



Challenges affecting quality of objective structured clinical examination: Assessment of academic staff perception and their improvement suggestions

¹Gehan A Gamal, ²Lobna M Gamal, ³Ekhlass M Eltomy and ⁴Eman R Ahmad

¹ Lecturer of Medical Surgical Nursing, Faculty of Nursing, Minia University, Minya, Egypt

² Assistant Professor, Medical Surgical Nursing, Faculty of Nursing, Minia University, Minya, Egypt

³ Lecturer of Community Health Nursing, Faculty of Nursing, Minia University, Minya, Egypt

⁴Assistant Professor, OB/GYN Nursing, Medical Education Department, CoM Imam Abdulrahman Bin Faisal University, KSA

Abstract

Background: Assessment of clinical competence is an essential, mandatory requirement and critical norm for accountability of educational objectives as the traditional testing tools cannot evaluate clinical competence. But it became a tough job for nurse educator as it poses several challenges in terms of objectivity and reliability. In spite of increasing usage of OSCE in nursing and the huge number of studies published about it, it is still debatable about advantages of its using. OSCE costs remain an obstacle facing its use.

The aim of this study: was to assess challenges affecting quality of OSCE and suggestions of improvement as perceived by academic nursing staff.

Design: A descriptive exploratory research design was used.

Setting: Faculty of Nursing, Minia University.

Subjects: A purposive sample of 40 clinical instructors and assistant lecturers at medical-surgical, pediatric, obstetric, and community health nursing that using OSCE in students' clinical evaluation.

Tools: I-Socio-demographic data sheet II- Self-administered questionnaire to assess the perceived challenges affects quality of OSCE among study participants and to obtain their suggestions to overcome these challenges.

Results: The highest manpower related challenges perceived by participants were insufficient faculty members (83%) and OSCE is stressful for students (81%). For non-human challenges, the most prominent ones were that some procedures require longer time than others (90%), unsuitability of the available settings to the number of students (83%) and insufficient needed materials/equipment (73%).

Conclusion: The founded human and non-human challenges of the current study may affect the quality of OSCE in all steps, from preparation to application and subsequent suggestions are interrelated. Staff suggested improving in labs preparation and increasing labs numbers. Also, allocating sufficient budget and increasing number of trained staff.

Recommendations: Increase the number of clinical instructors, budget and the work hours of OSCE to accommodate with the increased number of students and permit periods of rest for both staff and students.

Keywords: OSCE, human and non-human related challenges, improvement suggestions

Introduction

Clinical skills are central to professional practice. Having students acquire competency in basic clinical skills is an important goal of nursing education. Clinical evaluation of students is always an area of controversy and concern (Khan *et al.* 2013) [1]. Objective Structured Clinical Examinations (OSCE) is a common tool used to objectively evaluate clinical competence in medical schools and more recently in nursing profession as well (Chiou-Rong & Ue-Lin, 2015) [3]. OSCE is an approach to the assessment of clinical competence in which the components of competence are assessed in a planned or structured way with the attention being paid to the objectivity of the examination (Khan & Ramachandran, 2012) [12].

Quality assurance of OSCE is a continuous process repeated

with each examination cycle. It is obtained by training facilitators on how to perform assessments, peer reviewing of questions to be asked and settings of OSCE stations and ensuring standardization in all the processes before commencement of the examination. The feedback on the examination process provided by the examiners is used to improve the quality of the assessment tool and stations and the organization of future examinations (Smith *et al.*, 2012) [24]. However, OSCE demonstrate particular advantages over traditional forms of testing such as multiple choice as OSCE assessing communication and interpersonal skills, professional judgment and moral/ethical reasoning (Farokhzadian, *et al.*, 2015 and McWilliam & Botwinski, 2010) [7, 15]. In addition, OSCE as an objective method of evaluation offer several advantages to both students and

teachers; OSCE had proven a useful complement to the traditional paper-based or computer-based assessment methods. Very importantly, the method not only assessed knowledge but also skills which were demonstrated by doing.

However, OSCE has disadvantages and pitfalls in its implementation. In this respect, Shirwaikar, 2015 [23] and Omu, *et al.*, 2016 [19] perceived OSCE expensive especially in terms of manpower requirement and have some challenges that may include complexity in organizing and conducting OSCEs procedures that require a considerable amount of resources. Also, procedures are time-consuming and exhausting. Resources include adequate infrastructure, teaching personnel, materials, and finances. Most researches on OSCE show that the implementation of OSCE requires huge expense.

