

Advantages and Disadvantages of the Objective Structured Clinical Examination (OSCE) in Nursing Education: A Literature Review

Izzeddin A. Abu Bdair¹, Hala F. Abuzaineh², Hala M. R. Burqan³

¹RN, PhD, ^{2,3}RN

^{1,3}Al - Ghad International Collages for Applied Medical Sciences, KSA, Abha

²The University of Jordan, School of Nursing, Jordan

ABSTRACT

Background: The objective structured clinical examination is a valuable evaluation strategy to assess students' competencies in a range of skills. It has been increasingly integrated into nursing education. Purpose: The purpose of this literature review was to identify the advantages and disadvantages of using the objective structured clinical examination in nursing education. Design: A comprehensive search of the recent literature related to the objective structured clinical examination was undertaken.

Methods: A review of literature published over the last 15 years on a wide variety of recent studies in nursing and related discipline in the field of objective structured clinical examination was performed.

Results: Most studies indicated that the objective structured clinical examination was poorly addressed in nursing education particular in Arab academic nursing institutions. The objective structured clinical examination is an effective evaluation method to assess the students' competencies in performing clinical nursing tasks. Students and instructors showed a positive attitude toward using the objective structured clinical examination as an evaluation method. The advantages and disadvantages of using the objective structured clinical examination in nursing education are summarized.

Discussion: Overall, it is evident that the objective structured clinical examination has been growing use in nursing education. The OSCEs have a variety of favorable advantages that argue implementation in nursing education, however, there are many obstacles to apply. Therefore, investigating the barriers to use this assessment method and developing appropriate interventions are recommended.

KEYWORDS: OSCE, nursing, education, exams

INTRODUCTION

The Objective structured clinical examinations (OSCE) is an innovative evaluation methods that often used for assessing health sciences and nursing students' clinical skills (Alinier et al., 2006). The OSCEs were developed in Dundee, Scotland in the early 1970's by Dr. Harden and colleagues in 1975 to overcome the problems related to old-fashioned assessment strategies. In particular, the OSCE is often used to evaluate the skills and attitudes that cannot be fulfilled through written format of examination even students show an excellent level of knowledge such as physical examination techniques and communication skills. The OSCE consisted of a scenario based assessment in which a student was required to demonstrate safe assessment and management of certain skills. The OSCE is gaining in popularity and taking a part of practical examinations in undergraduate nursing programs (Joy & Nickless, 2008), especially in last decade (Milutinovic, 2013).

Nurses are among the health care professionals who provide health care to different kinds of serious health conditions. In order to improve nursing education, different teaching methods are adopted to help students gain knowledge, skills and attitudes relevant for nursing practice competent and safe manner. During their education, undergraduate nursing

students acquire skills essential for providing patients' care. Assessment of clinical competence is an essential requirement of health professional education (Mitchell et al., 2009). Sola-Pola and Pulpón-Segura, (2014) have shown that OSCE test is an effective examination instrument to assess students' skills and it is recommended to be implemented throughout the undergraduate nursing program is (Byrne & Smyth, 2008). Furthermore, OSCE Traynor and Galanouli, (2015) reported that OSCEs might improve the quality of nursing education.

Definition of OSCE

The OSCE test is as its name implies, a planned and structured examination which designed to assess the competences of health sciences' students to carry out clinical skills based on simulations according to the test objectives. In the OSCE, the students' fitness in practice of clinical skills are assessed at a series of stations. The OSCEs use scenarios that mimic real-life situations. In OSCE, each student is asked to demonstrate specific clinical skills in a simulated training environment on standardized patients (Mitchell et al., 2009, p. 399). The interpretation of each domain is summarized in table 1 below.

Table 1: The interpretation of OSCE domains

Domain	Meaning
O (Objective)	<ul style="list-style-type: none"> • Predefined checklist for the students' evaluation. • Standardized written checklist. • Valid measure of students' knowledge. • Objective (it does not dependent on the examiner) • Reliable (similar result on the same data) • Sensitive (allows for differentiation in the results). • Standardized content and scoring tool. • Each station is designed to assess specific clinical competency. • Similar case scenario for each examinee.
S (Structured)	All students have: Same assignments to perform Same timeframe. Same difficulty level Same content and scoring tool. Each skill is tested in a separate station.
C (Clinical)	The tasks are being assessed in OSCEs represent hand on and real-life clinical situations that students deal with in clinical settings.
E (Examination)	Assessment of nursing skills through a formal test of knowledge, skills and attitudes.

