

The Experience of Nursing Professors and Students about the Objective Structured Clinical Examination

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Abstract

Background: Clinical evaluation in medical sciences is one of the important components of education. One of these evaluations is the clinical assessment for final-year nursing students when they are going to graduate and start their profession. To this end, this study aimed to explore the experiences of nursing professors and students regarding the Objective Structured Clinical Examination (OSCE).

Methods: This qualitative study was conducted using a content analysis approach on 7 nursing professors and 21 nursing students who completed OSCE in 2019 at the Nursing and Midwifery School of Guilan University of Medical Sciences in northern Iran. The participants were selected using purposive sampling and the data were collected through semi-structured individual interviews. The collected data were analyzed using the content analysis approach proposed by Graneheim and Lundman. The credibility of the findings was checked using the criteria proposed by Guba and Lincoln.

Results: The data analysis revealed 3 main categories and 10 subcategories: OSCE as a highly efficient test (the requirement for reviewing the courses, student benchmarking, and randomly arranged questions), OSCE challenges (the low assessment ability of the test, the influence of the nursing instructor's prior knowledge, and having little practical experience), the solutions to improve OSCE (diversification of evaluation techniques, shortening the distance between theory and practice, the effectiveness of the OSCE scores for graduation, and the application of stress reduction methods).

Conclusion: Despite some problems such as its stressful nature and its unknown format for students, OSCE seems to be effective for the clinical assessment of students before their graduation. Taking advantage of the professors' and students' perspectives can eliminate or reduce the problems and improve the positive points for planning and conducting the OSCE in the future.

Keywords: Nursing instructor, Nursing student, Objective Structured Clinical Examination (OSCE), Qualitative research

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Introduction

Nursing is a practice-based profession, and nurses need a lot of psychomotor skills. Besides, repeated practices have a special place in helping nurses acquire knowledge and skills in training courses. In addition to psychomotor skills, nurses need to acquire knowledge and critical thinking in situations that require making complex decisions (1), because nursing educators cannot simulate all the clinical situations and complex work conditions that may occur in the future for graduate students in educational settings (2). These challenges necessitate clinical education for nurses (1).

Clinical education is currently one of the essential components of medical education, and students acquire some necessary competencies and professional skills by completing clinical training courses (3,4). On the other hand, an educator with good personality traits,

effective clinical competencies, and realistic assessment can train qualified students to work in the healthcare system (5). Eskandari et al also considered the provision of facilities and equipment for medical students as one of the important factors that help to apply the lessons learned in the clinical setting (6). Researchers in the field of education all over the world are trying to replace the old methods with more efficient ones by inventing newer teaching methods such as active learning where students have more options. One of the reasons for this effort can be some shocking statistics about the clinical competence of students. For example, some researchers have admitted that only 10% of new graduate students were ready to provide safe and adequate services to patients (7). Rahiminia et al suggested the officials of the educational system are required to plan theoretical and practical courses efficiently and prepare students for



starting internships and communicating effectively (8).

Given the significance of clinical education for nurses, the effective evaluation of nursing students is also of particular importance (9). Conducting a correct assessment gives the perspective to the nursing educators that if students get a good grade, they have the competence required for working in the clinical setting (10). Moreover, officials in the educational system need to develop some programs for evaluating people based on their competencies (11). In the 1950s and 1960s, clinical skills were measured mainly through written and oral tests which led to the dissatisfaction of nursing instructors and students (12). Thus, researchers in this field tried to find more effective solutions to assess students. Finally, Harden et al introduced the Objective Structured Clinical Examination (OSCE) (13,14). In 1984, OSCE was incorporated into the nursing curriculum with easy administration and good validity (15).

OSCE is currently administered in many fields of medical sciences such as medicine, nursing, physiotherapy, and pharmacy. However, this exam is not limited to the health and medical fields and it may also be used to evaluate other human resources such as police officers (16). Efforts have been made to develop it in some countries. For example, in Australia, OSCE stations were provided free of charge to all medical students to practice, and then by receiving feedback, they tried to identify their strengths and weaknesses and improve them as much as possible (17). OSCE consists of 4 sections, each having a unique meaning. The objective nature of this instrument is due to the assumption that some characteristics of this test are similar. Each station in the OSCE has been developed to measure a specific component that reflects its structural nature. In OSCE, clinical skills and judgments are measured because it has clinical applications. Finally, the examination was added due to the use of testing processes (18). OSCE evaluates students in 3 areas of cognitive, emotional, and psychological learning (9,10). Accordingly, OSCE has many advantages and disadvantages. Exam papers may have some advantages. For example, people have different handwriting styles, and bad handwriting does not adversely influence the student's performance. However, forgetting to mention details, losing the exam paper, or not writing the name are other possible problems that can be resolved with OSCE (19).

