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Research Article

Objective Structured Clinical Examination as a Clinical Assessment Method: Nursing Students' Attitude and Evaluation of the Experience from Different Academic Levels

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Abstract

Objective: Assessment of clinical competence is an essential and crucial requirement of health professional education. Since its development in the 1970s, the Objective Structured Clinical Examination (OSCE) has gained acceptance as a benchmark for clinical skills assessment and evaluation in medical education. OSCE has been also introduced and well utilized in nursing education, however, there is a lack of information regarding students' attitude and evaluation of the entire experience among different academic levels. The aim of the present study was to explore the attitude and evaluation of the OSCE experience among different academic levels among nursing students.

Methods: A descriptive comparative cross-sectional design was employed for the study. A convenience sample of 143 nursing students of different academic levels from college of nursing at King Saud Bin Abdulaziz University for Health sciences, Riyadh, Kingdom of Saudi Arabia was interviewed. Student' attitude and evaluation of OSCE questionnaire were used to collect data after testing their validity and reliability.

Results: Students in all levels showed positive attitude toward OSCE and provided a considerable agreement regarding the evaluation of the entire experience in terms of preparation, contents and environment. Significant statistical results were detected between academic level and student's attitude and evaluation of the OSCE experience. Majority of level 7 students showed neutral attitude and were neutral regarding contents and environment of the OSCE experience. They also reported that the experience was scary and frightening for them.

Conclusion and Recommendations: Students positive attitude and acknowledgment of the OSCE experience would support its usefulness as a tool for assessment in nursing education. More assessment to the entire experience and challenges to its implementation needs to be identified among undergraduate nursing students especially for courses with specific nature.

Keywords: Attitude; Evaluation; Experience; Objective structured clinical examination

Introduction

The Objective Structured Clinical Examination (OSCE) is an unbiased approach to the assessment of clinical competences in a well-planned and structured way [1]. OSCE has been used as a key strategy to evaluate student's competence and clinical skills in medical and allied professions and was introduced in the first time by Harden and his colleagues in 1975 [2]. During OSCE, a series of consequent stations in a specific environment as examination room or laboratory is set up to assess students' performance. At each station, students may be asked to carry out procedures and examine a variety of empirical and theoretical knowledge. This could be performed on high, medium and low fidelity manikins or simulated patients based on the situation and the resources [3].

The OSCE has gained acceptance as a benchmark for clinical skills assessment in medical and nursing education as a preparatory step for medical and nursing students before engagement in the real patients' care [3,4]. Evaluation of nursing students' clinical competencies is essential to the educational process. Traditional evaluation methods such as oral, written assignment, multiple choice questions, and clinical observational reports have reported disadvantages in terms of subjectivity, poor reliability and validity and impracticality [5,6]. Researches postulated that OSCE allow the students to make the connection between what they practice during OSCEs and their clinical placements, so they develop confidence in dealing with situations in the clinical field [7]. In addition, OSCEs can identify students' areas of weakness early in their program of study and in turn help instructors to provide the needed assistance [8].

Preparation for OSCE is vital and increases students' confidence in performing skills during the OSCE and in clinical areas as well. Formative or mock OSCEs also increase confidence and competence. Preparing the students for an OSCE may include; psychological preparation, familiarity with the equipment and checklists used for assessment and procedures and allocated time for each station. These preparations will help reducing stress and anxiety especially among junior and freshman students. Instructors on the other hand should provide feedback from mock and use of available resources to identify students' area of improvement [9,10]. It is the responsibility of the academics and clinical staff to ensure that the assessment process of an OSCE is valid and reliable to enhance the quality of health professional education. The aim of the present study was to assess nursing students' attitude toward OSCE and explore the evaluation of OSCE experience among different academic levels.

Materials and Method

Research Design

A descriptive comparative cross section design was used to achieve the study objectives.

Setting

The study was conducted at College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences, Riyadh, Kingdom of Saudi Arabia. Data were collected at the end of the spring Semester, for the academic year 2015/2016.

Sample

A convenient samples of 143 nursing students from level 4-7 (137) students and 6 post graduate students who joined master of midwifery program at the college of nursing. Data were collected at the end of the spring semester immediately after the students completed their final OSCE. Students in each level have final OSCE at the end of the semester as well as a mini OSCE that was performed during the midterm examination as a preparation for the final OSCE.

Tool of Data Collection

A self-administered questionnaire was used to collect data that includes two parts:

Part I: Student' evaluation of the OSCE experience questionnaire which is a standardized, valid and reliable tool developed by Pierre et al. [11]. It was modified by the researchers for the current study. This questionnaire comprises 23 items that focuses on 3 main parts; preparation (9 items), contents (9 items) and OSCE environment (5 items). The response options of the questionnaire are 3 points Likert scale with (3) Agree, (2) neutral and (1) disagree.

