

# Implementation of Objective Structured Clinical Examination (OSCE): Perceiving Nursing Students and Teachers Attitude & Satisfaction

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**Abstract Background:** The clinical learning for undergraduate nursing students in Northern Border University is well integrated but the method of clinical evaluation is still utilizing the traditional methods. **Aim of the study:** our study aimed to evaluate the effectiveness of Objective Structured Clinical Examination (OSCE) on nursing students and teachers' attitudes & satisfaction. **Methods:** Quasi experimental design (one group pre posttest) was used to achieve the aim of the study. The study was conducted on a convenience sample composed of two groups; group one includes a sample of 91 undergraduate nursing students and the second group includes 25 nursing faculty staff members who are clinical instructors and assistant professors at Faculty of Nursing, Northern Border University (Kingdom of Saudi Arabia). **Results:** A statistical significant difference was found in relation to students' perception of structure and conduction of OSCE examination in the first and second trail. More than one third the students (35.2%) were replying that the OSCE format reduces the risk of failing in the first trail the percentage was improved to more than two thirds (69.2%) in the second trail. more than half of faculty teachers were replying with strongly agree regarding involvement of OSCE in nursing curriculum, OSCE assesses all the students objectively and it is fair to all students and it offers new experience for students and faculty staff. **Conclusion:** The study concluded that, the student satisfaction and attitude was positive regarding OSCE exam especially in the second trial. In addition, the faculty teachers express positive attitude regarding preparation and handling of OSCE exam.

**Keywords:** Objective Structured Clinical Examination, students' perception & satisfaction and faculty perception

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## 1. Introduction

The Objective Structured Clinical Examination (OSCE) is a practical system for clinical skills and knowledge assessment in simulated environment and for over 40 years has been considered as a gold standard in this area of evaluation [1]. OSCE is widely used in assessing skills not only in medical education, but also in dentistry, nursing and midwifery, physiotherapy, dietetics and pharmacy [2,3,4].

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

different segments and the marks are allotted [5,6].

Successful nursing assessment tools are required to ensure high-quality teaching and learning and to promote the role of the nursing as a profession with the purpose of improves care and preserve the public. In addition, in the absence of consensus on the exact explanation for competence, deciding on an appropriate strategy to assess clinical competence has long been central to nursing [7].

The traditional OSCE include rotating the students through a system of stations simulating a clinical reality. Every station, the student must perform a particular skill using a standardized patient, manikin, task trainer and/or a written scenario. Each station is assembled to assess a particular skill, such as history-taking, physical assessment, identifying a diagnosis, decision-making, client education or the performance of a technical procedure. The skills performed are assessed against a pre-established detailed

checklist developed by a panel of clinical education experts. The construction and application of the OSCE process vary in relation to the number of stations and the length of time allowed at each station, depending on the learning outcomes and objectives being assessed [5,6].

The OSCE is now being a part in nursing curricula as a tool of summative assessment to test a variety of clinical skills learnt over a period of time, and depending on the nature of the program, this could be at the end of a teaching block or end of the year as a final examination [8]. In OSCE, students are expected to reveal proficiency in different simulated situations. The OSCE incorporates knowledge and skills, enabling components of clinical competence and performance to be identified and assessed under standardized conditions. This allows for a large number of students to be assessed simultaneously [8,9].

### 1.1. Significance of the Study

The implementation of OSCE encourages emphasis on learning practical skills rather than the acquisition from books and notes of large volumes of factual information and as such provides a suitable tool for the improvement of undergraduate education in nursing. Therefore, there is an imperative need to adopt implementing it in our university and taking into consideration studying our student's satisfaction with it plus assessing their knowledge and clinical performance. It becomes widely employed to contribute to the assessment of clinical competence [10].

The simulated learning has become more common place due to the reduction of practice placements and the increased pressures on the current workforce. The teaching and assessment of clinical skills in a simulated learning environment have become an accepted part of pre and post registration nursing courses. OSCEs and practical examinations are a form of assessment which allows you to demonstrate your skills, knowledge and attitude. Simulation allows you to practice your skills and demonstrate your knowledge and attitude in a safe and professional environment [11].