On the other hand, OSCE is very stressful for students. To use OSCE in nursing education successfully, it depends to a larger extent on the efficiency of a skilled academic staff and cooperation of students. So, it is extremely important that academic staff upgrade their knowledge and skills to keep pace with revolution in nursing education. Moreover, implementation of OSCE in nursing differs from that with medical students in which the continuous increase of nursing students annually impose the need for more resources during OSCE exam. (Chiou-Rong & Ue-Lin, 2015 [3] and Zayyan, (2011) [28].

Good preparation for OSCEs is essential it includes many major components; as lists of items to assess, checklists for evaluation, criteria for scoring assessment and passing standards resources, dedicated space and personnel (Clarke *et al.*, 2011) [4]. In addition to students preparation which include psychological; practical students preparation includes knowing procedures; being familiar with checklist/marking criteria and used equipment; rehearsing skills; revising the underpinning theory of skills (Street & Hamilton, 2010) [25]. Also, it includes knowing the timing of the OSCE; using feedback and available resources such as guided study, quizzes and videos. Also, checking whether they should wear uniforms, confirming the date, time, place and allowing enough time to get there. In addition to, practicing answer questions verbally (Naumann *et al.*, 2014 and Meskell *et al.*, 2015) [18, 16].

Furthermore, designing the place and planning of hardware for implementation of an OSCE requires a well-designed clinical skill examination center. In addition to space, the associated multimedia e.g. audio or video equipment and rotating station route play an essential role (Rush *et al.*, 2014) [22]. In the current study, the emphasis is on exploring challenges facing staff in implementing the OSCE in evaluating students. It is also necessary to obtain the staff suggestions that can be used as a base for improving future OSCE implementation.

Aim of the study

To assess challenges affecting quality of OSCEs and suggestions of improvement as perceived by academic nursing staff.

Research questions

- What are challenges that affect quality of OSCE application?

- What are faculty staff suggestions to improve OSCE quality?

Subjects and Methods

Design: A descriptive exploratory research design was used in this study.

Setting: The present study was carried out in Faculty of Nursing; Minia University. It is a governmental institution in Upper Egypt. It offers bachelor degree in Nursing. Duration of study is 4 years and one year internship. The number of students is 1000-1500 yearly increasing.

Subjects: A purposive sample of 40 participants was included in the study. The total number of assistant lecturers and clinical instructors in the four selected departments who used OSCE was 52; two of them were unavailable and busy, five were included in pilot study and the rest (5) were in either maternity or sick leave.

Inclusion criteria

- Clinical instructors, assistant lecturers using OSCE in student's clinical evaluation (Medical surgical, pediatric, obstetric, and community health nursing).

Exclusion criteria

- Academic staff in psychiatric and administrative nursing departments who don't use OSCE in student's clinical evaluation.

Tools for data collection

- I. Socio-demographic questionnaire included 8 questions concerning age, gender, position, and years of experience, number of practicing OSCEs, department, previous training on OSCEs and the need for further training on OSCE.
- II. A self-administered questionnaire included two parts the first to assess the perceived challenges affects quality of OSCE among study participants. The second was to obtain academic staff suggestions for improving OSCE implementation.

The first part: Was developed by the researchers based on the review of related literatures (Hatamleh and Abu Sabeeb, 2014, Eswi *et al.*, 2013, Eldarir and Abd el Hamid, 2013, Bayoumy and Yousri, 2012) [9, 6, 5, 2]. It was used to identify faculty staff perception about challenges experienced during application of OSCE including 2 main challenges.

1. Human related challenges including

- A. Staff related challenges: it consisted of 10 sub-items as unprepared faculty members to handle OSCE, unfamiliarity of faculty members with some OSCE checklists and insufficient time to write down the notes in some OSCE stations.
- B. Students related challenges: it consisted of 4 sub-items as OSCE cause stress to some students which affect their grades, unfamiliarity of students with some equipment included in OSCE.

2. Non-human related challenges including

- A. Supplies and material related challenges it consisted of

3 sub-items as insufficient needed materials/equipment and unsuitability of available settings to the number of students.

- B. Procedures and regulations related challenges. It consisted of 8 sub-items as decrease training facilities in training process, Consistency of all stations and to be adjusted in time length and decreased periods of rest between OSCE stations etc.

