

Implementation of Objective Structured Clinical Examination in Improving the Clinical Skills of Nursing Students

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ABSTRACT

The Objective Structured Clinical Examination (OSCE) is a widely used evaluation method in nursing education to objectively, systematically, and comprehensively assess students' clinical competencies. Evaluating the implementation of OSCE is essential to determine its effectiveness in enhancing nursing students' clinical skills. This study aims to evaluate the implementation of OSCE in improving the clinical competence of nursing students. This research used a quantitative descriptive approach with a survey method. The sample consisted of final-year nursing students who had participated in OSCE. Data were collected through questionnaires and documentation of OSCE results, then analyzed using descriptive statistics. The findings indicate that OSCE implementation is effective in enhancing students' clinical skills, particularly in communication, clinical decision-making, and technical abilities. Most respondents stated that OSCE provided a realistic learning experience and increased their confidence in clinical practice. The implementation of OSCE has a positive impact on improving the clinical competence of nursing students. It is recommended to continuously develop OSCE by improving scenario quality, examiner training, and integrating constructive feedback.

INTRODUCTION

Nursing education is a learning process that emphasizes not only theoretical knowledge but also the development of clinical skills, which are essential for providing professional nursing care. One of the main challenges in nursing education is ensuring that students possess adequate clinical competence before entering real clinical settings. Therefore, an evaluation method that can objectively and comprehensively measure clinical abilities is necessary.

The Objective Structured Clinical Examination (OSCE) is a structured and standardized evaluation method designed to assess students' clinical skills through a series of stations, each presenting specific clinical scenarios. OSCE is considered more objective than traditional assessment methods because each student is tested under the same conditions, with standardized criteria and trained examiners. This format allows students to demonstrate their abilities in communication, clinical decision-making, technical procedures, and professional behavior in a simulated clinical environment.

Although OSCE is widely implemented in many nursing education institutions, its effectiveness needs to be continuously evaluated to ensure it truly contributes to improving students' clinical competence. Such evaluations are essential to determine whether the OSCE is being implemented according to established standards, whether students find it beneficial, and how it impacts their readiness for real-world clinical practice.

Based on this background, the present study aims to evaluate the implementation of OSCE in nursing education and assess the extent to which it enhances the clinical competence of nursing students. The findings of this study are expected to provide valuable insights for improving assessment methods and ensuring the quality of nursing graduates.

Despite the widespread use of the Objective Structured Clinical Examination (OSCE) in nursing education, questions remain about how effectively it enhances students' clinical competence. It is important to investigate whether the OSCE is implemented in a way that aligns with best practices, and whether students truly benefit from this evaluation method in terms of skill acquisition, confidence building, and readiness for clinical practice. Furthermore, feedback from students and educators is essential to determine the strengths and areas for improvement in the current OSCE implementation.

The objectives of this study are: To evaluate the implementation of the Objective Structured Clinical Examination (OSCE) in nursing education. To analyze the effectiveness of OSCE in improving nursing students' clinical competence. To identify students' perceptions and experiences regarding the OSCE process. To provide recommendations for improving the quality of OSCE implementation in nursing programs.

This study is expected to provide several significant contributions, both theoretically and practically:

For Nursing Education Institutions

The findings of this research can serve as a valuable reference for improving the implementation of OSCE in nursing programs. It may help curriculum developers and academic staff to design more effective and standardized clinical evaluation strategies.

For Nursing Students

By understanding the strengths and weaknesses of the OSCE process, students can better prepare themselves for clinical examinations and develop a deeper awareness of the skills required in real clinical settings.

For Nursing Educators and Examiners

This study can provide insights into how OSCE is perceived by students and how its implementation affects student performance, thus helping educators to deliver more meaningful feedback and improve teaching strategies.

For Future Researchers

The results of this study can be used as a foundation for further research on clinical skill assessment methods and innovations in nursing education. In health education, there are various assessment methods designed to evaluate the teaching and learning process, both formative and summative, in accordance with competencies. These competencies are not only cognitive but also holistic, including skill competencies. One of the clinical skill evaluation methods widely used in the health sector is the objective structured clinical examination (OSCE) method.

The Association for Medical Education in Europe (AMEE) recommends that one of the methods for assessing learning outcome competencies is the OSCE method. OSCE can assess clinical skills, practical procedures, patient investigation, patient management, health promotion and disease prevention, communication, information management, social principles, basic and clinical skills; attitudes, ethical and legal responsibilities; decision-making, reasoning and clinical decisions; professional behaviour and personal development. OSCE is an assessment technique where students demonstrate their competencies in several simulated conditions (Watson et al, 2002).

