

THE PERCEPTION AND SATISFACTION OF FINAL-YEAR NURSING STUDENTS WITH OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE)

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ABSTRACT

Objective: To evaluate nursing students' perception of and satisfaction with the OSCE as an assessment model in the practical examination for graduation, to compare students' opinions and feedback on the OSCE and the traditional Clinical Examination (TCE) methods.

Methods: A descriptive study was conducted with the participation of 62 final-year nursing students. A self-administrated 23-item questionnaire was used to examine students' opinions and feedback on the OSCE and traditional clinical examinations (TCE) in terms of four dimensions: quality, organization, scoring, and the physical set-up. Satisfaction with Nursing Skill Examination: Objective Structured Clinical Assessment (SINE-OSCA) scale was used to evaluate nursing students' perception of and satisfaction with the OSCE assessment model.

Results: Students expressed their positive perception of the organization of OSCE. More than two-thirds of the students agreed that exam tasks had clinical relevance and were consistent with the learning goals. A large percentage of students felt that more time is needed for the stations. 45.2% of the students disagreed that the OSCE exam is less stressful than the traditional clinical exam. In general, students participating expressed satisfaction with the OSCE, with a total satisfaction score of 46.87 (SD=15.44).

Conclusions: Final-year nursing students had a generally high level of satisfaction with the OSCE and expressed positive feedback related to the organization of the OSCE.

Keywords: OSCE, Objective Structured Clinical Examination, nursing student, satisfaction

BACKGROUND

The Objective Structured Clinical Examination (OSCE) has been developed since the 1970s and is widely used to assess clinical competence in health education settings (Harden & Gleason, 1979). This assessment model included multiple time-sequenced stations to assess a range of professional skills in a simulation-based environment. The OSCE stations could be designed as small scenarios where students interact with technical instruments or communicate with patients (Alinier, 2003). Besides, OSCE has been applied to assess the holistic health situation of a single individual. The examiner directly observed and assessed each student's performance in real-time using a structured checklist or rating scale.

The OSCE has several advantages for learning and assessment. It was an approach to evaluate students' clinical competence in a comprehensive, reliable, consistent, and structured manner (Khan et al., 2021; Patrício et al., 2013). It also helped reduce the risk of examiners' bias and provide transparent discrimination between students' performances (Solà et al., 2017). There was evidence that OSCE enhanced students' confidence in clinical practice (Mitchell et al., 2014; Nulty et al., 2011; Yusuf, 2021). The evidence related to the impact of this assessment method on lowering the stress level is still unclear. Several studies found that an OSCE was less stressful than other exams (Chen et al., 2021), while other groups of students reported that the OSCE did not alleviate their stress levels (Barry et al., 2012; Khan et al., 2021). Besides, time allocation, adequacy of instruments, sufficient instructions, and physical set-up were common considerations and concerns with the OSCE (Sholadoye et al., 2019). In students' opinions, OSCE was easier to pass than traditional evaluation methods, and they also preferred OSCE for assessment (Ameh et al., 2014; Vincent et al., 2022).

In nursing education, there was evidence supporting that the OSCE was an effective assessment model that can be applied throughout the bachelor of nursing program (Chen et al., 2021).

At Hanoi Medical University (HMU), OSCE has been applied to assess basic nursing skills in the second year of the bachelor of nursing program since 2010. In clinical evaluation at HMU, traditional methods were commonly used, such as planning a nursing care plan with an actual real patient, case study, and oral examination. In June 2022, the OSCE was first used for the graduation examination for HMU nursing students as part of the new competence-based nursing curriculum. Understanding students' opinions and feedback about the OSCE is necessary to improve the teaching methods, structure and organization of examinations.

This study aims to compare nursing students' opinions and feedback on the OSCE and the Traditional Clinical Examination (TCE), and to evaluate nursing students' perception of and satisfaction with the OSCE in the practical examination for graduation.