The second part: Was to obtain the suggestions to decrease challenges of OSCEs. It was an open ended question used to collect all the suggested solutions then coded and interpreted to elicit the needed data. After data entry and coding, it included 4 main suggestions in terms of improving venue preparation (Lab.), making sufficient budget to OSCE, having enough training and preparation of staff and increasing the number of staff.

Scoring System

- The score for each item ranges from 1 to 4. The cutoff point was determined by 2; in which the challengeable factors are those of score >2 and maximum challenge score is 4.
- To facilitate correlational statistics, the score for each item was obtained by calculating the in which the Challengeable factors are those of total mean score 4 is corresponding to mean percentage 100%.
- **Pilot study:** A pilot study was conducted on 10% of the study sample and was not included in the sample to ensure stability of the answers. It was conducted to test the readability of the questionnaire. It also helped to estimate the time needed to complete the questionnaires (20:30 minutes).

Validity: All instruments were reviewed for content validity by five experts in the field of Adult, Maternity and Public Health Nursing and needed modification is done. They determined the specificity of the tools to measure what was intended to be measured. A modification of the tools was done according to the panel judgment on clarity of the sentences, appropriateness of contents, sequence of items and accuracy of scoring and recording of items. The findings from validity suggested that the current questionnaire could be used as a viable tool for data reliability collection. Content validity index was 0.85.

Reliability: The tools are tested for internal consistency by using Cronbach's alpha. Cronbach's alpha coefficient of 0.00 indicates no reliability and a coefficient of 1.00 indicates perfect reliability. However, a correlation coefficient of 0.70 is acceptable (Ritter, 2010) [21]. Cronbach's alpha for reliability was 0.832 for total scale.

Procedure for data collection

- **Study period:** Data were collected over period of 3 months from April 2017 to June 2017.
- **Approval:** An official permission to carry out the study was obtained from the responsible authorities; Dean of Faculty of Nursing, Minia University by the researchers, where the data were collected to conduct the study after an explanation of the purpose of the study.

- **Ethical considerations:** Verbal agreement was taken from each participant before completing the questionnaire. Confidentiality of any obtained information was ensured. Each participant was notified about the right to refuse to participate in the study.

Data analysis

Data collected were coded, analyzed and tabulated using the Statistical Package for Social Science (SPSS version 21). The qualitative variables were presented in tables as numbers and percentage; the figure used was displayed in bars for qualitative variables. The quantitative variables are presented as mean \pm SD; correlation coefficient was applied by using r-Pearson test to identify the correlations between challenges' means and demographic characteristics among study participants to detect whether there is a positive or negative correlation.

Results

Table (1) shows the general characteristics of the participants. It revealed that 75% of academic staff was female and aged between 26 to 35 years old. Sixty percent of them were assistant lecturer; fifty percent of participants work in medical surgical department and have 6 to 10 years of experience. About 82% of participants received previous training on OSCE. Although 52.5% of participants practiced OSCE between 1 to 6 times but 42.5% of them need for further training on it.

Table (2) shows the percentages distribution of the perceived challenges among participants.

1. Human related challenges

Concerning staff related challenges, the highest challenges were insufficient faculty members and too long OSCE period making faculty members exhausted which in-turn affecting evaluation, followed by absence of feedback and unfamiliarity of the staff with some OSCE checklists (83%, 82%, 78% & 77% respectively). On the other hand, the lowest reported were unclear role of faculty members before OSCE, the interactions allowed between faculty members and students (36% & 45% respectively). Regarding students related challenges, the highest challenges were that OSCE caused stress to them and students were unfamiliar with some equipment (81% & 79% respectively), while the lowest reported was that they were psychologically unprepared with some OSCE equipment and the reported leakage of some stations in case of large student number (71 & 62% respectively).

2. Non-human related challenges

Regarding supplies and material related challenges, the highest ones were unsuitability of the available settings to the number of students and OSCE simulation revision tools were unavailable (83% & 78% respectively), while the lowest one reported were insufficient needed materials/equipment (73%). Regarding procedures and regulations related challenges, the highest ones were that some procedures require longer time than others, decreased training facilities in clinical training process and absence of application on real situation (90%, 74% & 72% respectively). On the other hand, the lowest reported were that OSCE did not cover most clinical tasks and presence of

noise in OSCE setting affecting its implementation (41% & 48% respectively).

Figure (1) illustrates percentage distribution of suggestion for OSCE improvement among participants at different departments, the highest reported ones were decrease work load (65%) followed by improve Lab. preparation (40%)

and by making sufficient budget to OSCE tools. On the other hand, the lowest suggestions were enough training and preparation for staff then increasing staff number.

