An Introduction of OSCE versus Traditional Method in Nursing Education: Faculty Capacity Building & Students' Perspectives

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Abstract: Background Assessment of clinical competence is of great importance when evaluating the expected learning outcomes of nursing education. Increasing number of students enrolled at Egyptian nursing faculties might increase the chances of malpractice that compromise patients' conditions. Therefore it is challenging to have such an objective assessment tool to comprehensively assess students' clinical competencies especially with increased students' number. Aims of the current project are building capacity of nursing faculties and staff members for OSCE; establishing simulated learning experiences (OSCE) in nursing practice; comparing the feasibility, utility, and effectiveness of using OSCE versus traditional clinical assessment; examining faculty and students perspectives for OSCE; and evaluating the effectiveness of OSCE versus traditional clinical assessment. Method: To achieve aims of this study needs' assessment of faculty members were carried out during conduction of raising awareness seminar about OSCE which attended by 72 faculty and staff members from both Cairo and Ain Shams Universities. A total of 7 workshops were held to build up their capacities on the scheme of OSCE and clinical scenario writings .One-hundred and forty faculty and staff members were attended and pre-post tests a were administered. Out of the 140, 31 were trained as data collectors. . Implementation of the OSCE was carried out on 400 second and third year students at the areas of critical care units. Comparison of students' achievements at traditional and OSCE methods were carried out. Faculty's and students' perspectives were investigated. Results: Needs' assessment revealed that 57% of faculty members knew nothing about OSCE and 98.6% of them had no experience in using OSCE; also a high statistical significant differences between OSCE and traditional assessment groups in the first and second trial ($t = 2.423$, $p= 0.016$), and ($t= 6.23$, $p= 0.000$) respectively. The students' achievements were better with OSCE. Faculty staff members indicated that, OSCE saves time (76.3%), prepares highly qualified competent students (62.5%) and improve students' performance (62.5%). Conclusion OSCE examination offers an attractive option for assessment of students' competency. It provided particular strengths in terms of faculty staff objectivity and reliability of the assessment process for all students, especially when compared with other methods of assessing practice.

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1. Introduction:

Assessment plays a major role in the process of nursing education, in the lives of nursing students and in society by certifying competent practitioner who can take care of the people. The objective Structured Clinical Examination (OSCE) is an approach to students' 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 (Byrne & Smyth, 2007). Objective Structured Clinical Examination" (OSCE) evolved from medical education in Scotland, and has been used extensively in nursing worldwide. It is now widely accepted as a fit-for-purpose instrument for measuring clinical reasoning skills with a high degree of technical fidelity (Ahmad, Ahmad & Abu Bakar, 2009).

Steady increase in number of students enrolled at Egyptian nursing faculties might increase the chances of malpractice that compromise patient's conditions, in addition to limited resources from clinical sites that might hinder the opportunity of student to practice on patient. Traditional clinical nursing examinations are not standardized to assess clinical competency, and clinical reasoning skills. Acquisition of critical thinking and problem solving skills among nursing students are difficult to manage with large groups of students. Furthermore, in traditional assessment method, teachers carrying out the assessment of student performance tend to give summative scores. Therefore it is challenging to have

such an objective assessment tool to comprehensively assess students' clinical competencies especially with increased students' number.

OSCE is now an established part of the repertoire of clinical assessment skills in many nursing schools around the world. Nursing faculties in Egypt use a range of assessment techniques that are appropriate for testing students' outcome. However, in Egypt, there is no available evidence for using OSCE in nursing education. OSCE is a new issue that needs capacity building for Egyptian nursing faculties. A baseline survey in the assessment of competency resulting from medical and nursing education in Egypt (2006) reported that skills assessed are poorly performed by four learner groups (medical & nursing undergraduates, nurse intern and house officers) in both medical and nursing faculties Furthermore, clinical training as it is currently organized and implemented for the competencies assessed is inadequate for all learner groups of all regions in Egypt (Health Workforce Development, 2006).

Assessment should measure cognitive learning, mastery of essential practice skills, and the ability to communicate effectively while using data in both critical thinking and problem solving processes (Elzubeir, & Rizk, 2003). Moreover, assessment of student's clinical competence is of paramount importance (Byrne & Smyth, 2007).

Effective and accurate clinical evaluation should be of concern to all nursing faculties and clinical instructors. There is a reasonable expectation for evaluation to be objective, fair, specific, and documented. In addition, students need to know, very clearly delineated, the specific objectives by which they are being evaluated. One type of assessment which meets these criteria is a performance based assessment. An example of a performance-based assessment is the "OSCE" (Ahmad, Ahmad & Abu Bakar, 2009).

OSCE has been widely and increasingly used since it was developed. Researches have shown that it is an effective evaluation tool to assess practical skills. In many instances the OSCE process has been adapted to test trainees from different healthcare related disciplines. In nursing education principles of OSCE can also be used in a formative way to enhance skills acquisition through simulation (Alinier, 2009).