### 1.2. Aim of the Study

This study aimed to evaluate the effectiveness of Objective Structured Clinical Examination (OSCE) on nursing students and teachers' attitudes & satisfaction.

#### Through fulfilling the following objectives:

- Provide the nursing faculty staff and clinical instructors with information about (OSCE) by workshops, utilization of laboratory equipments, data show presentation and self-training.
- Assess the effectiveness of objective structured clinical exam (OSCE) in terms of improving the student's knowledge and achievement a high level of clinical performance and satisfaction.

## 2. Subjects and Methods

### 2.1. Research Design

Quasi experimental design (one group pre posttest) was used to achieve the aim of the study.

### 2.2. Research Setting

The study was conducted at Faculty of Nursing, Northern Border University (Kingdom of Saudi Arabia)

### 2.3. Subject

The subject of the study included two groups. Group one includes a convenience sample of 91 undergraduate nursing students studying the pediatric nursing and foundation of professional nursing at the College of Nursing during the second semester in the academic year (2018/2019), (40 of them in second year (foundation of professional nursing), 28 are third year & 15 are bridging students they are studying (pediatric nursing). The second group includes 25 nursing faculty staff members who are clinical instructors and assistant professors.

### 2.4. Instruments

#### Tool (1); Students perception and satisfaction with OSCE Exam questionnaire

The following scale was designed by the investigator once reviewing related literature [12,13,14,15]. The used questionnaire comprising four parts consisting of 24 items; the questionnaire were in the variety of three points Likert scale ranging as 1= Agree, 2= uncertain & 3= Not agree) out of which 5 items were regarding Students' opinions regarding the form of the exam, four items regarding Students' opinions in terms of taking the exam, ten items regarding Students' opinions regarding exam evaluation & four items regarding Students' opinions in terms of questions and answer time.

#### Tool (2); faculty staff and clinical instructors' perception toward OSCE

This scale was developed by the researcher after reviewing related literature [12,13,15]. The questionnaire was included two parts. Part one includes demographic characteristics of faculty staff such as age, years of experience, academic position and previous evaluation & experience with OSCE. The second part composed of 28 statement in the form of three points Likert scale ranging as 1= Agree, 2= uncertain & 3= Not agree). It was include questions about faculty perception about content & preparation; utility of OSCE and validity & level of stress of OSCE.

### 2.5. Validity & Reliability

The developed instruments and scales were examined for its content validity by (5) experts in the field of medical surgical nursing and pediatric nursing to determine application and comprehensiveness. The tools confirmed to be valid. Reliability was applied by the researcher for testing internal consistency of the tool by administration of the same tools to the same subjects under similar conditions. Answers from repeated testing were compared (test- retest reliability) the tools revealed reliable at 0.81 for tool (1) and at 0.85 for tool (2).

### 2.6. Pilot Study

A Pilot study was carried out on 10% of the total of the study subject (9 student and 5 clinical instructors to test

the clarity, feasibility, consistency of the study tool, and time needed for data collection. No modifications were needed as revealed from the pilot study.

### 2.7. Ethical Consideration

- An executive sanction was obtained from Dean of the faculty of nursing, Northern Border University after discussing the purpose of the study to conduct the study and collect the necessary data.
- The faculty staff & the students were informed about the purpose of the study, and gave full informed verbal consent to participate. Staff members & the students were informed about the confidentiality of their data. Anonymous and secrecy of responses was respected and they have the full right to decline to be included in the study at any time.

### 2.8. Data Collection

The data were collected in the period from December 2018 to May 2019 over a period of six months. The researchers first introduce the questionnaire for the faculty staff and then implement the workshop about OSCE. Then the researchers collected the data 2 times first time with trial exam in March for the student and the second time after the final clinical exam has been conducted at the middle of April.

### 2.9. Statistical Analysis

The collected data were coded and fed to statistical software SPSS version 20. The data were analyzed in terms of frequencies, percentages, means and standard deviations. Spearman test was used to measure relationship between student satisfaction and perception in first& second trial of OSCE.

## 3. Results

It was clear from Table 1 demographic characteristics of teachers included in the study that the mean age of nursing teacher was 40.12±5.28. Three quarters of nursing teachers (76%) had master degree and less than half of them (44%) had experience with OSCE preparation and evaluation.

