STUDENT'S SATISFACTION ON ONLINE NURSING OSCE (ON-OSCE) ASSESSMENT APLICATION

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Abstract

Background: Objective Structured Clinical Examination (OSCE) is one of the final assessment components for each course in nursing students. OSCE assessment uses the ON-OSCE (Online Nursing OSCE) application is expected to fulfill the need as well as overcoming the challenges during the manual OSCE assessment using papers. The manual OSCE assessment with multiple checklists is very detailed and takes a long time in scoring. Besides, the assessment using papers tends to cause a miscalculation in scoring a total of ratings that can harm the student.

Method: This research is a non-experimental study with a descriptive design and cross-sectional approach. The samples were 480 respondents of nursing students. The instrument of assessment of satisfaction was analyzed based on the score accuracy, time to retrieve score, and examiner's attention. Data analysis used descriptive frequency and percentage distributions.

Results: Students' satisfaction based on the time to retrieve score revealed that 365 students (76%) were satisfied. 285 students (59,4 %) were also satisfied with ON OSCE related to the score accuracy. Whereas, in terms of the examiners' attention, 273 students (56,9 %) students felt the examiners did not pay attention to the actions taken by the students. They focused on the laptop to provide an assessment. It could be due to the new ON OSCE application for the examiners and their unfamiliarity with operating the application.

Conclusion: Most students were satisfied with the assessment using the ON-OSCE application in terms of the time to retrieve score and the score accuracy nt. However, they were less satisfied with the examiners' attention. The examiners should be more familiar with the ON-OSCE.

Keywords: Online Nursing OSCE, ON-OSCE, OSCE, Nursing, Assessment

INTRODUCTION

Objective Structured Clinical Examination (OSCE) is a method of evaluation of the clinical skills of nursing students learned in skills lab. OSCE is a tool for assessing several components of clinical competence such as assessment, physical examination, procedural, interpretation of lab results, patient problem management, communication, and attitude (Ananthakrishnan, 1993)(Ananthakrishnan, 1993). The usage of OSCE can facilitate the assessment of student's psychomotor skills as well as knowledge and attitudes (Baid, 2011). OSCE is a valid and reliable method for assessing clinical competence objectively, in a variety of settings (Kurz, Mahoney, Martin-Plank, & Lidicker, 2009). With the OSCE, the clinical skills can be evaluated to see the competencies achieved by students.

OSCE provides many benefits, including developing student confidence also preparing students skills and understanding for clinical practice (Alinier, 2003) (Barry, Noonan, Bradshaw, & murphy tighe, 2011). OSCE requires the student to actively demonstrate how he or she will apply the acquired knowledge to

simulated "real world" situations (Franklin, 2005). Skills competency examination with OSCE provide examiners at each station with real-time direct observation and assessment of the performance of each nursing students (Quero Munoz, O'Byrne, Pugsley, & Austin, 2005). Examiner assess each student's performance using a checklist or rating scale (Robbins & Hoke, 2008). The Examination at each station test specific competencies that are scored using an scoring sheet. The sheet can be in a form of checklist or a combination of checklists and global scores. Examiners then provide a total score based on the overall performance of the student (Ahuja, 2009).

OSCE assessment is carried out using various instruments, some are assessed using papers, some are assessed online. Based on a study conducted by Natarajan & Thomas, OSCE assessment using paper has several shortcomings as follows: Results are not immediately available, Delay in providing scores and feedback, Time pressure for academic staff, Low ability to moderate and audit examination results, High production costs , Pressure on the appraisal administration staff (Natarajan & Thomas, 2014).