Schoening, Sittner & Todd (2006) indicated that acquisition of critical thinking and problem solving skills among nursing students were unwieldy and difficult to manage with large groups of students; also, the nurse teachers carried out the assessment of student performance giving summative scores in traditional assessment method. While in OSCE simulation, the students find learning such skills are more beneficial because there is an immediate formative feedback following an event. Simulation-based training is superior to problem based learning for the acquisition of critical assessment and management skills. A framework for the development of clinical competence has been described by Miller (1990) who outlines four levels at which a learner can be assessed: *knows, knows how, shows how* and *does*. The OSCE conforms to the third *shows how* level of Miller's pyramid which focuses on assessment of performance of specific skills in a controlled setting (Ahmad, Ahmad & Abu Bakar, 2009). This makes it particularly relevant for the early stages of undergraduate curricula, where assessment comprises compartmentalized exercises (Miller, 2009).

Furthermore, simulated clinical learning offers significant advantages over traditional educational methods. Benefits include the provision of a safe environment for both patient and student during training in high risk procedures, unlimited exposure to rare but complicated clinical events, the ability to manipulate training opportunities rather than wait for a suitable situation to arise, the ability to provide immediate feedback, the opportunity to standardize and evaluate performance and the opportunity to repeat performance. Currently, the ability of simulation to meet the needs of practice education remains limited (Pierre, Wierenga, Barton, Branday & Christie, 2004). In addition, (Ahmad, Ahmad & Abu Bakar, 2009) added that OSCE is developed to reduce bias in the assessment of clinical competence; it is not now without the pitfalls of other assessment methods. In particular, the need for more rigorous evaluation of OSCEs in nursing education programs has been highlighted (Brosnan, Evans, Brosnan, & Brown 2006); (Miller, 2009) as these assessments are directed towards assurances that passing students can practice safely in the clinical setting with patients.

Bartfay, Rombough, Howse, & LeBlance (2004) concluded that OSCEs can be used most effectively in nurse undergraduate curricula to assess safe practice in terms of performance of psychomotor skills, as well as the declarative and schematic knowledge associated with their application. OSCEs should be integrated within a curriculum in conjunction with other relevant student evaluation methods Furthermore, as a method of clinical skills assessment; the OSCE possesses a number of intrinsic advantages. Firstly, it can include both summative and formative components, in which a judgment or evaluation of an individual's performance is made (summative) followed by the provision of feedback, from which the student can

learn (formative). Secondly, because each student is required to demonstrate specific behaviors in a simulated work environment, strict control over the clinical context is possible, while at the same time, reflecting real-life professional tasks. This control eliminates the 'luck of the draw' problem that arises when students are assessed within the 'real-world' clinical environment with actual patients as well as the risk of harm occurring to a patient. The underlying premise is that such standardized procedures ensure objectivity and maximize reliability in assessment (Bartfay et al 2004; Major 2005).

OSCE also provides an innovative learning experience for students. It offers a valid means to evaluate students' clinical performance in a holistic manner (Ahmad et al., 2009). Harden (1988) emphasized that the real power of OSCE lies in its ability to evaluate a wide rang of knowledge and skills which improves the reliability of the examination. Within OSCE reliability is based upon the interaction among students, standardized patients and assessors (Ahmad, Ahmad & Abu Bakar, 2009). These advantages made OSCE to be extensively used in nursing (Alinier, 2003; Ahmad, Ahmad & Abu Bakar, 2009).

Feedback from nursing students suggests that OSCE is an objective tool for evaluating clinical skills. Students perceived OSCE scores as a true measure for essential clinical skills being evaluated, standardized, and not affected by student's personality or social relations. The objectivity of OSCE was highlighted in the literature by many authors (Ahuja, 2009; Harden, 1988). The evaluation of OSCE by nursing students highlighted some areas that need to be enhanced in future, such a s the inadequate time of some of the stations, and the limited period of orientation about OSCE. The insufficient time at OSCE stations was one of students' complaints in some of the studies which investigated students' perspective of OSCE (Pierre et al., 2004).

OSCE generated a considerable uncertainty among students regard in g aspects of OSCE attributes, performance, scoring and objectivity. Students' uncertainty about OSCE was also reported in other studies (Pierre et al., 2004). Such uncertainty may reflect inadequate knowledge about the nature of OSCE and insufficient training on OSCE procedure. It appeared that the train in g session that students received on OSCE before the final exam was not enough for providing them with a comprehensive view of the OSCE. Brewin & Cantwell (1997) suggested that students' uncertainty about OSCE may be due to the fact that the OSCE was a new experience for all of them. From our experience, the implementation of OSCE is time consuming, and requires huge effort and extensive resources. This was also reported in other studies which implemented OSCE (Munoz, Byrne, Pugsley, & Austin 2005). It also requires a large number of qualified personnel to observe and evaluate students during OSCE (Alinier, 2003).

