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The evaluation of objective structure clinical examination (OSCE) implementation within midwifery school

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ABSTRACT

Assessment during pre registration in midwifery school is one of the necessary process which need to be concerned as it would strengthen the quality of the graduation. It also could become a tool to evaluate ability and competency of the pre registration midwifery student. There is an evaluation which applied in Indonesian midwifery school as national standard i.e. OSCE in which is considered could fulfil the validity, reliability and feasibility within Indonesian context. This study aimed to evaluate the implementation of OSCE among midwifery school in Yogyakarta.

This research was a mixed methods study used sequential explanatory design method i.e. quantitative phase and qualitative phase. Analytic descriptive study was applied in quantitative phase, whilst a case study was applied in qualitative phase. Quantitative data collection was conducted by using a checklist sheet and analyzed by using descriptive analysis, whilst qualitative data by using in-depth interviews and analyzed by using content analysis. The quantitative result show that the implementation of OSCE among midwifery schools in Yogyakarta has score 68 out of 92. The qualitative analysis showed that OSCE was challenging to be implemented due to technical problems such as broken media of assessment, different phantom model in delivery stages, assessor has been late, assessment rooms were not conducive and there were limited model who skilled as OSCE model. Conclusion: Standardized OSCE implementation has not been carried out properly in midwifery school. Therefore there is a need of national evaluation of the OSCE itself in order to understand the real condition across Indonesian midwifery school.

1. Introduction

OSCE has been used as a tool for both formative and summative evaluation of medical graduate and postgraduate students across the globe. The use of OSCE for formative assessment has great potential as the learners can gain insights into the elements making up clinical competencies as well as feedback on personal strengths and weaknesses (Gupta et al., 2010). Evaluation of learning outcomes is an action or a process to determine the value and quality of education, therefore it could show the competence of pre-registration students. Evaluation of learning outcomes can be done by assessment or evaluation that is used to measure the abilities and competencies of the students (Arnold and Walmsley, 2008). Midwifery schools need to have evaluation tools that have been standardized and linked with midwifery curricula and it should be as national standard. Therefore all pre-registration student could have same skills and competences across Indonesian pre-registration midwifery school, regardless the schools where they has taken their course and training. In addressing to that issue Indonesian government provide OSCE for pre-registration midwifery students in order to

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standardized all the pre-registration midwifery students. It is believe as a tool which has high validity, reliability and feasibility within Indonesian context. The assessment includes clinical performance and cognitive ability on the cases management. The assessment aims to make all students are ready to work when the complete their pre-registration midwifery education (Berkenstadt et al., 2006).

However, it is fact that not all pre-registration midwifery schools implement OSCE as their assessment process within their school's assessment (Dunne et al., 2018). Based on initial study, it is found that amongst 8 pre-registration midwifery school, there is only 1 has been implementing OSCE in the process of assessment. Therefore there is a need a research to understand how the national OSCE implemented and what are the barriers and facilitators of that implementation.

2. The Proposed Method/Algorithm

This study aimed to evaluate the implementation of OSCE in pre-registration midwifery school within Yogyakarta.

3. Method

This was a mixed method study by employing quantitative and qualitative approaches. Data were obtained from observations and study documentation using a checklist sheet, the checklist sheet is used to assess the components that have been fulfilled in the implementation of OSCE. The in-depth interview was conducted to interview OSCE team, and observations were made to see the process of implementing OSCE. Focus Group Discussion (FGD) with 8 students was also employed. Participant selection were taken by using purposive sampling technique. Participants were those who directly involved in the process of implementing the OSCE in the midwifery school. Thus, it is expected to be able to provide information clearly and completely. They were Head of Study Program, OSCE lead coordinator, OSCE Testers, and students, laboratory staff, technical and administrative Officers. Data collection in this study uses primary data and secondary data. Primary data comes from informants and the results of observations of researchers. Secondary data is obtained from archives documents regarding the implementation of OSCE in the D-III Midwifery Study Program. Data were analyzed descriptively for the result of quantitative phase, whilst data from qualitative phase were analyzed by using content analysis. The Ethical Approval was obtained from the ethics commission of Universitas 'Aisyiyah Yogyakarta with No.736 / KEP-UNISA / XII / 2018.