The weaknesses of the paper-based OSCE scoring system makes academics think of innovating to make the OSCE scoring system better, more effective, efficient and accurate. Along with technological developments, the existing OSCE scoring system are developed not only in the form of papers-based system but also electronic or online system. Several studies mention the development of electronic OSCE scoring system. As has been done by Primanda, Sutrisno, and Haris, in which they developed an online OSCE assessment aplication for school of nursing called ON-OSCE (Online Nursing Objective Structured Clinical Examination) (Primanda, Sutrisno, & Haris, 2019). In addition, another study also explore electronic OSCE management system for nursing OSCEs (Meskell et al., 2015).

The development of the online OSCE system or ON-OSCE (Online Nursing Objective Structured Clinical Examination) has also been carried out by the School of Nursing, Faculty of Medicine and Health Sciences, University of Muhammadiyah Yogyakarta since 2018. The use of this application in the scoring process of the OSCE has been carried out since the semester two in academic years of 2018. Therefore, it is very important to evaluate the satisfaction of students when examined using ON-OSCE system in the process of OSCE.

METHODS
A. *Research Design*
The design of this study is quantitative, non-experimental study with descriptive design aiming to determine the satisfaction of students who take OSCE with online assessments in terms of the scoring accuracy, the time (speed) of the score release schedule, and the focus/attention of the examiners to the actions done by students during the exam. This study was conducted with a cross sectional approach and data collection was done only once.

B. Population and Samples

The population in this study were nursing students in the first, second, third and fourth years who took part in the OSCE using online OSCE assessment or *ON-OSCE*. The sampling technique used was total sampling. The number of samples are 480 respondents.

C. Data Collection

Data were collected using online questionnaire. There are three variables in this study to evaluate the satisfaction of respondents who took the test with an assessment using the Online Nursing OSCE (ON-OSCE), namely the time (speed) of the Score release Schedule, the accuracy of the examiners' assessment, and the examiner's focus/attention during the OSCE assessment. The variable of score release time (speed) was assessed using "*I am satisfied because with the ON OSCE system, I can find out my OSCE score immediately after the OSCE (within 24 hours)*" statement. The scoring accuracy was assessed using "*I am satisfied because I believe the calculation of the score using ON OSCE system gets accurate results because it is calculated systematically using a computer system and is online*" statement. As for the "examiner's attention to the actions taken by students during the exam" variable was assessed using "*I am satisfied because examiners pay attention full time during OSCE using ON OSCE system*" statement. Respondents were then requested to provide an evaluation with a Likert scale with score of 0-10. A score of 0 indicates that the respondent is very dissatisfied and a score of 10 indicates that the respondent is very satisfied. Then the score is categorized as *satisfied* for a score of 8-10 and *dissatisfied* for a score of 0-7. Participants were also given the opportunity to provide descriptive assessments to describe more clearly of the respondent's satisfaction/dissatisfaction regarding the assessment with the ON-OSCE application.

D. Ethics

This study has passed the ethical clearance of the Ethics Committee of the Faculty of Medicine and Health Sciences, Universitas Muhammdiyah Yogyakarta with ethics number 051 / EC-KEPK FKIK UMY / II / 2019. This study also pays attention to ethical principles, namely informed consent, participants who are willing to participate in this study are then given explanations related to research. As for confidentiality the identity of the respondents were not mentioned in the questionnaire so that confidentiality will be maintained. Principle of justice is also carried out, whether students choose to participate or choose not to participate in this study will not affect their study. For Beneficience principle, this study will bring benefits to students since it is also a form of effort to improve the quality of student evaluation instruments.

E. Data Analyzed

Data were analyzed descriptively. Age demographic data were analyzed using numeric analysis of mean, minimum, maximum, standard deviation. For gender,

Student's Year, Score release speed/time, Score accuracy, and examiner attention/focus were displayed in the form of frequency and percentage. As well as exploratory descriptive analysis of the satisfaction/dissatisfaction explanations/description given by the participants.

RESULTS

Table 1. Characteristics of Respondents by Age

Variable	Mean	Minimum	Maximum	SD
Age	21	17	26	1,6

(Source: Primary Data, 2020)

The average age of the respondents was 21 years old, with the youngest being 17 years and the oldest being 26 years old with standard deviation of 1.6 years.

