

# Assessment of the Methods of Testing Clinical Competence of Nursing Students in Nigeria

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## ABSTRACT

The study assessed the Objective Structured Clinical Examination (OSCE) and Traditional Practical Examination (TPE) methods of testing Nursing Students' Clinical competence in Nigeria by examining the strengths and weaknesses of OSCE and TPE as perceived by Nurse Educators and Nursing Students in Osun State, Nigeria. Descriptive research design of the survey type was used in the study.

The population of the study comprised Seven Hundred and Fifteen (715) Nursing Students and Seventy-Five (75) Nurse Educators in Private and Public Nursing Institutions in Osun State, Nigeria. A sample of Three Hundred and Eighteen (318) participants was used which consisted of Two Hundred and Eighty-Eight (288) Nursing Students and Thirty (30) Nurse Educators drawn from Public and Private Nursing Institutions in Osun State, Nigeria using a multi-stage sampling procedure.

Two research instruments were used to collect data for the study which were: Questionnaire on Students' Assessment (QSA) administered to the students, and Questionnaires on Teachers' Assessment (QTA) administered to the Nurse Educators. Validity of the instruments was ensured using expert judgment while the reliability of the instruments was estimated using the Cronbach Alpha reliability method. The reliability coefficients of QSA and QTA were 0.87 and 0.84 respectively. Two Research questions were raised, and two hypotheses were formulated for the study. Frequency counts and percentages were used to answer the research questions while the hypotheses were tested using a student's t-test at 0.05 level of significance. The findings of the study indicated that the students perceived that OSCE has more strengths than TPE while Nursing Educators were of the view that the two methods complement each other. Based on the findings of the study, it is concluded that each of the methods has its weaknesses and strengths, and therefore, it is recommended that the two methods should be jointly used in training and testing Nursing students' clinical competence in Nigeria.

**Keywords:** clinical competence, nurse educator, objective structured clinical examination, strengths, traditional practical examination, weaknesses.

**Published Online:** January 26, 2023

**ISSN:** 2736-4534

**DOI:** 10.24018/ejedu.2023.4.1.507

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## I. INTRODUCTION

In Nigeria, nursing students' knowledge and skills are assessed in two major areas which are theoretical knowledge and practical/clinical competencies. Theoretical knowledge is measured using different pen-on-paper tests while clinical competencies are assessed using two major methods; these are, the Traditional Practical Examination (TPE) and Objective Structured Clinical Examination (OSCE). TPE is usually done within the hospital premises while OSCE is usually carried out in the skill acquisition laboratories or the demonstration room.

Assessment in theory and practical aspects form a major aspect of the final qualifying summative examination in all schools and colleges of Nursing and Midwifery in Nigeria. It is universally believed that an assessment of clinical competence must be done in a way to clearly show if the

candidates are capable of critical reasoning in a clinical environment, if they can communicate appropriately with clients, if they can prioritize client's problems, and have essential knowledge of clinical practice and wholistic care activities. (Edward & Okanlawon, 2016).

The Traditional Practical Examination (TPE) is as old as the nursing profession itself although not limited to nursing; it is the approved method of assessment in many programs of Nursing in Nigeria. The Traditional system judges the subjective memory of a practical situation (Siddiqui, 2011). The beauty of TPE is that it allows for in-depth analysis of the subject, with more interaction between the examiner and the student. It is good for its flexibility and potential use for testing higher-order cognitive and psychomotor skills of the students. With the use of this method, students are asked to perform tasks upon which he/she is being observed and rated.

However, issues of subjectivity are raised because

different candidates are asked to perform different tasks/procedures as the examiners deem fit while the candidates make use of different clients which are often located in different hospital wards. It is a known fact that tasks have variable levels of difficulty.

The ability to demonstrate an understanding of psychomotor procedural skills is critical to nurses' professional performance and therefore the most important objective of nursing education. To showcase this competence, nursing students upon graduation should be able to perform their functions in a "real-life" situation." Nursing education is therefore incomplete without proper integration of the three notable areas of learning; that is, the psychomotor, cognitive, and affective domains and these areas must be properly assessed whilst the student is in training. In Nigerian today, there are over 200 Schools and Colleges offering nursing education at basic and advanced levels (NMCN, 2018)

Meanwhile, the Objective Structure Clinical Examination (OSCE) is a more recent method of assessment in Nursing Education. Preet (as cited in Osage *et al.*, 2015) indicated that the first persons to describe this method in 1975 were Harden and Gleeson. It was first introduced among medical students at the University of Dundee, Scotland to test their competence. Siddiqui (2011) described OSCE as a method to measure clinical skills ability which is often seen as a blend of knowledge involving professional evaluation, psychomotor ability, values, and behavior in which students are mandated to make use of their knowledge, ability, and attitude in each situation and be able to apply the cognitive and psychomotor skills to diverse situations.

