



## Nursing clinical skills: Objective structured clinical examination versus observational checklist

Abeer El Said Hassan El Sol<sup>1</sup>, Amal Badawi Bushra Mokhtar<sup>2</sup>, Ragaa Gasim Ahmed Mohammed<sup>3</sup>, Omima Idris Mohammed Idris<sup>4</sup>

<sup>1</sup> Assistant professor of Medical-Surgical Nursing, Faculty of Nursing, Menoufia University, Egypt

<sup>2</sup> Assistant Professor of Community and Mental Health Nursing, Faculty of Nursing Neelain University, Sudan

<sup>3</sup> Assistant Professor of Pediatric Nursing, Nursing Department, Faculty of Applied Medical Sciences, Al-Baha University, Saudi Arabia

<sup>4</sup> Assistant Professor of Community and Mental Health Nursing, Faculty of Nursing Neelain University, Sudan

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### Abstract

Clinical skills allow a nurse to monitor and care for their patients correctly so they get the best care and any problems are spotted early. By competent clinical skills the nurses providing care based on professional knowledge and skills includes the ability to collaborate with other healthcare professionals, develop intrapersonal relationships, educate and instruct, manage nursing care, ensure safety and quality of nursing and expand the capacity of nursing. Effective clinical evaluation or examination should be the first aim for all nursing faculties and clinical instructors. Objective Structured Clinical Examination is one form of objective evaluation method that includes both summative and formative evaluation components. Therefore the application of objective structured clinical evaluation in nursing students' clinical evaluation increases their competencies.

**Aim of the Study:** compare between objective structured clinical examinations versus observational checklist in evaluation of nursing students' clinical skills.

**Methodology:** An evaluative-comparative research was conducted by adapting posttest only design was utilized. A convenience sample of fifty students from second year, Faculty of Nursing, Neelain University, Sudan,

**Tools;** divided into two parts; first part includes Scio-demographic characters and student's clinical evaluation score by both methods and second part included the Opinion of Students regarding advantages of both clinical evaluation methods.

**Results:** Mean of Student's Clinical Evaluation score by Objective Structured Clinical Examination was (25.42%), while by Observational Checklist was (19.72). The more than half participant students (60.0%) preferred Objective Structured Clinical Evaluation than traditional observational checklist in clinical evaluation. There was a statistical significance between the Student's Opinion regarding Clinical Evaluation by Objective Structured Clinical Evaluation and Observational checklist in many questions.

**Conclusion:** The findings of the present study concluded that clinical evaluation by Objective Structured Clinical Examination or Evaluation more objective method of assessment than the traditional method.

**Recommendation:** Based on the current research findings the researchers recommended that; Objective Structured Clinical Evaluation should be incorporated with other methods for evaluating undergraduate nursing students in all studying years.

**Keywords:** objective structured clinical examination, traditional observation checklist, clinical skills

### 1. Introduction

Clinical Skills and practice will help hospitals provide training and reinforcement of clinical skills for nurses, healthcare assistants, and students; in a scalable, cost effective and localized method. The success of trainees of these fields depends on what they memorize to some extent. Effective and accurate clinical evaluation should be of concern to all nursing faculties and clinical instructors [1]. There is a reasonable expectation for evaluation to be objective, fair, specific, and documented. In addition, students need to know, very clearly delineated, the specific objectives by which they are being evaluated. One type of assessment which meets these criteria is a performance based assessment. An example of a performance-based assessment is the Objective Structured Clinical Evaluation (OSCE) [1, 2].

An Objective Structured Clinical Examination (OSCE) is an assessment instrument used to examine a Candidate's clinical skills and knowledge competencies. An OSCE

involves a set of timed activity stations where a nurse Candidate must perform simulated professional tasks with a Standardized Patient in the presence of an Examiner. It has gained acceptance as a benchmark for clinical skills assessment since its development in the 1970s. OSCE first described in 1975 by Harden and Gleeson [3, 4].

Since its foundation, the OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines worldwide, including non-clinical disciplines [1], OSCE is one form of objective evaluation method that is gaining more importance and is being adopted by educators of various disciplines especially when the advantages of OSCE outweigh the disadvantages and motivates student learning [5].

