
ORIGINAL ARTICLE**OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE): EXAMINEE'S PERCEPTION AT DEPARTMENT OF PEDIATRICS AND CHILD HEALTH, JIMMA UNIVERSITY****Belay Shitu¹, MD, Tsinuel Girma², MD****ABSTRACT**

BACKGROUND: *Objective Structured Clinical Examination is one of several methods of assessing the clinical competence of medical students. Though popular in most medical schools globally, its use in Ethiopian medical schools appears limited. The department of Pediatrics in Jimma University is the only clinical program with a relatively long (9 years) experience with this assessment format. The major objective of the study was to evaluate students' perception about the validity, comprehensiveness and acceptability of the test.*

METHODS: *A cross-sectional survey of three successive batches of medical students, who had been examined with Objective Structured Clinical Examination, was conducted and data related to the general conduct, validity, objectivity and comprehensiveness of the test in pediatrics was collected using a structured self-administered questionnaire. Data were entered and analyzed using EpiData version 3.1. The study was conducted in March 2007.*

RESULTS: *Of 144 eligible medical students, 122 completed the questionnaire representing close to 85.0% of all the students in the 3 batches. Eighty-seven (71.3%) of the respondents reported that clear and adequate instructions were given at each station and 74(60.7%) perceived that the test created a good learning opportunity highlighting their areas of weakness. Moreover, 66(54.1%) also agreed that the exam covered common and relevant topics consistent with stated teaching objectives 71(58.2%). However, a considerable number of them, 53(43.4%), expressed their experience that examiners at manned stations were intimidating and individual feedback was offered only to a minority, 31(25.4%). Sixty-seven (54.9%) respondents expressed their opinion that the test was fair in assessing knowledge and skills and 87(71.3%) further stated that personality, gender and other attributes of candidates do not affect test scores.*

CONCLUSION: *Overall, students' evaluation of Objective Structured Clinical Examination was remarkably encouraging. Nevertheless, the added advantages of the evaluation of medical students can be maximized only if standard procedures are followed in its preparation and timely feedback are offered on the performance of candidates. To this end, we recommend that continuing appraisal and refinement of Objective Structured Clinical Examination be done by the department.*

KEY WORDS: *OSCE, assessment, evaluation, perception, Jimma University*

INTRODUCTION

Appropriate evaluation of medical students clinical competence is an integral component of most medical curricula; there are several methods of assessing performance in medical examinations (1,2). The Objective Structured Clinical Examination (OSCE) is an approach to student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent and structured manner with close attention to the objectivity of the process (3). OSCE was introduced by Harden in 1975 and first described as an assessment format in Pediatrics by Waterson and colleagues (4,5). Since its inception, OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines worldwide (6). In addition to assessing the competence and

performance of the examinee, OSCE has many advantages over traditional methods of evaluation such as conventional bedside long and short case examinations. As an evaluation tool, it eliminates the luck of the draw, reduces variations in marking standards from examiner to examiner and can accurately reflect the real-life tasks of the doctor (7).

Apparently traditional written examinations assess a different kind of knowledge from that acquired during clinical attachments. Clinical experience may be better judged by the clinical supervisor than by assessment of theoretical knowledge (8). A good assessment of students should include both clinical skills and factual knowledge; therefore an OSCE should be complemented by other methods of evaluation (8, 9).

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Evaluation of OSCE experience by students and faculty helps to enhance its acceptance as a relatively new assessment tool and refine some of the deficiencies observed in the preparation and conduct of the process. One such effort was made by Russell and colleagues (2004) at the University of the West Indies, Jamaica that disclosed an overwhelming acceptance of the test in Pediatrics with respect to comprehensiveness, transparency, fairness and authenticity of the required tasks. Other such studies also have been conducted (10-13).

Jimma University, the former Jimma institute of Health Sciences, was established in 1983 with the new educational philosophy of community-based education where the community is used as a learning environment with the purpose of training health professionals responsive to the needs of the same community. The department of Pediatrics and child health has been there for the same duration of time as one of the major clinical departments rendering service and training for undergraduate medical students and health officers. In 2004, it has opened a postgraduate program in Pediatrics. However, OSCE as a testing format was introduced in the department some 9 years back. Since then it has been used consistently as part of the overall evaluation of fourth year medical students, health officers and recently for assessment of pediatric residents.

