time allotment in different stations(36.4%), innovative assessment format (31.8%), vague and not properly understandable instructions (13.7%)²⁶. On the contrary in the present study 90% of students disagreed about the stressfulness of the examination. Again according to 68% of respondents there was prior proper guideline, and 90% liked structure of the examination. Similarly 72% of the respondents in the study of Iqbal et al agreed that this OSCE was not at all a stressful examination – suggesting the familiarity of the students with the OSCE²⁷. Anxiety and stress adversely affect the examination. Higher anxiety level associated with OSCE ultimately lead to fewer

efficacies and low level of confidence of the students taking part in the OSCE examination as compared to the students taking part in traditional examinations, like, multiple choice questions, viva voce etc. having low reliability and validity than OSCE^{28,29}.

In the study of Siddiqui 76% of students felt that time schedule in each OSCE station was adequate and only 11.3% was against this time constraint and in the study of Khurshid et al to 55% of the respondents the time schedule was inadequate because according to them shorter time period in each station demanded very rapid response so there was every chance of wrong answer^{20, 30}. Again during interview some students told that time schedule should be high, again according to some respondents time schedule should be different in different stations. But in OSCE it is not possible to provide different times in different stations. Similarly this present study demonstrated 90% of respondents agreed that more time than that was given at each station should be required.

There was general agreement that objective of the assessment should be aligned to the curriculum scheduled by Medical Council of India. This type of assessment not only helps the students to strictly focus on the curriculum but in the study of Siddiqui only 28.5% students believed that topics in OSCE was pertinent to the skills, tutorials of the curriculum, again review of the syllabus supported the concern of the students and the core competencies asked to demonstrate in OSCE was not in the syllabus²⁰. Because majority of their students appreciated that different skills asked in OSCE were never taught during their clinical postings or in tutorials and this was corroborated during in-depth interviews with the students. But another study in Pakistan demonstrated that 84.5% of third year medical students in one Private Medical University in Karachi agreed that the contents and core competencies of OSCE in different stations were according to the curriculum covered in the clinical postings³⁰. The findings in the last study were similar to the findings in this present study where 90% of the respondents strongly agreed that wide areas of knowledge were covered in OSCE examination.

In the study of Siddiqui most of the students were satisfied with examiners' attitude, observership and cooperativeness whereas 19% students regarded the examiners as less courteous, uncooperative and failed to observe the students during examinations, fail to act as interpreter for the foreign students and last of their poor behavior²⁰. In-depth interview the students confessed that faculty should be trained in the OSCE conduction. Hence it is recommended that the faculties should attend workshop on designing and conducting OSCE, they should be good interpreter of foreign language. But this present study demonstrated 95% of students suggested appropriate supervision of the faculties in the OSCE stations.

Satisfaction rate and appropriateness of OSCE was 67% in the study of Siddiqui which was nearly similar to this present study where the appropriateness of OSCE was 75% whereas satisfaction rate was as high as 90% in other studies^{31,32}. In the study of Khorahad et al 94.5% participants anticipated that this examination was most appropriate type of assessment⁴. In these studies the experience of the students were found to be realistic, challenging whereas low acceptability among the students for OSCE whereas in the study of Siddiqui may be due to stress, improper guidelines, untrained faculty, inadequate time in each station, new assessment technique. But in case of present study the cause may be due to stress during examination.

Khorahad et al demonstrated in their study that 75% of the respondents convinced that this examination covered the major areas of the subject including the main core competencies, main areas of education, knowledge, perspective which was similarly demonstrated in the present study where 90% of the students agreed about the covering of knowledge in OSCE⁴. But the above studies are contrary to the conclusion of Bolahari et al who stated that OSCE was not at all a appropriate way of evaluating one's level of knowledge as compared to multiple choice question, viva voce etc³³.

In this study over all perception of students as well as faculties for OSCE was high. But it is our mission to make OSCE reliable, feasible and valid. Our University should recommend this examination compulsory in the examination curriculum obeying the guidelines of MCI with redesigning of learning objectives along with inclusion of core competencies and procedural skills. The students are also provided with lists of core competencies and procedural skills which

they should learn during their scheduled clinical posting. At the same time faculties should be sent to different nodal centers for undertaking the required training of conducting OSCE in their medical college.

Normally in any clinical examination the student is tested based on patient's history taking, demonstration of physical signs and assessment of narrow range of technical skills by two examiners. But this type of examination is completely unreliable in testing the student's performance and there is wide range of variability in between the two examiners^{34, 35}. Data from National Board of Medical Examinations in USA over 10000 students demonstrated correlation of independent evaluation by two examiners was less than 0.25³⁶. But OSCE is advantageous because of its versatility, its objectivity, responsibility and easy recall.

Limitations of this study:

- A. Small sample size prevented generalization of the findings of OSCE. Hence large number of samples is required for more expandable results.
- B. Focus on students from one program
- C. Its confinement to one Medical College
- D. Small number of parameters in relation to OSCE.
- E. It was a cross sectional study in the world. So similar studies in other clinical ward ultimately produces comparison as well as conclusion.
- F. Reevaluation of OSCE was required with increased number of stations./

CONCLUSION:

3rd Professional MBBS students of this Medical College perceived this OSCE as a better assessment examination as compared to viva voce or oral examinations. But in-depth interview with these students proved that as OSCE started for the first time in this College it was obviously stressful, but with the better knowledge about this examination as well as inclusion of the curriculum and core competencies as scheduled by Medical Council of India it may be a one of the unbiased, valid reliable examination in India. But it should be remembered that no examination is flawless, so some difficulties have to be experienced by the students during the time of examination and that has to be corrected.

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