Aims of using OSCE

The purpose of using OSCE is to assess students' competencies and clinical performance. It aims to enable students to practice in safe and competent manner to ensure high quality of nursing education and ultimately to empower future nurses to provide the best quality of nursing care (Nulty et al., 2011). There are two types of OSCEs assessment include *formative* assessment which aims to improve students' learning and summative assessment which aims to determine students' competencies (Traynor & Galanoui, 2015).

The OSCE consists of number of station that might vary according to many factors such number of students, instructors, difficulty level, and nature of task. It usually from 10–20 stations on average. The time for each station is also vary based on these factors, it ranges between 5 minutes (Rushforth 2006) and 20 minutes. Student is asked to complete certain task within every station to an examiner with either verbal or writing explanation. Too much stations may limit OSCEs practicality and a small number of stations may not sufficient to cover the required skills and to determine student competency in a specific field.

Preparation and Requirements of the OSCEs process

Application of OSCE require well preparation in advance including but not limited to:

1. Series of timed framed stations.
2. Enough physical space with optimum light, ventilation, and seats.

3. Close to the reality of clinical practice scenario stations and tasks that are similar for all examinees (standardized).
4. Sufficient, updated and appropriate exam equipment, tools and materials.
5. Special room with sufficient privacy for student and standardized patients.
6. Standardized patients for applying the required skills on.
7. Coaching for instructors.
8. Examinee rotate through all stations.
9. Each station aims to assess one or more specific clinical skills.
10. Development or adopting case scenarios with continuous updates.
11. The stations should be clearly marked.
12. Training for standardized patients who are real patients and programing the simulated dolls to present the special clinical problems.
13. Implementation guidebook.
14. Clear directions of flow for each station.
15. Pre-determined key answers with well-designed scoring sheets.
16. Student preparation.
17. Panel of nurse experts to ensure validity and accuracy of stations.

Having discovered a paucity of literature have been undertaken by nurses regarding OSCEs, the purpose of this literature review is to present scientific evidence about OSCE in undergraduate nursing education. The objectives are to identify the advantages and disadvantages of using the objective structured clinical examination in nursing education as well as students and instructors' perception in the regard.

Methodology

An integrative review was used to assess the effectiveness, advantages and disadvantages and students' and educators' perception of OSCE assessment in nursing education. A literature search was performed using six scientific databases to identify any systematic reviews, literature reviews or relevant articles on the topic. Data search was between 2003 to 2018 using CINAHL, Cochrane, MEDLINE, Ovid, Proquest, Scopus, Web of Science and EBSCO host. Search was using a range of keyword related to OSCEs and evaluation strategies. A total 25 articles were reviewed.

Results

Results were summarized from our analysis of available publications in nursing and health related disciplines literature regarding using OSCE in nursing education. The results revealed that implementation of OSCEs as an evaluation strategy has greatly grown over the last decade. The OSCE has been effectively used to evaluate the nursing students' competencies and clinical performance (Mitchell et al., 2009). Despite the OSCE could be applied on a wide range of nursing skills, according to Walsh et al. (2009), the OSCE should be used to assess clinical skills that cannot be accessed through other assessment methods. Due to many considerations with using OSCEs that might affect its applicability, other assessment strategies should be implemented in combination with the OSCE (Barman, 2005).

The advantages of using OSCE

The using of OSCE in evaluation undergraduate students has a variety of benefits for students, instructors, nursing education process and as well on quality of patients' care as a consequence. Smrekar et al., (2017) have shown that using OSCEs present a chance to apply vital nursing tasks in real-life environment without affecting patients' safety. Selim et al., (2011) have reported that the OSCE is a reliable, valid and easy to use to assess nursing students' knowledge and clinical competencies.

In addition, there are many advantages for both teachers, students and nursing stakeholders. For example, the students' competencies can be assessed with objective criteria (Bouchoucha, Wikander & Wilkin, 2013), it is a useful method to assess students' skills that not fully assessed via written exams such communication skills (Rush et al., 2014), it enhances learning process and increases students' confidence (Rush et al., 2014), and ensures safe practice (Selim et al., 2012). The OSCE offers the potential for valid and reliable assessments (Traynor & Galanoui, 2015; Selim et al., 2012). Smrekar et al., (2017) concluded that OSCE helps to prepare nursing students for their future professional role. The students' perspectives regarding participation in OSCEs reveals that this kind of assessment enhance their level of confidence in performing nursing skills (McWilliam & Botwinski, 2012). In parallel, students perceived OSCE as a positive and stressful experience (Selim et al., (2011). OSCEs enhance students' confidence and preparation for clinical practice. (Mitchell et al., 2015). Nulty et al, (2011) found that nursing stakeholders view application of OSCEs in nursing education as beneficial and worthy. Nulty et al, 2011. OSCEs enhance student confidence

about clinical practice. Students' involvement in OSCEs develops their skills in self-reflection and engagement in learning.