Another advantage of administering OSCE is that students demonstrate their skills objectively and the impact of intervening variables is reduced (9). However, OSCE has some disadvantages. OSCE administration is expensive and students experience more anxiety in this type of evaluation. Thus, it is necessary to provide complex organizational support for its correct administration (20). Compared to all clinical assessments performed during nursing education, the final assessment or final exam

is the most important because it ensures that nursing students are adequately trained or have a good command of clinical procedures and processes (4), especially with OSCE, which plays an effective role in evaluating and providing feedback for students (21). Identifying and tracking the variables affecting OSCE administration from the perspective of students as the main beneficiaries of this assessment event can be of great help in advancing the educational goals (22). Exploring the experiences and views of students (23) and nursing instructors can contribute to improving the quality of nursing student evaluations (24). However, given the lack of qualitative studies with a simultaneous focus on nursing instructors and students in Iran, the present study sought to investigate the experiences of nursing students and nursing instructors about OSCE.

Methods

This qualitative study was conducted using conventional content analysis to explore the experiences of undergraduate nursing students who completed OSCE and the professors who administered OSCE in 2019 at the Nursing and Midwifery School of Guilan University of Medical Sciences in northern Iran. Following the research questions and objectives, this study was conducted using qualitative content analysis because content analysis is a systematic and reliable approach to sorting data into useful information to explore and understand the participants' experiences (25).

The participants including 7 nursing professors and 21 nursing students were selected using purposive sampling. The students who took OSCE were nursing students who had completed the eighth semester. The subjects examined in the OSCE were mother and infant health nursing, community health nursing, adult and geriatric nursing (1-3), and special care nursing. The inclusion criteria were taking OSCE in 2019, attending OSCE at least once as an examiner, and the willingness to be interviewed. Before each interview, the interviewees were informed about the purpose of the study, the reason for recording the interviews, the confidentiality of the data, the deletion of the data after extracting the results, and the freedom to leave the study. The participants were also told that their participation in the study was voluntary. Moreover, written informed consent was obtained to indicate their voluntary participation and their permission to record the interviews. The data were collected through face-to-face semi-structured interviews conducted individually for 30 to 45 minutes in a quiet place. The process of data collection continued until data saturation. Each interview began with some open-ended questions such as "Could you please talk about your experience of participating in OSCE?" and "Could you talk about your experience regarding the factors influencing OSCE administration?" Based on the participants' responses, the next questions

were asked with more focus for a more accurate understanding.

The collected data were analyzed using the content analysis approach proposed by Graneheim and Lundman. First, the researchers transcribed the content of the interviews into written texts and read them several times to get familiar with the content. Each interview was analyzed and coded as a unit of analysis. Then, words, sentences, or paragraphs were considered as meaning units and the underlying themes were extracted and coded. Afterward, the extracted codes were compared with each other in terms of their similarities and differences and were grouped under more abstract categories with specific labels. Finally, the core theme was extracted by comparing the categories with each other and a deep reflection on the identified categories (26).

The findings of the study were validated using the four criteria (Credibility, Transferability, Dependability, and Confirmability) proposed by Guba and Lincoln (27). To this end, the text of the interviews and emerging codes and categories were reviewed and revised by several experts. The credibility of the findings was also assured with constant engagement with the subject matter. The interviews and the extracted codes were also reviewed and confirmed by qualitative research experts. The steps taken to conduct the study were recorded and reported in detail so that others could follow up on the research procedure and enhance the dependability and confirmability of the research findings. The transferability of the findings was confirmed by two persons who were not participants but had characteristics similar to the participants (26).