The Objective Structure Clinical Examination (OSCE) is said to be capital and manpower intensive (Ameh *et al.*, 2014). Omu (2016) observed that assessing students' cognitive achievement is usually easier, but it is a huge task to check the affective and psychomotor domains because the focus of these domains has to do with the measurement of clinical competence. OSCE provides feedback to students in a constructive way, and this accounts for the reason why is widely applied in health communities. In contrast, Raziani *et al.* (2022) stated that students are often unable to showcase their real knowledge potential hence, there could be a frequent encounter with scoring errors although Objective Structured Clinical Examinations (OSCEs) gives standardized, reliable, and comprehensive method of evaluating candidates' clinical skills.

Currently, there are about twenty (20) nursing programs in Nigeria, and in the time past Objective Structured Clinical Examination (OSCE) has been predominantly prescribed and used for Midwifery examinations and very recently, general nursing qualifying examinations (this is currently being considered for possibly changing with another method. (NMCN, 2022), while all other nursing programs are still having Traditional Practical Examination as the approved method of assessment at all levels. This creates unequal assessment methods for the award of certificate by the same body and consequently leads to a lack of uniformity in the assessment of students of the same profession, regulated by the same regulating body.

Hence, it becomes important to investigate the two methods that are popularly used among nursing students to

check their level of clinical competence by describing the perception of the Nurse Educators and Nursing students to investigate the weakness and strengths of the two methods.

## II. STATEMENT OF THE PROBLEM

Assessment is a crucial aspect in the process of learning and teaching which has no alternative and the method adopted in the assessment process must be valid, objective, and consistent.

Therefore, inappropriate methods of assessment can result in a wrong decision by the examiners which will surely have a direct effect on the candidate and future practice.

Among stakeholders in Nigerian Nursing Education, arriving at a suitable assessment method has been a significant source of persistent debate. These include Nurse Educators, Nursing students, and others. Assessment of Nursing students' clinical practice ability is important to the educational process of nursing programs.

Essentially, two major assessment methods are currently being used in Nigeria. The First is Traditional Practical Examination (TPE) while the second is Objective Structure Clinical Examination (OSCE). It has been observed that TPE is used in the majority of nursing programs while only two programs of study use Objective Structure Clinical Examination (OSCE). There is also diffuse use of both methods during the external examination.

Hence, there is a lack of uniformity and irregularity in the assessment of Nursing Students whose educational pursuits are regulated by the same body. It is equally observed that up to date, the Nursing and Midwifery Council of Nigeria has predominantly approved TPE only as the method of assessment of most nursing specialties. The disparity in these utilized methods in assessing students in the same profession is an issue of great concern.

Therefore, there is a need to critically examine the Objective Structured clinical and the Traditional Practical Examination being the two methods used for testing nursing students' clinical competence in Nigeria to appraise their strengths and weaknesses.

## III. PURPOSE OF THE STUDY

The purpose of the study was to investigate the Objective Structure Clinical Examination (OSCE) and Traditional Practical Examination (TPE) methods of testing Nursing students' Clinical Competence in Nigeria by comparing their strengths and weaknesses as perceived by Nursing Students and Nurse Educators.

## IV. RESEARCH QUESTIONS

The following research questions were raised for the study:

- 1) What is the assessment of nursing students of TPE and Objective Structure Clinical Examination (OSCE)?
- 2) What is the assessment of nurse educators of TPE and Objective Structure Clinical Examination (OSCE)?

## V. RESEARCH HYPOTHESES

The following hypotheses were formulated for the study and tested at 0.05 level of significance.

HO1: There is no significant difference between the perception of Nurse Educators and Nursing Students on Traditional Practical Examination (TPE).

HO2: There is no significant difference between the perception of Nurse Educators and Nursing Students on Objective Structure Clinical Examination (OSCE).

## VI. METHODOLOGY

The study employed descriptive research of the survey type. The population of the study comprised Seven Hundred and Fifteen (715) nursing students and Thirty (30) nurse educators. In Osun State, Nigeria there is only one (1) private and Six (6) Public Nursing Institutions.

