

Objectives Structured Clinical Examination(OSCE): An Exploring the Undergraduate

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Abstract

Background: Objective Structured Clinical Examination offers an attractive option for assessment of practitioner competency and evaluates in a comprehensive, consistent and structured manner, with close attention to the objectivity of the process and in more recent years have been increasingly utilized to assess nursing students. **The aim** of this study was to explore the undergraduate nursing students' perception and feedback about OSCE at the Maternity and Pediatric Nursing departments in the Faculty of Nursing, as an assessment tool for the clinical skills. **Subject and Methods: Design:** A descriptive exploratory study design was utilized. **Setting:** The study was conducted in the Faculty of Nursing, Port- Said University. **Sample:** A purposeful sample of 93 male and female nursing students on third year, who completed their maternity nursing as well as pediatric nursing OSCE examinations, was recruited for the study. **Tool for data collection:** A self-administered structured questionnaire was utilized to test the perception and feedback of the students. **Results:** The present study finding represents that the highest total mean score of OSCE was for evaluation subscale (25.6 ± 5.4), followed by a total mean score of quality of OSCE, (21.5 ± 4.8) however, the lowest mean score (9.4 ± 2.3) was for the quality of student performance. Less than two third of the students (60.2% & 61.3%) agreed that OSCE covered a wide range of clinical skills, and the instructions of exam are clear and enough as information respectively. The OSCE provided opportunities to learn real life scenarios were seen by 61.3% of students. **Conclusion and recommendations:** Nursing students provided positive feedback about the OSCE and agreed that it was a realistic assessment for the practical courses. A broader research is necessary for assessment of factors affecting their perception regarding OSCE. Results will be applied to better understanding of this perception that can improve strategies for better OSCE.

Key words: OSCE, perception, undergraduate, nursing students, examination.

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Introduction

The objective structured clinical examination (OSCE), first used in the 1970s, is an assessment of competence carried out in a well-planned, structured and objective way (Harden & Gleeson, 1979). It is well established within medicine and is used

increasingly in nurse education (Nulty et al., 2011). The assessment of knowledge and skills plays an important part in student nurses' progression though pre-registration programs because they need to demonstrate competency and dependability in the clinical performance (Nursing and Midwifery Council, 2010).

The OSCEs are examinations in which the student is required to perform specific skills and behaviors in a simulated clinical or patient care environment. **Nulty et al. (2011)** emphasized that OSCEs are a valuable strategy to assess clinical skill acquisition and 'fitness to practice' as long as they are applied at the students' expected level of clinical practice. The OSCE is a method of student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent and structured manner, with close attention to the objectivity of the process.

The OSCE requires each student to demonstrate specific skills and behaviors in a simulated work environment (**Mitchell et al., 2009**). The OSCEs consist of a series of stations, which in turn guide the student to do specific tasks at a specified time (**Austin et al., 2003; Rushforth, 2007**). It typically consists of a series of short assessment tasks (stations), each of which is assessed by an examiner using a predetermined, objective marking scheme (**Ward & Barratt, 2005**).

The OSCE is as an examination where students demonstrate their competence under a variety of simulated conditions. The competencies include patient care, medical knowledge, interpersonal and communication skills, professionalism, practice-based learning and improvement throughout the course curriculum (**Baid, 2011**). As well, OSCE includes multiple clinical situations (termed stations) involving case-based scenarios and interaction with trained standardized patients, structured objective checklists; written summary of clinical history, physical examination findings, therapeutic management and performance review (**Casey et al.,2009**). Nursing student's feedback for the OSCE is objective tool for assessment of clinical skills. Students realize OSCE scores as valid measure for the essential clinical skills being assessed, standardized, and not affected by the student's personality or social relations. The

objectivity of OSCE was indicated in the literature by many authors (**Ahuja, 2009**).

The OSCE was used to assess nursing students' clinical performance in maternity nursing and pediatric nursing as well. Students and faculty staff were exposed for the first time to a new assessment tool, which assesses a variety of students' knowledge and skills in an objective, and structured way (**Pierre et al., 2004**). Two of the obligatory nursing courses that are provided for the third year nursing students in the Faculty of Nursing, Port Said University are the maternity nursing and pediatric nursing. OSCE examination is utilized for assessing the student's competencies. The OSCE was first introduced in the Faculty since six academic years. The successful outcome of this application demonstrated the value of OSCE in assessing nursing students' clinical performance. Therefore, students' experience and feedback about the use of this new assessment method deserves to be investigated. The main aim of this study was to explore the nursing students' perception and feedback about OSCE at the Maternity and Pediatric Nursing departments.