4. Results and Discussion

4.1. Quantitative Research Results

Table 1 describe the level of readiness of midwifery school in order to implement OSCE. Based on the table 1, the best readiness is in the OSCE examiner aspects, laboratory, determination of graduation, and technical and administrative officers. Poor readiness is found in the aspects, test room, standard patient trainer (PPS) and Standard Patient (PS). This is because the study program does not have a permanent and soundproof test room, a standard patient trainer (PPS) and a standard patient (PS).

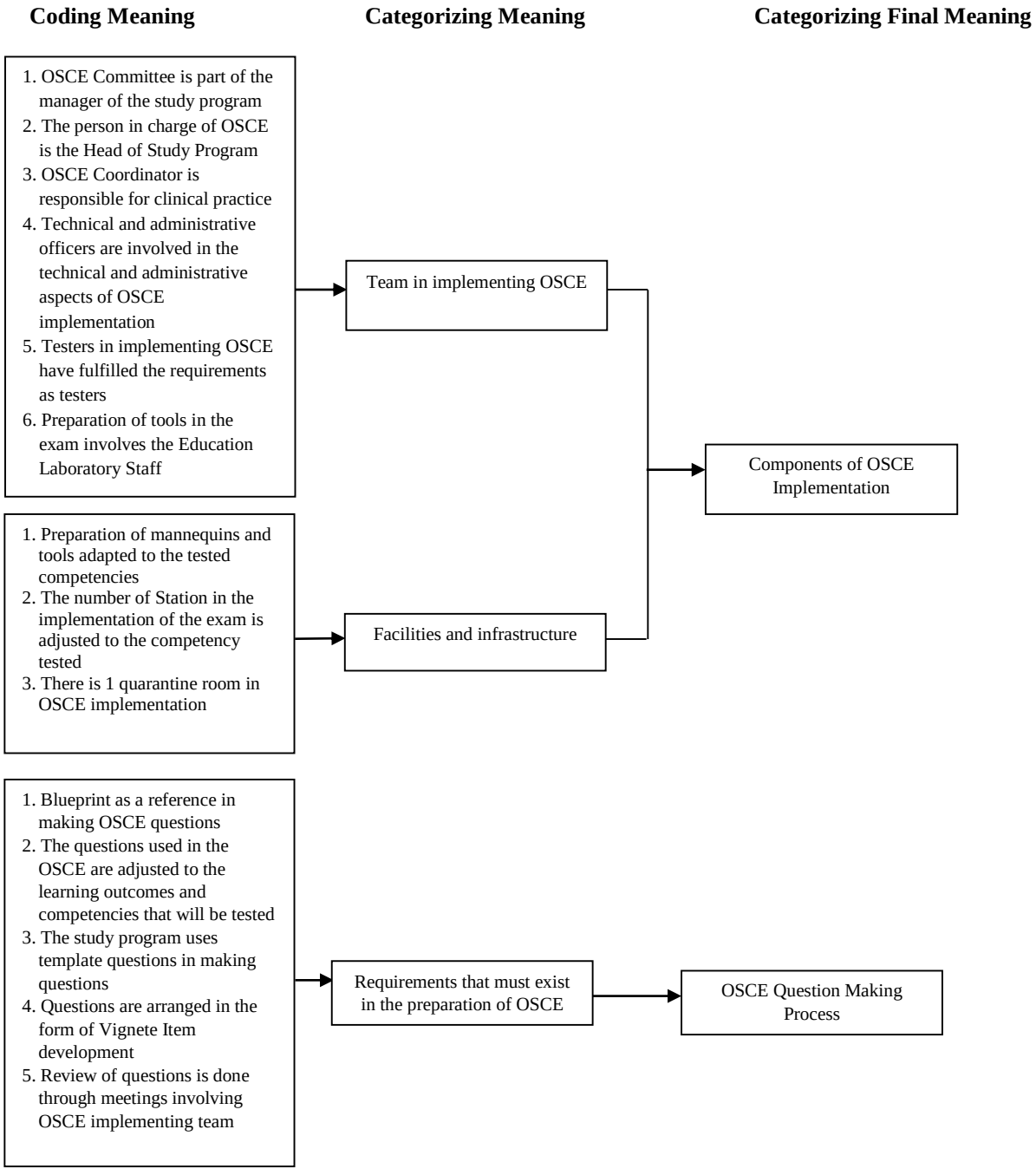
Table 1. The level of readiness

No	Data focus is seen from the implementation of the OSCE	Score obtained	Information
1	Blueprint	3	Good
2	Question Template	3	Good
3	Question Review	3	Good
4	Question Bank	3	Good
5	Technical and Administrative Officers	4	Very good
6	Planning Team	3	Good
7	OSCE Coordinator	3	Good
8	OSCE Testers	4	Very good
9	Standard patient trainer (PPS)	1	Very not good
10	Standard patient	1	Very not good
11	Laboratory	4	Very good
12	Station	3	Good
13	Test Room	2	Not good
14	Panic Call	3	Good
15	Lighting	3	Good
16	Quarantine Room	3	Good
17	Storage room for laboratory equipment	3	Good
18	Toilet	3	Good
19	Readiness Evaluation	3	Good
20	Briefing	3	Good
21	Determination of OSCE graduation	4	Very good
22	Specific Feedback	3	Good
23	Evaluation Questionnaire for OSCE Implementation	3	Good
	Total Score obtained	68	Good

In general, if the total score is calculated from all the above aspects, a total score of 68 from the maximum score must be fulfilled. It means that the readiness in the implementation of the OSCE has gone well.

4.2. Qualitative Research Results

Interviews data regarding the implementation of the OSCE were gathered from 10 participants. The process of forming the final meaning is described in the form of a chart. This chart explains the process of forming the final meaning which begins with the formation of coding meaning then through the categorization of meaning and the last stage is the formulation of meaning.