Regarding OSCEs benefits in nursing education, Solà, et al., (2017) stated that assessing nurses' competencies using OSCEs improves the quality nursing education. The OSCE enables instructors to assess students' performance over different levels and skills over short period of time and without bias (Zayyan, 2011). Henderson et al, (2013) reported that there is a huge support to implementation of OSCEs in nursing education through conducted research and establishment of OSCEs guidelines. Jeffery et al., (2014) found that the content of OSCEs scenarios were relevant and motivational for student learning and the practice element enhanced and supported the learning experience.

The implementation of OSCEs in nursing education has some disadvantage and obstacles that makes it limit its applicability. These drawbacks include the need for numerous examiners with two per station to maintain objectivity in the OSCE examination (Bagnasco et al., 2016). Unfamiliarity of students' with OSCE exam and scoring criteria in advance might harden its implementation. Rushforth (2006) found that OSCE may cause students and instructor especially with large of stations and students respectively. Cazzell and Rodriguez (2011) have shown that students failed to link the OSCE experience and clinical practice to the lack of feedback. Milutinović (2013) concluded that application of OSCEs requires organization, checklists, number of examiners, time and financial support. Advantages and disadvantages of the OSCE assessment are summarized in Table 2.

Table2: Advantages and disadvantages of the OSCE assessment

	ADVANTAGES	DISADVANTAGES
1	Easy application.	Resource-demanding method of evaluation.
2	Excellent assessment method for students' preparation for their professional role.	Requires continuous and complex planning and organization
3	High level of validity and reliability.	Requires high cost/ expensive.
4	Pre-determined evaluation manner that remove bias.	Needs intensive examiners and training.
5	Greater objectivity and lesser subjectivity of examiners than most other assessment of methods.	Observers and students fatigue particularly, with large number of students.
6	Training students on clinical conditions similar to reality.	Chances of leaking the stations if large no of observers.
7	Ability to evaluate areas that cannot assessed by traditional methods such as communication skills.	Focus on examining specific nursing competencies, weakens holistic approach.
8	Enhance student's ability to integrate knowledge, clinical skills and communication and how to link them.	Needs a long time to build cases and scoring checklists.
9	Encourages students to become active participants in the learning process.	Stations scenarios may not similar to real-life situations.
10	Develop student's critical thinking and logical reasoning.	Increases students' anxiety and stress.
11	Structured, flexible and adaptable examination to the subject and department requirements.	Needs two examiners per station to achieve objectivity
12	Controlled testing environment.	Stations confidentiality is controversial.
13	Develop confidence in clinical skills without compromising patient safety.	Requires a large number of assessors.
14	All students undertake similar station and are judged on uniform criteria (fairness).	Assessors requires an intensive training on scoring tools.
15	Improve students' competencies through constructive feedback simulators.	Difficult to run.
16	Adaptive (stations can be designed according to the level of skills to be assessed).	
17	Assessing wide-ranging skills.	
18	Motivation learning experience.	

19	Uniform scenarios for all candidates.	
20	No harm to patients (safety).	
21	No risk of legal accountability.	
22	Availability of exams and scenarios.	
23	Ability to assess the overall students' abilities and disabilities.	
24	Ability to assess large number of skills and topics and cover all curriculum skills.	
25	Assess skills and attitudes that cannot be measured by written exams such as communication skills and professionalism.	
26	Provides the faculty with an assessment tool that is custom-fit to the goals of a specific education program.	
27	Tests are run in environment that is similar to professional real practice.	
28	Students can repeat applying of skills many times till mastering these skills.	
29	Allow for auditing	
30	Ability to emergency and critical skills demonstration and training	
31	Provide an opportunity of both teaching and assessment.	
32	Ability to evaluate different levels of trainees	