Table 2. Characteristics of Respondents based on Gender and Duration of Exposure to ON-OSCE

Variable	Frequency	Percentage
Gender		
Male	84	17,5
Female	396	82,5
Total	480	100,0
Duration of ON-OSCE Exposure		
1 semester	91	19,0
2 semesters	113	23,2
3 semesters	276	57,5
Total	480	100,0

(Source: Primary Data, 2020)

Based on table 2, the characteristics of respondents based on gender were found that most of the respondents are female, with 82.5%, then male by 17.5%. The majority of respondents have been exposed to ON-OSCE scoring system for three semesters, namely 276 respondents (57.5%). Then 2 semesters and 1 semester.

Table 3. Description of Respondents' Satisfaction based on the time to retrieve score

Variable	Frequency	Percentage
The time to retrieve score		
Satisfied	365	76
Dissatisfied	115	24
Total	480	100,0

(Source: Primary Data, 2020)

Based on table 3, it is found that respondent satisfaction is based on the time to retrieve score. Most of the respondents are satisfied, namely as many as 365 respondents (76%) while those who are not satisfied are 115 respondents (24%).

Table 4. Description of Responden`ts' Satisfaction The Time to Retrieve Score based on Gender and Duration Assessed by ON-OSCE

Variable	The time to retrieve score	
	Satisfied	Dissatisfied
Gender		
Male	**56**	**28**
% Male	66,7	33,3
% Gender	11,7	5,8
Female	309	87
% Female	78,0	22,0
% Gender	64,4	18,1
Duration Assessed using ON-OSCE		
1 Semster	**64**	**27**
% First year	70,3	29,7
% Total year	13,3	5,6
2 Semester	**80**	**33**
% Second year	70,8	29,2
% Total Year	16,7	6,9
3 Semester	**221**	**55**
% Third year	80,1	19,9
% Total year	46,0	11,5

(Source: Primary Data, 2020)

Based on table 4, it was found that male respondents were mostly satisfied with the time to retrieve score within 24 hours after the OSCE with a percentage of 66.7% and female respondents were also mostly satisfied with a percentage of 78%. While the respondent's satisfaction with the time to retrieve score of the OSCE score based on the duration of exposure to ON-OSCE explained that most of the respondents are satisfied for the respondents who had participated for 3 semesters, namely 221 respondents (80.1%), then followed by those who had participated for 2 semesters and then 1 semester.

Table 5. Respondent's Satisfaction based on Score Accuracy

Variable	Frequency	Percentage
Score Accuracy		
Satisfied	285	59,2
Dissatisfied	195	40,6
Total	480	100,0

(Source: Primary Data, 2020)

Based on table 5, it is found that the most of the respondents are satisfied with the Scoring Accuracy using ON-OSCE system. This can be seen in the respondents who are satisfied with the accuracy of the assessment with 285 respondents (59.4%) while those who are not satisfied were 195 respondents (40.6%).

Table 6. Description of Respondent's Satisfaction for Score Accuracy based on Gender and Duration Assessed using ON-OSCE

Variable	Score Accuracy	
	Satisfied	Dissatisfied
Gender		
Male	**47**	**37**
% Male	56,0	44,0
% Gender	9,8	7,7

Female	238	158
% Female	60,1	39,9
% Gender	49,6	32,9
Duration Assessed using ON-OSCE		
1 Semster	**61**	**30**
% First Year	67,0	33,0
% Total Year	12,7	6,3
2 Semester	**65**	**48**
% Second year	57,5	42,5
% Total Year	13,5	10,0
3 Semester	**159**	**117**
% Third year	57,6	42,4
% Total Year	33,1	24,4

(Source: Primary Data, 2020)

Based on table 6, it is found that most male and female respondents were satisfied with the accuracy of the OSCE scoring using the ON-OSCE application, namely 56% of male respondents were satisfied and 60.1% of female respondents were satisfied. As for satisfaction with the accuracy of the scoring based on the duration participating the OSCE using the ON-OSCE system, it was found that there are more of the respondents who are satisfied than those who are dissatisfied, both in the exposure of 1 semester, 2 semesters, and 3 semesters. Meanwhile, the highest satisfaction was for students who participate for 1 semester then 3 semesters, and finally 2 semesters.