The measurement of clinical skills performance continues to pose a challenge for nurse educators. Experience suggests that the OSCE may be a powerful tool in the evaluation of clinical competence in nursing and that it may also be an effective facilitator for learning to perform clinical skills in nursing. 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 (Ahmad, Ahmad & Abu Bakar, 2009) as well as the students' satisfaction to have learned something useful. The potential of OSCE as a flexible teaching method has been recognized by many lecturers from the University of Hertfordshire and might be used more regularly in several nursing curricula. This provides opportunities for students to use a number of medical pieces of equipment in a safe environment and to become more familiar with them.

Using problem-based learning scenarios, students have to employ critical thinking skills related to both the practice and theory of the task they are expected to perform. OSCE can be set up to integrate IT, communication, and critical thinking using simulation. From this it can be suggested that OSCE provide an integrated way of measuring learning outcomes in skills based learning. This has implications for work-based learning. OSCEs encourage a deep approach to learning because higher cognitive functions are tested. The OSCE sessions not only help students determining their own weaknesses, but also enable examiners or lecturers to realize what the current students' are. If required additional teaching sessions can be organized to address skills that caused problems to the students during the OSCE. The use of such sessions may well be a key element to the training of better-prepared healthcare professionals. The widespread of hybrid OSCE to other disciplines to teach and assess students on basic skills specific to the different subject of study may well occur in the near future (Alinier, 2009).

Aims of the study:

a. Capacity Building of nursing faculties and staff members for using OSCE.
b. Establish simulated learning experiences (OSCE) in nursing practice.

c. Compare the feasibility, utility, and effectiveness of using simulated learning experiences (OSCE) versus traditional clinical assessment.
d. Examine Faculty and students perspectives for OSCE.
e. Evaluate the effectiveness of OSCE Versus traditional clinical assessment.

2. Subjects and Methods

Research Design:

A time serial research design was used to accomplish aims of this study.

Sample and Setting:

A total sample of 400 second and third year students were selected randomly from Faculty of Nursing - Cairo and Ain Shams Universities. Both faculties have integrated the same curriculum of second year (Medical Surgical Nursing) and third year of (Pediatric and Maternity & New Born Health Nursing). The nursing students of both faculties' universities attended the training program of high risk and critical care nursing units.

As well, 140 faculty staff members from Faculty of Nursing - Cairo and Ain Shams Universities were participated in the current study through attending preparatory workshops. Among this group 31 faculty staff members were selected randomly for implementation of the OSCE. The involved faculty staff members at both faculties were committed and dedicated for training of nursing students at skills laboratories. Selected students were assessed by both traditional and OSCE assessment methods. Data collection was done twice: firstly through assessment of 190 students in different nursing specialties, however, the second trial was done through assessment of 210 students.

Tools of Data collection:

These tools were developed by the investigators. They were Faculty member needs assessment sheet; students' assessment and evaluation (Achievements) sheets; and student and staff perspective sheets.

a. Faculty member needs assessment sheet it was developed, used and analyzed to plan accurately TOT program.
b. Students' assessment and evaluation (Achievements) sheet covered the three domains to give an accurate judgment on student adequacy regarding the specified course knowledge, skills and attitudes.
c. Students' and staff perspective sheets that was used to assess and analyze the information about student and staff feedback, opinion as regard OSCE used as well as their recommendation to improve the newly introduced system.

Procedure:

To accomplish the aims of the study two approaches were utilized. The first approach was training of trainers for OSCE and implementing OSCE scheme on students and examined its impact on students' achievements. The second approach was assessing and analyzing the students' and faculty staff members' feedback and perspectives in regard to the newly introduced system (OSCE) as well as their recommendation to improve it. Ethical review of the study project was obtained, developing data collection tools, holding seminar for faculty staff members at both faculties to raise the awareness of OSCE. A total 72 of faculty staff members attended the seminar where needs assessments were carried out.

After reviewing related literature to fulfill the aims of the study, three different tools were designed by the research team and revised by the consultants, also content validity and expert's opinion were taken into consideration and the needed modifications were carried out., and

Face Validity of the tools was examined through a jury of three experts.

Regarding the planning phase it lasted for one month where 7 TOT - OSCE training workshops were conducted for faculty staff at Cairo and Ain Shams Nursing faculties, each for 3 days/week (approximately 20-30 trainers) at Cairo and Ain Shams Universities. Four workshops were held at faculty of nursing Cairo University and 3 workshops at Ain -Shams University. A pre-post test was administered to examine the impact of workshops in gaining knowledge about OSCE. In addition, training for putting the scheme as well as clinical scenarios was carried out; an expert for each nursing specialties attended the training workshop and was assigned to review the scenarios related to the specialties.

The implementation and data collection phase (lasted six months) where data collection was carried out using the designed tools. Training of data collectors was done where a total of 31 clinical instructors and faculty members were trained for implementing the OSCE and collecting data. through 3 workshops were carried out. OSCE were carried out at critical care units at medical-surgical, maternal-newborn health nursing and pediatric health nursing on total of 400 students at second and third year at both faculties during academic year 2008-2009 second semester as a first trial. Students were evaluated at their clinical training areas using the OSCE method Students and faculty perspectives sheets were distributed to be fulfilled at their own

pace. An oral feed back was obtained through interviewing of a focal group of students.