The sample for the study was made up of Three Hundred and Eighteen (318) respondents comprising Two Hundred and Eighty-Eight (288) nursing students and thirty (30) nurse educators which were drawn from Public and Private Nursing Institutions in Osun- State using a multistage sampling procedure. In the first Stage, the schools were divided by their ownership into Federal, State, and Private. In stage two, one school each was randomly selected from Federal and state-owned schools of nursing using sample random sampling technique while the purposive sampling method was used to select the only private nursing institution.

In the third stage, ninety-six (96) students were selected from each of the sampled schools totaling two hundred and eighty-eight (288) participants. Additionally, a proportional stratified sampling technique was used to choose female and male participants using a ratio of 8:2. Purposive sampling technique was used to select nurse educators that were directly involved in the organization and administration of practical examinations after which simple random sampling method was used to select 10 nurse educators from each of the sampled nursing institutions.

The instruments used for the study were: Questionnaire on students' Assessment (QSA) was adapted from the instrument constructed by Ameh (2014) and Mohammed and Abass (2017) and the questionnaire on Teachers' Assessment (QTA) which was constructed by the researcher. The instruments sought for information on the opinion of nursing students and nurse educators on assessment of critical thinking and affective domain, patient's care skills, comprehensiveness in scope, objectivity, material, and manpower needed, and anxiety and communication skills of TPE and OSCE. The content validity of the instruments was ascertained by expert judgment while the reliability of the instruments was estimated using the Cronbach Alpha reliability method. The reliability coefficient of Questionnaire on Students' Assessment (QSA) and Questionnaire on Teachers' Assessments (QTA) were 0.875 and 0.843 respectively. The research instruments were administered to the sampled nurse educators and nursing students by the researcher and trained research assistants.

## VII. DATA ANALYSIS

Frequency counts, mean and standard deviation were used to answer research questions while students' t-test was used to test research hypotheses at 0.05 level of significance.

## A. Research Questions

*Research Question 1.* What is the student nurses' assessment of TPE and OSCE?

TABLE I: MEAN AND STANDARD DEVIATION OF STUDENT NURSES' ASSESSMENT OF TPE AND OSCE

Variables	N	TPE Mean SD		OSCE Mean SD	
Assessment of critical thinking and affective domain	228	27.88	4.22	20.20	4.10
Patient's care skills	228	13.30	6.32	18.50	2.50
Comprehensiveness in scope	228	15.20	4.67	16.50	5.44
Objectivity	228	16.30	6.62	20.10	7.24
Material and manpower needed	228	14.20	7.66	10.20	3.76
Anxiety	228	14.30	8.76	11.21	2.11
Communication skills	228	19.20	6.10	14.30	2.20

As indicated in Table I, the students rated TPE to have more strength in the assessment of critical thinking and affective domain, patient's care skills weaknesses. This implies that the students perceived TPE as a kind of examination that has more strength in assessing critical thinking and affective domain, is more comprehensive in scope and easier to set up but weak in the area of subjectivity, and it increases anxiety in candidates. OSCE was perceived to have more strength in its objectivity and reduction in chances of failing. However, the majority of the students felt that it is weak in the area of more materials and manpower needed.

*Research Question 2.* What is the Nurse Educators' assessment of TPE and OSCE?

TABLE II: MEAN AND STANDARD DEVIATION OF NURSE EDUCATORS' ASSESSMENT OF TPE AND OSCE

Variables	N	TPE Mean SD		OSCE Mean SD	
Critical thinking and affective domain	228	12.88	3.22	10.20	2.10
Patient's care skills	228	13.44	4.32	12.50	2.33
Comprehensiveness in scope	228	15.20	5.67	13.50	3.44
Objectivity	228	16.30	7.62	20.10	8.24
Material and manpower needed	228	14.20	4.66	10.20	1.76
Students' Anxiety	228	15.30	6.76	12.21	2.11
Communication skills	228	14.20	4.10	10.30	2.20

Table II indicates that the Majority of the Nurse Educators felt that TPE has more strength in critical thinking, comprehensiveness, patients care skills, and communication skills of the students. However, the nurse educators felt that TPE is weaker than OSCE in that it increases anxiety levels and chances of failure.

## B. Research Hypotheses

HO1: There is no significant difference between the assessment of Nurse Educators and Nursing Students on Traditional Practical Examination (TPE).