Results

The participants in this study were 28 persons (21 nursing students and 7 nursing professors). An analysis of the participants' statements revealed 3 main categories and 10 subcategories: OSCE as a highly efficient test (the requirement for reviewing the courses, student benchmarking, and randomly arranged questions), OSCE challenges (the low assessment ability of the test, the influence of the nursing instructor's prior knowledge, and having little practical experience), the solutions to improve OSCE (diversification of evaluation techniques, shortening the distance between theory and practice, the effectiveness of the OSCE scores for graduation, and the application of stress reduction methods) (Table 1).

OSCE as a highly efficient test

Analyzing the nursing professors' and students' experiences of OSCE confirmed some advantages of the test including the requirement for reviewing the courses, the ability for student benchmarking, and the inclusion of randomly arranged questions, which increased the validity of the test.

The requirement for reviewing the courses

Many participants stated that taking the OSCE exam required them to review all undergraduate courses. They believed that without having such an exam, the courses cannot be reviewed except when preparing for the entrance exam for the master's program: *"I hadn't decided to take the MA entrance exam, so I hadn't reviewed the previous years' courses. But, taking the exam kind of forced me to review the courses, which I thought were very useful even for enrollment in the internship"* (Participant 4; a student). *"Unfortunately, with the omission of the final theoretical nursing exam, almost the majority of students do not review the courses offered in previous semesters, as these courses could improve their scientific knowledge for starting their work as nursing staff. But OSCE forces them to review their main courses"* (Participant 18; a professor).

Student benchmarking

A large number of the nursing students considered participation in OSCE a benchmark for their knowledge: *"Since the sixth semester, I have been working as a student, and in fact, I can claim that I have gained lots of practical experience, but taking OSCE forced me to review the practical principles and also made me aware of my theoretical knowledge"* (Participant 13; a student).

Randomly arranged questions

The participants (the nursing professors and students) stated that the random arrangement of the OSCE questions contributes to the fairness of the test and is an effective strategy to reduce students' stress: *"I was stressed for the exam because I feared that the professor would ask me more difficult questions as he knew that I was always a top student [laughing]. But, the random order of the questions gave me peace to a great extent"* (Participant 22; a student). *"The questions in such tests should be arranged randomly as it will always lead to the fairness of the test for all students"* (Participant 14; a professor).

OSCE challenges

Approximately, most of the participants highlighted the challenges associated with OSCE such as the low assessment ability of the test, the concerns about the influence of the nursing instructor's prior knowledge of the student on students' scores, and having little practical experience due to not encountering some cases in internships.

Low assessment ability of the test

Most of the students admitted that the time at some OSCE stations was short and the test could not measure students' skills accurately: *"The exam time was short and we could not write both the report and the nursing process. Many students only found time to write a report and did not have time to write the process"* (Participant

Table 1. Nursing educators and students' experiences of OSCE

Main categories	Subcategories	Codes
OSCE as a highly efficient test	The requirement for reviewing the courses	Reviewing the courses offered in the previous semester as a requirement for attending OSCE Reviewing the courses to get prepared for attending OSCE
	Student benchmarking	Attending OSCE to assess the student's theoretical knowledge Attending OSCE to assess the practical procedures learned by the student
	Randomly arranged questions	Randomly-arranged questions to reduce the student's stress The random arrangement of the questions contributing to the fair administration of OSCE
OSCE challenges	Low assessment ability of the test	The inadequate time assigned to OSCE as a factor lowering the assessment power of OSCE The limited number of OSCE questions as a factor leading to the failure to accurately assess the students
	The influence of the nursing instructor's prior knowledge	Concerns about the instructor's prior knowledge and its impact on the students' OSCE scores Concerns about the unintentional student-educator arguments and their impact on the students' OSCE scores
	Little practical experience	Fear of OSCE due to the failure to perform some procedures such as gastroesophageal intubation in the internship Fear of OSCE due to the student's performance
Solutions to improve OSCE	Diversification of evaluation techniques	Using different practical assessment methods for a more accurate evaluation Conducting simultaneous theoretical and practical assessments to increase the accuracy of OSCE results
	Shortening the distance between theory and practice	The shorter time between the internship and OSCE administration for more effective application of the materials learned The shorter time between the learned materials and their applications to improve the learning process
	The effectiveness of the OSCE scores for graduation	The need for more emphasis on OSCE results Paying more attention to OSCE results to enhance students' valuation of OSCE
	Application of stress reduction methods	Prior working experience during college years as a factor reducing the student's stress The similarity between the OSCE questions and the materials covered in the courses

3; a student). "As I remember, the allotted time for some stations was so short that the resulting stress affected the entire exam process" (Participant 9; a student). Some students also considered the limited number of questions as an important factor in lowering the assessment power of OSCE: "If the OSCE questions are designed in the form of multiple-choice tests with a focus on specialized courses and the practical sections of the exam, it will have a higher assessment ability" (Participant 5; a student).