Figure 1 illustrated distribution of nursing students according to academic year. It was clear from this figure that approximately half (47%) of the students were in the second year, while the minority of them (17%) were bridging students.

There were a statistical significant difference in relation to students' perception of structure and conduction of OSCE examination in the first and second trail as it was represented in Table 2. It was observed that approximately two thirds of the student (60.4% & 63.7% respectively) were replied that they were agree that OSCE examination was well structured and sequenced and the opportunity was given to seek clarification in the first trial; the percentage was improved in the second trail of exam with

statistical significant difference. Furthermore, one third of the students (38.5%) in the first trail were replied with agree regarding OSCE examination format was more stress free than previous format; the percentage was improved to 63.7% in the second trail with statistical significant difference (p= >0.00).

Table 3, students perception about evaluation of exam and answer time reported that more than one third the students (35.2%) were replying that the OSCE format reduces the risk of failing in the first trail the percentage was improved to more than two thirds (69.2%) in the second trail with statistical significant difference. As well, a statistical significant difference was reported between first and second trial of OSCE regarding format of OSCE that reduces the subjectivity, offer more opportunities compared to conventional one, more time are needed at each station and easiness to finish the exam in correct time (38.5%, 41.7%, 53.9% & 28.6%) respectively. The percentage was improved in second OSCE trial compared to first one (54.9%, 69.2%, 37.4% & 56.1%) respectively.

Faculty teachers' perception toward OSCE was represented in Table 4; it was observed that more than half (60%) of faculty teachers were replying with strongly agree regarding involvement of OSCE in nursing curriculum, OSCE assesses all the students objectively and it is fair to all students and it offers new experience for students and faculty staff. Furthermore, more than two thirds of them were strongly agreeing that that the OSCE questions are relevant to the course and they can prepare and implement the OSCE.

Table 1. Demographic Characteristics of Teachers Participated in the study

Variable	No (25)	%
Age	Mean ± SD 40.12±5.28	
<b>Educational qualification</b>		
Master degree	19	76
PHD degree	6	24
Years of experiences (mean )	Mean ± SD 10.88±4.76	
<b>Previous evaluation and experience with OSCE preparation</b>		
Yes	11	44
No	14	56