The second trial was conducted at the academic year 2009-2010 first semester at critical care units at maternal-newborn health nursing and pediatric health nursing at both faculties; the students were evaluated in their clinical training areas using the traditional method of evaluation in one area and the other one is evaluated using the OSCE method.

3. Results

Findings of the current study are presented in two main sections: The first one represents faculty staff members' capacity building, and the second one is concerned with students' academic achievements.

Section I: Faculty staff members' Capacity Building and Perspectives

A- Needs Assessment

This section represents findings related to description of faculty staff members according to their academic rank, computer skills, needs' assessment, pre-post test findings and their faculty perspectives about application of OSCE. Table (1) shows that more than two thirds of the study group (70.8%) was clinical instructors and assistant lecturers, while the other one third (29.5%) was faculty staff members. Their mean age was 32.31 ± SD = 8.391 years old.

Table (1): Distribution of Academic Rank and Age among Staff Members who Attended the Raising Awareness Seminar (n=72).

Academic rank	No.	%
1- Clinical instructor	33	45.8
2- Assistant lecture	18	25
3- Lectures	14	19.4
4- Assistant professor	4	5.5
5- Professor	3	4.2
Total	72	100
Mean age = 32.31±8.3 Age range: 23 : 62		

As shown in table (2) more than half (55.6%) of staff members (Cairo & Ain Shams Universities) indicated that the disadvantages of traditional clinical evaluation were being time and effort consuming, in addition to subjectivity, and shortage of resources in clinical areas AS indicated by 26.38%, and 20.83% respectively.

In relation to knowledge about OSCE; table (3), and table (4), show that 43.1% of the staff members had knowledge, most of them (73.3%) obtained their knowledge from workshops, and (n = 24 = 77.4%), and indicated that OSCE is used to evaluate knowledge, intellectual and practical objectives. The entire study group (100%) who had knowledge about OSCE reported that OSCE saves time and efforts. However, inspite of having knowledge about OSCE 98.6% of the faculty staff members who attended the raising awareness seminar did not have previous experience in utilizing OSCE. In addition, 77.45% indicated that it is a valid and reliable method of evaluation. As regard steps of developing OSCE; the great majority of those who knew OSCE (96.7%) indicated that it should start with training of the staff members, (64.5 %) indicated that it requires establishing OSCE laboratories with simulators at first, while more than half (51.6%) revealed that it should start with setting the objectives and competencies.

Table (2): Disadvantages of Traditional Clinical Evaluation as Mentioned by the Staff members who attended the raising awareness seminar (n=72).

Item	N	%
Disadvantages of traditional clinical evaluation*		
1- Time and effort consuming	40	55.6
2- Ineffective with large numbers	12	16.6
3- Subjectivity and low reliability	19	26.38
4- Shortage of resources in clinical areas	15	20.83
5- Lack of standardized cases	3	4.16

***** Responses are not mutually exclusive

Table (5) shows the distribution of the Staff Members as Regards their Knowledge about the Requirements to Establish OSCE training 58.33%,%, and skills in using OSCE as a method of evaluation in different specialties indicated by 36.15% of them.

Regarding the benefits of using OSCE as indicated by the staff members; table (6) shows that using OSCE, saves time for performing another activity in the institution (76.3%), and prepares highly qualified, competent graduates, and improves students' performance (62.5%). However, the obstacles of using OSCE were concerned with lack of maintenance, high costs, and shortage of staff (69.4%, 69.4%, and 65.2%) respectively.

B- Faculty Pre/Post test scores

Regarding to the findings of the pre/ post test about OSCE among the staff members who

attended the workshops, table (7) shows that the proportion of those who provided correct answers related to OSCE system increased significantly in the post test as compared to pretest. In addition, there was a significant improvement in the post test responses / answers regarding characteristics of OSCE, with higher mean post test scores as compared to the pre test scores, indicating high significant statistical differences.

Table (3): Frequency Distribution of the Faculty Staff Members who Attended the Raising Awareness Seminar as regards Their Knowledge about OSCE (N=72).

Items	No.	%
a-What is OSCE?		
Know	31	43.1
Does not know	41	56.9
Total	72	100
b-Types of objectives that can be evaluated by OSCE		51.4
Know:	37	
1-Knowledge and understanding	2	2.8
2-Intellectual	11	15.3
3-Practical	0	0
4-Knowledge, intellectual, and practical	24	33.3
Does not know	35	48.6
Total	72	100
c-Previous experience in using OSCE Yes	1	1.4
No	71	98.6
Total	72	100

Table (4): Sources of Knowledge, Advantages, and Steps for Developing OSCE as Indicated by the Faculty Staff (Data Collectors) who knew what is OSCE (n=31).

