

# Reliability and Validity of the Objective Structured Clinical Assessment (OSCA) in Undergraduate Nursing Program

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**Abstract** Clinical assessment is the one of the essential components in assessing student's competency in nursing curriculum. There are various types of clinical assessment to measure the competency level of skills in nursing students. Nevertheless, the reliability and validity of the assessment is still unclear in the area of skill assessment, problem solving, knowledge and patient management. Objective structure clinical Examination (OSCE) is a reliable and valid method in evaluating nursing students' clinical skill. However, problems with regard the OSCEs appeared because the assessment only focusing on the dexterity rather than focusing on the holistic care to the patient. Therefore, new method approach, objective structure clinical assessment (OSCA) was established. This study sought to identify the extent of reliability and validity of this OSCA assessment in the Faculty of Nursing at International Islamic University Malaysia (IIUM). The applicability of this assessment OSCA was also explored by assessing immediate nursing students' feedback regarding this exam. A total of 53 nursing students from the final year was drawn from a purposive random sampling. A self-developed checklist of procedures and feedback questionnaire adapted from another well-known OSCA's study was used as research instruments. The results showed that there is a statistically significant positive correlation between the two examiners in all stations ( $r_s$  of station 1=0.968;  $p=0.0001$ ,  $r_s$  of station 2=0.811;  $p=0.0001$  and  $r_s$  of station 3=0.728;  $p=0.005$ ,  $r_s$  of station 4=0.837;  $p=0.003$ ). Moreover, the reliability of the OSCA stations was measured using Cronbach  $\alpha$  to evaluate the internal consistency of each station. The internal consistency of OSCA stations was statistically significant and highly reliable as Cronbach  $\alpha$  was higher than 0.7 in three stations among four exam stations. The findings indicated that the OSCA examination was a reliable and valid method in assessing undergraduate nursing students. The running cost of the OSCA is outweighed by the educational benefits, examiners' satisfaction as well as students' satisfaction. **Copyright © 2016 Penerbit Akademia Baru - All rights reserved.**

**Keywords:** OSCA, Clinical assessments, Undergraduate program, Nursing education

## 1.0 INTRODUCTION

Objective Structure Clinical Assessment (OSCA) had been started in assessing students' clinical competency in medical students as well as nursing students around the world. According to many studies, OSCAs have also been used in both formative and summative assessments as a learning resource, and also a method to identify gaps and weakness in

communication and clinical skills [4]. Thus, new assessment was reconstructed as Objective Structured Clinical Assessment (OSCA) for educators to enable to assess the students' ability and skills in handling a patient holistically and in giving a comprehensive care for the patients. The reliability and validity of each structured clinical assessment tool is also important in evaluating nursing students' clinical skill. Thus, this current study used the OSCA as formative and summative evaluation, with established OSCA checklist and further exploring the reliability and validity of this assessment which is the first implementation in the Faculty of Nursing at International Islamic University Malaysia for further development of assessing tools in an undergraduate nursing program.

## 2.0 MATERIALS AND METHODS

Fifty-three undergraduates nursing students in final year at Faculty of Nursing, International Islamic University Malaysia had been chosen by a convenience sampling method and conducted in the Clinical Skill Centre (CSC), at Jalan Hospital Campus of International Islamic University Malaysia, Kuantan. A pilot study was conducted on a group of 10 students in March 2015 to develop and test OSCA stations and to ensure the applicability and feasibility of the tools. The actual study was conducted in April 2015 in four stations and at each station; a group of 11-13 students were selected randomly using a lottery approach. Students were assured that scores on OSCA were used for self-assessment. The immediate feedback was taken from the students about the OSCA. Data were analyzed using SPSS version 20. Face and content validity of OSCA station were performed by experienced and educated clinical instructors and lecturers from respective departments in Kulliyah of nursing at International Islamic University Malaysia. Criterion validity of OSCA was calculated using non parametric Spearman's correlation coefficient. Regarding OSCA reliability, it was measured using interrater reliability of simulated patient station examiners by non-parametrical Spearman's correlation coefficient. Cronbach  $\alpha$  was used to test the internal consistency of OSCA stations. Concerning the ethical approval, this research was approved from Kulliyah (Faculty) of the Nursing Research committee (KNRC), the IIUM Research & Ethics Community (IREC), head of the Clinical Skill Centre (CSC) and final year nursing students in Kulliyah Faculty of Nursing, IIUM.