OSCE is a tool for assessing clinical competency components such as history taking, physical examination, procedural skills, communication skills, interpretation of laboratory results, management, and others, which are tested using a predetermined checklist. OSCE is part of the assessment system. The purpose of OSCE is to assess students' clinical competence and skills objectively and structurally. OSCE was first developed in the 1970s as a clinical assessment method (Marion et al, 2012). OSCE is defined as an approach to assessing clinical competence, where the competencies being assessed have been well planned in advance and the objectivity of the assessment has been taken into account (Harden, 1988). OSCE was first adopted by North America and then spread widely in the UK in 1990. OSCE is now used to assess clinical skills in midwifery faculties and doctor certification in the USA, Canada, UK, Australia, New Zealand, and other countries.

In the Midwifery undergraduate programme at Muhammadiyah University Tangerang, the OSCE assessment method has been used as a summative assessment to provide feedback in order to improve students' clinical skills. Meanwhile, formative assessment is conducted by each clinical instructor. The concern is whether the score for clinical competence is sufficient based solely on the OSCE score or whether it should be supplemented with the formative score obtained by students during clinical practice with each instructor, given the objectivity of the OSCE method.

The purpose of this study was to evaluate the OSCE examination process conducted by the Midwifery Undergraduate Programme. It is hoped that the results of this study can be used as a reference for the clinical skills assessment process for future students.

LITERATURE REVIEW

A validation study by Chabrera et al. (2023) designed ten OSCE scenarios aligned with nursing curriculum competencies and demonstrated strong face validity, content validity (CVI 0.82–0.95), criterion validity ($r = 0.71$, $p < 0.001$), and reliability (Cronbach's α 0.84). Despite high levels of stress and satisfaction among participants, students' self-assessment scores were lower than their actual performance.

Numsang et al. (2021) reported high competency scores in diverse areas such as CPR (100%), vaccine injection (92%), normal labor (94.9%), and physical examination (62.7%). Students expressed satisfaction, citing increased confidence in patient care after graduation. A study from South Korea found that participation in OSCE improved nursing students' retention of core clinical knowledge and situational awareness. In Taiwan, a study involving novice nursing practitioners (NNPs) found that OSCE implementation improved clinical competence, reduced work stress, and enhanced confidence. Immediate feedback and debriefing were instrumental in identifying areas needing improvement. According to PLOS One, OSCEs promoted learning motivation, improved communication and basic nursing skills, and increased learning satisfaction. Importantly, they facilitated adaptability to real-world clinical settings.

A mixed-methods study involving 55 nursing undergraduates and examiners revealed that OSCE was perceived as a valuable learning tool enhancing preparation for clinical tasks. However, participants expressed stress and suggested improvements such as longer station durations and enhanced simulator patient training. A systematic review comparing OSCE and traditional clinical exams found that OSCE was seen as more credible and favorable among both students and faculty. Another systematic review (2017–2022) found global support for OSCE's effectiveness in simulating real clinical practice. Students reported increased satisfaction, self-confidence, clinical judgment, and knowledge acquisition, though the process remained stressful and resource-intensive.

The literature consistently supports OSCE as a robust, objective assessment method that significantly enhances nursing students' clinical competence, confidence, and readiness for practice. Well-designed OSCEs

demonstrate reliability and validity, and students typically perceive them as meaningful learning experiences. Nonetheless, challenges such as stress, resource demands, and time constraints should be proactively managed, potentially through innovations like virtual or formative OSCE formats.

Let me know if you'd like this expanded with more localized studies, educational frameworks, or tailored for a specific thesis context.

METHODOLOGY

This study is a mixed methods study combining qualitative and quantitative approaches. The planning and implementation of the OSCE were analysed using qualitative methods, while the OSCE scores as output were analysed using scatter diagrams. There are several points in the assessment rubric per station, such as subjective data assessment, objective data assessment, data interpretation, clinical procedures, professional behaviour, and health education. Meanwhile, there is also an additional point given by the examiner, namely a global rating to determine student graduation. A comparison of these points will result in a cut-off score for each station. If the score is $<$ cut-off, the student does not pass the OSCE, and if the score is \geq cut-off, the student is declared to have passed.

RESEARCH RESULT AND DISCUSSION

The Objective Structured Clinical Examination (OSCE) is part of the assessment system. The purpose of the OSCE is to assess students' clinical competence and skills objectively and in a structured manner. The areas of competence tested are medical history, physical examination, interpretation of data to support diagnosis, management, communication and education, and professional behaviour.

