

Students' feedback on Objective Structured Clinical Examinations (OSCEs) experience in emergency nursing course

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Background/Objective: Objective Structured Clinical Examinations (OSCEs) are an effective assessment strategy for assessing clinical skills and for highlighting curriculum problem areas. Since its inception, the OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines. **Methods:** The study was conducted at Critical Care Nursing and emergency Department, the Faculty of Nursing, Alexandria University, Specifically in emergency nursing course. Data were collected using questionnaire comprised 26 items to determine students' feedback in relation to OSCE as an assessment method in acute care. **Results:** The majority of students agreed that the OSCE was comprehensive and covered a wide range of knowledge and clinical skills taught and in addition the exam was less stressful than other exams and the students felt the OSCE exam highlighting their strengths and weaknesses. Moreover, the exam increased their self confidence to face real situations. **Conclusion and Recommendations:** OSCE as an assessment method is an effective method to test students' competencies and teachers can diagnose the teaching defects and OSCE provides opportunities for students to learn from mistakes and increase their self confidence. OSCE can be implemented in different nursing specialties.

Keywords: Objective Structured Clinical Examination (OSCE); Skill evaluation; Nursing students; Feedback

INTRODUCTION

Assessing learning is an integral component of the teaching and learning process and contentious topic amongst educationalists. Students are assessed in

an effort to measure their learning, to provide constructive feedback for further development and measure the quality of education.^(1,2) Objective Structured Clinical Examinations (OSCEs) are an effective assessment strategy for assessing clinical

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skills and for highlighting curriculum problem areas.^(3,4)

The OSCE has been defined by various authors , perhaps most concisely by Watson et al. (2002) who describes it as an examination where “students demonstrate their competence under a variety of simulated conditions”.⁽⁵⁾ Over the last decades, OSCEs popularity has increased amongst nurse educators despite the extensive preparation involved in executing them. Since its inception, the OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines.⁽⁶⁾

The conventional methods of examination that included long case, short and oral examinations, were preserved until recent changes in the curriculum. In response to recommendations to improve the validity and fairness of the examination through adoption of well established methods and approaches in assessment

and evaluation in nursing and medical education.^(7,8)

Emergency and Critical Care Nursing Department, University of Alexandria initiated the OSCE as formal method of assessment in December 2008. Students and Faculty were exposed for the first time to a relatively new assessment instrument in which the aspects of competence (communication, history taking and technical skills.....etc) were assessed in a structured, formal manner.

Emergency and critical care nursing department , implemented the OSCE examination in formative and summative assessment for students enrolled in emergency nursing course during the academic year 2008-2009 for the first time in the department in order to motivate students' learning in areas not previously assessed in the “ traditional curriculum” and provide a form of feedback to students on their strengths and weaknesses in clinical skills . It was thought that it would

enhance faculty and student acceptance of this new assessment tool for further improvement in assessment methods.

AIM OF THE WORK

The aim of the work is to determine students' acceptability of the process and provide feedback on an OSCE experience

METHODS

Materials

Research design:

This research is descriptive design.

Setting

The study was conducted at Critical Care and Emergency Nursing Department, the Faculty of Nursing, Alexandria University.

Subjects

All nursing students enrolled in emergency nursing course who comprised (n=75) were participated in the study during their learning experience in 2008-2009 academic year and evaluated through formative and summative types of evaluation (OSCE I, OSCE II).

The researchers obtained the feedback from students admitted to OSCE I as a formative evaluation and students participated on a voluntary basis and were willing to participate (n=36) from all subjects (n=75) and also ,the same principle was followed in summative evaluation (OSCE II) in which the students' who were willing to give the feedback (n=64) .

Tool:

The tool was developed by the researchers after review of literature^(9,10) and the tool comprised 26 items in a self administered questionnaire divided into three sections as follows:

Section I: Content , structure and organization of OSCE , it included 13 items (Likert scale) ranged from (3) agree to (1) disagree and some items had reversed score (1) agree and (3) disagree. The scoring system of this section ranged from 13-39 It measure to what extent the OSCE

covers the content taught and the organization of the exam.

Section II: the quality of performance testing, it included 8 items (Likert scale) ranged from (1) not at all – (3) to great extent . The scoring system of this section was ranged from 8-24 .It measures the students' opinions related to quality of test done.

Section III: The objectivity, validity and reliability, it included 5 items (likert scale) ranged from (1) not at all –(3) to great extent . The scoring system of this section was ranged from 5-15. It measures the students' perception of the OSCE objectivity and to what extent it was valid and reliable.