Item	N	%
- **Sources of Knowledge about OSCE**		
1- Workshops	22	73.3
2- The Internet	8	26.6
3- Working in another faculty "outside Egypt"	1	3.1
Total	31	100
- **Advantages of OSCE *** 1- Saves time and effort	31	100
2- Valid and reliable method of evaluation	24	77.4
- **Steps for developing OSCE***		
1- Need assessment	12	38.7
2- Establishing OSCE labs with stimulators	20	64.5
3- Preparing the examiners committee	10	32.2
4- Set the standards for student evaluation	5	16.12
5- Set the objectives and competencies	16	51.6
6- Provide training for the staff	30	96.7
7- Prepare an exam blueprint	5	16.12
8- Preparing clinical scenarios	11	35.4
9- Don't know	3	9.6

***** Responses are not mutually exclusive

Table (5):Distribution of the Staff Members by their Knowledge about the Requirements to Establish OSCE (n=72).

Items	No.	%
1-**Topics needed in the OSCE training session***		
1- How to use OSCE effectively	42	58.33
2- Designing OSCE exam	25	34.7
3- Training in OSCE lab.	14	19.4
4- Advantages and disadvantages of OSCE	25	34.7
5- Evaluation tools used in this system	16	22.2
6- Preparing the OSCE stations	6	8.33
7- How to put the exam scenarios	10	13.8
8- Don't know	19	26.38
2-Skills acquired during the OSCE training sessions*		
1- Setting clinical scenarios	5	6.9
2- Assess large numbers of students effectively without bias in short time	23	31.9
3- Developing blueprint	7	9.7
4- Using OSCE evaluation in different specialties	26	36.1
5- Be acquainted with the theoretical part of OSCE	32	44.4

***** Responses are not mutually exclusive

Table (6): Advantages of Using OSCE at the Academic Institution as Indicated by the Staff Members who attended the raising awareness seminar (n= 72).

Items	No.	%
Benefits of using OSCE in the academic institution *		
-Deal with increasing number of students	26	36.1
-Prepare highly qualified, competent graduates	45	62.5
-Improve students performance	45	62.5
-Saves time for performing another activity in the institution	55	76.3
-Help in accreditation	23	31.9
-Increase the number of newly appointed students in the institution	14	19.4
-Improving the performance of assistant staff	12	16.6
-Objectivity in clinical evaluation	22	30.5

Table (7): Comparison of OSCE Pre/Post Test Mean Scores among the Staff members who attended the preparatory workshops (n=140).

Item	Mean ± SD	t	P-value
Pre test OSCE System scores	15.5+0.93	-13.23*	0.00
Post test OSCE System scores	17.24± 1.2		
Pre test characteristics of OSCE scores	7.9 + 1.08	20.1*	0.000
Post test characteristics of OSCE scores	10.11 + 0.68		
Total Pre test	24.00±2.081	-7.635*	0.000
Total Post test	25.79±1.765		

*Significance level at $p \leq 0.05$

C- Staff Members' Perspectives about OSCE.

The following table shows staff members' opinion regarding the OSCE system. It was ranked as very satisfactory to satisfactory by more than two thirds of the staff members with mean scores of staff members' opinion 43.06 + 16.08.

Table (8): Frequency Distribution of Staff Members' Perspectives (Data collectors) Regarding the OSCE System (N=31).

Items	V. Satisfactory		Satisfactory		Poor	
	No	%	No	%	No	%
The OSCE system 1- Measures the course objectives.	18	58.06	4	12.9	9	29
2- Is credible	18	58.06	4	12.9	9	29
3- Is consistent/ reliable	19	61.3	3	9.7	9	29
4- Requires analytical questions	20	64.5	1	3.2	10	32.2
5- Relates theory to practice	17	54.8	3	9.7	11	35.5
6- Lead to increased decision making ability	13	41.93	3	9.7	15	48.4
7- Increased knowledge and understanding	17	54.8	3	9.7	11	35.5
8- Enhances teaching level	18	58.06	4	12.9	9	29
9- Enhances methods of evaluation	14	45.2	8	25.8	9	29
10- Makes exams well developed	16	51.6	5	16.1	10	32.2
11- Makes exams/ questions clear	18	58.06	3	9.7	12	38.7
12- Makes exams/ questions suitable for different students levels	15	48.4	4	12.9	12	38.7
13- Makes exams/ questions to cover most of course contents	15	48.4	4	12.9	12	38.7
Mean + SD	28.6± 10.9					

Staff members' opinion total mean scores = 43.06 ± SD =16.08

The advantages of using OSCE at the academic institution as indicated by faculty staff members, figure (1) revealed that, OSCE saves time (76.3%) prepare highly qualified competent students (62.5%) and improve students' performance (62.5%).

Figure (1): Advantages of Using OSCE at the Academic Institution as Indicated by Faculty Staff Members Who Attended the Preparatory Workshops (n=140).

Section II: Students' Achievements and Perspectives.