It includes the following advantages; there are many stations; the time at each station is short; the stations are highly focused and have very specific Candidate instructions; the stations are geared to examine skills, knowledge and judgment; each station has a predetermined,

structured marking scheme and the activities at each station have adequate psychometric qualities [6].

The traditional evaluation method in clinical evaluation as observational checklist has poor reliability and validity in terms of practicality. On the other hand, OSCE has been found to better assess clinical and cognitive skills of undergraduate nursing students [7]. With the increase in number of students joined into nursing faculties might increase the chances of malpractice that compromise patient's conditions, in addition to limited resources from clinical locations that might delay the opportunity of student to practice on patient. Traditional clinical nursing examinations are not standardized to assess clinical competency, and clinical reasoning skills [1].

Attainment of critical thinking and problem solving skills among nursing students are hard to manage with large groups of students. Moreover, in traditional assessment method, teachers carrying out the assessment of student performance tend to give summative scores. OSCE may well be a key element to the training of better-prepared healthcare professionals [8,9].

So, it is challenging to have such an objective assessment tool to comprehensively assess students' clinical competencies especially with increased students' number. OSCEs are a valuable strategy to assess 'fitness to practice' at the students' expected level of clinical practice within a nursing context where the importance of accurate patient assessment is paramount.

### Significance of the Study

Clinical nursing education is the heart of a nurse's professional practice and therefore the evaluation of nursing student's clinical competencies is critical to their education. OSCE is one form of objective evaluation method. The assessment of student performance giving summative scores in traditional assessment method. While in OSCE simulation, the students find learning such skills are more beneficial because there is an immediate formative feedback following an event. Simulation-based training is superior to problem based learning for the acquisition of critical assessment and management skills [2]. Additionally, Bartfay, *et al.*, (2004) [10] concluded that OSCEs can be used most effectively in nurse undergraduate curricula to assess safe practice in terms of performance of psychomotor skills, as well as the declarative and schematic knowledge associated with their application.

### Aim of the Study

To compare between objectives structured clinical examination versus observational checklist for 2<sup>nd</sup> year nursing students in clinical evaluation.

#### 1.1 Research Hypothesis

1. Score of student's clinical evaluation by OSCE higher than observational checklist score.
2. Student may prefer OSCE in clinical evaluation than observational checklist.

### 2. Subjects & Method

#### Research design

An evaluative-comparative research was utilized by adapting posttest only to achieve the aim of the study.

### Research setting

The current study was conducted at Al Neelain University – faculty of nursing sciences.

### Duration of research

Data collected throughout a period from January and February 2019.

### Study population

The study was included 50 nursing student at second year, all students were Sudanese they descend from different ethnic groups, and they were belonged to vary socioeconomic status.

### Inclusion criteria

- Adult students from both sexes.
- Students who were exposing to the two types of examination.
- Students at second year.

### Exclusion criteria

- Students who were not exposing to the two types of examination.
- Students rejected to be part of the study.

### Study variables

- Socio-demographic variables.
- Student satisfaction regarding both types of clinical assessment.
- Students' score by OSCE and by Standardized Checklist

### Sample size

Based on a previous literature by (Shahzad and Ahmed, 2013) [11]; with a power of the study 90% and a confidence level 95%, the calculated sample size for this randomized controlled clinical trial study rendered 50 subjects which was divided into two groups after doing randomization so each group consists of 25 patients.

### Pilot Study

A pilot study was carried out before starting data collection on 10% of the sample, to evaluate the tentative developed tools for clarity and applicability, as well to estimate the time needed for data collection. The sample of pilot study was excluded from the total sample to assure the needed modifications were carried out.

### Methods of data collection

Data was collected by:

- Interview.
- Observation.

### Tools for data collection

the following tools were utilized by the researchers to achieve the aim of the study and to collect the necessary data.

- Pre-designed Questionnaire. it included two parts, part one included data about the students Socio-demographic characters and scores by both assessment tools; part two included students opinion regards the two methods of evaluation in term of (time allowed; assessor fairness, anxiety associated with the exam; objectivity of the exam; eligibility of the tool for

effective accurate assessment of clinical performance and tool interesting during evaluation).