TABLE III: T-TEST ANALYSIS OF DIFFERENCE IN PERCEPTION OF NURSE EDUCATORS AND NURSING STUDENTS ON TRADITIONAL PRACTICAL EXAMINATION (TPE)

	N	Mean	SD	Df	T	P
Nurse Educators	30	12.28	10.32	316	136.65	0.000
Nursing Students	288	267.83	2.3			

Table III revealed a significant difference in the assessment of nurse educators and assessment of student nurses on the strengths of TPE, meaning that the nurse educators perceived TPE as more useful in checking the patients care skills of students and as a preferred method of assessing communication skills while students had a contrary view, students preferred OSCE in checking student's knowledge. Hence it is revealed that  $p$  (0.000) is less than the significance level (0.05) therefore, the research hypothesis that is no significant difference between the perception of nurse educators and nursing students on Traditional Practical Examination (TPE) is hereby rejected while the alternate hypothesis is accepted.

*H02*: There is no significant difference between the perception of Nurse Educators and Nursing Students on Objective Structure Clinical Examination (OSCE).

TABLE IV: T-TEST ANALYSIS OF DIFFERENCE IN PERCEPTION OF NURSE EDUCATORS AND NURSING STUDENTS ON OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE)

Group	N	Mean	SD	df	T	p
Nurse Educators	30	26.43	10.22	316	0.7329	0.469
Nursing Students	288	27.83	7.27			

Table IV shows that  $p$  (0.469) is greater than the level of significance (0.05), hence indicating a significant difference. Therefore, the research hypothesis that there is no significant difference between the perception of nurse educators and nursing students on OSCE is hereby accepted.

### VIII. DISCUSSION

Results of the study revealed that nursing students indicated their preference for Objective Structure Clinical Examination (OSCE) over the Traditional Practical Examination Method. The finding tallies with the discovery of Masood, Zubia, and Farhat (2014) who conducted a similar study on students' perceptions at Dow University of Health Sciences, the study sought to determine the students' opinions about the validity and reliability of Objective Structure Clinical Examination (OSCE) in which most of the respondents viewed Objective Structure Clinical Examination (OSCE) as a method that is valid and reliable in assessing clinical skill proficiency and that Objective Structure Clinical Examination (OSCE) covers wider knowledge area than Traditional Practical Examination (TPE). Also, in a study carried out by Ameh, Abdul, Adesiyan, and Avidim (2014) on Objective Structure Clinical Examination (OSCE) versus Traditional Practical Examination (TPE) among Nigerian Medical Students found that most of the respondents believed Traditional Practical Examination (TPE) was a difficult method of assessment

and that Objective Structure Clinical Examination (OSCE) was easier to pass, and more Objective test than Traditional Practical Examination (TPE).

Regarding the student's opinion about the validity and reliability of Objective Structure Clinical Examination (OSCE) Masood *et al.* (2104), found that Objective Structure Clinical Examination (OSCE) was viewed good clinical skills assessment method by the majority of the students. It was also unveiled that most of the respondents agreed that the Objective Structure Clinical Examination (OSCE) covered a broad range of cognitive intelligence (86%) and psychomotor skills (72.5%). Additionally, it was said to be appropriately administered and well structured (85-87%).

Most of the respondents viewed Objective Structure Clinical Examination (OSCE) as a method that is valid and reliable in assessing clinical skills proficiency. It was also concluded that the Objective Structure Clinical Examination (OSCE) covers a wider knowledge area and many aspects of clinical skills proficiency.

Furthermore, this study found out that students across the institutions of nursing in Osun State believe that the Objective Structure Clinical Examination (OSCE) is more structured and uniform and that many students can be tested at the same time. In line with the above finding, a related study was carried out by Ameh, Abdul, Adesiyan, and Avidime (2014) on Objective Structure Clinical Examination (OSCE) vs TPE among Nigerian medical students to ascertain the preference together with perceptions of students in the college of medicine about the use of TPE and Objective Structure Clinical Examination (OSCE) for their assessment using a cross-sectional survey among 156 students. The study demonstrated that most of the respondents believed TPE was a more difficult method of assessment. Objective Structure Clinical Examination (OSCE) was easier to pass, and Objective Structure Clinical Examination (OSCE) is a more objective test than TPE. They also registered their preference for Objective Structure Clinical Examination (OSCE) in assessing clinical skills competence.

Furthermore, most of the respondents indicated that the Objective Structure Clinical Examination (OSCE) is a good examination, covers a broad knowledge area of clinical skills, and reduces the chances of failure. Raziani *et al.* (2022) in a related study found that OSCE gives a standardized, reliable, and comprehensive method of evaluating candidates' clinical skills.