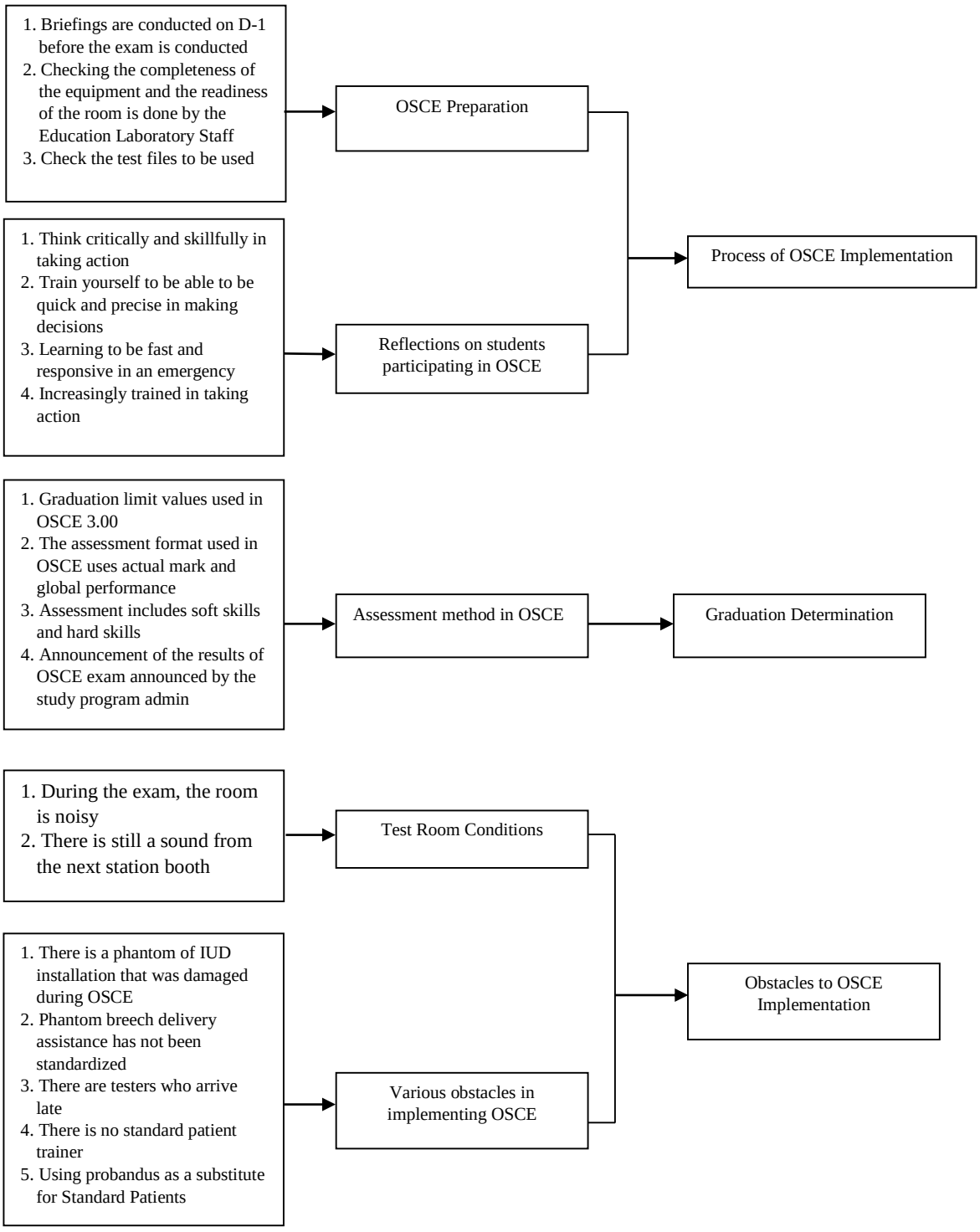


Figure. 1. Qualitative analysis process

Based on figure 1, there were 5 final themes consisting of: components of OSCE implementation, OSCE question preparation process, OSCE implementation process, graduation determination and obstacles in OSCE implementation. Based on the results of interviews conducted by researchers on informants in obtaining information conclusions stating that in the implementation of the OSCE there are components that must be fulfilled in the implementation of the OSCE, not only that, besides the components that must be fulfilled, the process of preparing OSCE questions is also very important in implementing OSCE, because the question used will assess the ability of students to carry out clinical actions that will later determine whether or not students pass the exam.

Based on the independent interview results that the researchers conducted on the components in implementing OSCE, the informants in the study program had understood what components should be included in OSCE implementation such as OSCE Coordinator, examiners, planning teams, technical and administrative officers, laboratory staff, and case to be tested. It can be seen from the excerpt from the informant's statement as below:

"There are in charge for the components in the implementation of the OSCE ... then later the coordinator will usually be later from the practice coordinator, examiners, laboratory staff, beforehand there will also be from the planning team, usually part of the curriculum" (if1)

In the process of compiling the OSCE question, the study program had made good preparations; it was the evident from the meetings held before the exam which aimed to equate perceptions regarding the questions to be used. Review the previous questions and the questions that will be used. This is supported by the excerpt snippet of the informant's statement as below:

"..... the meeting and the similarity of perception of the problem will be based on the blueprint, now the blueprint that we use is adjusted to the learning objectives, usually the number of competencies assessed in each station is between 3-4 competencies" (if2)

The implementation process begins with a briefing conducted on the D-1 before the exam which was attended by students and the OSCE implementation team. The activities carried out during the briefing included rotational exercises, checking the completeness of the tools and the files that will be used during the exam such as minutes and attendance lists. Regarding to this, the following is a snippet of some statements from the informant:

"The process starts with a briefing that was conducted on the D-1 before the exam, there we were told everything that must be taken, then we also did a rotation exercise, then on the first day we had to be ready to take the exam, 10 minutes then move the next achievement again "(if4)

Determination of graduation in OSCE implementation is carried out using the Borderline Group Method (BGM) or Borderline Regression Method (BRM) with a format for evaluating global performance. The informant said that the assessment with global performance was deemed appropriate to be used on the final level students because students were considered able to master the given case.