Table 7. Respondents' Satisfaction based on Examiners Attention

Variable	Frequency	Percentage
Examiner's Attention		
Satisfied	207	43,2
Dissatisfied	273	56,9
Total	480	100,0

(Source: Primary Data, 2020)

Based on table 7, it is found that respondent satisfaction based on "the examiner's attention to the actions taken by the respondent (OSCE exam participant) during the OSCE implementation", there are more respondents who are dissatisfied than the respondents who are satisfied, with a small margin. Respondents who are not satisfied were 273 respondents (56.9%) while respondents who are satisfied were 207 respondents (43.1%).

Table 8. Description of Satisfaction of Examiners Attention Respondents by Gender and Duration Assessed using ON-OSCE

Variable	Satisfied	Dissatisfied
Gender		
Male	**47**	**37**
% Male	56,0	44,0
% Gender	9,8	7,7
Female	238	158
% Female	60,1	39,9
% Gender	49,6	32,9

Duration Assessed Using ONOSCE		
1 Semster	39	52
% First year	42,9	57,1
% Total year	8,1	10,8
2 Semester	65	48
% Second year	57,5	42,5
% Total Year	13,5	10,0
3 Semester	103	173
% Third year	37,3	62,7
% Total Year	21,5	36,0

(Source: Primary Data, 2020)

Based on table 8, it is found that female respondents are more dissatisfied with the examiners' attention during the OSCE exam compared to male respondents. Based on the table, it can also be seen that students who took OSCE for 2 semesters were more satisfied (57.5%) with the examiner's attention than those who were not satisfied (42.5%). Whereas, more respondents who have participated in OSCE with ON-OSCE system for 1 semester and 3 semesters were not satisfied with the attention of the examiners.

In addition to the quantitative results using a questionnaire, this study also analyzes descriptive evaluation/explanation of the OSCE by the respondents. Several themes were obtained from the evaluation delivered by the respondents, namely:
1. The usage of the ONOSCE system is a good improvement:
   a. The usage ON OSCE is very good at present
   b. Examiners are becoming more objective
   c. It is better to use ON-OSCE so that the score can be accessed easily and when there are some errors in the score it can be corrected together
   d. This scoring system is already good, and I prefer the current scoring system, hopefully the credibility will be improved
   e. I prefer the online OSCE assessment because the results come out faster so I won't have to wait for too long
   f. It is better for the examiner to not only just sitting down in OSCE
2. With On-OSCE the OSCE Score can be accessed easier and faster
   a. "It's nice to have it online, the results come out right away"
   b. Using the online osce we can get our score faster
3. Examiners focus on laptops instead of the student's actions
   a. It is better if examiners can pay more attention to students during the OSCE so that the scores given are correct
   b. Several lecturers were glued to their tablets and paid no attention to student's process
   c. Sometimes Examiner only focus on the laptop
   d. Sometimes examiners don't pay attention to students who are practicing but are busy paying attention to the list in the laptop, sometimes students have executed the action on the list, but often the examiners are not aware or missed it.

DISCUSSIONS

Based on the results of this study, it was found that OSCE scoring using the "Online-Nursing OSCE (ON-OSCE)" system was more effective and efficient because it was more satisfying for students. This can be seen from the level of student satisfaction based on the speed of the score release and the accuracy of the scoring. This is in line with Luimes & Labrecque's research which states that electronic-based scoring systems are more effective and efficient than paper-based assessments (Luimes & Labrecque, 2018), (Snodgrass, Ashby, Anyango, Russell, & Rivett, 2014), (Currie, Sinha, Thomson, Cleland, & Denison, 2017).