OSCE in the department of Pediatrics was usually composed of a circuit of 14-16 stations in which various tasks were asked including examination of organ systems such as the respiratory, cardiovascular, developmental, nutritional and history taking skills. In stations with real patients (manned station) an examiner guides the examinee and marks. Laboratory data, X-rays and pictures were also posted at some of the stations to assess the analytical capacity of students. The time allotted for each station ranged between 5-6 minutes with few rest stations to reduce student fatigue. A standardized criterion-based scoring format was used for marking at each station.

Despite the nearly 9-year experience with pediatric OSCE, no attempt has been made to look into the students' perception of the validity, acceptability and usefulness of the test. This paper is conceived with the intention of narrowing this apparent gap in an effort to refine the test and derive the maximum out of the suggested benefits. This cross-sectional survey was conducted on medical students with the major objective of evaluating students' perception about the validity, objectivity, comprehensiveness and overall organization of OSCE in the department of Pediatrics.

METHODS

The survey was conducted in March 2007 on 3 successive batches of medical students who had an OSCE experience upon completion of their pediatric attachment in the fourth year of their clinical training. A 47-item self-administered structured questionnaire was employed to gather relevant data regarding perception of students about the validity, reliability, fairness, quality of OSCE as a test tool.

Data was entered and analyzed using Epi Data version 3.1. Basic descriptive statistical analysis of the Likert items was conducted by calculating frequencies and regrouping the responses was made into similar categories.

Inclusion into the survey was entirely on a voluntary basis and students who chose to opt out of the survey were reassured that there wouldn't be any repercussion for declining to respond. The study was approved and funded by the research and publications office of Jimma University.

RESULTS

Out of 144 eligible medical students, 122 (85.0%) completed the self-administered questionnaire. A total of 87 (71.3%) students reported that clear and adequate instructions were given at each OSCE station and nearly two-third were fully aware of the nature of the exam before they sat for it. Moreover, 74 (60.7%) students perceived that the examination provided opportunities for learning by claiming that OSCE highlighted areas of their weaknesses in their pediatrics attachment and 66(54.1%) students reported also that OSCE covered common topics and 71(58.2%) relevant topics, with the same proportion indicating further that the tasks asked in the exam were consistent with stated teaching objectives described in the syllabus handed to them at the beginning of their pediatric attachment in the 4th year of their clinical clerkship. Sixty-eight (55.7%) also agreed that the tasks in the exam reflected those actually taught during their attachment. Further, 62(50.8%) of the respondents stated that the time allocated for each station was adequate and 63(51.6%) felt that a wide range of clinical skills were covered. Some 64(52.5%) felt that OSCE was less stressful than other types of tests they have been through before. A sizable proportion of the students, 53(43.4%) expressed their concern that the examiners at manned stations were intimidating and only 31(25.4%) of them responded that they were offered timely feedback on their test performance (Table 1).

Table 1. General evaluation of OSCE format, Jimma University, March 2007.

ITEM (N=122)	Agree	Undecided (Neutral)	Disagree
	N (%)	N (%)	N (%)
Fully aware of the nature of the exam before sitting for it	76(62.3)	18(14.8)	28(22.9)
Instructions at each stations were clear and adequate	87(71.3)	12(9.8)	23(18.8)
Time allocated at each station was adequate	62(50.8)	20(16.4)	40(32.8)
Exam covered common topics	66(54.1)	19(15.6)	37(30.3)
Exam covered relevant topics	71(58.2)	21(17.2)	30(24.6)
Wide range of clinical skills were covered	63(51.6)	22(18.0)	37(30.3)
Task asked to perform were consistent with teaching objectives	71(58.2)	19(15.6)	32(26.3)
Tasks in the exam reflected those taught in attachment	68(55.7)	21(17.2)	33(27.0)
The examiners (at manned stations) were intimidating	53(43.4)	30(24.6)	39(31.9)
OSCE is less stressful than other types of tests	64(52.5)	23(18.9)	35(28.7)
OSCE highlighted areas of weakness	72(59.0)	26(21.3)	24(19.7)
Timely feedback was offered in performance on the test	31(25.4)	29(23.8)	62(50.8)
Exam provided opportunities to learn	74(60.7)	15(12.3)	33(27.1)

