

Clinical Skill Evaluation of Undergraduate Nursing Students Using *Objective Structured Clinical Examination* (OSCE)

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ABSTRACT

Background: Although Objective Structured Clinical Examination (OSCEs) become one type of clinical skill evaluation method conducted widely by health institutions (medical, nursing and pharmacy), the use of OSCE in Indonesia has not been applied thoroughly. **Objective:** To explore clinical evaluation result at the subject of emergency nursing among undergraduate nursing students using OSCEs. **Method:** This research method was a descriptive observational research with a cross-sectional approach. A total of 97 respondents were undergraduate nursing students who were in their third year and enrolled in Emergency Nursing Course. Group comparison was done using Independent Sample T-test (gender and OSCE's score). **Result:** There were no significance difference in the mean score both in cognitive and psychomotor aspects regarding genders' respondents. Furthermore, male students achieved higher score both in cognitive and psychomotor aspects than of female students. **Conclusion:** Nursing lecturer are expected to concern more on the student ability in critical thinking and in analyzing procedural skills' rational. Using OSCE would be benefit for the students to perform better in their cognitive and psychomotor areas.

Keywords: Clinical Skill, Evaluation, OSCEs, Undergraduate, Nursing Students

INTRODUCTION

In the field of health education institutions, it is reasonable to evaluate students' clinical skills and competencies both formatively and summative. However, it is now starting to be concerned on the validity and assessment methods used. There has also been a shift in the form or model of a more standardized assessment format (Baid, 2011; Bornais, et al, 2012). Included in this process, the final examination has been changed to Objective Structured Clinical Examinations (OSCEs), which is one of the most common clinical skills evaluation methods applied in health departments (medicine, nursing, pharmacy, etc.) (Mitchel et al, 2011).

In the OSCEs method can measure clinical competencies that focus on the final result through observation of repetitive behavior. Furthermore, this method also provides the same experience for all candidates or students. This method is often used to evaluate or measure students' clinical skills competencies. This clinical assessment method is carried out through approximately 6 - 8 stations that must be passed by all students within 5 - 10 minutes at each station. In the station, students are asked to do the task or problem that is in the station (Ramani, et al, 2010). The OSCEs use a standardized format intended to

measure or evaluate the synthesis of students' clinical knowledge and skills. This method also facilitates students with an innovative learning experience (Oranye, et al, 2012). Students are trained as standard patients to have a realistic, non-life-threatening clinical situation control. This can reduce stress on students and support a more relaxed atmosphere of learning and evaluation (Rentschler, et al, 2007).

The implementation of OSCEs applied at School of Nursing, Faculty of Health Sciences so far is still not in accordance with existing standards. In the meantime, the final result achieved by a total of 165 students was found that 67% of students has achieved an average final score of 56.37. This score did not meet with the passing limit which is in accordance with the desired practice standard of 75.00. Based on the above description, the researcher feels the need to do a research on the identification of the Objective Structured Clinical Examination (OSCEs)'s score of undergraduate nursing students in the subject of Emergency Nursing at School of Nursing, Faculty of Health Sciences, University of Muhammadiyah Malang.

METHOD

This was a descriptive, observational research with a cross sectional approach conducted at School of Nursing, Faculty of Health Sciences, University of Muhammadiyah Malang. A total of 97 respondents were undergraduate nursing students who were in their third year and enrolled in Emergency Nursing Course.

Students completed an OSCE exam at the end of the course. Students' performance was monitored and evaluated, using the detailed checklist, by an examiner, present in the station. The score ranged from 0 - 100 (Table 1). The OSCEs' result was divided into two domain; cognitive and psychomotor. Data was retrieved from the students' final score of OSCEs in the subject of Emergency Nursing. Data were analyzed using IBM SPSS v21TM. Descriptive statistic (frequency and percentages) were used to summarize the study. Group comparison was done using Independent Sample T-test (gender and OSCE's score). Statistical significance for the study was set at $p < 0.05$.

Table 1 Assessment criteria table

	Criteria	Score
1	No attempt	0
2	Very poor performance with hardly any merit	1-10
3	Poor performance with major weakness in key areas	11-20
4	Sub-standard performance with weaknesses in key areas but with some evidence of understanding and ability	21-30
5	Performance represented some evidence of understanding and ability but insufficient to merit pass	31-39
6	Demonstrates basic understanding and ability. Meets essential criteria	40-49
7	A satisfactory performance but weak in structure and uneven in quality	50-59
8	A good performance with a thorough understanding and clear ability to perform the task	60-69
9	An excellent performance demonstrating a full understanding and clear ability to complete the task. Some criteria not met	70-79
10	An outstanding performance as described in (9) but all criteria met	80-100

Scores are given as a percentage (0–100%)

RESULT AND DISCUSSION

The result obtained from a total of 97 undergraduate nursing students presented in Tables (Table 2, 3, and 4). Table 2 represents OSCEs' result in cognitive and psychomotor aspects. Table 3 describes distribution of students based on their achievements at OSCE (cognitive and psychomotor aspects). Table 4 depicts comparison of students achievements at OSCE (cognitive and psychomotor aspects) based on gender.