OBJECTIVE - all examinees are presented with the same station (although if "real patients" are used as material, the symptoms will vary) with the same testing scheme. In OSCE, for each step of the activity, participants are assessed in the same way according to the correctness of the procedure or step they perform. Thus, the assessment will be more objective. The assessment is based only on steps that are performed correctly, performed incorrectly, or not performed at all.

STRUCTURED - The station has clear and specific instructions. If the patient used is a 'simulated' patient, then there must be a clear scenario so that all participants obtain the same information about the patient, including in this case, the emotional display that the 'patient' must show during the consultation. Instructions are clearly written so that participants can complete their tasks thoroughly. The OSCE must be well structured and cover all elements of the curriculum, including the range of skills.

CLINICAL ASSESSMENT - OSCE is designed for the application of theoretical and clinical knowledge. When theoretical knowledge is required, for example, answering questions from the examiner at the end of the station with standard questions and answers filled in on the assessment sheet, only the answers to the questions given are recorded; answers outside the questions are not recorded on the assessment sheet.

The advantage of conducting an OSCE is that the examination is shorter for students, but it must be structured and skilful as well as careful because there is no time to repeat the skills being tested and there are many examination stations to go through. In conducting an OSCE examination, all students who are candidates receive the same questions or are faced with the same problem situations and the same testing scheme. In OSCE, for each step of the activity, participants are assessed in the same way according to the level of correctness of the procedure or step they perform. Thus, the assessment will be more objective. Examiners will give scores based on the assessment guidelines provided by the exam organisers. Each station in the OSCE examination has clear and specific instructions. If the patient used is a 'simulated' patient, there must be a clear scenario so that all participants obtain the same information about the patient, including the emotional display that the patient must show. Instructions are clearly written so that participants can complete their tasks thoroughly.

The OSCE must be well structured and cover all elements of the curriculum, including the range of skills. The OSCE examination is designed to assess students' application of theoretical knowledge and clinical practice. During the OSCE, theoretical knowledge is required to answer questions from examiners at the end of each station with standard questions and answers filled in on the assessment sheet. Only answers to the questions given are recorded on the assessment sheet; answers outside the scope of the questions are not recorded.

In the OSCE test, all candidates receive the same questions, making the test objective. The areas of competence tested are anamnesis, physical examination, interpretation of data to support diagnosis, management, communication and education, and professional behaviour. The OSCE test, which consists of 12-20 stations, has several variations, namely patient-based, clinical task, and written task. At each test station, candidates are given a time limit indicated by a bell and a break in the middle of the station. An OSCE 'station' can take various forms, including 'multiple-choice questions' or 'essay tests', but the most commonly used is the 'encounter clinic' where students interact with a 'standardised patient'.

Examinees undergo a rotational assessment stage by passing through all available stations. In this way, all examinees will pass through the same stations. This is an improvement on traditional assessment methods because stations can be standardised by medical professionals and complex procedures can be carried out without endangering patient health.

OSCE stations can take various forms, including multiple-choice questions or essay tests, but the most commonly used is the encounter clinic, where students interact with standardised patients. At each OSCE station, there is an examiner who observes and grades the candidates based on the guidelines for the activities that each exam participant must perform.

In conducting the OSCE examination, there are several stages that must be prepared, namely the planning stage, the implementation stage, and the analysis or evaluation stage.

OSCE Design Steps for designing an OSCE

1. Determination of the clinical competency components to be tested.

The types to be tested depend on the learning outcomes. Clinical competency components that are often tested broadly include subjective data assessment, objective data assessment and clinical decision-making, procedural skills, data interpretation, health education, professional behaviour, and knowledge. The determination of these clinical competency components is outlined in the assessment rubric for each station. The types of clinical competencies to be tested are compiled in an OSCE blueprint, which is very helpful in selecting and planning the types of skills to be tested. The creation of this blueprint is discussed and determined jointly by the OSCE committee. This differs from the opinion of Marion et al, where the competency areas tested consist of four areas, namely relevant context, measurement competency, professional behaviour, and integrated skills.

2. Determination of station time

The determination of time for each station is influenced by the complexity of the skills to be tested. For semester IV, the time per station is 8 minutes because in this semester the competencies tested are early detection and initial management of pregnancy, childbirth, postpartum, newborns, and high-risk toddlers, while for semester V the time per station is 6 minutes where the blocks tested are early detection of reproductive health disorders, community midwifery, and family planning. This time allocation is also useful for OSCE operators to create time simulations before the OSCE implementation day.

3. Determining the number of stations involved

The number of stations is determined based on the number of students taking the OSCE exam, usually consisting of 12 stations.