Significance of the study:

Effective and accurate evaluation in clinical courses should be of concern to all nursing faculties. Because increasing in number of students enrolled at Egyptian nursing faculties and limited resources at the clinical areas might hinder the opportunity for faculty nursing staff to conduct the evaluation of the student's on client. Internationally, several studies have been conducted about OSCE, while very little are focused on perception of the students in the Arab world. In general, the findings, therefore, may not be applicable to the Egyptian nursing students because of significant setting differences. The researchers believe that the successful use of OSCE depends greatly on its acceptability from both students and faculty staff, therefore; the aim of the current study was to

explore the students' perception about OSCE, while the findings of the study will give an overview of the existing situation, thus it will help improve educational services of obstetric and pediatric nursing practical courses.

Aim of the study

The current study aimed to explore the undergraduate nursing students' perception and feedback about OSCE and their acceptance of it as a new method of clinical competency evaluation in Maternity and Pediatric nursing curriculum at the Faculty of Nursing, Port-Said University.

Materials and Methods

Design:

A descriptive exploratory study design was used to meet the purpose of study.

Setting:

The study was conducted at Faculty of Nursing, Port Said University, in Port Said-City, Egypt.

Sample & Sampling Technique:

A sample of convenience (non-probability) of all third year male and female students who completed their maternity nursing and pediatric nursing courses and passed OSCE during the second semester of academic year 2014-2015 were recruited for the current study. All (95) students during the period of the study and were eligible for inclusion in the study.

Tools of data collection:

Data were collected from 93 male and female nursing students by a self-administered questionnaire. The questionnaire was administered immediately

after all students completed the examinations. The questionnaire was completed anonymously and took about 15-20 minutes for completion. It included socio-demographic data, and data related to perception and feedback of the students regarding the OSCE. For the purpose of the current study, the English version of OSCE evaluation questionnaire was used (Pierre et al. 2004), which is an instrument widely used by various studies as that of Bayoumy and Yousri, (2012). The specialized OSCE evaluation questionnaire has previously been validated. For the purpose of the current study, the English version of OSCE evaluation questionnaire was used, and few items were slightly modified by the researchers to give a clear meaning and translated into Arabic language then-back-translated into English language to ensure that the Arabic translation was the same as the English version. The translation was carried out by the researchers; in addition it was reviewed by academic nursing professionals for evaluation. All items of the OSCE evaluation questionnaire were written by two languages (Arabic & English) to facilitate better understanding of the questions.

The OSCE evaluation questionnaire includes 31 items that is composed of 4 sections with a Likert scale format to evaluate quality of OSCE performance; OSCE attributes; OSCE scoring and objectivity, and finally students' rating of the assessment formats. A Likert scale indicating the degree of agreement was used to assess the dimensions in the questionnaire.

Field work:

At the Faculty of Nursing, Port-Said University, over the past 5 years OSCE was used in the assessment of student's attainment of clinical competencies for undergraduate nursing program. On the day of OSCE implementation, nursing students are checked in to a comfortable waiting class and briefly

the nature of examination was explained by the semester coordinator. The OSCE exam was carried out in the nursing skill labs.

For each course (maternity & pediatric nursing), the OSCE is composed of 10 stations about 6 minutes each. In each station the candidate was examined on a one-to-one basis with two examiners with simulated patients (models/dummies).

The 10 stations covered all domains of OSCE which include; psychomotor, cognitive and communication. Simulations (models) were used in psychomotor and communication stations. Maternity nursing OSCE included abdominal grips and auscultation of fetal heart beats, breast examination, and vaginal examination during labor, interpretation of partograph, placental examination, and uterine massage, in addition to maternal and newborn assessment during third stage of labor.

The pediatric nursing OSCE includes; gavage feeding, O₂ therapy, chest physiotherapy (percussion), suction, abdominal examination and growth measurement (weight & length) for psychomotor. Cognitive domain includes; neuromuscular and reflex assessment (videos). The last domain was communication and involves; health teaching about care of baby under phototherapy and history taking about child with iron deficiency anemia.