Table 2 OSCEs' result in cognitive and psychomotor aspects

	Min	Max	Mean	SD
Cognitive	56	83	72.36	6.683
Psychomotor	65	83	75.01	5.593

Of Table 2, respondents' maximum score both in cognitive and psychomotor aspects was similar. However, mean score of psychomotor aspect was higher than of cognitive aspect, 75.01 (SD 5.593) and 72.36 (SD 6.683) respectively. In fact, according to Oranye et al (2012), the OSCE method used is the most objective and accurate method for assessing clinical competence and students' abilities with real situational settings. Whereas when assessing clinical skills, researchers use a standardized patient (people who are set up like real patients and provide responses and data required by students to formulate problems and interventions). In the OSCE, students are not only assessed for competence and clinical skills, but will also be evaluated from the cognitive aspects associated with the ability to analyze and think critically about a case at hand (Juan, et al, 2010; Bornais, et al, 2011). The ability of this cognitive aspect involves the ability to explore a medical history indicated by the ability to properly evaluate the signs and symptoms indicated by the client or patient and also the ability to communicate especially with the patient (Ramani, et al, 2010; Mirfeizi, et al, 2013).

Table 3 Distribution of students based on their achievements at OSCE (cognitive and psychomotor aspects)

	Achieved	Failed
Cognitive	61(62.8%)	36(37.2%)
Psychomotor	50(51.5%)	47(48.5%)

Looking at the overall result, it can be seen that more than half of respondents showed positive result both in cognitive and psychomotor aspects, 62.8% and 51.5% respectively (Table 3). Nevertheless, respondents performed better in cognitive aspect than in psychomotor aspect. This study in line with a research done by Lafleur, Cote & Leppink (2015) who did a randomized, controlled, mixed-methods study on forty medical students found that by studying for a whole-task OSCE stations, students tend to achieve a better use of diagnostic reasoning.

When comparing the ability of respondents from cognitive aspects with psychomotor aspects, it can be observed that the ability of respondents from the cognitive domain is better than the ability of the psychomotor domain. This is because students only memorize the points on each action or procedure of nursing without knowing rationally why the action needs to be done on the patient (Baid, 2011; Aronowitz, et al, 2017). Whereas the competence of nursing undergraduate graduates is expected to be balanced in cognitive ability that is critical thinking, analyzing appropriately and also doing nursing action correctly and quickly, especially in emergency nursing subject (Oranye, et al, 2012; Eldarir & Abd el Hamid, 2013). In this aspect, students will be assessed for clinical skills in

clinical examination (the ability to properly evaluate clinical signs of clients or patients) and procedures of action (ability to perform clinical actions or procedures) (Clarke, Rainey, Traynor, 2011; Jahan, et al, 2013). However, even if the clinical skills are evaluated, students are still required to use communication skills with patients especially when performing invasive action procedures (El-Nemer & Kandeel, 2009; Mitchell, et al, 2009).

Table 4 Comparison of students' achievements at OSCE (cognitive and psychomotor aspects) based on gender

	Gender	Mean (SD)	Independent t-test analysis
Cognitive	Male	73.91 (6.822)	$p\text{-value} = 0.788$
	Female	71.60 (7.479)	
Psychomotor	Male	75.22 (4.91)	$p\text{-value} = 0.521$
	Female	74.91(5.53)	

Meanwhile, when looking at respondents' means score in both age group, it can be seen that male students performed better than female students both in cognitive and psychomotor aspects, 73.91 (SD 6.822) and 75.22 (SD 4.91) respectively. On the other hand, it appears that there were no significance difference in the respondents' score both in cognitive and psychomotor aspects regarding to their gender ($p\text{-value}= 0.7888$ and $p\text{-value}=0.521$, respectively).

This study's result contradict with the study conducted by Chan, et al (2014) who found that both genders performed similarly in different aspects (academic, clinical, psychological, nursing profession identity, and health concept). Other opposing study done by Carson et al (2010) who analyzed scores from 138 medical students in their second year of study, found that female students performed better than male students. It can be assumed that different demographic areas and students' characteristics background in Indonesia may cause this discrepancies in the research results.