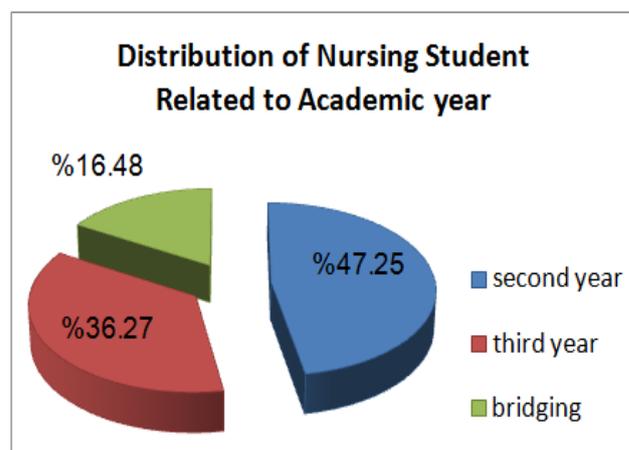


Figure 1. Distribution of nursing students related to academic year

Table 2. Students perception about Structure and Conduction of OSCE examination

	First trial (91)			Second trial (91)			Spearman	P value
	Agree	Neutral	Disagree	Agree	Neutral	Disagreed		
1. Instructions were adequate to understand new format of examination	50 (54.9)	26 (28.6)	15 (16.5)	62 (68.1)	28 (30.8)	1 (1.1)	0.219	0.003*
2. Opportunity was given to seek clarification.	58 (63.7)	21 (23.1)	12 (13.2)	67 (73.6)	24 (26.4)	0 (0)	0.190	0.010*
3. Examination was fair (uniformity of questions and time allotted).	56 (61.5)	21 (23.1)	14 (15.4)	65 (71.4)	22 (24.2)	4 (4.4)	0.157	0.035
4. Examination was covered all types of questions	59 (64.8)	24 (26.4)	8 (8.79)	67 (73.6)	19 (20.9)	5 (5.49)	0.098	0.187
5. Examination was well structured and sequenced	55 (60.4)	27 (29.7)	9 (9.9)	74 (81.3)	17 (18.7)	0 (0)	0.270	0.000**
6. Examination was well organized.	43 (47.3)	39 (42.9)	9 (9.9)	70 (76.9)	21 (23.1)	0 (0)	0.337	0.000**
7. Examination format was more stress free than previous format.	35 (38.5)	35 (38.5)	21 (23.1)	58 (63.7)	24 (26.4)	9 (9.9)	0.258	0.000**
8. Variety of structured templates helped to maintain interest	40 (43.9)	27 (29.7)	24 (26.4)	60 (65.9)	17 (18.7)	14 (15.4)	0.206	0.005*
9. Absence of faculty staff at exam reduce fear	26 (28.6)	43 (47.3)	22 (24.2)	41 (45.1)	31 (34.1)	19 (20.9)	0.131	0.079

Table 3. Students perception about Evaluation of exam and answer time

Items	First trial (91)			Second trial (91)			Spearman	P value
	Agree	Neutral	disagree	Agree	Neutral	disagree		
1. This format of examination reduces the subjectivity	35 (38.5)	32 (35.2)	24 (26.4)	50 (54.9)	30 (32.9)	11 (12.1)	0.201	0.006*
2. You are satisfied that marks reflect your level of performance	29 (31.9)	37 (40.7)	25 (27.5)	46 (50.6)	27 (29.7)	18 (19.8)	0.168	0.024*
3. The exam in this way gives you the opportunity to work skillfully freely	37 (40.7)	33 (36.3)	21 (23.1)	55 (60.5)	21 (23.1)	15 (16.5)	1.169	0.023*
4. The exam in this way gives more opportunity to think	41 (45.1)	33 (36.3)	17 (18.7)	60 (65.9)	20 (21.9)	11 (12.1)	0.186	0.012*
5. The exam in this way gives less opportunity for teacher to detachedness	50 (54.9)	34 (37.4)	7 (7.7)	59 (64.8)	26 (28.6)	6 (6.6)	0.088	0.239
6. Result format helped you identify weak areas	43 (47.3)	43 (47.3)	5 (5.5)	58 (63.7)	27 (29.7)	6 (6.6)	0.126	0.089
7. Result format gave you confidence	37 (40.7)	38 (41.8)	16 (17.6)	51 (56.1)	33 (36.3)	7 (7.7)	0.182	0.014
8. Scoring was transparent and objective.	39 (42.9)	37 (40.7)	15 (16.5)	57 (62.6)	29 (31.9)	5 (5.5)	0.226	0.002*
9. This format reduces chance of failing	32 (35.2)	36 (39.6)	23 (25.3)	63 (69.2)	20 (21.9)	8 (8.8)	0.335	0.000**
10. The format of OSCE offer more opportunities than the conventional format	38 (41.7)	40 (43.9)	13 (14.3)	63 (69.2)	20 (21.9)	8 (8.8)	0.239	0.001**
11. OSCE require more time at each station	49 (53.9)	37 (40.7)	5 (5.4)	34 (37.4)	31 (34.1)	26 (28.6)	0.268	0.000**
12. It is easy to finish in the correct time	26 (28.6)	37 (40.7)	28 (30.8)	51 (56.1)	30 (32.9)	10 (10.9)	0.309	0.000**
13. Number of stations has been more	34 (37.4)	44 (48.4)	13 (14.3)	27 (29.7)	38 (41.8)	26 (28.6)	0.150	0.043
14. This experience has motivated to learn further	36 (39.6)	35 (38.5)	20 (21.9)	52 (57.2)	24 (26.4)	15 (16.5)	0.150	0.043