## 3.0 RESULTS

83% of the respondents were female and 17% were male and was representative of the gender of nursing population. All are undertaking an undergraduate BSc Nursing programme. The age range is between 24-25 years with all were Malay background except one student was an Arabian.

Fifty three students had completed the OSCA; Inter-rater reliability was calculated for OSCA stations using non parametric Spearman's correlation. The results show statistically significant positive correlations between the two examiners of the previously mentioned stations ( $r_s$  of station 1=0.968;  $p=0.0001$ ,  $r_s$  of station 2=0.811;  $p=0.0001$  and  $r_s$  of station 3=0.728;  $p=0.005$ ,  $r_s$  of station 4=0.837;  $p=0.003$ ). Table 1 indicated that the significant agreement between the two examiners in OSCA stations.

**Table 1:** Inter-rater reliability of OSCA station (\*P < 0.05)

Station 1			Station 2		
item	r <sub>s</sub>	P value	item	r <sub>s</sub>	P value
Ex1S1	.968*	0.0001	Ex1S2	.811*	0.0001
Station 3			Station 4		
Ex1S3	r <sub>s</sub>	P value	Ex1S4	r <sub>s</sub>	P value
Ex2S3	.728*	0.005	Ex2S4	.837*	0.003

In addition, reliability of the OSCA stations was measured using Cronbach  $\alpha$  to evaluate the internal consistency of each station. The internal consistency of OSCA stations was statistically significant and highly reliable as Cronbach  $\alpha$  was higher than 0.7 in stations 1,2 and 3, as shown in Table 2.