Sixty-seven (54.9%) of the respondents agreed that OSCE was fair in testing knowledge and skills in Pediatrics and Child health and 87(71.3%) of them indicated that certain characters of students such as personality, gender and other attributes do not bias

OSCE test scores. Of all the respondents, 63(51.6%) reported also that OSCE scores reflect individual performance at the exam and 58(47.5%) felt that OSCE minimized their chance of failure in the examination as compared to other test formats (Table 2).

Table 2. Students' perception of the validity and test power of OSCE, Jimma University, March 2007.

Item (N=122)	Agree	Undecided (neutral)	Disagree
	N (%)	N (%)	N (%)
OSCE was fair in testing knowledge and skills	67 (54.9)	25 (20.5)	30 (24.6)
OSCE minimized your chance of failure in the exam as compared to other test formats	58 (47.5)	23 (18.9)	41 (33.7)
OSCE exam scores reflect individual performance at the exam	63 (51.6)	25 (20.5)	34 (27.9)
Personality, gender and other attributes of candidates do not affect OSCE scores	87 (71.3)	12 (9.8)	23 (18.8)

Ninety-one (74.6%) of respondents found that cases at manned stations were relevant to real-life situations. However, 76 (62.3%) reported that their performance was affected by patients' cooperativeness during the exam. The response of the students on adequacy of the time allocated at the manned stations was equivocal making interpretation difficult (Table 3).

Sixty-six (54.1%) of the respondents indicated that the exam environment was free of noise and 63(51.6%) of them noted that it had adequate illumination. The sequence of stations was reported to be logical and appropriate by 55(45.1%) of the students (Table 4).

Table 3. Perception about manned stations OSCE, Jimma University, March 2007.

Item	Agree	Undecided (neutral)	Disagree %
	N (%)	N (%)	N (%)
Selected patients are relevant to real-life situation	91 (74.6)	5 (4.1)	26 (21.4)
Patients' cooperativeness affects performance	76 (62.3)	16 (13.1)	30 (24.6)
Allocated time is adequate	53 (43.4)	16 (13.1)	53 (43.4)
Examiner is threatening	32 (26.2)	39 (32.0)	51 (41.8)

Upon analysis of the different test formats for degree of difficulty, 50(40.1%) of students noted that long case examination was the easiest followed by OSCE, 41 (33.6%). In terms of fairness, OSCE was rated to be the second most fair test format as indicated by 85(69.7%) respondents next to essay and short answer questions. OSCE was rated to offer the best learning opportunity by

90 (73.8%) students compared to the other assessment formats and 71(58.2%) also suggested that OSCE needs to be given even more weight than the other assessment modalities followed by essay and long case types. Multiple-choice questions (MCQ) were the least favored format in that 60(49.2%) students proposed that it should be given less weight (Table 5).

Table 5. Students' evaluation of the different test formats in their clinical attachments OSCE, Jimma University, March 2007.

Item (N=122)	Test format	Rating		
		Difficult %	Easy %	Undecided (neutral) %
Level of difficulty	Long case	23.8	40.2	36.1
	Short case	18.9	27.0	54.1
	OSCE	33.6	32.8	33.6
Degree of fairness		Unfair %	Fair %	Undecided (neutral) %
	Long case	23.8	55.7	20.5
	Short case	14.8	46.7	38.5
	OSCE	18.0	69.7	12.3
	MCQ	25.4	63.9	10.7
	Essay/short answer	4.9	83.6	11.5
Learning opportunity		Learn very little %	Learn a lot %	Undecided (neutral) %
	MCQ*	28.7	54.9	16.4
	Essay/SAQ	22.1	60.7	17.3
	OSCE	18.9	73.8	7.3
	Long case	22.1	62.3	15.5
	Short case	19.7	45.9	34.4
Degree of emphasis to be given to the different test formats		Give more weight %	Give less weight %	Undecided (neutral) %
	MCQ	38.5	49.2	12.3
	Essay/SAQ*	56.6	32.0	11.5
	OSCE	58.2	27.9	14.0
	Long case	55.7	35.2	9.0
	Short case	36.1	39.3	24.6
	Progressive assessment	52.5	36.9	10.7