The overall scoring of each section was classified into three categories :poor(less

than 50% , fair(50%- less than 75%) and good (75%- 100%)

Also, five open ended questions related to students' opinions related to positive and negative aspects of OSCE and their suggestions for improvements.

Methods

Official permission to conduct the study was obtained from the head of critical care and emergency department. Two workshops were conducted to orient nurse educators to the OSCEs and brief summary was provided to the students during lectures. Content validity of each checklist was established by review and consensus by a core group of nurse educators in the specialty. Stations were first selected to represent the curricular intended learning outcomes and reflect authentic clinical situations. (Table1)

Table 1: Stations, resources and competency addressed in formative and summative assessment (OSCE I, II)

Topic	Resource	Competency addressed
OSCE I (formative assessment) 4 stations		
Station 1 Cardiac arrest management (10minutes)	Doll (instructors to students and examiners)	To test students' ability to manage a pre-hospital cardiac arrest victim
Station 2 Log roll manoeuvre and recovery position (5 minutes)	Simulated patient (instructions to students and examiners)	To test students' ability to turn patient on back using log roll manoeuvre and put an unconscious patient on a recovery position.
Station 3 MCQs (5 minutes)	Classrooms	To test students' knowledge in emergency course
Station4 Audiovisual aids (5 minutes)	Computers	To test students' ability to identify some equipment
OSCEII (summative assessment) 5 stations		
Station1: Case study (15 minutes)	Simulated case (instructions to students and examiners)	To test students' critical thinking skills, communication skills and management of the patient based on the data presented in the case study
Station 2 oral exam (10minutes)	classrooms	To test students' attitudes
Station 3 MCQs (5 minutes)	Classrooms	To test students' knowledge in emergency course
Station 4 audiovisual aids (5minutes)	Computers	To test students' ability to identify some equipment and positions
Station 5 clinical procedure (10 minutes)	Doll and equipment	To test students' clinical competencies

A standardized technique of marking was used and student performance was assessed by criterion reference for each station. Criterion based scoring was used, with each checklist items as 0 (omitted, incorrect) or 1-2 (correct) in which (1) correct only, (2) correct with rational .

A cross – sectional survey using the

questionnaire was completed at the end of each OSCE. Participation was on a voluntary basis and students were assured that those who declined involvement in the survey would not be penalized.

Statistical analysis

Data were collected and descriptive basic statistical analysis of Likert

items was conducted by calculating frequencies, means and standardized deviations in OSCE I, II. Qualitative analysis was done through a form of content analysis.

RESULTS

The results shows the nursing students' feedback in relation to three sections of the questionnaire (content and organization of the exam, quality of performance testing and students' perception of validity and reliability of the exam).

Content and organization of the exam:

Table 2, it shows the students 'responses toward the content and organization of the exam in the OSCE I and OSCE II in the formative and summative exam. The majority of students agreed that the OSCE was comprehensive and covered a wide range of knowledge (80.6%,89.1%) respectively in OSCE I,II . Also, it covered wide range of clinical skills (72.2%,73.4%) . More than half of the subjects in both OSCE I and II agreed

upon that the exam well administered (55.6%,54%) respectively. In addition, 65.6% agreed about the stress of the exam in OSCE II because the presence of problem solving situation compared with 38.9% in OSCE I but approximately two third of subjects agreed that the exam was less stressful than other exams. Approximately half of the subjects (47.2%) felt that the exam was exhausting in OSCE I and this is referred to the waiting time for each station with large number of students and obviously this percentage was decreased in OSCE II (35.9%) because the exams' coordinator divided the students into two groups to decrease the waiting time .Furthermore, (63.9%, 67.2%)respectively agreed that the exam highlighted areas of weaknesses. The mean score of the content and organization of the exam was 29.94 ± 5.17 , 30.84 ± 2.70 in OSCE I, II respectively.

Quality of performance testing

Table 3, in relation to time of each

station , 61.1% of the subjects satisfied with the time in OSCE I compared with 34.4% in OSCE II .More than two third of the subjects agreed that the exam provided opportunities to learn in OSCE I,II (66.7%,58%) respectively. Half of the subjects included in OSCE I, II agreed that the setting and context at each station felt authentic (50%, 51.6%) respectively. Quarter of the subjects agreed that the sequence of the station was logical and appropriate. In addition , 55.6%of the subjects in OSCE I agreed that the tasks in the exam reflected those taught compared with 46.9% in OSCE II this is referred to presence of situation required critical thinking skills and consequently the students felt that problem solving situation was not related to the content taught. The mean score of the quality of performance testing 18.08 ± 4.36 , 17.66 ± 3.99 in OSCE I, II respectively.