Other scholars such as Engida *et al.* (2015) in a similar study explored the opinion of 600L students at medical college about Objective Structure Clinical Examination (OSCE) in the general surgery department. The study observed that testing the acquired clinical competence skills of the students in medical colleges has a crucial role in their educational activities and practice; unfortunately, there have been persistent arguments by the stakeholders which are the students and educators with no unanimous conclusion.

The study unveiled that the majority of the students considered OSCE as the better method of examination while the traditional practical examination (TPE) was preferred next. The study concluded that the majority preferred the Objective Structure Clinical Examination (OSCE) method to

the TPE method (Engida *et al.*, 2015). Similarly, Nazim *et al.* (2015) in a related study examined students' perception of Objective Structure Clinical Examination (OSCE) in a medical college. The study sought to assess students' feedback for OSCE in the basic medical sciences and to relate the responses of the students from three different levels. It was found that Objective Structure Clinical Examination (OSCE) is preferred to measure medical-related subjects.

With regards to Traditional Practical Examination (TPE), this study found that nursing students rated the conduct of TPE high (93.8%) because participants believe that TPE is still largely in use across nursing specialties currently. This implies that students are still undergoing the TPE method which is a method that is agreed to bring them close to a real-life situation. Majority of the respondents also agreed that candidates are given different tasks to perform as the examiners deem fit and there is extensive verbal communication between the candidates and examiners, hence the presence of verbal interaction and the tone of the examiner's comments, make it somewhat subjective. This is consistent with Emuobo *et al.* (2015) who argued that for Traditional Practical Examination (TPE), each candidate is assessed for a period of 1 hour by a pair of examiners spending 30 minutes with each examiner. At this time, the candidate performs different procedures as deemed fit by the examiner and based on their examination time/ ward routines. (Emuobo *et al.*, 2015). Each examiner makes use of a score sheet where their observation is recorded subjectively. Depending on the time of examination time (which is usually known by the students), students can guess the likely procedures and rehearse them beforehand; this may further reduce objectivity. Students are usually given different procedures to carry out on different patients: it is a known fact that some tasks are more difficult than others (Edward and Okanlawon, 2016). This is further corroborated by the current study as students agreed that TPE increases the factor of luck.

In addition, Edward and Okanlawon (2016) carried out a related investigation on the Comparative Study of Objective Structure Clinical Examination (OSCE) and TPE in testing of student nurses' practical skills in the southwestern part of Nigeria aiming at determining a better approach to assess student nurses' clinical competencies after their exposure to necessary theoretical knowledge and practical demonstrations. It was stated that both clinical proficiency assessment methods were identified and used globally in the training of nurses and other related professions. NMCN have previously prescribed TPE for examination across all specialties in nurse. However, adoption was made of the objective structured Clinical Examination (OSCE) about twenty years ago to take care of midwifery examination only making general nursing examination, as well as other specialties, continue to remain TPE (Edward, 2016).

It was further explained that the oral practical examination (TPE) is used for its flexibility and its potential for testing higher-order cognitive and psychomotor skills and that it brings the candidates closer to real-life situations. TPE is however been criticized as having some deficiencies in terms of reliability as it was observed by

Edward and Okanlawon (2016) that less anxious

candidates have been observed to perform better in TPE.

## IX. CONCLUSION

Findings from this study revealed that TPE and OSCE are two popular methods of assessing student nurses' clinical competence in nursing education. It shows further that although the traditional Practical (TPE) is unarguably an older method, it is not limited to nursing. It is still the approved method by the NMCN for assessing student nurses across many programs in nursing in Nigeria probably because it is very useful in confirming higher-order professional knowledge and skills competence.

Nevertheless, objective structured Clinical Examination (OSCE) which is a relatively new objective multi-station approach to the clinical competence assessment is equally useful and essential with its strength in objectivity and reproducibility as it checks students' clinical understanding and skills while simultaneously measuring the basic desired competencies. The study thus concluded that although both methods should be used in training students, objective structured Clinical Examination (OSCE) is more appropriate than the TPE for final qualifying examinations.

## RECOMMENDATIONS

Based on the findings of this study, it is recommended that policymakers and other stakeholders in nursing education should ensure balance exposure of students to both objective structured Clinical Examination (OSCE) and Traditional Practical Examination (TPE) since each of the methods has its strengths and weaknesses in testing student nurses' clinical competence.

## CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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