* SAQ= Short answer question

* MCQ= Multiple choice question

Table 4. Students' comments on examination set-up OSCE, Jimma University, March 2007

Item	Agree	Undecided (neutral)	Disagree
	N (%)	N (%)	N (%)
Adequate space	63 (51.6)	14 (11.5)	45 (36.9)
Environment is noise free	66 (54.1)	24 (19.7)	32 (26.2)
Enough illumination	62 (50.8)	22 (18.0)	38 (31.2)
Exam was well-structured	68 (55.7)	21 (17.2)	33 (27.0)
The sequence of stations was logical and appropriate	55 (45.1)	30 (24.6)	37 (30.3)

DISCUSSION

In spite of its popularity in medical student evaluation systems in many medical schools across the globe, OSCE remains the least used assessment tool in clinical clerkships in most, if not all, Ethiopian medical schools. Records in the department of Pediatrics and Child Health of the medical faculty of Jimma University showed that OSCE had been in consistent use since 1998/99 in the evaluation of clinical-I (fourth year) medical students upon completion of their pediatric attachment.

After roughly a decade of experience with it, we found that OSCE has stood the test of time gaining remarkable acceptance by candidates as depicted by the fairly positive responses in the general evaluation of the format. The majority of students' responses to questions designed to assess the validity of OSCE were favorable as typified by reactions to items such as awareness to nature of the exam, its fairness and real-life simulation of cases. Similar results of acceptance of OSCE by students have been reported in surveys conducted at the University of West Indies, Jamaica and Newcastle medical school (13,14).

However, many students reflected that the examiners at manned stations were intimidating and to most candidates timely feedback was not offered after the examination. Concerns about intimidation during the exam have been reported in literatures (13-15). In view of the added value of assessment in serving as a learning opportunity, the lack of a regular feedback session on candidates' performance needs corrective measures in the practice of OSCE. However, despite the complaints of intimidation at manned stations, the majority of respondents agreed that OSCE was less stressful than other types of tests in their clinical attachments. This attitude appears to contrast with findings from other similar studies in several medical schools that indicated OSCE to be a strong anxiety-producing experience (14-16). Such a difference could reflect the magnitude of stress our students' experience in their long case and short case examinations in the clinical years, perhaps as a result of an unsympathetic interaction between examiner and examinee among other factors.

Majority of the examinees' agreed that the examination set-up was noise-free, well illuminated and stations were sequenced logically. Further, many students reported that time allocated at manned

stations was not enough, an observation in line with other studies (13, 14).

In conclusion, though the findings in this survey appear reassuring regarding students' perception about the validity, objectivity, comprehensiveness and overall organization of OSCE in the department of Pediatrics, we would suggest the following points to further improve the way OSCE is being practiced.

Firstly, the study showed that examiners at the manned stations were found to be intimidating. As undue stress, especially at manned stations, could hamper the performance of students, concerned staff should put utmost effort to minimize examinees' stress during exam.

Secondly, and even more important drawback of OSCE, reflected in this study, is the lack of a scheduled individual feedback session following an OSCE. Unless students are given the opportunity to review their performance as soon as possible, an important objective of assessment, i.e. creation of another opportunity for learning will be missed or exploited less satisfactorily. In almost all of the published data we reviewed in the literature, timely feedback has been an integral part of an experience in OSCE.

We, therefore, would like to emphasize the need for the incorporation of such a feedback session following any exam in general and for OSCE in particular. In addition, continuing staff development programs in the form of short-term training on evaluation techniques could greatly help to refine the process of evaluation using OSCE.

Last but not least, as the students' evaluation of OSCE was encouraging in this study, we recommend the incorporation of OSCE as part of the overall evaluation scheme in other clinical departments, attachments and its introduction as such may be of help in the assessment of medical students in almost every domain, i.e., knowledge, skill and attitude.

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