The influence of the nursing instructor's prior knowledge

Several students stated the professor's knowledge of their academic performance in the past could affect their OSCE results: "There are many problems with the administration of the exam. For example, the questions that some professors asked in the exam had a direct relationship with the professor's knowledge of the student" (Participant 1; a student).

Little practical experience

Some of the students stated that they had little practical experience due to the lack of exposure to some procedures during internships: "I learned many clinical procedures when working during my studies instead of in internships because I didn't encounter many procedures during internships, that's why the exam was stressful for me" (Participant 6; a student). "Hospitals in the east of Guilan province need to provide a more complete educational platform so that students have more encounters with all kinds of diseases. Because currently, many emergency cases are transferred to hospitals in the capital of the province"

(Participant 10; a professor).

Solutions to improve OSCE

The participants highlighted the need for the use of different assessment techniques to reduce OSCE-induced stress in students. They also pointed to some solutions like using different assessment methods during the exam, the short intervals between the exam and starting the program, the effectiveness of the exam scores for graduation, and the use of methods to reduce students' stress.

Diversification of evaluation techniques

The participants stated the use of different assessment methods during OSCE can be an efficient way to improve the exam: "If the exam is designed with oral and essay-type questions, it will improve the learning process" (Participant 8; a student). "OSCE will be more efficient if it measures both theoretical knowledge and practical skills" (Participant 15; a nursing instructor).

Shortening the distance between theory and practice

The participants highlighted the need for shortening the time interval between OSCE administrations and starting work under the human resource plan as an effective strategy: "We would quickly forget what we have learned. We will have better learning outcomes if the human resources plan begins immediately after OSCE administration" (Participant 15; a student). "Students who begin their compulsory military services will forget what they have learned within 2 years of military service"

(Participant 27; a student).

The effectiveness of the OSCE scores for graduation

The participants pointed to solutions such as the need for giving more weight to the OSCE scores: “Many students do not believe in the significant role of OSCE, and since they think they will graduate in any situation, they do not attach as much importance to this exam as the end-of-semester exams” (Participant 22; a student). “Students need to know that if they answer incorrectly and insufficiently, they will not graduate on time so that they can better understand the importance of OSCE” (Participant 26; a professor).

Application of stress reduction methods

Some students stated that having the experience of working during college years can be a positive factor in reducing stress during the exam: “I was less stressed during the exam because I had worked for a longer time than my friends” (Participant 2, a student).

Some of the participants stated that the similarity between the OSCE questions and the materials covered in the courses and internships was effective in reducing stress in students. “If we try to teach the content and materials that are more similar to the content assessed by OSCE questions, the student will be more successful in the exam” (Participant 7; a professor).

Discussion

This study explored the experiences of nursing professors and students about OSCE. Three main categories emerged from the data analysis. (a) OSCE as a highly efficient test, (b) OSCE challenges, and (c) solutions to improve OSCE, as discussed in detail below:

OSCE as a highly efficient test

The findings of the present study showed that OSCE has some advantages including the requirement for reviewing the courses, the ability for student benchmarking, and the inclusion of randomly arranged questions, which made the test more effective. Preparation for OSCE is a key issue (14,27) as was highlighted by many participants in the present study. Rafati et al reported that nursing students prepared and read books that improved their learning and their performance on OSCE (14). Salehi et al showed that OSCE, in addition to evaluation, plays an important role in the learning outcomes of nursing and midwifery students (3). Furthermore, Brosnan et al reported that OSCE was effective in students’ learning, as was confirmed in the present study (28). Following the findings of the present study, Azmoodeh et al reported that some students stated OSCE establishes a good relationship between their theoretical information and clinical skills (29), improves students’ theoretical knowledge and practical skills, and helps to establish justice in patient care (30). Thus, it can be argued that OSCE increases students’ learning and

reduces their stress, thus improving their satisfaction and their efficiency in the exam.