**Table 2:** Reliability–internal consistency of the OSCA stations.

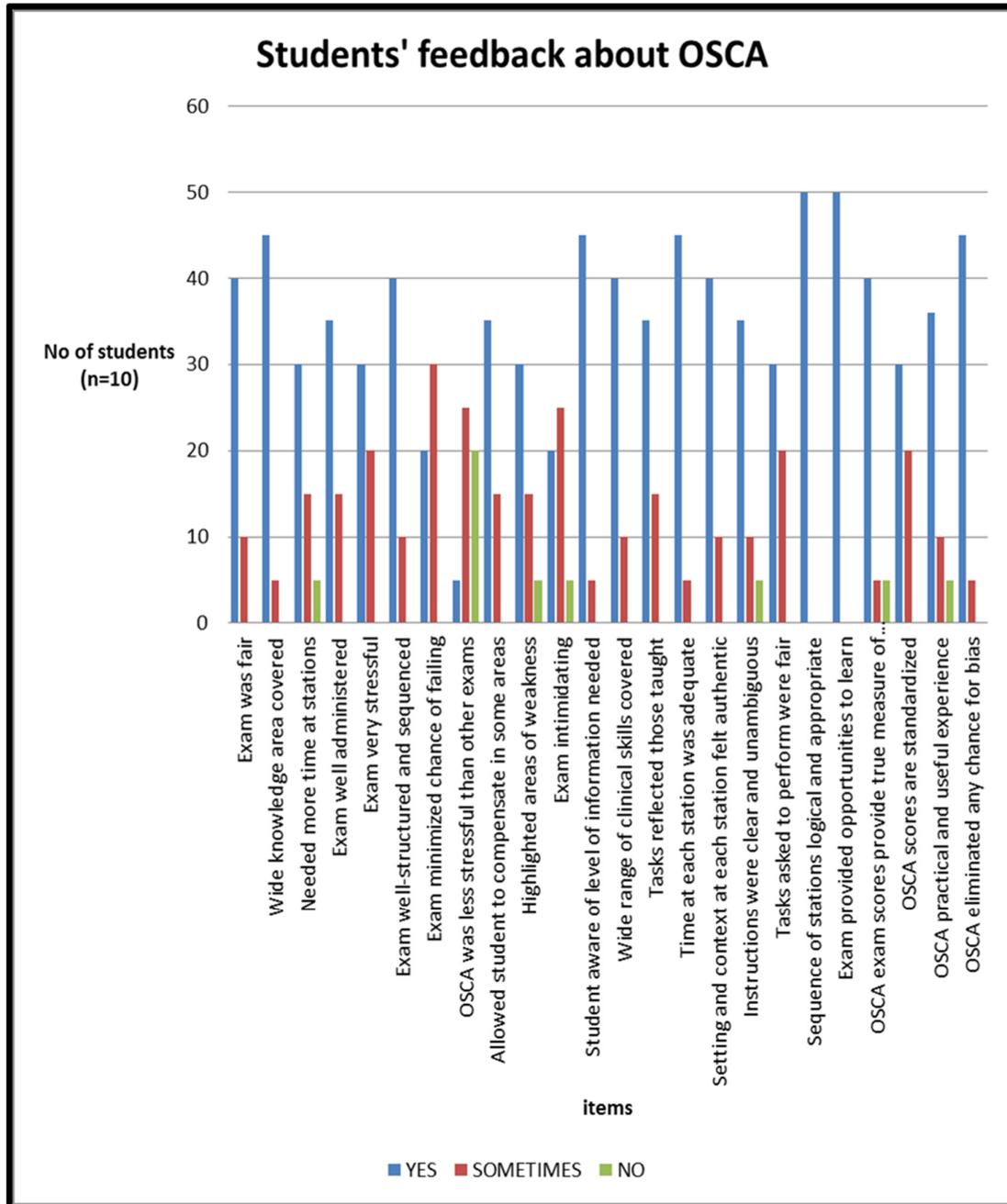
Station	No. of item	Cronbach's alpha	P value
1	47	0.807	0.0001
2	54	0.938	0.0001
3	38	0.701	0.008
4	54	0.579	0.069

Regarding face and content validity of each checklist, simulated patient scenario, station task, written assignment, student's answer booklet, model answer sheets and number of stations were established by review and consensus by experienced and educated clinical instructors and lecturers from respective departments in Kulliyah of Nursing at International Islamic University Malaysia.

Concerning about the students' feedback, fifty students given their feedback out of fifty three about the OSCA and completed the asked questions. The majority of the students consistently appraised the OSCA and reported that it was fair covered a wide area of knowledge (80%), well administered (70%), well-structured and sequenced (80%), allowed students to compensate in some areas (70%), highlighted areas of weakness (60%), Student aware of the level of information needed (90%), covered a wide range of clinical skills (80%), the tasks reflected those taught (70%), time at each station was adequate (90%), Setting and context at each station felt authentic (80%), instructions were clear and unambiguous (70%), tasks were fair (70%), the sequence of stations was logical and appropriate (100%), the exam provided them with an opportunity to learn (100%), was a practical and useful experience (70%) and did not allow any chance for bias (90%) and that they were oriented with the nature of the exam (89.8%). On the other hand, the majority of the students stated that the OSCE was very stressful (80%) and more than half of them found the exam more stressful than the other exams (60%). The details were shown in Fig. 1.

#### 4.0 DISCUSSION

Education is born out of the need for community and society development, individual's need to acquire knowledge and technical skills that is necessary for the movement and advancement of the society in the direction of development. Based on this, education has to be planned to be effective and quality towards achieving societal development needs [7].