- Designed checklist for assessing OCSE and checklist.
- Standardized Observational Checklists.
- All students evaluated by the using of the both tools for their capability to implement clinical skills provided for newly medical-surgical nursing students.
- After revising related literature to accomplish the aim of the study, the tools were developed by the researchers and reviewed by the consultants. Validity of the developed tools was achieved by 5 experts in the field of medical-surgical, pediatric and community nursing and the needed modifications were carried out. These tools were: students 'assessment and evaluation (Achievements) tool which covered the three domains to give an accurate judgment on student adequacy regarding the specified course knowledge, skills and attitudes; checklist (checklists mostly developed from the checklists introduced by [8] and rated as agree taken one degree and disagree taken zero; in Student's Opinion regarding Clinical Evaluation Advantages by OSCE and Observational checklist.

### Validity

Before starting, the data collection tools were translated into Arabic and tested for its content validity by group of experts in the medical-surgical nursing and burn specialist to ascertain relevance, completeness, coverage of the content and clarity of the questions. The required modification was carried out accordingly. The tools were translated into Arabic then back translation was done to English to ensure translation accuracy.

### Reliability of the tools

Each question in each study tool will be tested for reliability. This will be done by asking each question twice so as to compare the consistency of answers produced for the same questions by the same respondent. Accordingly, the necessary adjustment will be carried out. Chronbach's alpha was practical for the reliability of the questionnaire and was establishing to be 0.84 for Part one.

### Ethical consideration

An approved permission was obtained from dean of academic secretary of nursing college and verbal consents from the students.

### Fieldwork

The data collection process has been done through three phases:

#### 1. Interviewing and assessment phase

Objective Structured Clinical Examination (OSCE) versus Traditional observational checklists were performed as follows; after defining the number and type of station based on the trained procedures and available second year students, Objective Structured Clinical Evaluation (OSCE) versus Traditional method in clinical evaluation at some nursing procedures from

the existing course included the clinical evaluation. The student's instructions and checklist of each station were provided. Each station (15-minute each) aimed to test a particular clinical competence. All the students did the techniques equally at the same time and were assessed by the researchers on the basis of the checklist.

#### 2. Planning and implementation phase

A total of 50 second year students at examination area which constitute three weeks for each student enrolled the clinical area by rotation during each semester. First week was considered for orientation about the area competency, aim, methods of evaluation, student activities, caring for the patient without stress and under supervision of their clinical instructors, in addition to a small lecture about OSCE system evaluation in 1<sup>st</sup> day. The students were assessed by both OSCE methods in one day and by observational checklist in another day. Immediate formative feedback was given at the end of clinical exam.

#### 3. Evaluation Phase

After the finishing of the exam, student's opinion regards clinical evaluation advantages by OSCE and Observational checklist was distributed to be fulfilled at their own pace and oral feedback was attained through conducting a focus group for the students.

### Statistical methodology

The data collected were tabulated & analyzed by SPSS (statistical package for the social science software) statistical package version 20 on IBM compatible computer. Two types of statistics were done:

#### 1. Descriptive statistics

Were expressed as mean and standard deviation ( $\bar{X} \pm SD$ ) for quantitative data or number and percentage (No & %) for qualitative data.

#### 2. Analytic statistics

1. Pearson Chi-square test ( $\chi^2$ ): It is the test of significance used to study association between two qualitative variables.
2. Student t- test: is a test of significance used for comparison between two independent groups of normally distributed quantitative variables.
3. Mann-Whitney test (non-parametric test): is a test of significance used for comparison between two groups of not normally distributed quantitative variables.
4. Kruskal-Wallis test (non-parametric test): is a test of significance used for comparison between three independent groups of not normally distributed quantitative variables.

### P-value at 0.05 was used to determine significance regarding

- P-value  $> 0.05$  to be statistically insignificant.
- P-value  $\leq 0.05$  to be statistically significant.
- P-value  $\leq 0.001$  to be highly statistically significant.