METHODS AND MATERIALS

Study Design

A descriptive cross-sectional study was conducted, with data collection from 04/07/2022-10/07/2022.

Samples

The total sampling technique was used. All 64 final-year Bachelor of Nursing students at Hanoi Medical University who took part in the OSCE practical graduation examination in June 2022 were invited to this survey.

OSCE development and setting

The development of the OSCE stations at HMU was guided by earlier research (Mitchell et al., 2009; Nulty et al., 2011). Six OSCE stations and a structured assessment tool were developed by lecturers/experts from the nursing department,

surgical and medical departments, and centre for student assessment and quality assurance. The scenarios were piloted by the HMU nursing department's staff. The OSCE scenarios were reviewed and approved by HMU academic board.

After completing four weeks of clinical rotation through four departments (two medical and two surgical wards) at two hospitals in Hanoi, students went through the graduation practical OSCE in June 2022. The OSCE consists of two lines, line A with a medical nursing case and line B with a surgical nursing case (Figure 1). Students were assigned one of the two lines. In each line, six stations were employed, including history-taking, health examination, nursing diagnosis, writing a nursing plan, and two nursing skill stations. Each station has a 7-minute duration, including the time for reading a written description of the required tasks and the transit time between stations. Examiners were randomly assigned to stations. There were two examiners in stations 1, 2, 5, and 6. There was one examiner in stations 3 and 4 each. Examiners assessed students' performance using an electronic OSCE checklist embedded in the HMU learning management system via tablet. The examiners have all completed an OSCE training program organized by HMU. The grades are expressed on a 10-point scale. If there was any difference greater than 0.5 points between the two assessors, the assessment results were discussed to reach a consensus between the two examiners. The final score of the skill assessment was calculated by the average of all six stations (Nafee et al., 2018).

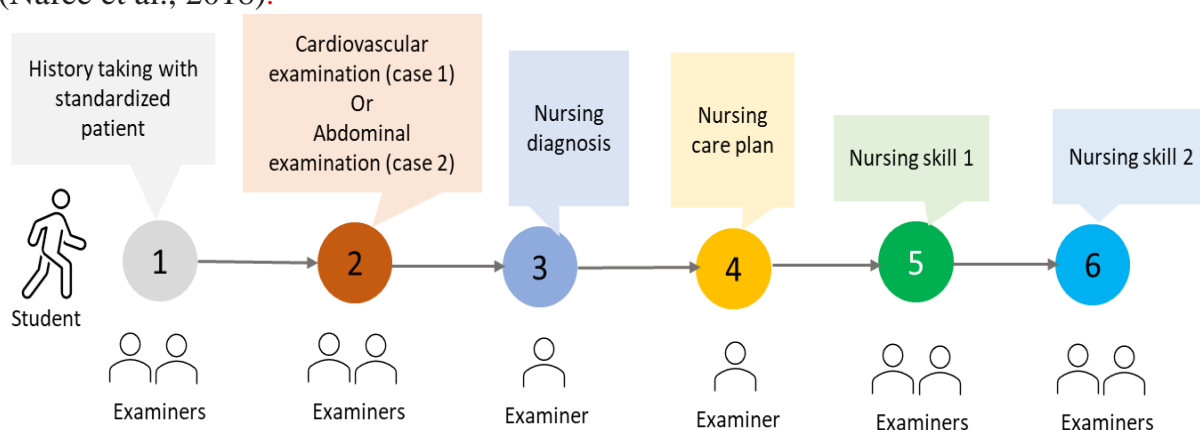


Figure 1. The flow of the graduation practical OSCE for HMU final-year nursing students

In the HMU Bachelor of Nursing, TCE was first implemented in 2013 as part of a new competency-based program supported by the Queensland University of Technology. Assessment tools were developed based on the Five Step Nursing process (Potter & Perry, 2001). However, end of subject examination was done by oral examination using actual patients. Also, there was no assessment rubric.