Students' perception of validity and reliability of the exam.

Table 4, It shows that more than half of the subjects (52.8%) agreed that OSCE scores are standardized in OSCE I compared with 35.9% in OSCE II. Approximately two third of the subjects in OSCE I,II agreed that the OSCE is useful experience . in addition (63.9%,57.8%) agreed the OSCE scores measured essential clinical skills in emergency Care in OSCE I,II. More than one third of subjects in OSCE I and more than one quarter of subjects in OSCE II agreed that the exam helps the teachers to diagnose the defects of teaching (36.1%, 43.8%) respectively .Finally , 61.1% and 57.8% agreed that the exam was fair. The mean score of students' perception of validity and reliability of the exam 11.86 ± 2.67 , 11.48 ± 2.69 in OSCE I, II respectively.

Table 5, it shows statistical significance difference between OSCE I and II in the content, quality and organization of the exam ($t= 9.528, p= 0.009$) while there was no statistical significance difference in

quality of performance testing and students' perception of validity and reliability of the exam in OSCE I and II ($t=0.005, p=0.943$), ($t=2.674, p=0.263$) respectively.

Qualitative data:

Students were asked about their opinions concerning the positive and negative aspects of the OSCE and if they had any suggestions for improvements.

Positive attributes of OSCE:

Students emphasized that the exam was interesting and increased their abilities to learn from mistakes and improve their communication, critical thinking and decision making skills and not stressful than other assessment methods and was fair (43 comments in OSCE II) (67.2%). The students felt that the exam helped them to detect their strengths and weaknesses. Also, the students reaffirmed that the exam was comprehensive and covered knowledge and clinical skills taught (56 comments in OSCE II) (87.5%). They

emphasized that OSCE helped them to overcome difficult situations in clinical settings (16 comments in OSCE I) (44.4%) and the same comment represented by (46 comments in OSCE II) (71.8%).

Students indicated that the opportunity for feedback helped to motivate them and OSCE increased skill of time management and increased students' self confidence (23 comments in OSCE I), (59 comments in OSCE II) (92.1%).

Negative comments about OSCE:

Some students felt that the OSCE exam was exhausting and time consuming (13 comments in OSCE I) (36.1%), (26 comments in OSCE II) (40.6%). Also, students stated that the time of station was not enough (21 comments in OSCE I) (58.3%), and (13 comments in OSCE II) (20.3%).

Suggestions for improvement, included students' emphasis on increasing the duration of stations (25 comments in OSCE I) (69.4%), (50 comments in OSCE

II) (78.1%), and ensuring clear instructions(18comments)(28.1%),increase resources such as computers and examiners(15 comments)(23.4%) . In addition, the students suggested the examination should be videotaped to increase its objectivity (9 comments)(14.1%) .

Discussion

Introduction of an educational change is not an easy task especially if it is related to students' evaluation which represents a crucial aspect within the educational process. For this reason the students' feedback about introducing the objective structured clinical examinations (OSCEs) reflects its strengths and weaknesses and the impact of this change on students' performance. Troncon (2004) mentioned that the experience of introducing an OSCE at a rather conservative medical school without a tradition of objective examination of students' clinical skills provided an opportunity to learn about

student member responses. Reflection on this experience has also raised a number of issues related to general aspects of medical education and assessment as well as to general management of educational change.⁽¹¹⁾

Students overwhelmingly perceived that the OSCE in Emergency nursing course had good construct validity. This was supported by previous studies which stated that students demonstrated by favorable responses concerning transparency and fairness of the examination process and the authenticity of the required tasks per station.⁽¹²⁻¹⁵⁾

The majority of students felt that the OSCE was covered wide range of clinical skills and it was a practical experience, on the other hand, few students perceived the exam was stressful, it may be as a result of unfamiliar tasks or content included in the various stations because students seemed to be comfortable with these aspects of the examination from the time of the first