OSCE challenges

The participants in this study also highlighted challenges associated with OSCE including the low assessment ability of the exam, the influence of the nursing instructor’s prior knowledge of the student on their OSCE scores, and having little practical experience. Similarly, according to a study by Raziani et al in the Kurdistan region of Iraq, most students stated that the time of some OSCE stations was short and the exam could not accurately measure students’ performance (31). In another study, most participants reported that the OSCE failed to extensively assess their clinical skills (32). Contrary to the findings of the present study, Azmoodeh et al reported that the students were satisfied with the time of OSCE stations and the order and structure of the exam and considered OSCE an effective method for examining clinical skills and revealing their strengths and weaknesses (29). Moreover, Dehnoalian et al showed that the majority of nursing students consider OSCE appropriate for evaluating their clinical skills (33). These conflicting results could be due to differences in the participants. The participants in Dehnoalian and colleagues’ study were 6th-semester nursing students, while the participants in the present study were nursing professors and last-year nursing students. The experiences of these two groups of participants could be completely different. Some students reported concerns about the nursing instructor’s prior knowledge of the students and its impact on the students’ OSCE scores and worries about the unintentional student-educator arguments and their impact on the students’ OSCE scores. Indeed, the educator’s prior knowledge can lead to a bias in students’ grading (34). In a qualitative study that was conducted at Isfahan University of Medical Sciences, medical students had different views (positive and negative) in this regard, and some of them believed that the use of an assistant as an evaluator was due to personal hostility in the hospital and an awareness of the weaknesses of the student, which can affect students’ performance (20). Moreover, some participants in the present study stated that they had no experience and exposure to some procedures, including gastroesophageal intubation, during their internships, as was reported by Faghihi (35). The participants in the present study also stated that the expected goals and skills assessed in OSCE do not match the educational materials. Kohansal et al also reported the ineffectiveness of clinical education and its incompatibility with OSCE as one of the obstacles to success in OSCE (21). Accordingly, Nouhi et al recommended supporting the development of a suitable context for active and collaborative teaching and learning (36).

Solutions to improve OSCE

The diversification of evaluation techniques, shortening

the distance between theory and practice, the effectiveness of the OSCE scores for graduation, and the application of stress reduction methods were some solutions proposed by the participants in the study to improve the efficiency of OSCE. Kohansal et al suggested removing the obstacles and improving the facilitating factors to enhance the efficiency of OSCE. Kohansal et al also reported that one of the factors facilitating the success of students in OSCE was previous experiences of working during college years, as evident in the present study (21). Contrary to the present study in which the participants proposed to reduce the time interval between OSCE administration and starting to work under the human resources plan (required by the Physicians' and Paramedics' Service Law), Rafati et al, suggested holding OSCE in several academic courses (28). Sheikh Abumasoudi et al also suggested that effective evaluation can be performed indirectly with closed-circuit television cameras to reduce students' anxiety (37).

Since qualitative studies have limited generalizability in their results and the students from only one faculty were surveyed in the present study, future studies can examine students and professors in other nursing faculties to improve the generalizability of the findings.

Conclusion

Following the findings of the present study, despite some problems such as its stressful nature and its unknown format for students, OSCE seems to be effective for the clinical assessment of students before their graduation. Improvement and innovation in OSCE administration can increase the quality of the students' final assessment. Accordingly, briefing sessions can be held for students and professors before administering the exam to help them prepare for it. Moreover, OSCE can be evaluated in other clinical training groups to identify its further flaws and shortcomings to take effective steps to improve the quality of clinical education by eliminating the defects and strengthening the positive aspects.

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Authors' Contribution

Conceptualization: Pouya Nematzad, Parand Pourghane, Fereshteh Besharati, Seyed Mohammad Sadegh Mozafari.

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Competing Interests

Neither the authors nor the organizations involved reported any conflict of interest.

Ethical Approval

The present study was registered in the Student Research Committee of the Vice-Chancellor for Research and Technology of Guilan University of Medical Sciences in North Iran [IR.GUMS.REC.2019.241].

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