A- Students' Achievements

Regarding the effectiveness of OSCE, the current study indicated that, the third year students obtained higher mean scores in OSCE pediatrics exams (22.03+SD=2.56) as compared to their mean scores of the traditional method of evaluation (24.68+ SD=2.96) with a highly statistically significant differences (t= 2.015, at p≤0.046). However, the opposite picture was observed in the other two specialties (Medical-Surgical Nursing & Obstetrics) where the mean scores of the traditional method of evaluation were higher than those of OSCE. However, global comparison between the two groups of OSCE versus traditional method of evaluation revealed higher mean OSCE scores with a high significant statistical difference between the two groups in first trial (table 9).

Table (10) shows comparison of means among the students who underwent OSCE in the second trial. It is clear from the table that high statistical significance differences was found between the two groups who undergone OSCE as compared to the non OSCE groups. The same

picture was noticed regarding the total mean scores of the groups who undergone OSCE as compared to non OSCE group, indicating a high statistical significant difference in second trial (t= 6.23, at p≤ 0.000).

Table (9): Comparison of Students' OSCE versus Traditional Evaluation System Mean Scores: First Trial (N=190).

Specialties	OSCE	Traditional Evaluation	t	P-value
	Mean ± SD			
Medical-Surgical Nursing	22.03+ 2.56	24.68+ 2.96	-5.071	0.00**
Pediatrics	27.62+ 4.29	26.36 + 1.73	2.015	0.046*
Obstetrics	23.16 + 5.43	26.003+ 2.99	-3.702	0.00**
Total mean scores	24.548 + 4.65	23.544+ 4.73	2.423	0.016*

* Significance at p≤0.05 ** Significance at p≤0.001

Table (10): Comparison of OSCE versus non OSCE mean scores among Undergraduate Students after Establishment of OSCE: Second Trial (N= 210).

Specialties	OSCE	Traditional Evaluation	t	P-value
	Mean ± SD			
Obstetrics	26. 11± 2.26	24.92 ± 2.22	4.68	0.00**
Pediatrics	26.24±5.38	22.54±5.55	5.17	0.00**
Total mean scores	26.18±4.18	23.69±4.44	6.23	0.00**

* Significance at p≤0.05 ** Significance at p≤0.001

B-Students' Perspectives

The following tables (11 and 12) show students' perspectives regarding the OSCE system. It was ranked as very satisfactory to satisfactory by more than two thirds of the students; the mean score of students' opinion was 43.22 ± SD=13.59. In relation to student's perspectives regarding OSCE preparation, table (12) reveals that preparation to OSCE was ranked as very satisfactory to satisfactory by more than one third of the students regarding availability of time table, and conducting training sessions. The same rank was given to obvious preparation to OSCE by approximately half of the student's. As regards OSCE's laboratories, more than half of the students indicated that they were suitable, lighted and ventilated, clean, calm, with availability of the needed equipments and simulators. Comparison of means indicated highly statistical significant difference between preparation to OSCE mean scores and those of OSCE laboratory (t = - 16.14, p ≤ 0.000).

Table (11): Frequency Distribution of Students' Perspectives Regarding the OSCE System (N=190).

Items	Very Satisfactory		Satisfactory		Unsatisfactory	
	No	%	No	%	No	%
The OSCE system 1- Measures the course objectives.	86	45.3	48	25.3	56	29.5
2- Is credible	93	48.9	40	21.1	57	30
3- Is consistent/ reliable	81	42.6	52	27.4	57	30
4-Requires analytical questions	98	51.6	28	14.7	64	33.7
5-Relates theory to practice	102	53.7	34	17.9	54	28.5
6-Lead to increased decision making ability	98	51.6	36	18.9	56	29.5
7-Increased knowledge and understanding	90	47.4	44	23.2	56	29.5
8-Enhances teaching level	103	54.2	33	17.4	54	28.5
9-Enhances methods of evaluation	97	51.05	36	18.9	57	30
10-Makes exams well developed	98	51.6	39	20.5	53	27.9
11-Makes exams/ questions clear	81	42.6	49	25.8	60	31.6
12- Makes exams/ questions suitable for different students levels	79	41.6	45	23.7	66	34.7
13- Makes exams/ questions to cover most of course contents	80	42.1	34	17.9	76	40
Mean ± SD	28.1± 9.6					

Table (12): Frequency Distribution of Student's Perspectives Regarding Preparation to OSCE, and the OSCE laboratories. (n=190).