Data collection

Data collection was carried out using an online questionnaire distributed via Google Forms. Participants must sign in with a Google account to respond, limited to a single response for each account. The time for responses was set for one week. After

closing time, submissions were not possible. Informed consent and a link to the online questionnaire were distributed through the class's online chatroom.

Research tools

A self-administered questionnaire was adapted from a previous study to examine students' opinions and feedback on organization, performance, the validity of scoring, and physical set-up in the OSCE and traditional clinical examinations (TCE) (Nafee et al., 2018). There are 23 items rated on a 3-point Likert scale, including agree (score=2), neutral (score=1), and disagree (score=0). The tool showed good reliability in this study, with a Cronbach's alpha value of 0.907.

Satisfaction with Nursing Skill Examination: Objective Structured Clinical Assessment (SINE-OSCA) scale was used to evaluate nursing students' perception of and satisfaction with the OSCE assessment model (Hunt et al., 2020). This tool includes ten questions. Each item has a 7-point Likert scale response format that ranges from "strongly disagree" to "strongly agree" (score 1-7). The total score was aggregated, and the possible score ranged from 10 to 70. The higher the total score, the higher the satisfaction. In this study, the tool showed a relatively high internal reliability with Cronbach's alpha coefficient at 0.974 compared to 0.91 in the original study (Hunt et al., 2020).

Background data, including age, gender and type of OSCE case (medical or surgical), were also collected.

Data analysis

The study was analyzed by SPSS version 20. Socio-demographic data, including age, and gender, were analyzed using appropriate numeric analysis such as mean, range, frequency, and percentage. Satisfaction with OSCE was compared by types of OSCE exam cases (medical or surgical) using descriptive analysis and Mann-Whitney U tests as appropriate. Cronbach's alpha was calculated to determine the reliability of the instruments. A value of $p \leq 0.05$ was considered a statistically significant difference.

Ethical considerations

Ethical approval for this study was obtained from the Hanoi Medical University (4742/QD-DHYHN). The students who participate in this study are volunteers. They can refuse to answer the survey, which does not affect their studies and academic performance.

RESULTS

1. Demographic characteristics

A total of 62 completed the survey and were included in the data analysis. The response rate was 96.9% (62/64). The majority of students were female (n=61, 98.4%). The mean age was 22.37 (SD=0.773), ranging from 22 to 27 years old. The mean OSCE grade was 6.79 (SD=0.89), ranging from 4.9 to 9.0 out of 10. About 52% of students were assigned to surgical nursing cases, and 48% were involved in medical nursing (Figure 2).