Part II: A modified version of the students' attitude regarding OSCE questionnaire [12] to evaluate cognitive and affective components of student attitudes toward OSCE. This questionnaire includes 16 items on 3-point Likert scale with agree (3), neutral (2) and disagree (1). The study questionnaire was reviewed for face and content validity by two faculties of nursing who are holding PhD. It was also piloted on 5 students for applicability and clarity before conducting the actual study and there were no major modification. Reliability of the study questionnaire was tested before the main data analysis and reported Cronbach's alpha of .77 for the evaluation of OSCE questionnaire and .79 for the attitude scale.

Ethical Considerations

The questionnaire was distributed immediately after the

students completed their final OSCE at the waiting area. Data were collected from each level separately and students were informed about the purpose of the study, voluntary to participate and their right to withdraw at any time without any penalty. Students who agree to participate were asked to sign a consent form. Confidentiality was ensured throughout the process of the study.

Statistical Analysis

Data were analyzed using the Statistical Package for Social Science (SPSS version 16). Descriptive analysis was performed in percentage and Chi-square test was used to test differences in attitude and evaluation between levels with a p value of 0.05 was set for statistical significance.

Results

Academic levels of the study sample as presented in (Table 1) showed that 29% of the students were in level 4, 24% were in level 5, 27% in level 6, 16% in level 7 and 4% were master students. OSCE was performed for level 4 in fundamentals of nursing 2 course, for level 5 in health assessment course, for level 6 in nursing care of adult 2 course, for level 7 in nursing care of children and their families course and midwifery care 1 course for master students.

Level	Course	Number (N = 143)	%
4	Fundamentals of nursing 1	42	29%
5	Health Assessment	34	24%

6	Nursing Care of Adult 2	38	27%
7	Nursing Care of Children & Their Families	23	16%
Master of Midwifery	Midwifery practicum 1	6	4%

Table 1: Number and Percentage of Students and the Courses in each Level.

(Table 2) presents percentage of student attitude toward OSCE, it reveals that; about two thirds of the student (63.6% and 62%) agreed that OSCE was a meaningful way for assessing their clinical skills and the guidelines were helpful for OSCE preparation respectively. More than half of students (58.7% and 59%) agreed that OSCE provided them with an opportunity to show their clinical knowledge and the stations has benefited them in developing their knowledge and skills. Fifty per cent of the students agree that OSCE was fair method of assessment. In addition, a considerable percentage (47%) agreed that they were confident during their station performance.

The same table showed that 45% of the students were either agree or natural that OSCE was helpful in increasing their confidence in clinical practice and that the examiner made them feel comfortable. In addition, 41% were natural that they found the stations very stressful and that they were confident during the station's performance. Further, 64% disagree that they did not understand the purpose of the station, 46% and 45% disagree that the skills being evaluated in the stations were not reflective of those required in clinical practice and they did not feel prepared for the stations respectively.

SN	Methods used in this study	Agree (3)	Neutral (2)	Disagree (1)
1	Was a meaningful way for assessing my clinical skills	63.60%	26.60%	9.80%
2	Reflected real-life clinical conditions	44.8%	43.40%	11.90%
3	Was a fair method of assessment	50%	40%	10%
4	Provided me with an opportunity to show my clinical knowledge	58.70%	32.90%	8.40%
5	Provided me with an opportunity to show my practical skills	44.80%	38.60%	15%
6	Took placed in a suitable environment	32%	35%	31%
7	Is helpful in increasing the students' confidence in clinical practice	45%	45%	10%
8	The examiner made me feel comfortable	45%	45%	10%
9	The guidelines I got were helpful for preparation	62%	31%	7%
10	I did not understand the purpose of the stations	14%	22%	64%
11	The skills being evaluated in the stations were not reflective of those required in clinical practice	19%	35%	46%
12	I did not feel prepared for the stations	18%	27%	45%

13	I was not very nervous during the stations	40%	31%	29%
14	I found the stations very stressful	29%	41%	30%
15	The stations has benefited me in developing my knowledge and skills	59%	32%	9%
16	I was confident during the station's performance	47%	41%	12%

Table 2: Percentage of students attitude toward OSCE in all levels.