4. Creating a template

The Midwifery OSCE template refers to the existing medical OSCE template. This template consists of station numbers, station titles, time required, station objectives, competencies, categories, instructions for examinees, instructions for examiners, station layout, standard patient instructions, laboratory requirements, manikin requirements, equipment set requirements, authors and references.

- a. The station number contains the station sequence.
- b. The station title is the title of the competency tested at that station.
- c. The station objective is psychomotor domain level 4 (P4), which is that students are able to demonstrate the steps of the work accurately.
- d. Competencies consist of subjective data assessment, objective data assessment, data interpretation and clinical decision-making, clinical procedural skills, health education, documentation, and professional behaviour. The competency components tested in the station are then marked in black.

The knowledge competency component involves the assessor asking several questions related to the skills being tested, and documentation may take the form of SOAP documentation, paragraphs, maternal cohorts, and infants. This is in line with several other studies where, in some stations, examiners can ask several questions or participants write answers from the clinical scenarios provided (Newbel, 2004; El Darir & Abd El Hamid, 2013). This differs from the study by Osaji et al in 2015, where the question station was distinguished from the action station, so that if there were 12 action stations, there were also 12 question stations (Osaji et al, 2015).

- e. Categories refer to the types of competencies being tested.
- f. Examination instructions contain clinical scenarios and student assignments.
- g. Examiner instructions consist of general instructions and specific instructions.
- h. Patient instructions, if patients are used at that station.
- i. The need for laboratory assistants, mannequins, and equipment is adjusted to the competencies being tested.

This aligns with Miller's pyramid, which focuses on assessing clinical competencies in a conducive environment. To assess students' clinical competencies up to the 'shows how' stage, competency assessment through simulations and OSCE is required.

5. Determination of the examination team

The examination team is selected based on their expertise for each station. This is one of the obstacles because there is still a shortage of midwife assessors in the Andalas University Faculty of Medicine environment, so this is overcome by adding doctor assessors, which must also be adjusted to the time and availability of these assessors.

6. Examiner perception alignment

The purpose of this perception alignment is to ensure that each examiner has the same understanding of how the OSCE will be conducted.

7. Determination of patient standards (Resource Requirements)

The use of patient standards in OSCE can increase reliability. These patient standards are healthy individuals who are briefed to role-play the condition of a patient in accordance with the scenario to be tested. Recruitment of SPs can be done from medical faculty employees.

8. Logistics

The logistics involved consist of identifying the skills lab equipment and materials to be used, borrowing from the laboratory, and placing the equipment and materials in each station room.

9. Costs.

The OSCE requires funds to cover the standard fees for patients, examiners and support staff. The OSCE budget is set by the OSCE secretary and the funds used are taken from the study programme's RAKKL.

The competencies assessed in the OSCE are

1. Anamnesis skills

This assessment includes evaluating the participant's ability to facilitate the patient in describing their symptoms. Using appropriate questions to obtain accurate and adequate information. Responding appropriately to the patient's verbal and non-verbal cues.

2. Physical examination skills

This assessment evaluates the participant's ability to perform a physical examination appropriate to the patient's clinical issues using logical, systematic, and efficient examination techniques. Being responsive to the patient's comfort and providing explanations to the patient.

3. Performing clinical tests/procedures or interpreting data to support differential diagnosis or diagnosis. This assessment includes evaluating the participant's ability to perform a clinical test/procedure correctly and communicate the procedure or results, or interpret the results of supporting examinations correctly and explain them to the patient accurately.

4. Diagnosis/differential diagnosis This assessment includes an evaluation of the participant's ability to establish an accurate diagnosis/differential diagnosis in accordance with the patient's clinical problems.

5. Management

6. Non-pharmacotherapy (interventions)

This assessment includes evaluating the participant's ability to perform interventions appropriate to the patient's clinical problems and to explain the reasons for and procedures involved in performing the interventions.

7. Pharmacotherapy

This assessment includes evaluating participants' ability to choose rational medication.

8. Patient communication and/or education

This assessment includes evaluating participants' ability to communicate effectively, namely exploring patients' perspectives using understandable language, giving patients the opportunity to ask questions, responding to patients' questions/statements both verbally and non-verbally, conducting discussions, negotiating and fostering good relationships with patients, and providing counselling appropriate to patients' problems in an appropriate manner.

9. Professional Behaviour

This assessment includes evaluating participants' ability to practise aspects of professionalism, such as obtaining informed consent, performing every action carefully and meticulously to avoid harming the patient, ensuring patient comfort, prioritising actions, and demonstrating respect for the patient. Recognising limitations.