Ethical Considerations & Administrative Design:

An official letter is used from the Faculty of Nursing Directorate was directed to the responsible authorities of relevant departments (head of departments & semester coordinator) to obtain their permission to conduct the study after explaining its aim.

An oral consent was obtained from the eligible students after explanation of the

study nature; students were informed that their participation is voluntary. In addition, the questionnaire was placed anonymously and students were assured that all information would be confidentially and used only for research. They were also informed about their right to withdraw from the study at any time without giving any reason.

Data Analysis:

The collected data were tabulated and the results were statistically analyzed using appropriate tests. Data analysis was carried out using Statistical Package of Social Science (SPSS), version 19, statistical software. The methods used were; percentage, mean values and standard deviation. Correlation coefficient was calculated to assess the relation among the dependent and independent variables. The significance level was fixed at $p < 0.05$.

Results

The total studied population comprised 93 male and female third year nursing students participated in the current study. The present study finding represents that the highest total mean score (25.6 ± 5.4) was for evaluation of OSCE, followed by a total mean score of quality of OSCE (21.5 ± 4.8), however, the lowest mean score (9.4 ± 2.3) was for the quality of students' performance.

Table (1) represents nursing students' perception of OSCE evaluation. The table revealed that slightly more than two three fifth of the students (60.2%) agreed that OSCE covered a wide range of clinical skills. More than half of the students indicated that OSCE was a realistic and meaningful assessment for the course; the questions asked were of appropriate level, the time for each question was adequate, and motivated them for further learning (54.8%, 54.8%, 54.8% & 53.8% respectively).

Table (2): displays the distribution of the students according to their perception about quality of OSCE. The result indicated that 38.7% of students agreed that OSCE is fair exam, 61.3% of students agreed that the instructions of exam are clear and enough in information. On the other hand, more than half of the students agreed that the OSCE was well administered, exams stations well structured and well-sequenced, and OSCE highlights weaknesses (57.0%, 50.5%, &55.9% respectively). However 28.0% agreed that the atmosphere of OSCE is very stressful.

Less than half of students (47.3%) agreed on adequacy of time for reading instructions and practicing, while 43% were neutral and only 9.7% disagreed on it. less than three fifth (58.1%) agreed on that they were fully aware of the exam's nature (good pre-assessment preparation), scenario reflecting unpredictability of clinical practice represented by 51.6% versus only 11.8% disagree, 55.9% of the students agreed on instructions were clear and unambiguous. OSCE provided opportunities to learn a real life scenario was agreed by 61.3% of students (table 3).

Table (4) shows the students' perception about reliability and validity of OSCE. Less than fifty percent of the students believed that the scores were standardized, score provide true measure of essential clinical skills, and it was a practical and useful experience (49.5%, 44.1% & 47.3% respectively). More than half of the studied students (51.6%) found that OSCE eliminated any chance of bias and personal and social relations did not affect exam scores.

Figure 1: illustrates the distribution of the students' total level of perception about overall OSCE attributes. Results of the study revealed that relatively high percentage of students had positive perception about overall OSCE attributes.

Table 5: Shows the correlation coefficient values for the relationship between OSCE attributes as perceived by nursing students. Generally, the table indicates that nursing students' perception for overall OSCE attributes was positively correlated and most of them represent strong correlation with other factors.

Table (1) Distribution of nursing students' perception of OSCE evaluations (n= 93).

Items	Degree of Response			
	No comment No. (%)	Neutral No. (%)	Disagree No. (%)	Agree No. (%)
1. OSCE more realistic & meaningful (assess what I've learned).	3 (3.2)	24 (25.8)	15 (16.1)	51 (54.8)
2. OSCE assesses a wide range of learned materials.	8 (8.6)	17 (18.3)	28 (30.1)	40 (43.0)
3. Level of questions was appropriate.	2 (2.2)	16 (17.2)	24 (25.8)	51 (54.8)
4. Time for each question was adequate.	2 (2.2)	16 (17.2)	24 (25.8)	51 (54.8)
5. OSCE not stressful than the other assessment situation.	9 (9.7)	17 (18.3)	19 (20.4)	48 (51.6)
6. OSCE covered a wide range of clinical skills.	5 (5.4)	19 (20.4)	13 (14.0)	56 (60.2)
7. OSCE assesses students' ability on problem solving and clinical decision making.	13 (14.0)	13 (14.0)	20 (21.5)	47 (50.5)
8. OSCE motivated the student for further learning.	12 (12.9)	10 (10.8)	21 (22.6)	50 (53.8)
Min. – Max.	8.00 - 32.00			
Mean ± SD	25.6 ± 5.4			

Table (2) Distribution of nursing students according to their perception about quality of OSCE (n= 93).