**Figure 1:** Students' feedback about OSCA

Nursing educators are facing a great challenge to evaluate the clinical skills and performance of nursing students. With the widespread of having OSCE as an assessment method in nursing education, nursing educators still searching for other assessment methods that the best to enhance the students' development of clinical skills in nursing beside the OSCE [1]. OSCA is a well-established students' assessment tool which is a holistic care -based. The feedback received regarding the OSCA supports the feasibility of this method in assessing the performance of nursing students. Hence the present study was done to better understand the reliability and validity of OSCA in the field of nursing education. In the same line the emergence of the current study was preceded by unsatisfactory experience of clinical

evaluation in nursing education by both faculty staff and students in the OSCE. The traditional clinical evaluation such OSCE was characterized by a high level of subjectivity based on unstructured and inconsistent assessment of clinical competencies, very limited number of assessors, the luck of the draw, and assessing the limited number of clinical skills.

Additionally, there was a greater agreement among examiners in the most rated items during the evaluation of the students at each station. This is explained in the light of intense preparation of the OSCA which include gathering a team, intense preparation of blueprint, creating a bank of stations, creating scenarios, training of actors in simulated patient stations, preparation of checklists of rating, training of examiners, using two examiners in each station, preparing model answers, reviewing the contents of OSCA by faculty teaching staff and comparing the OSCA content with the intended learning outcomes of undergraduate nursing curriculum and orienting the students with the nature of OSCA. On the same line, Rush, S., et al., found that the OSCA was a reliable and valid assessment instrument for the testing acquisition of clinical skills [9]. Regarding validity, face and content validity performed through reviewing the content of stations by experts in the field added to the overall validity of OSCE against other evaluation tools. Several studies used various methods to evaluate the OSCE. [5,6,8]

The data indicated that most of the students have a positive view on OSCA. The feedback received regarding the OSCA supports the feasibility of this method in assessing the performance of nursing students. Students were asked to indicate their view about OSCA by answering a feedback sheet for the evaluation of OSCA.

On the same line, research conducted at Kingston University, United Kingdom, produced the similar result which was students found the OSCA to be highly valuable to them, particularly with regard the amount of the time they were given to demonstrate their skills [9]. For some reason, the time 25 minutes given was adequate for the student to perform the part 1. OSCA can be a fantastic learning process if the students be pro-active in the management of the time because the each task given are different somehow there was about 1-2 tasks that can be finished earlier, thus, it could save the time to perform the critical task or aseptic task.

Students claimed that the exam was fair, well-structured, and the setting and content at the stations felt authentic to them. It can be indicated that the environment of the OSCA is very natural that closely resemble the real situation in a ward. Thus, students may feel comfortable with the environment and the setting as they are familiar with the environment in a ward. Here, supported positive statements by students give thought students' perception that the OSCA was well-planned and managed.

Most of the students reported positive feedback about the quality of OSCA performance in terms of the clarity of the instructions of the exam, the sequence of OSCA stations, the reflection of the tasks taught and covering a wide range of clinical skills, highlighting the areas of weakness and the fairness of the exam. These findings go with the previous studies which reported that students perceived OSCA as the method of assessment, with immediate feedback helped their learning and they believe that all universities should do the same [9].

On the other hand, there were students that felt OSCA was a stressful experienced compared to other assessment. This perception could be due to the first OSCA experience for final year nursing students at Kulliyah of Nursing, International Islamic University Malaysia. Hence, it was a new experience for all of them, which made them feel anxious about it. The adaptation period, surely seems difficult and stress among the students, especially when there were little information about the new changes. Thus, more information and guidelines need to be provided even there was limited time because it goes along with the statement "better late than never".

Actually, stress in response to an emergency helps to handle the crisis. It may sound a bit weird, but it's true. OSCA examination was a medium to simulate the reality of clinical stress for the students.

## 5.0 CONCLUSION

In conclusion, the implementation of OSCA as a rebranded assessment from the OSCE in an undergraduate nursing program at the Kulliyah of nursing, IIUM, in Malaysia provides evidence on the reliability and validity on this tool in assessing the students. This new assessment rebranded as Objective Structured Clinical Assessment (OSCA) which also include as summative assessment but with immediate feedback provided to the students. Here, as we can see, it will bring benefit to the students in improving their performances in the future as they recognize their mistakes and learn from it. Moreover, it is noteworthy that the OSCA can be used in assessing the skills of new nurses during the process of recruitment.

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