Related to this, the following is a snippet of some statements from the informant:

"..... ourgraduation standard is 3.00 in minimum, the assessment is done with actual mark and global rating. Assessment is usually more detailed ..... "(if8)

There are a number of obstacles that can lead to incomplete running of the OSCE, which include the rooms that have not been soundproofed and are permanent so that they can disturb other participants in the room next to the exam, besides it was found some damaged tools used during the test, the testers who arrived late and were not involved in standard patients and standard patient trainers in the implementation of OSCE. Regarding the condition of the exam room in the OSCE implementation, there are some statements from the informant:

"... the test *room that we are using should be soundproofed, because back again, it is still constrained in the fund" (if1)*

"... if the obstacle *is yesterday, the Phantom IUD station was damaged anyway, so when I want to pinch, the portion has been destroyed ..." (ifg 3)*

"If I have that obstacle, if there are testers who arrive late, so the time is extended even though we have already studied for the next session, it turns out there are still tests, so we have to add more time" (ifg7)

4.3. Discussion

Objective Structured Clinical Examinations (OSCEs) are widely used in health professional education and should be based on sound pedagogical foundations (Mitchell et al., 2015). OSCE has been considered a modern type of examination for the assessment of clinical skills within nurse education, but it has been rarely applied in the teaching of midwifery (Delavar et al., 2013). OSCE used to evaluate the competency of new medical graduates, a written examination is not sufficient to test the clinical skills and attitudes of medical school graduates (Lee, 2008). The components in implementing OSCE are individuals who are responsible for the implementation of clinical skills exams with the OSCE method that each individual has different roles and tasks but has the same contribution in creating a safe and effective OSCE continuity. The OSCE component consists of a planning team, OSCE coordinator (KOC), examiners, standard patient trainers (PPS), standard patients/simulation patients (PS), laboratory staff and technical and administrative officers (Austin et al., 2006). The PS-OSCE is a feasible method for assessing multiple competencies related to performing procedures and this study provides validity evidence to support its use as an in-training examination (Pugh et al., 2015). Evaluation of cases using the blueprint revealed opportunities to target less frequently assessed competencies and to align assessments with milestones for each year (Mookherjee et al., 2013).

The results of the study in Yogyakarta midwifery D-III study program obtained data that in the implementation of OSCE the study program had implemented several components in the implementation of OSCE such as the planning team in the implementation of OSCE which was managing the curriculum in charge of study program managers and other study program members which will be tested at OSCE through meetings, involved OSCE coordinators who are part of the clinical practice coordinator, there are OSCE testers who have met the criteria as testers with S2 (master) education background in health, mastering the midwifery science field, having attended training and workshops on OSCE. In addition, the study program has also involved educational laboratory institutions (PLP) which take over the laboratory department tasked with assisting the availability and suitability of the equipment needed during the exam process. At the time of the OSCE implementation, it also involved technical and administrative officers in charge of preparing matters relating to the technical and administrative implementation of OSCE (Eva et al., 2004).

It is also in line with the AMEE GUIDE Preparation and planning in OSCE which states that in implementing OSCE there must be components needed to implement OSCE in the field of health education. In higher education institutions, there is usually a team responsible for implementing OSCE. One of the teams that played a role in implementing OSCE was the score team (Khan et al., 2013). The process of preparing OSCE questions begins with the determination of the blueprint which is one of the important components that must be prepared in the process of preparing clinical skills questions using OSCE method. After determining the blueprint, the next step is to make a question that refers to the blueprint using the question template. The preparation of blueprints and writing of OSCE questions must be guided by midwifery skills book. Clinical skills are made in accordance with the learning outcomes that need to be possessed by midwifery graduates (Mitchell et al., 2014). The organisation, administration and running of a successful OSCE programme need considerable knowledge, experience and planning. Different teams looking after various aspects of OSCE need to work collaboratively for an effective question bank development, examiner training and standardised patients' training. Quality assurance is an ongoing process taking place throughout the OSCE cycle (Khan et al., 2013).

The research conducted at Yogyakarta midwifery study program found data that the process of reviewing the questions and the preparation of the blueprint to be used during the exam were conducted through a meeting attended by OSCE examiners and implementers, during the meeting a review process was conducted to find out whether which will be used during the exam in accordance with the competencies to be achieved by the student.It is in line with the research conducted by (Smith et al., 2012) with the title:*The Objective Structured Clinical Examination (OSCE) as a strategy for assessing clinical competence in midwifery education in Ireland: A critical review* states that the implementation of OSCE begins with a review of questions that will be used when implementing OSCE to improve student skills in clinical practice. OSCE has a positive impact to assess the clinical competence of students in situations similar to real cases.