Discussion

To our knowledge, this is the first nursing review of literature to explore the all-possible advantages and disadvantages from different health sciences backgrounds on using OSCEs in nursing education. It is well documented that implantation of OCEs as an assessment methods of students' competencies and clinical performance have a positive impact on students' preparedness for future professional role (Selim et al., 2011) and nursing education process (Solà, et al., (2017). While other authors have reported that using OSCEs might increase students' anxiety and fatigue (Rushforth, 2006). From another hand, Byrne and Smyth (2008) came to conclusion that students' anxiety may improve students' performance. However, nursing students' actually need to be fully qualified in master clinical tasks and feedback regarding their clinical competencies since the traditional forms of examination cannot assess all nursing professionals' competencies. Several authors reported adequately that OSCEs are robust assessment strategy for students to master the required clinical skills and it advances supports the learning experience (Jeffery et al., 2014). Studies have shown that there are multifactorial barriers that prevent the implementation of OSCEs assessment. These barriers are related to high resource and financial demands, continuous and complex planning and organization in addition to intensive examiners and training (Milutinović, 2013).

While OSCEs assessment is well established in many academic nursing institutions yet, it is obvious that there is a need for more studies that examine the actual barriers and to search for practical interventions that encourage nursing institutions to use OSCEs as an assessment of choice. This study might help nurse administrators, educators, and policy makers to gain more in depth of promoting interventions toward OSCEs implementations in nursing education that ultimately could improve quality of nursing learning and care. On other hand, this study might contribute to the body of knowledge; support studies related to OSCEs assessment in nursing and other health professions and open the door to further interventional studies.

Implications and Recommendations

An action plan to overcome barriers is required from all parties. Overall, the findings illustrate a range of advantages to implement OSCEs in assessment of undergraduate and postgraduate nursing students. The OSCEs have important role in improvement of students' evaluation process in nursing education, for example, improving nurses' proficiency in providing nursing care, enhancing students' confidence and preparation for clinical practice and integrating the acquired skills into nursing profession in clinical settings. Nursing administrators and educators have a pivotal role in creating a good environment for implementation OSCEs in nursing education process. Nurse researchers are in a key position to investigate nursing students and instructors points of view regarding using OSCEs assessment in term of needs, perception, and barriers by conducting more qualitative studies to gain better understanding. Then, appropriate ways of implantation can be developed and implemented. Using OSCEs in assessment future nurses helps to improve quality of nursing education and nurses' quality of care. This study may corporate advancement of nursing knowledge and help nurses' educators to use OSCEs assessment routinely.

Conclusion

The study has highlighted many thought-provoking findings that harmonize with previous literature that recommend using OSCEs throughout the undergraduate nursing education. The implementation of the OSCE in nursing education programs as a format of clinical assessment has versatile advantages in terms of structure, objectivity, transparency, uniformity and ability to assess a wide range of clinical skills that cannot be assessed via traditional strategies of clinical assessment. In attempt to facilitate OSCEs implementation, guidelines need to be developed or adopted (Nulty et al. 2011). Several authors have shown that there is an advancement in methods of evaluating students' knowledge in education (Turner & Dankoski, 2008). Despite students have some concerns regarding using OSCEs; several studies have shown that students valued the OSCE as an evaluation tool for their clinical performance (Fidment, 2012; Selim et al., 2011). The OSCE results might determine

nurses' fitness to entry the field of nursing practice according to evidence based practice. Overall, using OSCEs in assessing nursing students' competencies and performance is worthy and recommended. In summary, the OSCE is a tool that improve the training process of undergraduate nursing students (Waldner & Olson 2007). The recommendation to implement the OSCE in nursing education should not to undervalue the significance of other assessment methods.