Items	Degree of Response			
	No comment No. (%)	Neutral No. (%)	Disagree No. (%)	Agree No. (%)
1. OSCE is a fair exam.	10(10.8)	25(26.9)	22(23.7)	36(38.7)
2. OSCE covers wide knowledge area.	8(8.6)	20(21.5)	14(15.1)	51(54.8)
3. Needs more time for station.	11(11.8)	11(11.8)	26(28.0)	45(48.4)
4. Exams well administered.	5(5.4)	16(17.2)	19(20.4)	53(57.0)
5. Atmosphere of OSCE very stressful.	10(10.8)	22(23.7)	35(37.6)	26(28.0)
6. Exams well structured & sequenced.	8(8.6)	10(10.8)	28(30.1)	47(50.5)
7. OSCE minimizes chance of failing.	10(10.8)	14(15.1)	35(37.6)	34(36.6)
8. OSCE less stressful than other exams.	8(8.6)	16(17.2)	36(38.7)	33(35.5)
9. OSCE allows student to compensate in some areas.	8(8.6)	17(18.3)	32(34.4)	36(38.7)
10. OSCE highlights weaknesses.	8(8.6)	12(12.9)	21(22.6)	52(55.9)
11. OSCE is intimidating.	7(7.5)	16(17.2)	31(33.3)	39(41.9)
12. OSCE instructions are clear & enough as information.	6 (6.5)	7(7.5)	23(24.7)	57(61.3)
Min. – Max.	7.0 – 28.0			
Mean ± SD	21.5 ± 4.8			

Table (3) Distribution of nursing students' perception about quality of OSCE performance (n= 93).

Items	Degree of Response		
	Disagree No. (%)	Neutral No. (%)	Agree No. (%)
1. Pre-assessment preparation for students is good.	7 (7.5)	32 (34.4)	54 (58.1)
2. The scenario is mirroring real life situations and reflecting unpredictability of clinical practice	11 (11.8)	34 (36.6)	48 (51.6)
3. Time allowed for reading instructions & practicing was adequate.	9 (9.7)	40 (43.0)	44 (47.3)
4. OSCE instructions were good and unambiguous.	9 (9.7)	32 (34.4)	52 (55.9)
5. Tasks asked to perform were fair.	10 (10.8)	35 (37.6)	48 (51.6)
6. OSCE stations sequence was logical and appropriate.	5 (5.4)	38 (40.9)	50 (53.8)
7. OSCE provided opportunities to learn real life scenarios.	6 (6.5)	30 (32.3)	57 (61.3)
Min. – Max.	4.0 – 12.0		
Mean ± SD	9.4 ± 2.3		

Table (4) Distribution of nursing students according to their perception about OSCE validity and reliability (n= 93).

Items	Degree of Response		
	Disagree (No. %)	Neutral (No. %)	Agree (No. %)
1. Passing or failing the exam is a true measure of essential clinical skills.	13(14.0)	39(41.9)	41(44.1)
2. OSCE scores were standardized.	12(12.9)	35(37.6)	46(49.5)
3. OSCE is a practical and useful experience.	11(11.8)	38(40.9)	44(47.3)
4. OSCE eliminates any chance of bias, personal and social relations did not affect the exam scores.	11(11.8)	34(36.6)	48(51.6)
Min. – Max.	7.0 – 21.0		
Mean ± SD	17.2 ± 3.3		