Table 4. Perception of Faculty Teachers toward OSCE

Items	Strongly Agree	Agree	uncertain	Disagree	Strongly Disagree
	%	%	%	%	%
1. The OSCE is a helpful to be a part in Nursing curriculum	60	40	0	0	0
2. It is the exact method of assessment of knowledge	32	56	12	0	0
3. OSCE assist students to get more knowledge	28	60	12	0	0
4. It is the exact method for assessment of students' psycho-motor skills	44	56	0	0	0
5. OSCE helps students develop their psycho-motor skills	36	64	0	0	0
6. OSCE helps students acquire confidence while practicing learned skills in the clinical settings	32	64	0	0	0
7. It helps the students to be ready for challenges of working as staff nurse	32	56	8	4	0
8. OSCE helps faculty staff to evaluate their level of knowledge	56	36	8	0	0
9. OSCE enables faculty members to assess their own psycho-motor skills	48	40	12	0	0
10. OSCE allow faculty members to acquire more skills in different specialties	40	48	4	4	4
11. OSCE is clear and bias free	32	52	16	0	0
12. OSCE is fair to all students	60	40	0	0	0
13. OSCE evaluate all the students objectively	60	40	0	0	0
14. The OSCE questions are relevant to the course	72	20	4	4	0
15. OSCE should be summative evaluation	64	36	0	0	0
16. It should be summative and formative	40	44	0	8	8
17. Take long time in preparing scenario compared to traditional method	56	36	4	0	4
18. I can able to prepare and use the OSCE	68	28	4	0	0
19. OSCE is interesting	64	32	4	0	0
20. Covered wide are of knowledge	48	48	4	0	0
21. Easy to pass	20	60	16	0	4
22. Less stressful	12	48	8	32	0
23. Exhausting and Lengthy	12	60	12	16	0
24. Suitable for all level of students	32	48	20	0	0
25. Help to assess future performance	28	52	16	0	4
26. Enhances teaching level	48	48	4	0	0
27. Enhances evaluation method	48	48	4	0	0
28. OSCE offers new educational experience for both lecturers and students	60	28	12	0	0

#### 4. Discussion

The student's clinical proficiency evaluation is very vital. The OSCE is an approach to student assessment in which aspects of clinical proficiency are estimated in a complete, consistent and organized manner, with close attention to the objectivity of the process which reduced risk of examiner bias and provide discrimination between students level of performance. So, this quasi-experimental study was accomplished to evaluate the effect of implementing Objective Structured Clinical Examination (OSCE) on nursing students and teachers' attitudes & satisfaction.

As for Students perception about Structure of OSCE examination, the our study discovered that there were a statistical significant difference in relation to students' perception of structure of OSCE examination in the first

and second trail as it was represented in table (2) ( $p > 0.00$ ). It was observed that approximately two thirds of the student were replied that they were agree that OSCE examination was well structured and sequenced (60.4%) in the first trial that became (81.3%) in the second trial. Also, less than half of them were replied that the exam was well organized (47.3%) in the first trial which improved to more than three quarter of them (76.9%) in the second trial. This result was in consistent with [16] who found in their study of (OSCE versus traditional clinical examination among nursing students) that majority of students (93.7%) in OSCE group agreed that the exam was well organized and structured compared to 78.6% and 79.8% of them in TEC group.

In addition, Skrzypek, et al., [14] in their study titled "The Objective Structured Clinical Examination (OSCE) from the perspective of 3<sup>rd</sup> year's medical students" found

that 93.7% of the students considered OSCE as a well-organized exam. Saeed, Al Suwayh, & Alomri, [17] stated that the majority 70-84% of the students agree that OSCE well administered, structured and sequenced. Those results are in the same line with El Nemer & Kandeel [18].

Furthermore, one third of the students (38.5%) in the first trail were replied with agree regarding OSCE examination format was more stress free than previous format; the percentage was improved to 63.7% in the second trail with statistical significant difference ( $p = >0.00$ ). This result was in consistent with [16] that discovered that most of the students in OSCE group 89.6% mentioned that the exam was less stress compared with 47.6% of those in traditional clinical exam group. Also Saeed, et al., [17] stated that although more than 90% of the students found OSCE stressful but more than half of the students think it is less stressful than other forms of examinations. Those results on the same line with Dhinakaran., et al., [12] who clarified that all the students (100%) had agreed that OSCE was less stressful. On the other hand, dissonance found with Al Nazzawi, [19]; Mater, Ahmed, ElSayed, Shaikh, & Farag, [20] and Ali, Mehdi, & Ali, [21] whom highlighted that the majority of the student reported OSCE was very stressful and can be a strong anxiety-producing experience. Also, Majumder, Kumar, Krishnamurthy, Ojeh, Adams, & Sa, [22] found in their study that 80% of the students did not agree that the OSCE was less stressful than other examinations.