CONCLUSION

From the results of this study obtained the following conclusions: average outcome evaluation of emergency nursing skills more than half showed sufficient results and the evaluation results of emergency nursing skills on the cognitive and psychomotor aspects also show considerable results. From the exposure of the results of the above studies that show the final evaluation of emergency nursing skills, the researchers suggested that nursing lecturer should also emphasize the ability of students in critical thinking and analyze the rational-rational procedural action and should use the OSCE method in evaluating the clinical skills and competence of students in each nursing course

REFERENCES

- Aronowitz, T, Aronowitz, S, Mardin-Small, J, & Kim, B. (2017). Using Objective Structured Clinical Examination (OSCE) as education in advanced practice registered nursing education, *Journal of Professional Nursing*, 33(2), 119-125.
- Baid, H. (2011). The objective structured clinical examination within intensive care nursing education, *Nursing in Critical Care*, 16(2), 99-105.
- Bornais, JAK, Raiger, JE, Krahn, RE, & El-Masri, MM. (2012). Evaluating undergraduate nursing students' learning using standardized patients, *Journal of Professional Nursing*, 28(5), 291-296.

- Carson, JA, Peets, A, Grant, V & McLaughlin, K. (2010). The effect of gender interactions on students' physical examination ratings in objective structured clinical examinations stations, *Academic Medicine*, 85(11), 1772-1776.
- Chan, ZCY, Chan, Y, Lui, C, Law, Y, Cheung, K, Hung, K, Kei, S, Woo, W & Lam, C. (2014). Gender differences in the academic and clinical performances of undergraduate nursing students: a systematic review, *Nurse Education Today*, 34(3): 377-388.
- Clarke, S, Rainey, D, & Traynor, M. (2011). Using the Objective Structured Clinical Examination (OSCE) to assess orthopedic clinical skills for the registered nurse, *International Journal of Orthopedic and Trauma Nursing*, 15(2), 92-101.
- El-Nemer, AMR & Kandeel, N. (2009). Using OSCE as an Assessment Tool for Clinical Skills: Nursing Students' Feedback, *Med. J. Cairo Univ*, 77(4), 457-464.
- Eldarir, SA & Abd el Hamid, NA. (2013). Objective structured clinical evaluation (OSCE) versus traditional clinical students' achievement at maternity nursing: a comparative approach, *IOSR Journal of Dental and Medical Sciences*, 4(3), 63-68.
- Henderson, A, Nulty, DD, Mitchell, ML, Jeffrey, CA, Kelly, M, Glover, P, & Knight, S. (2013). An implementation framework for using OSCEs in nursing curricula, *Nurse Education Today*, 33, 1450-1461.
- Jahan, F, Norrish, M, Lim, G, Vicente, O, Ignacio, G, Al-Shibli, A, & Al-Marshudi, K. (2013). Knowledge and perception regarding objective structured clinical examination (OSCE) and impact of OSCE workshop on nurse, *Middle East Journal of Nursing*, 7(4), 3-9.
- Juan, LI, Wei-bo, LV, Chen, HU, Xiao-yun, Z, Yan, XU & Lan-shu, Z. (2010). Application of objective structured clinical evaluation (OSCE) on standardized patient in graduation examination of clinical capacities for nursing undergraduates, *Nursing Journal of Chinese People's Liberation Army*, 22.
- Laflaur, A, Cote, L & Leppink, J. (2015). Influences of OSCE design on students' diagnostic reasoning, *Medical Education*, 49(2), 203-214.
- Mirfeizi, M, Tourzani, ZM, Mirfeizi, SZ, Jafarabadi, MA, Mirheydari, M, Khorsand, G, & Purrostami, K. (2013). The objective structured clinical evaluation (OSCE): Is it a reliable and valid method in evaluating the knowledge and clinical practice of midwifery students?, *Future of Medical Education Journal*, 3(4), 20-24.
- Mitchell, ML, Henderson, A, Groves, M, Dalton, M, & Nulty, D. (2009). The Objective structured clinical evaluation (OSCE): optimizing its value in the undergraduate nursing curriculum, *Nurse Education Today*, 29 (4), 398-404.
- Oranye, NO, Ahmad, C, Ahmad, N & Bakar, RA. (2012). Assessing nursing clinical skills competence through objective structured clinical examination (OSCE) for open distance learning students in Open University Malaysia, *Journal of Contemporary Nurse*, 41(2), 233-241.
- Ramani, S, Ring, BN, Lowe, R, & Hunter, D. (2010). A Pilot Study Assessing Knowledge of Clinical Signs and Physical Examination Skills in Incoming Medicine Residents, *Journal of Graduate Medical Education*, DOI: 10.4300/JGME-D-09-00107.1
- Rentschler, DD, Eaton, J, Cappiello, J, McNelly, SF, & McWilliam, P, . (2007). Evaluation of Undergraduate Students Using Objective Structured Clinical Evaluation, *Journal of Nursing Education*, 46(3).