This is also a minor concern given the high cost of OSCE in relation to the needs of the committee, patients, laboratory technicians, assessors, consumables, and other infrastructure. In line with several other studies, it is also mentioned that despite the significant advantages and benefits of OSCE for students, there

are obstacles in its implementation related to personnel, facilities, finances, and assessor time (Evans, 2008; Turner & Dankoski, 2008; Marwaha, 2011).

Interview results with students also indicate that there are minor obstacles if laboratory technicians are not available at stations that require them to tidy up the equipment. However, this has been overcome by providing two sets of equipment for each station. This allows laboratory assistants and examiners to prepare the equipment for the next participant.

10. OSCE socialisation

OSCE socialisation is intended for students, so that they have a common understanding of how the OSCE will be conducted.

11. OSCE Committee Meeting

This meeting aims to ensure that the committee and laboratory staff understand their respective roles and responsibilities, including preparing the rooms for each station.

12. Post-exam review

The post-exam review is conducted by the skills lab team of the Bachelor of Midwifery programme to evaluate the OSCE that has taken place, with the findings used to improve the next OSCE.

In addition to competency assessment, examinees will be assessed on their general abilities. This assessment component consists of the examiner's impression after observing the examinee's overall abilities to determine whether they are capable of becoming a midwife with their existing abilities. The assessment consists of fail, borderline, pass, and superior. The borderline score will be used as the basis for determining the pass mark.

OSCE assessment notes made by the assessor. 'Station' 'writing' flow of case management activities are filled in on the assessment sheet according to the usual rules. The OSCE is considered objective because the questions and assessment of answers are standardised. For example, in a station focusing on the management of placenta retention, the assessment is determined by how closely the participant's answers match the existing answer standards.

The final decision on whether a participant passes or fails is made by the assessment team, which evaluates the overall assessment results from each 'station'. The fact that a participant knows a 'patient' should not affect the integrity of the examination process, although this should also be taken into consideration.

Analysis of OSCE scores showed that in the fourth semester of the 2014/2015 academic year, eight students failed, while in comparison, in the fifth semester of the 2024/2025 academic year, only one student failed. This has become a concern for the skills lab team of the Bachelor of Midwifery programme because the improvement in student competence and readiness to face the OSCE, as well as the evaluation of the previous OSCE, are also key factors in this improvement.

Although, in principle, OSCE scores are not the sole determinant in assessing students' clinical competencies, as explained by Taras (2005), OSCE can be used as a summative assessment method where formative assessments have already been conducted during students' laboratory learning. (Taras, 2005). This

aligns with the conditions in the Midwifery Undergraduate Programme at the Faculty of Medicine, University of Andalas, where the ratio of formative skills lab examination scores to OSCE scores is 30:70. Thus, scores from the skills lab also contribute to the final assessment of students' clinical competence.

Readiness is also related to the level of anxiety students experience when facing the OSCE. From interviews with several students from the 2025 cohort, they stated that their level of anxiety facing the OSCE in semester 4 was higher than that of the OSCE in semester 5. The student believed that with the OSCE, he would remember it better and use it as experience for dealing with clinical situations in the future. In addition, some added that although they were very afraid to face the OSCE at first, seeing the results and OSCE scores at the end of the semester made them very proud (Fidment, 2012).

This is in line with the findings of Alex et al in 2012, where they explained that there was a significant increase in confidence among students after their previous OSCE experience (Alex et al, 2012). Fidment (2012) stated that it would be better if the OSCE simulation was conducted a week before the OSCE. This could be used as input for the Bachelor of Midwifery study programme so that even though the students' skills lab is guided by different instructors, the same exercises will be carried out during the OSCE simulation.

CONCLUSIONS AND RECOMMENDATIONS

OSCE is a tool for assessing clinical competency components such as history taking, physical examination, procedural skills, communication skills, interpretation of laboratory results, management, and others, which are tested using an approved checklist, and students will participate in several stations. OSCE was first introduced by Harden from the University of Dundee (1975) in the form of a series of 2-20 stations, each lasting 5-15 minutes.

The application of OSCE as a method of assessing students' clinical competence is very good, considering that PBL has also been implemented as a learning method in the Midwifery Undergraduate Programme at the Faculty of Medicine, University of Andalas. However, the use of OSCE as the sole method for assessing students' clinical competence is considered unfeasible. Therefore, formative examinations during students' skills laboratory activities are also deemed necessary to assess their clinical competence. Challenges in the implementation process and students' lack of competence can be addressed through proper planning, both from the programme's perspective as the OSCE implementer and from the students' perspective as OSCE participants.

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