Table (3) illustrates significant negative correlation between challenge and position of work.

Table 1: Frequency and percentage distribution of demographic variables related to the participant (N= 40)

Demographic Variables		No	%
Age group (yrs.)	less than 25 yrs.	6	15.0%
	26-35 yrs.	30	75.0%
	≥ 35 yrs.	4	10.0%
	Mean ± SD	29.7±3.37	
Gender	Male	10	25.0%
	Female	30	75.0%
Position	Demonstrator	16	40.0%
	Assistant lecturer	24	60.0%
Department	Medical surgical	20	50.0%
	Pediatric	7	17.5%
	Community	7	17.5%
	Maternal and Newborn	6	15.0%
Previous training on OSCE	Yes	33	82.5%
	No	7	17.5%
Need for further training on OSCE	Yes	17	42.5%
	No	23	57.5%
Years of Experience	1- 5 yrs.	16	40%
	6- 10 yrs.	20	50%
	more than 10 yrs.	4	10%
	Mean ± SD	6.88±3.86	
Numbers of practicing OSCE	1-6 times	21	52.5%
	7-12 times	10	25.0%
	more than 12 times	9	22.5%
	Mean ± SD	8.58±6.91	

Answer for research question (1)

Table 2: Percentages distribution of perceived challenges affect quality of OSCE among study participants (N=40)

No	Perceived challenges affecting Quality of OSCE	Departments Challenges			
		MS (n=20)	P (n=7)	C (n=7)	Ma (n=6)
1. Manpower Related Challenges					
A. Staff Related Challenges					
1.	Unprepared faculty members to handle OSCE.	30%	29%	29%	33%
2.	Unclear role of faculty members before OSCE	5%	14%	14%	0.0%
3.	Unclear how much interaction is allowed between faculty members and students.	20%	14%	43%	0.0%
4.	Misunderstanding of some marking criteria for faculty staff	25%	14%	29%	0.0%
5.	Faculty members may be unfamiliar with some OSCE checklists.	85%	71%	43%	83%
6.	No feedback is given to the failed students concerning their weakest point	70%	71%	86%	100%
7.	Time is not enough to write down the notes in some OSCE stations.	80%	71%	57%	83%
8.	Clinical experience of faculty staff affect students' grades.	65%	71%	71%	100%
9.	OSCE period is too long make faculty member exhausted & affect faculty members during evaluation.	90%	57%	71%	83%
10.	Number of faculty members is insufficient to cover OSCE stations.	95%	71%	86%	100%
B. Students Related Challenges					
11.	OSCE cause stress to some students which affect their grades.	90%	57%	86%	67%
12.	Students are psychologically unprepared for OSCE.	75%	57%	57%	83%
13.	Students are unfamiliar with some equipment included in OSCE.	85%	86%	57%	100%
14.	Cheating of some stations in case of large student number by students who finish their exam.	55%	57%	29%	67%
2. Non-Human Related Challenges					
A. Supplies and material related challenges					
15.	Insufficient needed materials/equipment	50%	71%	86%	67%
16.	Available settings are unsuitable to the number of students.	95%	57%	86%	100%
17.	OSCE simulation revision tools are unavailable for students.	90%	71%	57%	83%
B. Procedures and Regulations Related Challenges					
18.	Presence of noise on OSCE setting affects its implementation.	10%	29%	29%	100%

19.	OSCE didn't cover most clinical tasks and knowledge.	0.0%	14%	29%	0.0%
20.	Presence of non-functional equipment during OSCE.	75%	57%	57%	100%
21.	Application on non-real patient/situation.	80%	71%	57%	83%
22.	Decreased training facilities in clinical training process.	65%	86%	57%	100%
23.	Some Procedures requires a longer time than others.	90%	86%	100%	100%
24.	Decreased periods of rest between OSCE stations.	80%	57%	100%	100%
25.	Workload is high rather than other types of clinical exam.	80%	57%	71%	100%

MS medical surgical department p pediatric department C community department MA maternity department

Answer for research question (2)