Determination of graduation is done after the examination process has been declared completed and is based on determining the passing limit value (standard setting). The method of determining graduation uses Borderline Group Method (BGM) or Borderline Regression Method (BRM). In processing OSCE results, score scores can be taken from the total value of stations and per-station. Assessment of the exam results is intended to determine the development and level of student achievement in an educational process. The valuation method using Borderline Group Method (BGM) or Borderline Regression Method (BRM) is mainly used in OSCE exam (Rajiah et al., 2014).

The results of study conducted at the Yogyakarta school through independent interviews, observations and study documentation of graduation determination were conducted using Global Rating from the results of student performance. Global rating was used as an assessment method because the examiner is considered an expert in conducting clinical skills assessments. (Rajiah et al., 2014) stated that the determination of graduation in OSCE implementation conducted using Borderline Group Method (BGM) or Borderline Regression Method (BRM) method was proven to determine the ability of students to carry out clinical practice. It is in line with AMEE GUIDE in *Choosing a scoring rubric and standard setting* stating that in determining the scale of the assessment carried out as a whole taking into account the ability of experts who are not likely to make an assessment by following the sequence of steps of existing skills. The process of organizing OSCE begins with preparations for the implementation of OSCE which includes making questions, receiving questions, printing and storing into question envelopes to be used. There is coordination between the implementing team involved in the OSCE. After that, it is followed by a briefing for the participants of the D-1 exam before the exam was held (Dunne et al., 2018).

Based on the results of research carried out in the Yogyakarta midwifery D-III study program through observations in the OSCE implementation, data was obtained that OSCE implementation process was begun with a coordination meeting from each OSCE implementation team to formulate the questions to be used during the exam. Then, a briefing was held on the D-1 before the exam was conducted. On the day of the exam, participants present no later than 30 minutes before the exam, which acts as a patient during the exam, there was models played by students. The models as well as examiners were placed within the rooms of OSCE. The exam begins with praying together and after that is followed by the bell ringing for the start of the exam. 10 minutes later the bell rings again, indicating the participant must move to the next station and so on until the exam session ends.

It is in line with AMEE GUIDE regarding *examination day briefing* stating that before the exam takes place there must be a separate session to provide guidance to examinees regarding the technical conduct of the exam. During the examination, the examinee will move from one station to the next after the bell is rung as a sign to move,and so on until the exam session ends (Khan et al., 2013). The important goals of clinical education is to promote the level of students' clinical skills (Malakooti et al., 2018). There were obstacles found within the process of implementation, which are: found a broken device at the IUD installation station, phantom incompatibility used in the delivery center with buttocks, late testers, exam room who are not permanent and not sound proof, and have not been involved in standard patient trainers and standard patients who are truly trained in OSCE implementation. (Serpell, 2009). The alternative solution offered by the study program is to build OSCE center which is currently under construction (Gauthier et al., 2019). There are still no standard patient trainers and standard patients who are truly trained in the implementation of OSCE which resulted in a significant amount of funds to involve the PPS and PS (Al-Alwan et al., 2015). Ideally, in implementing the standard OSCE test room components, standard patient trainers and standard patients should be involved in OSCE implementation. The involvement of standard patients in the conduct of examinations can improve students' skills in dealing with patients who are actually in the field (Austin et al., 2006). The TOSCE may be introduced as a way to work on clinical performance, shared decision-making and inter-professional understanding (Sharma et al., 2015)

5. Conclusion

The best readiness in the implementation of the OSCE conducted by midwifery schools program are: examiners, determination of graduation, laboratory and technical and administrative officers. Poor readiness is presented in the aspects of room, standard patient trainer (PPS) and standard patient (PS). Obstacles were encountered in the implementation of OSCE, which are: found a broken device at the IUD installation station, phantom incompatibility used in the delivery station with buttocks presentation, late testers, a test room that was not permanent and soundproof, the standard patient trainer was not involved, and standard patients who are truly trained in OSCE implementation.

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