OSCE administration. Some students reported difficulties on the part of managing time during the work at OSCE stations; it might be related to different factors, including student's immaturity and lack of specific training in time management skills. Lack of practice to be examined in the OSCE format might also have contributed to both dissatisfaction with the time available and perception of the OSCE as a stressful examination. The students' feedback taken into consideration in different OSCEs and students' satisfaction with the time of stations increased gradually. The majority of students agreed that the exam covered wide range of knowledge and clinical skills, this is congruent with Bradley & Humphris (1999) who emphasized on that OSCE enables students to put evidence based nursing which combines knowledge and communication skills into practice.⁽¹⁶⁾ Also, the students agreed that the exam highlighted areas of weaknesses and learn from their mistakes, this was also emphasized by Schwartz et al. (1995) as they stated that the use of simulation in this context enables the examiner to identify students' learning and skills deficiencies.⁽¹⁷⁾ In addition, O'Neill & Mc Call (1996) reported that the OSCE sessions not only help students determining their own weaknesses but also enable examiners to realize what are the current students' abilities.⁽¹⁸⁾ On the other hand, concerning the students comments about that OSCE allowed the teachers to diagnose their teaching defects, is congruent with McKnight et al. (1987) who said that OSCE is a process that can be used as a mean of evaluating teaching to identify specific deficiencies.⁽¹⁹⁾ If required, additional teaching sessions can be organized to address skills that causes problems to the students during the OSCE. The use of such sessions may be a key element to the training of better prepared health care professionals.

Half of the subjects felt that the setting and the context at each station was authentic, authors emphasized that students need a realistic, safe environment that allows them time to practice nursing procedures and caring skills without fear and endangering patient and the creation of a clinical skills laboratory within the educational setting that stimulates clinical reality, can enable experiential learning to occur. Also, it allows the transfer of learnt skills into the real clinical setting. The students emphasized that the exam reflected the content taught, this was reported by Sloan et al. (1995) who stated that the strengthening of the theory-practice link through the re-establishment of clinical skills centers in which to learn and emergence of the OSCE framework to examine the skills was seen as a new step towards achieving this competence.⁽²⁰⁾ Khattab & Rawlings (2001) , emphasized that the OSCE motivate the students to learn and this is reported by students in the

present study.⁽²¹⁾ Also, the students emphasized that OSCE increase their self confidence and this results are congruent with Alinier (2003) who reported that both students and lecturers reported the obvious increase of students' self confidence through developing students' ability to identify their learning needs , to practice without putting patients at risk and the students encouraged to reflect on their practice which improve their performance and increase their self confidence .⁽²²⁾

Objectivity and increase consistency of the experience with the exam is reported by students in the present study , this is goes with Townsend et al.(2001) who mentioned that OSCE reduced "luck of draw" and increased consistency of experience between students. ⁽²³⁾ Finally, the students were satisfied to be assessed by the same examiners and same tasks with standardized assessment tools which increase the validity and reliability of the exam. Several researchers identified that

OSCE as an assessment method is highly reliable and valid and it reduce examiners' bias. (24-26)

CONCLUSION

Although there are a few drawbacks in using OSCEs they should not be neglected. The running cost of the OSCE is outweighed by the educational benefits as well as the students' satisfaction to have learned something useful . Also, OSCE provides opportunities for students to practice in safe environment and, increase their self confidence. In addition of using problem based learning scenarios, students have to employ critical thinking skills related to practice and theory of the task they are expected to perform.

RECOMMENDATIONS

OSCE exam should be included in the curricular planning in different nursing specialties. Training of examiners to overcome the shortage of the staff
Videotaping the OSCE exam to detect deficiencies and improve the exam gradually.

Recommendations for further studies:

Comparison between OSCE exam and other assessment methods
Instructors' evaluation of OSCE in critical care nursing using focus group discussion
Table (2): Distribution of students' opinions in relation to the content, quality of instruction and organization

Table (2): Distribution of students' opinions in relation to the content, quality of instruction and organization