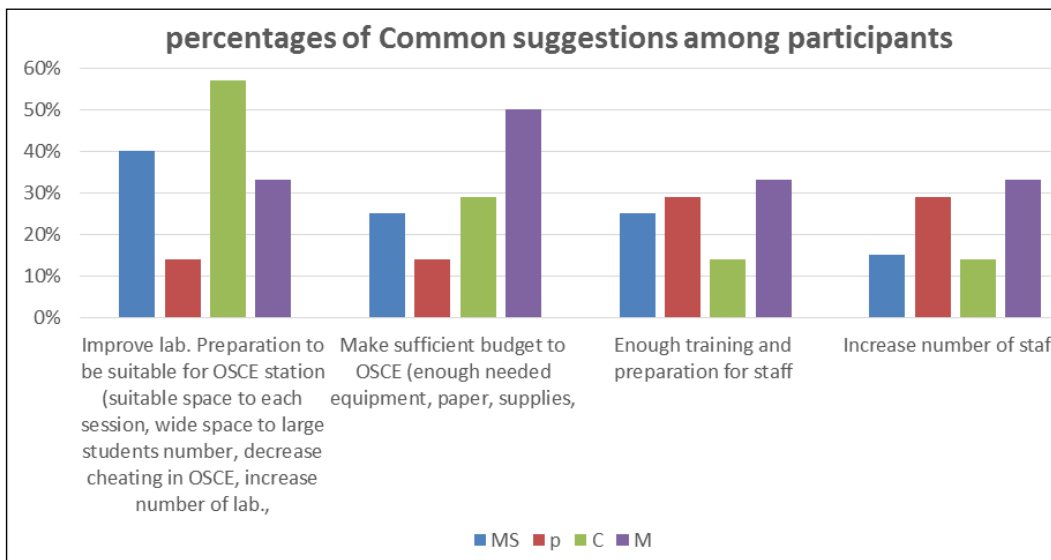


Fig 1: Percentages of common suggestions among participants

Table 3: Correlations between challenges' means and demographic characteristics among study participants (n=40)

Items	r	P-value
- Age	.020	.901
- Gender	0.014	.931
- Residence	-0.16	.322
- Marital status	-0.09	.569
- Years of practicing Nursing	-.146-	.368
- Position of work	-0.34-**	0.03
- Times of OSCE	0.105	0.52
- Prior OSCE Training	0.009	.954
- Need for further training	.023	.889
- Department	0.19	.233
- Times OSCE	.015	.925

*correlation is significant at $p < 0.05$

Discussion

It is a challenge to have an objective assessment tool to assess students' clinical competencies in a comprehensive manner especially with the increased number of students. In spite of increasing usage of OSCE in nursing and the huge number of studies published about it, it is still debatable about advantages of its using. OSCE costs remains an obstacle facing its use. In the current study, researchers assessed challenges and obtained suggestions from staff to be used in their application. Chiou-Rong & Ue-Lin (2015) [3]. The current study revealed that there are three themes emerged regarding OSCE challenges among participants which include; staff and personnel, Supplies and material, Procedures and regulations related challenges. Regarding staff and personnel related challenges, the

highest challenges were insufficient faculty members and too long OSCE period making faculty members exhausted affecting evaluation, it represented the vast majority of participants followed by absence of feedback and unfamiliarity of the staff with some OSCE checklists which representing more than three quarters of presented challenges.

This is supported by Rush *et al.* (2014) [22] who studied students' perceptions of practice assessment in the skills laboratory and stated that the OSCEs were universally disliked by students due to absence of immediate feedback, as an internal policy of the examination board to postpone giving feedback until finalizing the students' grades.

Also the current study was in accordance with Jaywant & Pai (2009) [10] who mentioned that, the success of any OSCE program is dependent on the skills of the faculty members, co-operation of students & availability of man power and added that one limitation on using of OSCE include that there is risk of observer fatigue if the observer has to record the performance of several candidates on lengthy checklists. On the other hand, Omu *et al.* (2016) [19] stated that following any exam, it is tremendously important to have feedback for students to enhance students' outcome.

Likewise, Al-Zeftawy and Khaton (2016) [1] who reported that a steady increase in number of students enrolled at Egyptian nursing faculties might increase the chances of malpractice which may affects patients' conditions. The continuous increasing number of students may be disproportional with academic clinical nursing staff quality of performance. This may lead to unfamiliarity to the exam and exhaustion. Consequently necessitate larger staff

members.

On the other hand, the current study revealed that the lowest reported challenges ones were unclear role of faculty members before OSCE, unclear how much the interactions allowed between faculty members and students representing less than half. This is in accordance with Zayyan (2011) ^[28] who stated that the scenarios idealized textbook of OSCEs may not mimic real life situations. This may lead to uncertainty of how much interactions should be done or allowed as in the real situation the senior intervene during practice to modify faulty practices. Glass, and Mills (2015) ^[8] stated that, OSCEs can be utilized to fulfill the need for assessment of learning outcomes at the student, course, and programmatic quality level.