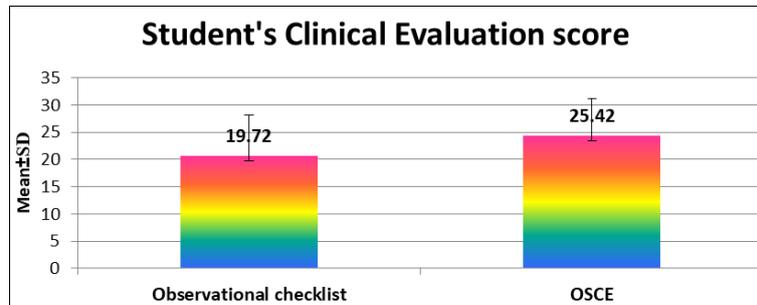
3. Results

**Table 1:** Distributions of Socio-demographic characters of the studied groups

Socio-demographic characters	Study Group (n=50)	
	No.	%
Age (years)		
18-20	10	20.0
21-23	20	40.0
More than 23	20	40.0
Sex		
Male	15	30.0
Female	35	70.0
Level of studying year		
Second year level	50	100.0
Preference of clinical procedure evaluation by		
Observational checklist	10	20.0
OSCE	30	60.0
Both	10	20.0

Table 1: This table illustrated that; about 40.0% from sample were aged 21-23 years old; and the same percentage they aged more than 23 years old, concerning to student's

gender most of studied sample 70% were female and it was observed that around 60% from all sample preferred OSCE as an evaluation method in clinical practice.



**Fig 1:** Score of Student's Clinical Evaluation by OSCE versus Observational checklist

Figure 1: This figure showed that; the mean of student's clinical evaluation score by OSCE was higher than

Observational checklist among the studied sample.

**Table (2):** Comparison between the opinions of Students regards Clinical Evaluation Advantages by OSCE and Observational checklist

No.	Opinion item	Observational checklist		OSCE		X <sup>2</sup>	P value
		Agree N (%)	Disagree N (%)	Agree N (%)	Disagree N (%)		
1	The tool gives the student the freedom to perform the procedure effectively	20 (40%)	30 (60%)	48 (96%)	2 (4%)	32.06	≤0.001 HS
2	The tool gives the student the adequate time to think	25 (50%)	25 (50%)	32 (64%)	18 (36%)	1.77	0.22 NS
3	The tool evaluate my actual knowledge	16 (32%)	34 (68%)	27 (54%)	23 (46%)	4.09	0.04 S
4	The tool gives the student less chance of errors	23 (46%)	27 (54%)	35 (70%)	15 (30%)	6.91	0.02 S
5	The tool gives less chance of evaluator unfairness	14 (28%)	36 (72%)	29 (58%)	21 (42%)	10.18	0.002 S
6	The tool is objective in evaluation	18 (36%)	32 (64%)	35 (70%)	15 (30%)	11.80	0.001 HS
7	The tool increase anxiety during the exam.	36 (72%)	14 (28%)	29 (58%)	21 (42%)	2.30	0.14 NS
8	The tool is easy method to implement the exam in needed time.	5 (10%)	45 (90%)	48 (96%)	2 (4%)	75.22	≤0.001 HS
9	The tool needs less equipment and place.	34 (68%)	16 (32%)	29 (58%)	21 (42%)	2.07	0.40 NS
10	The best tool used for assessment of psychomotor skills.	6 (12%)	44 (88%)	37 (74%)	13 (26%)	42.03	≤0.001 HS
11	The tool improves the interest during the evaluation by it.	25 (50%)	25 (50%)	42 (84%)	8 (16%)	13.07	≤0.001 HS

Table 2: This table showed that; OSCE had many advantages than traditional observational checklist regarding questions of (1,3, 4, 5, 6, 8, 10, and 11), they indicate that, OSCE gives student the freedom during performing of procedure, it evaluate their actual knowledge, so less errors, it gives the assessors more fairness during evaluation, it is

an objective tool in clinical evaluation and best tool for assessment of psychomotor skills among other methods, it gives student the chance to complete the clinical exam in required time, and it improves the student's interest during the clinical evaluation.