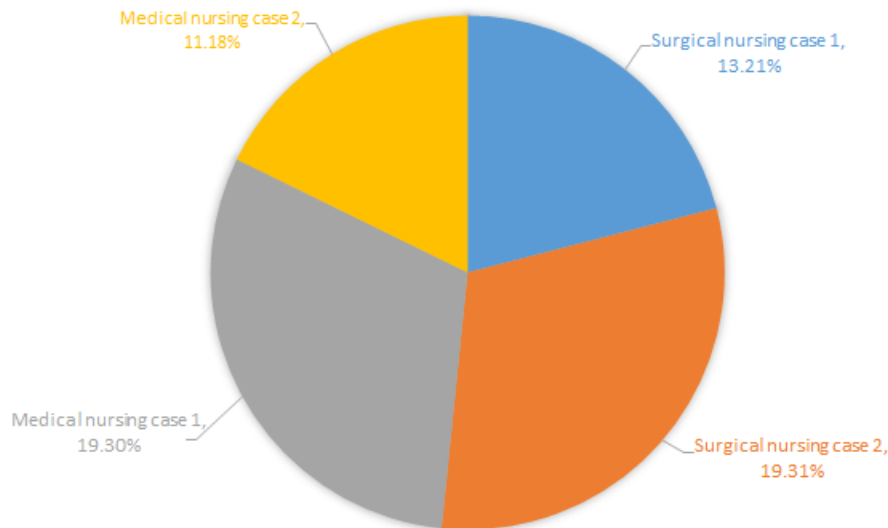


Figure 2. *The allocation of nursing students in different OSCE cases*

2. The student's views and perceptions about TCE and OSCE

Most students agreed that the examination was well organized, and that they were fully aware of the exam's nature and method (85.5% and 87.1%, 80.6% and 85.5% for OSCE and TCE, respectively). However, the percentage of students who agreed that "the time allocated for each procedure was adequate" in both the OSCE and TCE was lower (59.7% and 58.1%, respectively).

Regarding the quality of the examination performance, more than sixty per cent of the participants agreed that the OSCE covered a wide range of clinical skills (67.7%). A majority agreed with the response that tasks in the OSCE had clinical relevance (82.3%) and were consistent with teaching objectives (72.6%). Meanwhile, only 11.3% of nursing students felt that the OSCE was less stressful, and 45.2% thought that the OSCE was more stressful than TCE.

Two-thirds of participants agreed that the examination methods were fair in testing knowledge and skills (67.7% and 64.5% for OSCE and TCE, respectively). However, only 27.4% of nursing students agreed that OSCE minimized the chance of failure in the exams as compared to other test formats, compared to 50% with TCE.

Nursing students showed a high level of agreement, ranging from 72.6% to 93.5%, regarding the physical set-up of both examination methods, including adequate space, noise-free, and enough lighting.

Table 2. Comparison between nursing students' opinions about OSCE and TCE method

Dimensions	Items	OSCE (N, %)			TCE (N, %)		
		Agree	Neutral	Disagree	Agree	Neutral	Disagree
Instructions and organizations	The exam was well organized	53 (85.5)	8 (12.9)	1 (1.6)	50 (80.6)	11 (17.7)	1 (1.6)
	The exam was well structured	47 (75.8)	14 (22.6)	1 (1.6)	52 (83.9)	9 (14.5)	1 (1.6)
	Instructions were adequate, clear and unambiguous	41 (66.1)	20 (32.3)	1 (1.6)	45 (72.6)	15 (24.2)	2 (3.2)
	Fully aware of the exam's nature and method	54 (87.1)	7 (11.3)	1 (1.6)	53 (85.5)	8 (12.9)	1 (1.6)
	The time allocated for each procedure was adequate	37 (59.7)	17 (27.4)	8 (12.8)	36 (58.1)	21 (33.9)	5 (8.1)
	Generally, the exam was well administered	47 (75.8)	14 (22.6)	1 (1.6)	49 (79.0)	11 (17.7)	2 (3.2)
Maximum score =18			Median (IQR)		Median (IQR)		
P value = 0.32			11 (3)		11 (2)		
Exam's performance	A wide range of clinical skills are covered	42 (67.7)	18 (29)	2 (3.2)	43 (69.4)	17 (27.4)	2 (3.2)
	The exam was less stressful	7 (11.3)	27 (43.5)	28 (45.2)	18 (29.0)	24 (38.7)	20 (32.3)
	Allowed students to compensate in other areas	36 (58.1)	23 (37.1)	3 (4.8)	42 (67.7)	18 (29.0)	2 (3.2)
	The exam highlighted areas of weaknesses	39 (62.9)	18 (29)	5 (8.1)	41 (66.1)	18 (29.0)	3 (4.8)
	Students were aware of the level of information asked	37 (59.7)	21 (33.9)	4 (6.5)	44 (71.0)	14 (22.6)	4 (6.5)
	Tasks had clinical relevance	51 (82.3)	9 (14.5)	2 (3.2)	47 (75.8)	13 (21.0)	2 (3.2)
	The exam provided opportunities to learn	44 (71.0)	16 (25.8)	2 (3.2)	48 (77.4)	13 (21.0)	1 (1.6)
	Tasks asked to perform were consistent with teaching objectives	45 (72.6)	15 (24.2)	2 (3.2)	44 (71.0)	16 (25.8)	2 (3.2)
Maximum score =24			Median (IQR)		Median (IQR)		

