Evaluation of the Implementation of Objective Structural Clinical Examination (OSCE) in the Faculty of Medicine: a Literature Review

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ABSTRACT

Medical educators always want the best method for conducting formative and summative student evaluations. The Objective Structural Clinical Examination (OSCE) is an assessment that evaluates aspects of clinical competence in a comprehensive, consistent and structured manner with due observance of objectivity. Clinical skills assessment in OSCE includes history taking, physical examination, communication skills, professionalism, technical skills, problem-solving, decision-making, and time management. However, OSCE is currently one of the exams that students are afraid of, causing sleep disturbances and anxiety. In addition, OSCE involves many personnel in its implementation, so good coordination is needed to create a conducive exam situation. Therefore, evaluation is very important to measure student competency or capability, determine goals that have been and have not been achieved, and get feedback to improve OSCE implementation in the future.

Keywords: Evaluation, Feedback, Medical student, Objective Structural Clinical Examination (OSCE).


INTRODUCTION

Medical students are synonymous with many difficult exams.1 The types of exams administered at every tertiary institution in Indonesia are also different. Generally, exams for medical students consist of exams such as the Computer Based Test (CBT), Student Project exams, Elective Study exams, and the Objective Structural Clinical Examination (OSCE) which are practical exams for medical education students. The OSCE exam is one of the evaluation techniques that evaluate medical skills to prepare students to provide services in society.2 The OSCE has been used for formative and summative evaluation of medical and postgraduate students worldwide. Using OSCE for formative assessment has great potential because medical students can gain insight into the elements that improve clinical competence and feedback on personal strengths and weaknesses.3 Evaluation of learning outcomes is an act or process to determine the value and quality of education to demonstrate learners’ competence.4 In general, OSCE has the advantage of building the confidence of examinees and evaluating their clinical abilities in different cases and a short duration of time. Meanwhile, the weaknesses are that it requires setting the appropriate place, involves a lot of personnel and costs money to provide inspection tools and materials.5,6

The aspects tested in the OSCE exam include cognitive, psychomotor, and professional behavior.7,8 Based on previous research, most medical education students gave positive views about various aspects of OSCE implementation. However, students also expressed anxiety and sleep disturbances due to preparation for the OSCE exam. Based on previous research on the relationship between stress levels and insomnia symptoms in medical students at the University of Tanjungpura who will face the OSCE exam, a significance value (p <0.001) and a correlation value (r) = 0.557, which means there is a significant relationship.9 This is in line with research on the relationship between stress levels and insomnia levels in Diponegoro University medical students showing that there is a significant relationship with a significant value of p = <0.001 and r = 0.520.10

A previous study showed that more than three-quarters of students feel that the OSCE triggers higher stress levels than other exam formats. Other studies reported similar concerns with medical students and other health professionals.1 Another study showed that more than half of the research respondents felt that the OSCE implementation time was too short and could not understand the instructions written on the questions.11 Based on this background, it shows the complexity of OSCE implementation and the impact felt by medical students, it is very important to evaluate the implementation of OSCE in the Faculty of Medicine. Therefore, this article aims to find out the evaluation results of implementing the OSCE at the Faculty of Medicine based on literature studies.

METHOD

Type of review
This type of study is a literature review that uses the literature study method. The literature search was carried out for 3 months, from January to March 2023.

Literature Search
The sources used in this review consist of relevant journals from search engines such as Google Scholar, PubMed, and Scopus.
as Pubmed, Google Scholar, ScienceDirect, and Cochrane Library. Journal searches used Boolean terms (AND, OR, NOT). The author uses journals that only focus on keywords, namely evaluation, Feedback, Medical student, Objective Structural Clinical Examination (OSCE), into account titles and abstracts that are appropriate to the topic of the review.

**Inclusion and Exclusion Criteria**

The inclusion criteria in this review are all studies that discuss the evaluation, Feedback, Medical student, Objective Structural Clinical Examination (OSCE). The references used must not exceed the last ten years unless there is no recent research related to these references. The exclusion criteria in this review are paid or not free journals and do not contain information relevant to the topic of the study. Forty-five journals were reviewed, 38 of which met the criteria as references for this review.