To study the students' attitude by their academic level, results showed that 60% of level 4 student presented positive attitude, 23% showed neutral and 17% negative attitude toward OSCE. Regarding level 5, 72% showed positive attitude, 15% neutral and 13% negative attitude. Level 6 students showed positive attitude among 62%, neutral and negative attitude among 19%. Regarding level 7, 35% reported positive attitude, 44% were neutral and 21% showed negative attitude toward OSCE while 100% of master students showed positive attitude to OSCE experience. To examine if students' attitude differs by their academic level, Chi square test was performed, and results revealed statistical significance differences between academic levels and attitude among students ($X^2 = 24.7$, $p = .000$) as presented in (Table 3).

Attitude	Level 4	Level 5	Level 6	Level 7	Master	X^2	P value
Positive	60%	72%	62%	35%	100%		
Neutral	23%	15%	19%	44%	0%		
Negative	17%	13%	19%	21%	0%	24.7	0

Table 3: Comparison and differences in level of attitude among students in each level.

OSCE experience evaluation

(Table 4) demonstrated percentage of students' general evaluation of the OSCE experience, this table presented that most of the student 74%, 70% and 73% agreed that OSCE instructions were clear, the sequence of stations was logic and appropriate and wide knowledge area is covered respectively. Around two thirds agreed that tasks to be performed were fair, OSCE scores are standardized, OSCE provided opportunity to learn, and OSCE was practical and useful experience. In addition, 35% agreed that OSCE experience was scary and frightening. On the other hand, a range of 41% to 48% of the students participated in this study were natural in their evaluation of the OSCE experience in relation to many items as follow: setting and context of each station felt real as hospital, OSCE experience was scary and frightening, OSCE allowed them to compensate in some area and OSCE highlighted areas of weakness respectively. Moreover; 31% disagree that OSCE less stressful than other exams and 23% disagree that OSCE experience was scary and frightening.

#	Items	Agree (3)	Neutral (2)	Disagree (1)
1	Needed more time at some stations	44%	37%	19%
2	OSCE well administered	60%	31%	9%
3	OSCE well-structured and sequenced	62%	31%	7%
4	Time at each station was adequate	47%	36%	17%
5	Instructions were clear	74%	21%	5%
6	Tasks to be performed were fair	67%	29%	4%
7	The sequence of stations was logic and appropriate	70%	23%	7%
8	OSCE scores are standardized	64%	33%	3%
9	Personality and social relations will not affect OSCE scores	55%	34%	11%

10	Wide knowledge area is covered	73%	25%	2%
11	OSCE allowed students to compensate in some area	45%	46%	9%
12	OSCE minimized chance of failing	46%	39%	15%
13	I am aware of the level of information needed	59%	36%	5%
14	OSCE highlighted areas of weakness	46%	48%	7%
15	Tasks reflected those were taught	58%	35%	7%
16	OSCE provided opportunity to learn	67%	26%	7%
17	OSCE scores provided true measure of essential clinical skills	62%	30%	8%
18	Wide range of clinical skills are covered	58%	34%	8%
19	OSCE less stressful than other exams	33%	36%	31%
20	OSCE experience was scary and frightening	35%	42%	23%
21	I am fully aware of the nature of the exam	62%	35%	7%
22	OSCE was practical and useful experience	66%	28%	6%
23	Setting and context of each station felt real as hospital	41%	41%	18%

Table 4: Percentage of students' evaluation of OSCE experience.

As shown in (Table 5), evaluation of the OSCE experience was presented in terms of preparation, contents and environment. Regarding preparation of the OSCE experience, results showed that most of the student (76.5%) agreed, 18% were neutral and 5.5% disagree regarding preparations of OSCE. As for contents of the OSCE, 73% agree, 17% were neutral and 10% disagree that contents were appropriate. Regarding the OSCE environment, majority of the students 66% agree, 23% were neutral and 19% disagree that the environment was conducive.

Item	Agree	Neutral	Disagree	Total
Preparation	76.50%	18%	5.50%	100%
Contents are appropriate	73%	17%	10%	100%
Environment	66%	23%	19%	100%

Table 5: Percentage of total students' evaluation of OSCE experience.

(Table 6) Presents Comparison and differences between academic levels in relation to OSCE evaluation (preparation, contents and environment). The table showed that regarding preparation of the OSCE 83% of level 4, 80% level 5, 75% of level 6, and 96.5% of master students agree about the good preparation of the OSCE. As for the OSCE contents, 79% of level 4 students, 84% of level 5 students, 72% of level 6, and 100% of master students agree that the contents of the SOCE were appropriate. In relation to OSCE environment, majority of student's form level 4, 5, 6 and master students agreed that the environment was conducive. On the other hand, level 7 students showed different results as 35% of them agreed regarding OSCE preparation, 34% agreed about contents and only 26% of them agreed that the OSCE environment was conducive. Chi square test was conducted to test differences between academic levels and OSCE evaluation (preparation, contents and environment). Results showed that there were statistical significance differences between the 5 academic levels regarding preparation ($X^2 = 16.2$, $p = .003$), contents ($X^2 = 31.1$, $p = .000$) and environment, ($X^2 = 41.6$, $p = .000$).