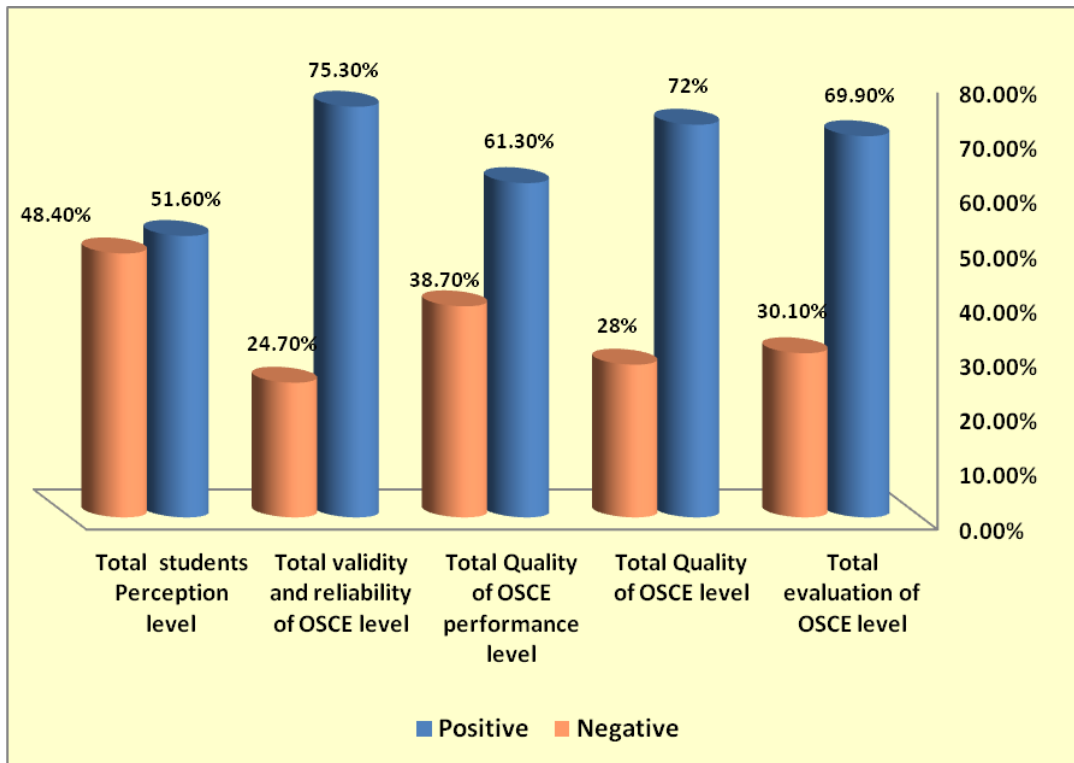


Figure (1) Distribution of the students according to their total level of perception about OSCE (n= 93)

Table (5) Correlation coefficient values for the relationship between OSCE attributes as perceived by nursing students (n= 93).

Items		Total evaluation of OSCE	Total quality of OSCE	Total OSCE validity & reliability	Total OSCE performance	Total OSCE perception
Total evaluation of OSCE	Pearson Correlation		.694**	.494**	.358**	.865**
	Sig. (2-tailed)		.000	.000	.000	.000
Total quality of OSCE	Pearson Correlation	.694**		.475**	.499**	.873**
	Sig. (2-tailed)	.000		.000	.000	.000
Total OSCE validity & reliability	Pearson Correlation	.494**	.475**		.638**	.753**
	Sig. (2-tailed)	.000	.000		.000	.000
Total OSCE performance	Pearson Correlation	.358**	.499**	.638**		.678**
	Sig. (2-tailed)	.000	.000	.000		.000
Total OSCE perception	Pearson Correlation	.865**	.873**	.753**	.678**	
	Sig. (2-tailed)	.000	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

Discussion:

In many faculties of nursing, assessment of students' learning is a debatable issue and has proved to be a challenge. The challenge is compounded when it comes to the assessment of nursing students' learning in clinical specialty courses. The OSCE is an approach to the assessment of clinical skills competence in a well-planned or structured way.

The current study aimed to explore the undergraduate nursing students' perception about OSCE and their acceptance of it as a new method of clinical competency evaluation in Maternity and Pediatric nursing curriculum at Faculty of Nursing, Port-Said University.

The present study finding represents that the highest total mean score was for evaluation of OSCE, followed by a total mean score of quality of OSCE (25.6 ± 5.4 & 21.5 ± 4.8). This is supported by the research

findings of *Bayoumy and Yousri (2012)*; and *Eswi et al., (2013)*.

Within the relevant literature, several studies discussed the realistic and meaningful of OSCE. *McGaghie (2010)* argues that simulation as a method for assessment is gaining popularity and has been validated as an educational tool within nursing education. In addition, *Fidment (2012)* stated that, for this to become a meaningful experience for the healthcare students, it is important to make the scenario, as realistic as possible, including the manikins; equipment and environment.