Regarding students related challenges, the current study revealed that, the highest challenges were that OSCE causes stress to students and the majority of them were unfamiliar with some equipment participants (81% & 79% respectively), while the lowest reported one was that they were psychologically unprepared with some OSCE equipment and the reported leakage of some stations in case of large students number. However, a great controversy exists between elimination of stress accompanying facing the examiners and decreasing OSCE associated fatigue of students and academic staff (Omu *et al.*, 2016) ^[19].

This finding is congruent with Martensson and Lofmark (2013) ^[13] reported that stress of students feel during OSCE is one of the most important and clear obstacle in practicing OSCE exam. Many researchers found that students feel extremely stressed during OSCE exam which may adversely weaken the soundness of OSCE exam. Also, Zayyan (2011) ^[28] emphasized that, students suffer from higher levels of stress and or fatigue. Traynor and Galanoui (2015) ^[27] added that student preparation plays an important role when preparing OSCE. Also, Meskell *et al.* (2015) ^[16] who published a research entitled back to the future: An online OSCE Management Information System for nursing OSCE stated that, students have perceived OSCE as a positive experience but also a stressful one. Likewise McWilliam and Botwinski (2012) ^[14] in their study about pros and cons in using OSCE stated that students' feeling of stress during OSCE exam may influence their achievement as they show high level of self-confidence when overtake OSCE exam.

However, Eldarir and Abd el Hamid (2013) ^[5] have different result in their thesis that 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.

Regarding supplies and materials related challenges, the current study showed that the highest ones were unsuitability of the available settings to the number of students and OSCE simulation revision tools were unavailable representing majority of participants, while the lowest reported one was insufficient needed materials/equipment representing less than three quarters of them.

These results are similar to Zayyan (2011) ^[28] who mentioned that successful OSCE requires the availability of a significant amount of resources as number of labs equipped with a sufficient number of equipment, skilled academic staff and funds etc. Likewise, Chiou-Rong, and Ue-Lin (2015) ^[3] in their study about OSCE as a challenge

in Taiwan stated that a basic requirement for OSCE to be successful is availability of a center for examining clinical skills which is difficult to be found because of the limited space in nursing colleges in Taiwan. So, some faculties borrowed equipment from schools or hospitals for execution of OSCE exam.

Regarding procedures and regulations related challenges, the current study revealed that the highest ones were that some procedures require longer time than others, decreased training facilities in clinical training process and absence of application on real situation representing the vast majority, about three quarters and less respectively. On the other hand, the lowest reported ones were that OSCE did not cover most clinical tasks and presence of noise on OSCE setting affecting its implementation (41% & 48% respectively).

It is essential that the stations be focused so that it is possible to complete specific tasks within a planned time frame (Omu, *et al.*, 2016) ^[19]. All stations must invariably demand only equal time. Ensuring this, therefore, requires careful organization (Omu, 2016) ^[19].

These results are in accordance with Zayyan, (2011) ^[28] who reported that OSCE consists of a series of stations used by examiners to examine different clinical skills that may be in the form of communication station, data interpretation station, or performing procedure or counseling to other. So this may require different time for different tasks to be of longer or shorter time.

Moreover, Mitchell *et al.* (2009) ^[17] in their study about OSCE reported that, usually OSCE exam is limited in assessment of some nursing competencies which not including those of whole patient care or specific skills as decision making, ethical practice etc. that cannot be assessed during OSCE. This drawback is the result of implementing OSCE on a number of short stations. So the designed stations do not cover most clinical tasks and knowledge. Methods for modifying the mechanism used require further discussion.

These results are convenient with, Jaywant, & Pai, (2009) ^[10] who indicated that most students perceive OSCE positively as exciting, beneficial, and efficient clinical exam. However, they also mentioned that it causes both physical and mental exhaustion. Likewise, Stunden *et al.* (2015) ^[26] reported that, it is highly recommended to incorporate simulation scenarios into the nursing curricula for first year nursing students' clinical units to help reduce their anxiety levels prior to implementing OSCE.

The current study illustrated percentages of suggestion among participants of different departments; the highest reported ones were improve laboratory preparation, followed by making sufficient budget to OSCE tools. On the other hand, the lowest suggestions were enough training and preparation for staff then increasing staff number. Omu *et al.*, 2016 ^[19] stated that OSCE costs a lot in terms of needed skilled academic staff, its associated stress to the students and exhaustion to both students and academic staff, it also need more funds.