	(OSCE I)n=36						(OSCE II)n=64					
	Don't Agree		Neutral		Agree		Don't Agree		Neutral		Agree	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Wide knowledge area covered	4	11.1	3	8.3	29	80.6	3	4.7	4	6.2	57	89.1
Needed more time at stations	20	55.6	6	16.7	10	27.8	19	29.7	18	28.1	27	42.2
Exam well administered	10	27.8	6	16.7	20	55.6	4	6.3	26	40.6	34	54.0
Exam very stressful.	15	41.7	7	19.4	14	38.9	5	7.8	17	26.6	42	65.6
Exams well structured & sequenced	10	27.8	10	27.8	16	44.4	30	46.9	12	18.8	22	34.4
Exam minimized chance of failing	8	22.2	4	11.1	24	66.7	5	7.8	14	21.9	45	70.3
OSCE less stressful than other exams	9	25.0	6	16.7	21	58.3	10	15.6	16	25.0	38	59.4
Allow student to compensate in some areas	8	22.2	3	8.3	25	69.4	10	15.6	7	10.9	47	73.4
Highlighted areas of weakness	5	13.9	8	22.2	23	63.9	11	17.2	10	15.6	43	67.2
Student aware of level of information needed	7	19.4	8	22.2	21	58.3	5	7.8	16	25.0	43	67.2
Wide range of clinical skills covered	6	16.7	4	11.1	26	72.2	6	9.4	11	17.2	47	73.4
The exam is very exhausting	12	33.3	7	19.4	17	47.2	24	37.5	17	26.6	23	35.9
The exam is time consuming	11	30.6	4	11.1	21	58.3	20	31.3	15	23.4	29	45.3
	Min-Max 13.00-37.00 X ± SD 29.94 ± 5.17						Min-Max 24.00-36.00 X ± SD 30.84 ± 2.70					

Table (3): Distribution of students' opinions in relation to quality of performance testing

	(OSCE I)n=36						(OSCE II)n=64					
	Not at all		Neutral		To great extent		Not at all		Neutral		To great extent	
	No	%	No	%	No	%	No	%	No	%	No	%
Fully aware of nature of exam	16	44.4	9	25.0	11	30.6	22	34.4	22	34.4	20	31.3
Tasks reflected those taught	9	25.0	7	19.4	20	55.6	16	25.0	18	28.1	30	46.9
Time at each station was adequate	9	25.0	5	13.9	22	61.1	17	26.6	25	39.1	22	34.4
Instructions were clear and unambiguous	8	22.2	9	25.0	19	52.8	11	17.2	22	34.4	31	48.4
Tasks asked to perform were fair	8	22.2	7	19.4	21	58.3	12	18.8	17	26.6	35	54.7
Sequence of station logical and appropriate	10	27.8	10	27.8	16	44.4	21	32.8	15	23.4	28	43.8
Exam provided opportunities to learn	6	16.7	6	16.7	24	66.7	13	20.3	17	26.6	34	58.0
Setting and context at each station felt authentic	10	27.8	8	22.2	18	50.0	15	23.4	16	25.0	33	51.6
	Min-Max 8.00-24.00 X ± SD 18.08 ± 4.36						Min-Max 8.00-24.00 X ± SD 17.66 ± 3.99					

Table (4): Distribution of students' opinions in relation to objectivity, validity, reliability of the exam

	(OSCE I)n=36						(OSCE II)n=64					
	Not at all		Neutral		To great extent		Not at all		Neutral		To great extent	
	No	%	No	%	No	%	No	%	No	%	No	%
OSCE scores are standardized	4	11.1	13	36.1	19	52.8	15	23.4	26	40.6	23	35.9
OSCE practical and useful experience	6	16.7	7	19.4	23	63.9	10	15.6	18	28.1	36	56.3
OSCE exam scores provide true measure of essential clinical skills in emergency care	6	16.7	7	19.4	23	63.9	10	15.6	17	26.6	37	57.8
The exam helps the teachers to diagnose the defects of teaching	10	27.8	13	36.1	13	36.1	16	25.0	20	31.3	28	43.8
Exam is fair	7	19.4	7	19.4	22	61.1	15	23.4	12	18.8	37	57.8
	Min-Max 5.00-15.00 X ± SD 11.86 ± 2.67						Min-Max 5.00-15.00 X ± SD 11.48 ± 2.69					

Table (5): Relationship between students' opinions in OSCE I and II

	(OSCE I)		(OSCE II)		t (p)
	N=36		N=64		
	No	%	No	%	
The content , quality of instruction and organization					
Poor	7	19.4	2	3.1	9.528* (0.009)
Fair	14	38.9	40	62.5	
Good	15	41.7	22	34.4	
Quality of performance testing					
Poor	11	30.6	20	31.3	0.005 (0.943)
Fair	25	69.4	44	68.8	
Good	0	0.0	0	0.0	
Students' perception of objectivity , validity, reliability					
Poor	5	13.9	17	26.6	2.674 (0.263)
Fair	12	33.3	22	34.4	
Good	19	52.8	25	39.1	
Total OSCE evaluation					
Poor	5	13.9	5	7.8	1.078 (0.583)
Fair	22	61.1	44	68.8	
Good	9	25.0	15	23.4	

t: Student t-test

* : Statistically significant at $p \leq 0.05$

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