Dimensions	Items	OSCE (N, %)			TCE (N, %)		
		Agree	Neutral	Disagree	Agree	Neutral	Disagree
P value <0.05		12.5 (4.25)			14 (4.25)		
Validity of scoring	The exam was fair in testing knowledge and skills	42 (67.7)	16 (25.8)	4 (6.5)	40 (64.5)	17 (27.4)	5 (8.1)
	The exam minimized the chance of failure in the exam as compared to other test formats	17 (27.4)	35 (56.5)	10 (16.1)	31 (50.0)	26 (41.9)	5 (8.1)
	The exam scores reflect individual performance at the exam	41 (66.1)	15 (24.2)	6 (9.7)	41 (66.1)	16 (25.8)	5 (8.1)
	The scores provide true measures of essential clinical skills	41 (66.1)	19 (30.6)	2 (3.2)	42 (67.7)	18 (29.0)	2 (3.2)
	Personality and social relations of students do not affect the exam scores	39 (62.9)	15 (24.2)	8 (12.9)	40 (64.5)	15 (24.2)	7 (11.3)
Maximum score =18 p value=0.07		Median (IQR) 8 (2.25)			Median (IQR) 8 (4)		
Physical set-up	Adequate space was provided	50 (80.6)	11 (17.7)	1 (1.6)	50 (80.6)	11 (17.7)	1 (1.6)
	The environment was noise free	52 (83.9)	7 (11.3)	3 (4.8)	45 (72.6)	12 (19.4)	5 (8.1)
	Enough lighting	58 (93.5)	3 (4.8)	1 (1.6)	55 (88.7)	6 (9.7)	1 (1.6)
	Exam was well-structured	51 (82.3)	8 (12.9)	3 (4.8)	51 (82.3)	9 (14.5)	2 (3.2)
Maximum score = 12 p value*=0.3		Median (IQR) 8 (1)			Median (IQR) 8 (1.25)		

*Wilcoxon Signed Rank Test

3. The students' satisfaction with OSCE

The mean score of SINE-OSCA was 46.87 (SD= 15.44), ranging from 10 to 70. The mean scores of specific items are presented in Table 3. Generally, all mean scores of specific items exceeded the median score. Among ten items, the highest score was for "the OSCE guidelines were usually helpful in assisting me to prepare for the clinical skill assessment (5.08 ± 1.67), followed by the OSCE was a fair method of clinical assessment (4.97 ± 1.74), and "the OSCE provided me with an opportunity to demonstrate my practical skills (4.95 ± 1.78). Meanwhile, the rating of "there was usually sufficient time to practice for the OSCE" was the lowest (3.68 ± 1.75).

Table 3. *Nursing students' satisfaction with OSCE*

Item	Mean	SD
The OSCE accurately assessed my clinical skills	4.76	1.71
The OSCE was a true reflection of clinical skills learned in each of the clinical units	4.85	1.63
The OSCE was a fair method of clinical assessment	4.97	1.74
The OSCE provided me with an opportunity to demonstrate my knowledge	4.94	1.75
The OSCE provided me with an opportunity to demonstrate my practical skills	4.95	1.78
The OSCE guidelines were usually helpful in assisting me to prepare for the clinical skill assessment	5.08	1.66
The allocated time of each OSCE was usually sufficient	4.48	1.79
The skills being assessed in each OSCE were a good reflection of the clinical environment	4.82	1.76
There was usually sufficient time to practice for the OSCE	3.68	1.75
I was usually confident with my OSCE performance	4.34	1.55
Total satisfaction score	46.8	1.96

Comparisons using the Mann-Whitney U test were computed to examine differences in respondents' characteristics and SINE-OSCA scale scores. Students assigned to the medical case were more satisfied than those assigned to the surgical case (Mean: 37.5 vs 25.1, $p = 0.007$). There was no difference in SINE-OSCA score regarding age and gender.