These results are in the same line with, Zayyan (2011) ^[28] in his study about OSCE stated that staff members must have experience and must have an agreement on a standard to be used during OSCE in order to maintaining objectivity. They must be prepared and experienced enough to have clear role

during OSCE exam. Stopwatches must be used for shifting of students between stations. OSCE need trained staff members. Clarke *et al.*, (2011) ^[4] agreed in their research about assessing orthopedic nursing skills using OSCE exam and added that in comparison with other methods of assessment, OSCE needs more time and effort as well as various human and non-human resources as a result of continuous increase in nursing student number. This result shades the light on some challenges faced the faculty in our research which may play crucial role in conducting OSCE properly.

The different viewpoint of researchers regarding OSCE makes it difficult to conclude that OSCE is the “Gold standard” for clinical competence assessment (Hatamleh & Abu Sabeeb, 2014) ^[9].

Limitation of the study

Decreased sample size which was available during data collection period. Further researches are needed with larger sample size; comparison between OSCE and traditional methods regarding acquisition of clinical skills is also needed.

Conclusion

OSCE faced a number of human and non-human related challenges. These include insufficient numbers of faculty members, unsuitable lab. To students numbers, decrease simulation revision tools, need for psychological preparation of students. Faculty members have some suggestion to overcome these challenges including improve lab preparation, make sufficient budget for OSCE implementation, increase number of faculty members with regular training of OSCE, and psychological preparation of students to decrease their stress and give them feedback.

Recommendations

For human related challenges

- Increase number of clinical instructors and days of exam for accommodation with the increased number of students
- Permit periods of rest for both staff and students that can be applied by incorporating rest station to be included in each OSCE round.
- Adequate and repeated training of academic staff on proper use of OSCE.
- Professional and psychological preparation for students' and provide students' feedback.
- Train assistant teaching staff to college employee on acting as standardized patient.
- Student participation in the development of new assessment tools.
- Provide pack up station to cover any urgent situation.

For non-human related challenges

- OSCE should be combined with other forms of skill assessment
- Apply standardized patients and use different forms of exams.
- Increase budget for OSCE application
- Adequate laboratory preparation and equip it with necessary revision tools.
- Further researches need to be accomplished and applied

on large number of academic staff and students to generalize the research findings.

Acknowledgments

The authors would like to thank all the teaching staff (Clinical instructors and assistant lecturers) at the department of medical surgical, pediatric, obstetric, and community health nursing who devoted from their precious time to participate in the research and try finding effective solution to presented challenges.

Conflict of interest

The authors declared no conflicts of interest in this work.

References

1. Al-Zeftawy AM, Khaton SE. Student evaluation of an OSCE in community health nursing clinical course at faculty of nursing, Tanta University. *Journal of Nursing and Health Science*. 2016; 5(4):68-76.
2. Bayoumy HM, Yousri H, Objective Structured Clinical Examination (OSCE)-Based Assessment in Nursing: Students' and Clinical Instructors' Perception, *Journal of American Science*. 2012; 8(9):523-540.
3. Chiou-Rong H, Ue-Lin C. Objective Structured Clinical Examinations have become a Challenge for Nursing Education in Taiwan. *Ann Nurs Pract*. 2015; 2(2):10-25.
4. Clarke S, Rainey D, Traynor M. Using the Objective Structured Clinical Examination (OSCE) to assess orthopaedic clinical skills for the registered nurse. *International Journal of Orthopaedic and Trauma Nursing*. 2011; 15(2):92-101.
5. Eldarir SA, Abd el Hamid NA. Objective Structured Clinical Evaluation (OSCE) versus Traditional Clinical Students Achievement at Maternity Nursing: A Comparative Approach, *IOSR Journal of Dental and Medical Sciences*. 2013; 4(3):63-68.
6. Eswi A, Badawy AS, Shaliabe H. OSCE in Maternity and Community Health Nursing: Saudi Nursing Student's Perspective, *American Journal of Research Communication*. 2013; 1(3):143-162.
7. Farokhzadian J, Nayeri ND, Borhani F, Zare MR. Nurse Leaders' Attitudes, Self-Efficacy and training Needs for Implementing Evidence-Based Practice: Is It Time for a Change toward Safe Care? *British journal of medicine and medical research*. 2015; 7(8):662-671.
8. Glass A, Mills A. Stated that, as OSCEs can be utilized to fulfill the need for assessment of learning outcomes at the student, course, and programmatic level quality, 2015.
9. Hatamleh W, Abu Sabeeb Z. Perception of Nursing Faculty Members on the Use of Objective Structured Clinical Examinations (OSCE) To Evaluate Competencies, *IOSR Journal of Nursing and Health Science*. 2014; 3(6):21-26.
10. Jaywant SS, Pai AV. Evaluation & Comparison of Objective Structured Clinical Examination & Conventional Clinical Examination, the *Indian Journal of Occupational Therapy*. 2009; 1(3):143-162
11. Khan KZ, Ramachandran S, Gaunt K, Pushkar P. The objective structured clinical examination (OSCE): AMEE guide no. 81. Part I: an historical and theoretical