Items	V. Satisfactory		Satisfactory		Unsatisfactory		T	P
	No	%	No	%	No	%		
Preparation for the OSCE 1- Was obvious before establishing OSCE	53	27.9	35	18.4	102	53.7	-16.14*	0.000
2- Time tables were available and known to students	33	17.4	41	21.6	116	61.1		
3- Regular training on OSCE	31	16.3	29	15.3	130	68.4		
Mean + SD	4.8+ 2.03							
The OSCE labs. 4- 1-Suitable	46	42.2	46	24.2	88	46.5		
2-Light and ventilation	45	23.7	55	28.9	90	47.4		
3-Set up and Cleanliness	45	23.7	43	22.6	102	53.7		
5- Being calm	43	22.6	43	22.6	104	54.7		
5-Availability of needed equipments and simulators	41	21.6	44	23.2	105	55.3		
6-Suitable for student' number	45	23.7	48	25.3	97	51		
Mean + SD	10.2+ 4.2							

*Significance at $p \leq 0.05$

4. Discussion:

The acquisition of clinical skills is paramount to the development of a safe and competent practitioner (Brookes, 2007). OSCE as a performance-based assessment is a well established student's assessment tool for many reasons: competency- based, valid, practical and wise effective mean of assessing clinical skills that are fundamental to the practice of nursing and other health care related professions (Ainier, 2003).

The aims of the present study were to: Build capacity of nursing faculties and staff members for using OSCE; establish simulated learning experiences (OSCE) in nursing practice; compare the feasibility, utility, and effectiveness of using simulated learning experiences (OSCE) versus traditional clinical assessment; examine faculty and students perspectives for OSCE; and evaluate the effectiveness of OSCE versus traditional clinical assessment.

A quasi-experimental research design was used to accomplish aims of this study, and a total sample of 257 students as well as 31 faculty staff members, from Cairo and Ain Shams universities were recruited for the study. The included faculty staff members represented different categories of the academic rank of them more than two thirds were instructors and assistant lecturers, and the other one third was lecturers and professors.

The faculty staff members' knowledge about evaluation was assessed and more than two thirds of them provided complete definition about evaluation and identified different methods of traditional evaluation. However they commented on the traditional clinical evaluation to have certain disadvantages such as being time and effort consuming, in addition to subjectivity, and shortage of resources in clinical practice setting. As regards staff members who attended the preparatory workshops their knowledge about OSCE was assessed using pre/ post test which indicated that the proportion of those who provided correct answers related to OSCE system increased significantly in the post test as compared to pretest. In addition, there was a significant improvement in the post test responses / answers regarding characteristics of OSCE. High significant statistical difference was found in post test mean scores as compared to pretest scores. Regarding sources of knowledge about OSCE, approximately one half of the staff members had knowledge about OSCE, three fourth of them obtained their knowledge from workshops. This could indicate that preparatory workshops had positive impact on the faculty staff members' knowledge.

The great majority of those who knew OSCE recommended that it should start with establishing OSCE laboratories with simulators at first, staff members training, in addition to setting objectives and competencies required for practical training. Moreover, faculty staff members indicated that OSCE should involve teaching certain topics in the OSCE training sessions such as how to

use OSCE effectively as a method of evaluation in different specialties.

As well, more than three fourth of the faculty staff members indicated that using OSCE has certain benefits such as saving time for performing another activity in the institution, preparing highly qualified and competent graduates, and improving students' performance. In addition, the OSCE system was ranked as very satisfactory to satisfactory by more than two thirds of the faculty staff members. However, using OSCE was described to have certain obstacles such as the need for continuous maintenance, its high costs, and shortage of staff members who can implement OSCE. These findings are in agreement with study done by Pharm and Sturpe, (2010), Turner and Dankoski, (2008) who revealed that a major obstacle in the wide implementation of OSCEs is their high cost. However, it can be set up with reasonable cost and limited resources even in smaller institutions

In relation to student's perspectives regarding OSCE preparation, it was ranked as very satisfactory to satisfactory by more than one third of the students regarding availability of time table, and conducting training sessions. The same rank was given to obvious preparation to OSCE by approximately half of the student's. Regarding OSCE's laboratories, more than half of the students indicated that they were suitable, lighted and ventilated, clean, calm, with availability of the needed equipments and simulators (Alinier, 2003).

Regarding students' perspectives toward preparation to OSCE, comparison of mean knowledge scores indicated high statistical significant difference between knowledge about preparation to OSCE mean scores and those about OSCE laboratory ($t = - 16.14$, $p \leq 0.000$) . As regards students' opinion about the OSCE system, it was ranked as very satisfactory to satisfactory by more than two thirds of the students. This feedback can suggest that OSCE is an objective tool for evaluating clinical skills. The objectivity of OSCE was highlighted in different literature such as those done by Ahuja, (2009) and AL-Omari & Shawagfa, 2010) and (Miller, 2009).

These findings are in agreement with a study conducted by El Nemer & Kandeel, (2009) who reported that most students viewed OSCE as a fair assessment tool which covered a broad area of knowledge, allowed them to compensate in some areas and minimized their chances of failing. In addition, as indicated by Pierre et al., (2004) reported favorable student's responses concerning transparency and fairness of the examination process, and the authenticity of the required tasks per station.