**RESULT & DISCUSSION**

**Evaluation as one aspect of improving the OSCE implementation system**

Evaluation is a form of a final assessment of a particular object based on criteria that must be carried out systematically and planned as a measure of success and can be used as a reference in making improvements. When conducting an evaluation, two main aspects are used as a reference, namely the measuring and assessing aspects. The aspect of measuring usually uses a reference or measuring limit as a comparison. Meanwhile, the assessing aspect usually uses indicators in the form of good and bad. In the learning process, evaluation determines the efficiency and effectiveness of an action, policy, or activity in educational institutions. The role of evaluation in the learning process can encourage students to be more active in improving the quality and quantity of learning continuously and to be able to encourage educational staff and education managers further to improve the quality of teaching and learning activities. The role of evaluation is also due to the varying abilities and willingness to learn from students. Evaluation is also expected to provide opportunities for students to make decisions about implementing learning.

Other studies explain that evaluation in learning is carried out because it allows for (1) Measuring the competence or capability of students and whether they have carried out the predetermined goals. (2) Determine which objectives have not been realized so that corrective actions can be taken. (3) Providing information to teaching lecturers about the suitability of their learning strategies so that teaching lecturers get feedback. (4) Plan procedures for improving lesson plans and determine whether additional learning resources must be used. Therefore, in general, evaluation has benefits for (1) Obtaining an understanding of the implementation and learning outcomes that have been ongoing/implemented by educators, (2) Making decisions regarding implementation and learning outcomes, and (3) Improving the quality of processes and learning outcomes to improve quality medical student.

**Evaluation Process Stages**

The evaluation process can be carried out through several stages, which in general can be divided into three stages, namely:

1) The stage of choosing a topic to be discussed

   Before an evaluation, selection and design activities must be carried out regarding the evaluation type and what information is to be obtained. At this stage, it is expected to be able to choose topics with outputs that can provide changes to a gap and answer a need.

2) Gather Information

   After selecting the topic to be evaluated, acting can be continued with the information-gathering stage. The collection of information is expected to be able to represent conditions in the field to produce useful outputs. Interview techniques and observation techniques can do information collection. The interview technique is a systematic way of obtaining information through oral statements regarding an object or event to related parties. The observation technique can be used if the interview technique is not possible. The observation technique gathers information about an object or event that can be observed through the five senses. In some situations, observational information has better accuracy than interview information.

3) Provide Evaluation Feedback

   Providing feedback is the final stage of the evaluation process. In the learning process, feedback can be used to see whether the learning system or product being developed is successful and follows the initial target. Feedback can also encourage students to put more effort into correcting mistakes made previously following the directions of educational staff.

   Providing this feedback is expected to improve and improve student learning outcomes and motivate students to be more enthusiastic in the learning process. This aspect of motivation has a significant role for students, such as developing their skills and potential and setting learning goals and targets.

   Feedback methods after OSCE can be provided in several ways, such as the additional time allocated to provide direct feedback after students have finished their examinations. However, the face-to-face feedback method has the disadvantage of extending the student’s time at each station for approximately 2-3 minutes, which also extends the exam duration. In addition, bad comments about the performance obtained by students will affect concentration in carrying out examinations at the next station. Other methods can use audio or video recordings from examiners who provide general feedback or personalized feedback specifically for each student.

   Written OSCE feedback can also be provided through individual score sheets and comments on student performance during history taking and examination. The country of origin also influences the feedback method. Most medical students at Adia (96%) prefer written feedback over face-to-face feedback. Research has shown that Asian students prefer teacher-centered learning, in which the teacher will provide the necessary information, and
student-teacher communication is implicit (non-verbal). Meanwhile, students from Western countries prefer student-centered learning and value opportunities for verbal communication with examiners and independent learning.18,21,22