**Table 3:** Correlation between socio-demographic characters of the studied group and score of student's clinical evaluation

Socio-demographic characters	No	Osce	Observational checklist
		Mean± SD	Mean± SD
Age (years)			
18-20	10	21.30±7.37	19.80±6.82
21-23	20	25.20±4.89	20.25±5.35
More than 23	20	25.20±9.36	21.65±7.96
Kruskal Wallis test		1.47	0.27
P value		0.24 NS	0.62 NS
Gender			
Male	15	25.73±4.96	22.09±4.80
Female	35	24.05±8.04	20.33±7.14
Mann whitney		0.38	0.55
P value		0.73 NS	0.60 NS
I prefer the evaluation of clinical procedure by			
Observational checklist	10	16.75±6.88	18.88±7.58
OSCE	40	26.0±6.31	19.91±5.58
Both	10	25.44±8.39	25.33±8.35
Kruskal Wallis test		10.94	7.96
P value		0.004 S	0.01S

Table 3: This table showed that; the correlation between socio-demographic characters of the studied group and score of student's clinical evaluation for both methods, it approved that; there was no statistically significant between students' age and gender and their clinical evaluation score by both evaluation methods. But there was statistically significant between score of students' clinical evaluation by both evaluation methods and their preference of evaluation tool.

#### 4. Discussion

The acquirement of clinical skills is the principal to the development of a harmless and experienced competent practitioner nurses. OSCE as a performance-based assessment is a well-established student's assessment tool for many causes: competency- based, valid, practical and wide effective method of assessing clinical procedures that are central to the practice of nursing and other health care associated to professions. The existing study aimed to compare between objective structured clinical evaluation and observational checklist regarding nursing student's clinical evaluation.

#### As regarding to the effectiveness of OSCE in clinical evaluation

The existing study reported that, the comparison between OSCE versus traditional method of evaluation revealed higher mean OSCE scores with a high statistical significant difference in clinical evaluation, these results supported by Smith *et al.*, (2012) [12], who compared different methods of assessing midwifery students' clinical skills, the results indicated that the mean scores of students who undergone OSCE in the second trial were high as compared to the group who undergone traditional method. This result was supported by hypothesis 1.

#### Relation to students' preference of clinical evaluation Methods

The present study approved that; more than half of studied sample (60%) preferred OSCE in clinical examination than traditional observational checklist for it had many advantages, with a statistically significance difference between students' preference of OSCE and traditional method; this result agreed with Nkeiruka Ameh, *et al.*, (2014) [13], they said that, the majority of the 5<sup>th</sup> and 6<sup>th</sup> year students (95.5%) and 100%, respectively) preferred OSCE for clinical evaluation. This result was supported by hypothesis 2.

#### Comparison between Students' Opinions related to Clinical Evaluation by OSCE and observational checklist.

##### Assessment of psychomotor skills and knowledge

The current study approved that; the majority from studied sample stated that, OSCE is the best method for evaluation of psychomotor skills, this result in the same line with Bartfay, *et al.*, (2004) [10], they stated that, OSCE is the best method used for the assessment of psychomotor skills for undergraduate nurse in nursing faculties. As the current study recognized that; more than half studied sample listed that; while Khattab and Rawlings (2001) [14], they reported that, using a two-component OSCE for student nurses: one for tasks (skills assessment) and one for questions (knowledge assessment).

##### Opinion of Students related to OSCE advantages

The existing study stated that, most of students agreed that OSCE had many benefits in clinical competence and evaluation as its objectivity, gives them more freedom to perform the procedures effectively, checks their actual

Knowledge, less chance of errors by adequate time to think so it is a simple method to complete the exam in wanted time with examiner fairness, finally it increases the students attention during the examination. These results were supported by Nkeiruka Ameh, *et al.*, (2014) <sup>[13]</sup> and Prasuna Jelly and Rakesh Sharma (2017) <sup>[7]</sup>; they reported that, the opinion of students revealed that there was 100% agreement with the effectiveness of OSCE as an evaluation method owing to its advantages. Also existence of a statistically significant difference respects to students' opinions associated with advantages of OSCE than traditional method.

#### **Regards Correlation between socio-demographic characters of the studied group and score of student's clinical evaluation**

The current study reported that, there was no a statistical significant difference regards between socio-demographic features of the studied group for each age and gender and students' clinical evaluation methods excluding students preference, these results in the same line with Salwa Alaidarous, *et al.*, (2016) <sup>[15]</sup>, they documented that there was no relation between age or gender and methods of evaluation.

#### **5. Conclusion**

The findings of the existing study concluded that clinical evaluation or examination by Objective Structured Clinical examination is more objective method of assessment than the old-style method (traditional checklist).

#### **6. Recommendation**

Based on the current research findings the researchers recommended that; Objective Structured Clinical Evaluation should be incorporated with other methods for evaluating undergraduate nursing students in all studying years.

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