Level	Preparation			Contents			Environment		
	Agree	Neutral	Disagree	Agree	Neutral	Disagree	Agree	Neutral	Disagree
4	83%	14%	3%	79%	12%	9%	83%	17%	0%
5	80%	11%	9%	84%	16%	0%	91%	9%	0%
6	75%	13%	12%	72%	18%	10%	82%	18%	0%
7	35%	42%	23%	34%	46%	20%	26%	60%	14%

Master	96.50%	3.50%	0%	100%	0%	0%	100%	0%	0%
χ^2		16.2			31.1			41.6	
P value		0.003			0			0	

Table 6: Comparison and differences between levels in relation to OSCE evaluation.

Discussion

The aim of this study was to assess nursing students' attitude and explore their evaluation of OSCE experience. Results showed that majority of students in all levels showed positive attitude toward OSCE. Majority of the students reported that the OSCE experience was a meaningful way for assessing their clinical skills, provided them with opportunity to show their clinical knowledge, the guidelines they received were helpful for preparation, they understand the purpose of the stations, and the stations have benefited them in developing their knowledge and skills. These results were in agreement with many previous results [13-15]. Majority of the students in level 7 had neutral attitude toward OSCE. The explanation for this result could be that with the progress to a higher level of study, the stations become more complex. In addition, the course that was studies in level 7 was nursing care of children and their families in which students deal with children in different age groups. Students in this course practice nursing care in the clinical setting under the supervision of the preceptors and they still do not have the confidence and courage to deal with the children. Although, during OSCE the students use high and medium fidelity manikins not a real child or simulated patients, still this is their first time to pass through this experience which may create uncertain attitude. This result was similar to Pierre, et al. [11] and Allen, et al. [16] who reported that OSCE experience in pediatric course was overwhelming experience that provoked more of anxiety and stress among students.

The current study showed absolute agreement regarding the OSCE general evaluation. Majority agreed regarding the preparation of the OSCE in terms of well administration, well-structure and sequence, the logic and appropriate sequence of the stations, clear instructions, standardized scores and fair tasks. Same results were admitted by Pierre, et al. [11], Hosseini, et al. [17], Bahrei, et al. [18], Jansiraninatarajan and Thomas [19], Rushforth [20], Duffield and Spencer [21] who reported that OSCE was a fair and objective in nature.

Less than half of the students were neutral regarding that they needed more time at some stations. Although this item was one of the preparation items of OSCE, and majority of students at level 4, 5, 6 and master students reported agreement regarding preparation of the OSCE. Needed time at some stations could be needed by level 7 students due to the complex nature of the

stations as they are related to children. In addition, majority of level 7 students reported neutral attitude and neutral evaluation of the entire OSCE experience in this study. Majority of participants in the current study also agreed regarding the proper contents of the OSCE. Most of students agreed that the OSCE covered a broad area of knowledge, provided opportunity to learn and OSCE scores provide true measure of essential clinical skills. These results were congruent with the work of Elnemer & Kandeel [22], Eswi, et al. [23], and Selim [24].

The result of the present study also showed that majority of students agreed about the environment of OSCE. Majority agreed that they were fully aware of the nature of the exam and that the OSCE was practical and useful experience. On the other hand, a considerable percentage of students agreed and were also neutral that OSCE experience was scary and frightening. In addition, about third of them disagree that OSCE was less stressful than other exams. As mentioned earlier in this study, these two items were not in favor among level 7 students. This piece of result was highlighted by many authors [3,11,15,25] who concluded agreement among their participants about the appropriateness of the environment of the OSCE exam but not among pediatric course [11,16].

Conclusion

OSCE is considered as an effective and useful approach that has been widely used to assess a wide range of skills in an objective manner. It is useful in nursing education to train nursing students about clinical skills as they would appear in clinical setting. Students who participated in this study at all academic levels reported positive attitude toward OSCE experience. Students' evaluation also showed agreement about the preparation, contents and the environment of this experience. OSCE experience was not favorable among level 7 students in this study. More assessment to the entire experience and challenges to the implementation needs to be identified among undergraduate nursing students especially for nursing courses with specific nature.

Recommendation

Using of interview and qualitative approach would have provided broader understanding of the OSCE experience. Evaluation of OSCE experience from the clinical instructors' point of view to enrich the gained information is also required.

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