**OSCE Implementation in the Faculty of Medicine**

The implementation of the OSCE exam is in the form of a station circuit set up like an outpatient clinic room or other health institution. The OSCE examination can be conducted within one to three days according to the number of stations tested that semester. Like other types of exams, the OSCE stage also consists of preparation, implementation, and post-implementation stages.23 The implementation of the OSCE exam will consist of several stations with a duration of 5-15 minutes, depending on the questions’ complexity. After completing one station, students can move rooms to join other stations. Each stage is carried out in a different room to get an objective assessment from the examiner. Each station will assess various clinical skills such as history taking, physical examination, communication skills, professionalism, technical skills, problem-solving, decision-making, and time management.3

Several components related to the implementation of the OSCE are the implementing committee team, assessment team, standard patients, examiners and students. The committee team worked to prepare all the facilities and infrastructure. The assessment team will work to develop aspects of the assessment based on the curriculum that has been made and ensure the number of questions to assess competence in the targeted domain.24,25 The assessment instrument is prepared using special items and global ranking items. In achieving a balance in assisting the assessor, the subjective response of the assessor is also needed to increase their objectivity in providing more holistic feedback.26-27 Rubrics are required to have standards so that OSCE assessments have the same components in all medical study programs.26 Standard patient components are someone prepared to become an actor who acts as a patient.29,30 Based on the results of research conducted by students at the Faculty of Medicine, the Islamic University of Indonesia, it was found that students thought that the simulated patients were not good enough to carry out their roles. Simulated patients have not been able to act optimally and master the scenarios given. Simulated patients are felt to need sufficient training or training to fully appreciate their role in facilitating students in diagnosing diseases.31 Incorporating standard patients into the learning process is very important to increase student understanding of cases (interactive and emotional impact of standard patients) and improve empathy. It is also important to carry out a standard patient psychological and physiological impact assessment to avoid side effects (e.g., becoming depressed from repeatedly playing the role of a depressed patient, muscle spasms from acting as a traumatized patient). Standard patient training is needed for the same case and at the same time to increase consistency in terms of standard patient roles.32,33

The next component is the tester. Examiners should be experts in the competencies to be tested and evaluate competencies in their fields so that the assessment objectively follows students’ abilities.34,35 Although students and examiners agree with various aspects of OSCE, there are differences of opinion between students and the accessor regarding the time at the OSCE station. Most of the students (66.7%) reported that they needed more time at the station, while the examiners felt that it was sufficient (59.1%).3 Another study showed that 41.7% of students and 11.1% of examiners feel they need more time at the station.41 Several studies have raised concerns that time is a matter of concern because students must focus on a limited time and still have to concentrate on giving their best performance.36-38 However, a study conducted by Schoonheim- Klein et al. showed that an increase in time per station did not improve student performance in facing exams.39

The OSCE implementation at the Faculty of Medicine was also online due to the Covid-19 pandemic in 2020-2021. One of the studies shows that the evaluation of online OSCE activities is divided into an evaluation of the preparation stage and the implementation stage. Based on the evaluation, 79.9% of students said that the facilities and infrastructure prepared by the students were quite good. The means in question are the availability of laptops, smartphones, and internet connections to access Zoom. From the evaluation results, 73.15% of students said the information conveyed during the technical meeting was clear. Information and simulations given in technical meetings need to be carried out so that students get a clear picture of the implementation of activities. At the implementation stage, 91.3% of students said the online-based OSCE questions were clear, and 8.7% said they were unclear. During the online-based OSCE implementation process, 65.9% of students had an internet connection and communication during the exam ran smoothly. In comparison, 34.2% of students experienced connection problems resulting in communication problems during the exam. In the evaluation regarding the time provided in the online-based OSCE, as many as 88% of students stated that the processing time was sufficient, and 12% said it was not enough.25

This study has limitations because it does not evaluate the literature review that discusses factors that can affect the implementation of OSCE.

**CONCLUSION**

Evaluation in OSCE implementation is needed to measure medical student competence or capability and determine goals that have been successful or not achieved, so that corrective actions can be taken for better exam implementation.

**AUTHOR CONTRIBUTION**

All authors have contributed to this research process, including conception, design, collection and assembly of data, analysis and interpretation of the data, drafting of the article, and critical revision of this manuscript.

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CONFLICT OF INTEREST

There is no conflict of interest for this manuscript.

ETHICAL CONSIDERATION

Not applicable.

REFERENCE