The current study results revealed that OSCE at the Faculty of Nursing in Port-Said University is more realistic and meaningful for maternity and pediatric nursing clinical courses, only few percent representing less than fifth of the students had negative feeling about the realistic nature of the OSCE. The students in this study also perceived that the level of questions was appropriate, as well as time of each question was adequate.

The present study finding is not in accordance with *Major (2005)*, who remarked that it was a challenge to replicate the complexities of clinical practice within a stimulated environment. The study found that pre-registration, nursing students undertaking an OSCE had felt the assessment was unrealistic in nature.

In addition, the study findings conducted by *Furlong et al. (2005)*, found that only a third of the participants reported feeling comfortable with working on manikin in the OSCE. This difference may be due to differences in culture, types of manikins and preparation of OSCE.

Regarding to the time of each station, the current study findings disagree with a research carried out by *Bayoumy and Yousri*, in 2012, on Saudi Arabia students

which found that the majority of the students commented on the time allocated for each station which should be increased.

In *Benseñor (2004)* study, students expressed considerable concern that the time allocated to practice was inadequate. As well, *Awaisu et al. (2007)* stated that slightly less than half of participants were dissatisfied with allocated per station and explained that it was practically difficulty to allocate different time limits at different stations.

Anxiety was one of the first things the interviewees wanted to talk about and provoked strong reactions when recalling their experiences as clarified by *Fidment (2012)*. The present study has documented an only more than quarter of the students felt the atmosphere at OSCE is very stressful. The percentage is lower than that reported in similar community-based studies carried out *Hatamleh and Abu Sabeeb (2015) & Bayoumy and Yousri, (2012)* where the percentages were 78.1% and 74.0% However, it is higher than the percentage (20.0%) reported in other study which conducted in Faculty of Nursing, King Saud University in Riyadh city, Saudi Arabia (*Eswi et al., 2013*).

Concerning assessing the abilities of the students on problem-solving application, the OSCE could cover a wide range of clinical skills and motivated the students for further learning. The current study result suggested that more than half of the studied group agreed with the previously mentioned statements. The results are in agreement with other studies as that conducted by *Hatamleh and Abu Sabeeb (2015)* on 65 male and female undergraduate nursing students at Prince Khalid College. It was also to some extent close to the results of the study done in the College of Nursing, Saudi Arabia by *Bayoumy and Yousri (2012)*, who found nearly similar results.

Dolan (2003) mentioned that, a major challenge in any evaluation process is to ensure that objective measurement is used and to guarantee objectivity, which is particularly difficult in the assessment of clinical competence. The fairness of OSCE was also reported by other studies as that of *Mahmoud and Mostafa (2011)* who in relation to perception of the students regarding fairness of OSCE, almost two fifth (38.7%) of them considered OSCE fairer particularly for undergraduate students.

In the present study more than half percent of the studied group perceived OSCE as eliminates any chance of bias, minimized chance of failing, less stressful than other exams as well as allowed students to compensate in some areas. The current study findings slightly differ from previous reports by *Eswi et al., (2013)* on a sample of 80 Saudi nursing students who completed their community health nursing as well as maternity nursing OSCE examination. The difference might be explained by the differences among faculties in preparation process.

Earlier, *Alinier et al. (2006)* discussed the importance of adequate preparation for undergraduate nursing students. Generally, the present study findings revealed few percent of the students disagree with all statements of quality of performance and the highest percent viewed OSCE preparation is good, instructions were better and unambiguous, and station sequence was logical and appropriate. The OSCE provided opportunities to learn real life scenarios. Meanwhile, the present study results support those found by *Kurz et al. (2009)*, who assured that the main advantages of OSCE, is putting the students in a real situation. The current study result was also in consistence with that *Mostafa and Amin (2012)*, who conducted an assessment method of an undergraduate psychiatric course at a Saudi University.

Implication for research:

Further work should include primary qualitative research to obtain a deeper understanding of the rational for student's opinion of OSCE and explore the hypothesis that students' perception of factors influences their opinion.

Conclusion and recommendations:

Nursing students provided positive feedback about the OSCE and agreed that the OSCE was a realistic assessment for the practical course. A broader research is necessary for assessment of factors affecting their perception regarding OSCE. Results will be applied to better understanding this perception that can improve strategies for better OSCE.

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