References

- [1] Alinier, G., Hunt, B., Gordon, R., Harwood, C., (2006). Issues and innovations in nursing education: effectiveness of interme288 E. Byrne, S. Smyth diate-fidelity simulation training technology in undergraduate education. *Journal of Advanced Nursing* 54 (3), 359-369.
- [2] Bagnasco, A., Tolotti, A., Pagnucci, N., Torre, G., Timmins, F., Aleo, G., & Sasso, L. (2016). How to maintain equity and objectivity in assessing the communication skills in a large group of student nurses during a long examination session, using the Objective Structured Clinical Examination (OSCE). *Nurse education today*, 38, 54-60.
- [3] Barman, A. (2005). Critiques on the objective structured clinical examination. *Annals-Academy of Medicine Singapore*, 34(8), 478.
- [4] Bouchoucha, S., Wikander, L., & Wilkin, C. (2013). Nurse academics perceptions of the efficacy of the OSCA tool. *Collegian*, 20(2), 95-100.
- [5] Byrne, E., & Smyth, S. (2008). Lecturers' experiences and perspectives of using an objective structured clinical examination. *Nurse Education in Practice*, 8(4), 283-289.
- [6] Cazzell, M., & Rodriguez, A. (2011). Qualitative analysis of student beliefs and attitudes after an objective structured clinical evaluation: implications for affective domain learning in undergraduate nursing education. *Journal of Nursing Education*, 50(12), 711-714.
- [7] Fidment, S. (2012). The objective structured clinical exam (OSCE): A qualitative study exploring the healthcare student's experience. *Student engagement and experience journal*, 1(1), 1-18.
- [8] Henderson, A., Nulty, D. D., Mitchell, M. L., Jeffrey, C. A., Kelly, M., Groves, M., ... & Knight, S. (2013). An implementation framework for using OSCEs in nursing curricula. *Nurse education today*, 33(12), 1459-1461.
- [9] Joy, R., Nickless, L., 2008. Revolutionizing assessment in a clinical skills environment- a global approach: the recorded assessment. *Nurse Education in Practice*, 8(5), 352-358.
- [10] McWilliam, P. L., & Botwinski, C. A. (2012). Identifying Strengths and weaknesses in the utilization of objective Structured Clinical Examination (OSCE) in a nursing Program. *Nursing education perspectives*, 33(1), 35-39.
- [11] Milutinović, D. (2013). Assessing clinical skill competence of nursing students through Objective Structured Clinical Examination. *South Eastern Europe Health Sciences Journal*, 3(1), 13-18.
- [12] Mitchell, M. L., Henderson, A., Groves, M., Dalton, M., & Nulty, D. (2009). The objective structured clinical examination (OSCE): optimizing its value in the undergraduate nursing curriculum. *Nurse education today*, 29(4), 398-404.
- [13] Mitchell, M. L., Henderson, A., Jeffrey, C., Nulty, D., Groves, M., Kelly, M., ... & Glover, P. (2015). Application of best practice guidelines for OSCEs—An Australian evaluation of their feasibility and value. *Nurse education today*, 35(5), 700-705.
- [14] Nulty, D. D., Mitchell, M. L., Jeffrey, C. A., Henderson, A., & Groves, M. (2011). Best practice guidelines for use of OSCEs: maximizing value for student learning. *Nurse Education Today*, 31(2), 145-151.
- [15] Rush, S., Ooms, A., Marks-Maran, D., & Firth, T. (2014). Students' perceptions of practice assessment in the skills laboratory: An evaluation study of OSCAs with immediate feedback. *Nurse education in practice*, 14(6), 627-634.
- [16] Rushforth, H. E. (2007). Objective structured clinical examination (OSCE): review of literature and implications for nursing education. *Nurse education today*, 27(5), 481-490.
- [17] Selim, A. A., Ramadan, F. H., El-Gueneidy, M. M., & Gaafer, M. M. (2012). Using Objective Structured Clinical Examination (OSCE) in undergraduate psychiatric nursing education: is it reliable and valid?. *Nurse education today*, 32(3), 283-288.
- [18] Smrekar, M., Ledinski Fičko, S., Hošnjak, A. M., & Ilić, B. (2017). Use of the objective structured clinical examination in undergraduate nursing education.
- [19] Solà, M., Pulpón, A. M., Morin, V., Sancho, R., Clèries, X., & Fabrellas, N. (2017). Towards the implementation of OSCE in undergraduate nursing curriculum: A qualitative study. *Nurse education today*, 49, 163-167.
- [20] Sola-Pola, M., & Pulpón-Segura, A. M. (2014). Assessment of an evaluative tool for nursing college students: the tests for Objective Structured Clinical Examination (OSCE). *BMC health services research*, 14(2), P96.
- [21] Traynor, M., & Galanouli, D. (2015). Have OSCEs come of age in nursing education?. *British Journal of Nursing*, 24(7), 388-391.
- [22] Turner JL, Dankoski ME. Objective Structured Clinical Exams: A Critical Review. *Fam Med*. 2008; 40(8):574-8 [acesso em 10 ago 2012]. Disponível: <http://www.stfm.org/fmhub/fm2008/September/John574.pdf>
- [23] Waldner, M. H., & Olson, J. K. (2007). Taking the patient to the classroom: Applying theoretical frameworks to simulation in nursing education. *International Journal of Nursing Education Scholarship*, 4(1).
- [24] Zayyan, M. (2011). Objective structured clinical examination: the assessment of choice. *Oman Medical Journal*, 26(4), 219.