In relation to exam conduction, the current study revealed that more than two third of the students (63.7%) were replied that the opportunity was given to seek clarification and more than half of them (54.9%) replied that instructions were adequate to understand new format of examination in the first trial; the percentage was improved in the second trail of exam (73.6%, 68.1% respectively) with statistical significant difference with (P. value 0.010, 0.003 respectively). These results were in agreement with Saeed, et al., [17] who stated that 75.6% of the students agreed that instructions were clear and unambiguous in examination. Also in the study conducted by Saed, and Abbas, [15] about "Feedback of undergraduate nursing students about objective structured practical examination" revealed that more than two thirds of students (72%) agreed that instructions were adequate regarding structure and format of OSCE. Also our results were in agree with Skrzypek, et al., [14] who found that 86.4% of students are pleased with the introduction information about OSCE that was given before the examination.

Regarding students perception about evaluation of exam and answer time, our study reported that more than one third the students (38.5%) were replying that the OSCE format reduce the subjectivity in the first trail, the percentage was improved to more than half (54.9%) in the second trail with statistical significant difference. These results were in agreement with Singh Chajhlana, Bhumi, Mahabhashyam, & Varaprasada, [23] who found that 80% of the students feel that traditional method of examination is more subjective type than OSCE examination. Also Florence, (2016) concluded that OSCE being an objective method of assessing clinical competence as stated by 80%

of faculty members, 74% of BSN graduates and 62.3% of the Associate Degree of Nursing (ADN) programs graduates).

In relation to students replaying about the OSCE format reduces the risk of failing, our study revealed that one third the students (35.2%) were agree with that in the first trail, the percentage was improved to more than two thirds (69.2%) in the second trail with statistical significant difference. Saed, and Abbas, [15] stated that 47%, 45%, 68%, and 38% of students in pediatric, obstetric nursing, fundamental, and medical surgical and critical care nursing agreed that the OSCE examination format reduces the chance of failure respectively.

Furthermore, our results depicts that the students perception toward more time are needed at each station in OSCE and easiness to finish the exam in correct time in the first trial were (53.9% & 28.6%) respectively. The percentage was improved in second OSCE trial compared to first one (37.4% & 56.1%) respectively. These results reflect that the students' fears decreased in the second trial and their awareness about type of exam improved. This was incongruent with Majumder, et al., [22] who stated that approximately one quarter or less of the students after OSCE experience had expressed their dissatisfaction with the allotted time and one of the student's suggestion for improvement is to added more time per session. While, El-aty, Othman, & Elrahem, [24] found in their study that (51.1%) of nursing staff members agreed that more time was needed at each station.

In relation to faculty teachers' perception toward OSCE was represented in Table 4; it was observed that more than half (60%) of faculty teachers were replying with strongly agree regarding involvement of OSCE in nursing curriculum, OSCE assesses all the students objectively and it is fair to all students and it offers new experience for students and faculty staff. These results were in consistence with El-aty, et al., [24] who showed that more than three quarter of nursing staff members agreed that exam was fair. Also, Majumder, et al., [22] mentioned that the majority of examiners strongly agree that exam was fair. While, Omu, [13] was in agreement that the OSCE is a useful inclusion in nursing curriculum, that was recommended by the majority of his study groups (85% of faculty members, 92.6% of BSN graduates and 79.6% AND graduates).

## 5. Conclusion and Recommendation

The study concluded that, the student satisfaction and attitude was positive regarding OSCE exam especially in the second trial. In addition, the faculty teachers express positive attitude regarding preparation and handling of OSCE exam. The researchers recommended that the OSCE is an effective evaluation method in clinical exam and should be included in all practical nursing subjects.

## Conflict of Interest

The researchers declare no conflict of interest.

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