OSCE scoring using an online system in the form of ON-OSCE makes the scores quickly released because the data inputted by the examiner is immediately calculated and the results come out whether the student passes the exam or has to repeat it. In addition, the grades can be accessed by the admin and announced directly to students. on the other hand, when the assessment is still using the paper based system, the examiner still needs time to sum up the detailed item score, then the admin inputs the score into the system, then announces it to the OSCE participants, in this case the OSCE score cannot come out real time but need to be processed for several days. With the online OSCE scoring, students feel very satisfied in terms of the speed of the score release based on both quantitative and qualitative results which state that "Scoring with On-OSCE is very good, because the score comes out straight away". The existence of this innovation makes work time shorter and faster. Grades come out quickly, so students can find out if they passed the OSCE or if they need to retake the exam. With the rapid release of the OSCE score, students can prepare themselves better when they have to take the retest.

The OSCE online scoring was very satisfying in terms of the the score release speed since the assessor and admin's working time was shorter,which is also in line with what was conveyed by Onwudiegwu who stated that the usage electronic scoring system saves time (Onwudiegwu, 2018). This is also in line with the statement of Treadwell who compare paper-based OSCE with electronic methods. Findings suggested that electronic methods are just as effective and more efficient (take less time) than traditional paper-based methods (Treadwell, 2006). Another thing that satisfies students with the use of the ON-OSCE scoring system is that the scoring results are more accurate than the paper based system. The online calculation system can produce more complete accuracy than the manual system. The ON-OSCE system automatically calculates each scoring item that has been listed by the examiner. Then the system automatically performs the calculation and concludes whether the student passed the exam or has to take the retest. Manual calculations by examiners run the risk of causing errors because examiners add up each scoring item manually. In addition, in ON-OSCE system, respondents are also satisfied that the OSCE scoring with ON-OSCE system is better in term of the accessability of the score detail, including

the details of the examinee's mistake noted by the examiners. This can be done given that the examiners are provided a place to write comments when scoring student errors or incompleteness in the OSCE prosess so that the feedback from the examiners becomes more complete. This is in line with Luminos' research which states that electronics OSCE system improve the efficiency of assessment and the objectivity of examiners and can provide faster feedback to students (Luimes & Labrecque, 2018).

The results of the assessment of each action taken by students who take OSCE and are examined using ON-OSCE are recorded in the system and can be used for further analysis of educational development and evaluation of the learning process that have been implemented including improvement of guidelines, checklists, teaching strategies or even the curriculum. This is in line with what Meskell et al stated that electronic OSCE scoring system has the potential to further analyze student performance and develop strategies for improving student performance (Meskell et al., 2015).

In this study, an aspect that still did not satisfy students was the examiner's attention when the examiner begin using ON-OSCE. For example, the result of the description presented by students show that examiners are more focused on laptops or checklists on laptops, which make the examiners did not fully face the student or pay attention to student performance. This happened because examiners are not familiar with the system, considering that ON-OSCE has only been used for 3 semesters. This is a challenge in itself for examiners to adapt to the new system, to keep paying attention the assessment checklist while also paying attention to the actions taken by students throughout the OSCE process. This is in line with the research submitted by Snodgrass et al, which states that lack of knowledge of the scoring system is one of the challenges of examiners in using an electronic-based scoring system (Snodgrass et al., 2014).

CONCLUSIONS
Most of the students are satisfied with the release time OSCE score and accuracy of scoring result using ON OSCE system. However, many students are still dissatisfied about the examiners' attention in which the examiners put more focus on the tablet or laptop they held during the OSCE rather than the student's performance. The examiners should be more familiar with the scoring system and objectively score student's performance based on the thorough observation

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