DISCUSSION

Students participating in this study expressed positive feedback on organization, instructions, and the exam's physical set-up. They perceived that it was well-organized and highly acceptable. These opinions concur with a previous study in which most medical students agreed that the organizational aspect of the OSCEs was smooth (Khairy, 2004; Yusuf, 2021). In Khairy's study, 82% of students agreed that the examination was objective and fair; and 86% agreed that tasks were within the course's content. In the present study, 67.7% of students agreed that the exam was fair, and 72.6% agreed that the tasks were consistent with learning objectives. Preparation of

examination scenarios or tasks is very crucial to ensure students get a better performance as well as limit the impact of anxiety on students' performance.

The participants reported a relatively high degree of satisfaction with the OSCE (46.87±15.44). A previous study with 727 final-year nursing students reported that overall satisfaction with the OSCE was 46.9±11.4 (Hunt et al., 2020). The item "the OSCE guidelines were usually helpful in assisting me to prepare for the clinical skill assessment" was rated the highest in both the present study and the previous study of Hunt et al. (5.08±1.66 and 5.37±1.39, respectively). Guidelines about the examination with necessary information should be provided for students in advance to help them to have better preparation and minimize the chance of failure in the exam (Johnston et al., 2017).

In this study, only a lower percentage of students agreed that the OSCE exam was less stressful. This can be explained because this was the first time they took a clinical course examination with OSCE. The first-time experience may be a challenge for students since the previous experience with an OSCE has a calming effect on examination participants, decreasing anxiety among students related to the exam (Ferreira É et al., 2020). Additionally, this OSCE was the graduation examination, which can result in delayed graduation. Although students in this study reported that the OSCE was stressful but also meaningful since the exam provided them opportunities to learn. This was also reported in previous studies (Ferreira É et al., 2020; Mårtensson & Löfmark, 2013).

In TCEs, students had time to refer to resources available after they were assigned a clinical case and patient. In OSCE, there was no time for students to refer to the resources available, and time for each station was limited. That might be why a significant percentage of students (27.4% and 12.8%, respectively) in this study responded that they "neutral or disagree" with the statement "the time allocated for each procedure was adequate". The finding of this study was in line with previous studies which supported the importance of time in both learning and the OSCE among midwifery students (Barry et al., 2012; Kirwan et al., 2022). Time pressure was a major concern that had been reported by students in a previous study (Bagheri et al., 2012). The statement "there was usually sufficient time to practice for the OSCE" received the lowest satisfaction score from participants in this study. Previous studies highlighted that OSCE preparation and practices facilitated learning and benefited nursing and midwifery students in the upcoming assessment (Barry et al., 2012; Mitchell et al., 2014).

A limitation of the study was the lack of a comparison group including students in the same course evaluated by another method. In this study, students were asked about their opinions and feedback on the OSCE and TCE of different courses. Although there were similarities between the tasks of both courses, comparing the students' perceptions of the two assessment modes would not be conclusive. However, since the graduation practical course is very important and could directly impact the students' graduation, it was not feasible to organize this exam via two different modes. Secondly, this study was conducted on a small group of nursing students in the same

cohort, which may restrict the generalization of the results. Future research with a larger sample size would have allowed for a more in-depth examination of the relationship between 'students' characteristics, OSCE perceptions and satisfaction.

CONCLUSION

In conclusion, fourth-year nursing students had a generally high level of satisfaction with the OSCE, as well as positive feedback related to the organization of the OSCE. However, a lower percentage of students agreed that the OSCE was less stressful and minimized the chance of failure compared to other modes of assessment. This study has the potential to provide information for faculties and program directors about how students perceive the graduation practical OSCE. The study findings can be used to improve the curriculum and OSCE at Hanoi Medical University and other institutions, as appropriate.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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