Moreover, as found by Pierre et al., 2004; Duffield & Spencer, (2002), most students viewed OSCE as a fair assessment tool which covered a broad area of knowledge, allowed them to compensate in some areas and minimized their chances of failing. The fairness of OSCE was also reported by other studies. As well, in a study conducted by Turner & Dankoski, (2008) to assess the validity, reliability and feasibility of OSCE team, the majority of students felt that they had been marked fairly. Most students provided positive feedback about the quality of OSCE performance in terms of the clarity of the instructions of the exam, the sequence of OSCE stations, the reflection of the tasks taught and the time at each station. These findings are consistent with Pierre et al. (2004) study results where most students viewed OSCE as comprehensive, covered a wide range of knowledge and clinical competencies and a useful practical experience. As well more than two thirds of students believed that the assessment was fair and they reported their need for more time to complete the stations. In another study done by Alinier (2003) nursing students perceived OSCE as a favorable experience that should be repeated regularly.

However, the current study findings are in agreement with a study done by Nemer, and Kandeel, (2009) where OSCE was perceived as a stressful experience and intimidating by a considerable percentage of students, particularly first year nursing students. This perception could be due to the fact that it was a new experience for nursing students which increased their anxiety. As well nursing students' stressful experience with OSCE was also reported in another studies done by Pierre et al., (2004), Byrne and Smyth (2008) who related students' stress and anxiety to the new experience with OSCE. On the same line Allen, Byrne and Smyth (2008) indicated that studies surveying student attitudes during the OSCE have documented that it can be a strong anxiety-producing experience, and that the level of anxiety changes little as student's progress through the examination. This can direct the attention toward the importance of preparing students to OSCE.

Regarding the effectiveness of OSCE, the current study pointed out that, the third year students obtained higher mean scores in OSCE pediatrics exams (22.03+SD=2.56) as compared to their mean scores of the traditional method of evaluation (24.68+ SD=2.96) with a highly statistically significant differences ($t= 2.015$, at $p\leq0.046$). However, the opposite picture was observed in the other two specialties (Medical-Surgical Nursing & Obstetrics) where the mean scores of the traditional method of evaluation were higher than those of OSCE. However, global comparison between the two groups

of OSCE versus traditional method of evaluation revealed higher mean OSCE scores with a high significant statistical difference between the two groups in first trial. These findings support the idea that OSCE is not designed to replace the traditional clinical practice assessment method, but rather it is to complement students' assessment in the clinical setting. Therefore, assessing nursing students' OSCE competency level is carried out in combination with traditional method of assessment usually done for students undergoing traditional learning mode.

As well, comparing mean scores of students who undergone OSCE in the second trial revealed high statistical significance difference between the two groups who undergone OSCE as compared to the group who undergone traditional method of evaluation. The same picture was noticed regarding the total mean scores of the groups who undergone OSCE as compared to the group who undergone traditional method of evaluation, indicating a high statistical significant difference in second trial ($t= 6.23$, at $p\leq 0.000$).

On the same line with findings of the current study, the evaluation of OSCE by nursing students highlighted some areas that need to be enhanced in future, such as the inadequate time of some of the stations, and the limited period of orientation about OSCE. The insufficient time at OSCE stations was one of students' complaints in some of the studies which investigated students' perspective of OSCE (Pharm & Sturpe, 2010).

This could be the rational of why several authors suggest that no health professional educational program should be assessed by the OSCE alone, or indeed any other single method. Rather, in the absence of a 'gold standard', successful outcome in assessments using a range of methods is repeatedly advocated as producing the most inclusive evidence of practitioner competence (Ahmad, Ahmad & Abu Bakar, 2009 and McKinley & Boulet, 2004).

5. Conclusion:

Based on the findings of the study it is concluded that:

- OSCE is a valid and reliable technique uniquely capable of assessing many fundamental clinical skills that are not being assessed in a rigorous way in most undergraduate and postgraduate programs.
- OSCE seems to offer particular strengths in terms of assessor objectivity and parity of the assessment process for all students, especially when compared with other assessment of practice processes. However, it is not without limitations, not only in terms of student stress and its considerable demands on the academic study, but also in terms of the considerable challenges of ensuring the validity and reliability of the process.
- OSCE examination offers an attractive option for assessment of practitioner competency.
- Each new OSCE should be a subject to rigorous scrutiny and piloting to ensure that the reliability and validity of that particular assessment is maximized.
- Findings of the current study highlight the need for student participation in the development of new assessment tools in nursing curricula.

Recommendations:

- Based on findings of the current study, it is recommended that OSCE must be used as an integral part of the clinical evaluation system / students' assessment at the under graduate and post graduate educational programs.
- OSCE should be used as a method of evaluating clinical practice in a combination with traditional method.
- It can be suggested that OSCE has the potential to make a very effective and meaningful contribution to 'fitness for practice' assessment.
- The level of competency in OSCE should be tested not only for nurses using the traditional methods of learning, but also for distance learning students.

Nursing implication:

OSCE as an effective and valid assessment method can be used to assess students' clinical competencies in different nursing specialties. As well, OSCE can be used in other international countries in the same situation as Egypt i.e has a large number of students and it is difficult to evaluate their skills.

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