- perspective. *Medical teacher*. 2013; 35(9):e1437-e1446.
12. Khan K, Ramachandran S. Conceptual framework for performance assessment: competency, competence and performance in the context of assessments in healthcare-deciphering the terminology. *Medical teacher*. 2012; 34(11):920-928.
 13. Martensson G, Lofmark A. Implementation and student evaluation of clinical final examination in nursing education. *Nurse Education Today*. 2013; 33(12):1563-1568.
 14. McWilliam P, Botwinski C. Identifying strengths and weaknesses in the utilization of objective structured clinical examination (OSCE) in a nursing program. *Nursing Education Perspectives*. 2012; 33(1):35-39.
 15. McWilliam P, Botwinski C. Developing a successful nursing objective structured clinical examination. *Journal of Nursing Education*. 2010; 49(1):36-41.
 16. Meskell P, Burke E, Kropmans TJ, Byrne E, Setyonugroho W, Kennedy KM. Back to the future: An online OSCE Management Information System for nursing OSCEs. *Nurse education today*. 2015; 35(11):1091-1096.
 17. Mitchell ML, Henderson A, Groves M, Dalton M, Nulty D. The objective structured clinical examination (OSCE): optimising its value in the undergraduate nursing curriculum. *Nurse education today*. 2009; 29(4):398-404.
 18. Naumann F, Moore K, Mildon S, Jones P. Developing an Objective Structured Clinical Examination to Assess Work-Integrated Learning in Exercise Physiology. *Asia-Pacific Journal of Cooperative Education*. 2014; 15(2):81-89.
 19. Omu FE. Attitudes of Nursing Faculty Members and Graduates towards the Objective Structured Clinical Examination (OSCE). *Open Journal of Nursing*. 2016; 6(5):353-364.
 20. Omu AE, Al-Azemi MK, Omu FE, Al-Harmi J, Diejomaoh MFE. Attitudes of Academic Staff and Students towards the Objective Structured Clinical Examination (OSCE) in Obstetrics and Gynaecology. *Creative Education*. 2016; 7(6):886-897.
 21. Ritter N. Understanding a widely misunderstood statistic: Cronbach's alpha. Paper presented at Southwestern Educational Research Association (SERA) Conference: New Orleans, LA (ED526237), 2010.
 22. Rush S, Ooms A, Marks-Maran D, Firth T. Students' perceptions of practice assessment in the skills laboratory: An evaluation study of OSCEs with immediate feedback. *Nurse Education in Practice*. 2014; 14(6):627-634.
 23. Shirwaikar A. Objective structured clinical examination (OSCE) in pharmacy education-a trend. *Pharmacy practice*. 2015; 13(4):627.
 24. Smith V, Muldoon K, Biesty L. The Objective Structured Clinical Examination (OSCE) as a strategy for assessing clinical competence in midwifery education in Ireland: A critical review. *Nurse education in practice*. 2012; 12(5):242-247.
 25. Street P, Hamilton L. Preparing to take objective structured clinical examinations. *Nursing standard*. 2010; 24(34):35-40.
 26. Stunden A, Halcomb E, Jefferies D. Tools to reduce first year nursing students' anxiety levels prior to undergoing objective structured clinical assessment (OSCA) and how this impacts on the student's experience of their first clinical placement. *Nurse Education Today*. 2015; 35(9):987-991.
 27. Traynor M, Galanouli D. Have OSCEs come of age in nursing education? *British Journal of Nursing*. 2015; 24(7):388-391.
 28. Zayyan M. Objective structured clinical examination: the assessment of choice. *Oman Medical Journal*. 2011; 26(4):219-222.