

# Evaluation Techniques in Nursing Education and their Influence on Students' Performances

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## ABSTRACT

**Background:** Evaluation of nursing education is a topic that received much attention by the scientific community recently as it has direct bearing on students' academic and clinical performance.

**Aim:** The study assessed the evaluating techniques and their influence on academic and clinical performances among student nurses.

**Methods:** A mixed method research design was employed. The target population comprises of all the tutors, clinical instructors, and students of five schools of Nursing in three States of Northern Nigeria. Multistage sampling technique aided the selection of targeted participants. Three instruments (questionnaire, Focus group discussion, and checklist) were used for data collection. The quantitative data was analysed using descriptive and inferential statistics while the qualitative data was analysed using thematic content analysis.

**Findings:** The findings of the study showed that most of the tutors used written examination, long essay questions, and multiple choice questions in theory examinations, and Objective Structured Clinical Examination (OSCE) for practical examination. Overall, the tutors use formative and summative evaluation approaches. There were significant influences of evaluation techniques on students' academic performance in two subjects (mental health nursing and pharmacology),  $p < 0.05$ . The majority of the students submitted that they recorded good grade with long essay examinations as compared with multiple choice questions (MCQs) and combination of long essays and MCQs. For the clinical examination, the OSCE had more impact on students' clinical performance compared to traditional clinical assessment because of the objectivity and smart nature of the technique.

**Conclusion:** Tutors should consider an evaluation technique that favours students' academic and clinical performances. Much effort is required to improve the students' position with the MCQs and the computer-based test (CBT) exams as virtually all educational agencies are gradually moving towards such techniques.

**Keywords:** Academic performance, clinical performance, evaluation techniques, nursing education

## INTRODUCTION

Nursing is a field which requires having both strong theoretical based knowledge as well as clinical knowledge and skills to care for the patients and families as we deal and handle real life situations,<sup>1</sup> as such, nursing education prepares graduates to practice as competent healthcare professionals in a

highly complex, diverse, and ever-changing environment. Inculcating these values, knowledge and skills in the graduate is a long-term gradual tedious process of training that involves the use of variety of evidence based approaches as methods of instruction, learning methods, evaluation techniques and the modification of the environment to

suit learning because the learning process in nursing is very unique and aimed at preparing students to perform the activities of the profession.<sup>2</sup> According to Mac-Farlane, academic performance is the ability of students to cope with their studies as well as how various tasks assigned to them by their instructors are accomplished. It also includes the ability to study and remember facts and to be able to express such knowledge gained either verbally or in writing.<sup>3</sup>

Evaluation is the process of eliciting the extent to which learners have achieved the educational objectives. It is used also for assessment of both the teacher and the students and its outcome helps both the teacher and the students to know areas of their deficiencies and areas of strength.<sup>4</sup> Evaluation can be formative or summative.<sup>5</sup> Some of the evaluation strategies in clinical nursing training according to Oermann and Gaberson<sup>4</sup> include written and oral assignments.

Evaluation of nursing education is a topic that received much attention by the scientific community recently as different evaluation concepts, methods and activities were found to have direct bearing on students' academic and clinical performance. Evaluation in nursing is the process of judging the effectiveness of education experience through careful appraisal of students learning achievements and clinical skills and as a practice-based discipline, clinical evaluation which is integrated form of evaluation seeking to combine knowledge, understanding, problem solving, technical skills, attitudes, and ethics in evaluation is held with all seriousness and importance.<sup>6</sup> In evaluation which can be formative or summative, several testing and assessment methods have been employed by educators to test their students' achievements such as the use of multiple choice questions, short answers, long essay, true or false questions and objective structured clinical examination (OSCE).<sup>7</sup> Clinical evaluation is one of the complex tasks of faculty and health instructors and a challenge for nursing and other health professions.<sup>8</sup>

Clinical evaluation, as a way of determining clinical competence, is one of the fundamental principles of development and student achievement measurement in nursing education.<sup>9</sup> It must be ensured that the students in clinical settings have an appropriate professional behaviour, establish an appropriate interaction with the patients, prioritize the problems, have the basic knowledge about clinical methods, perform the care procedures correctly, and apply critical thinking while doing so.<sup>10</sup>

However, there is limited literature regarding the use of evaluation techniques among nursing educators in Nigeria. In addition, with the commencement of OSCE by the Nursing and Midwifery Council of Nigeria (NMCN) there are limited empirical reports to evaluate OSCE or other techniques as assessment tools. Furthermore, there is a need to ascertain the influence of these evaluation methods on the students' performances. Therefore, this study was initiated to determine the evaluation techniques use in nursing education and their influence on students' academic and clinical performances.

## METHOD

### Design

In this study, a mixed design (quantitative and qualitative) was employed to examine a cross-sectional of tutors and students concerning the use of evaluation techniques and approaches. Quantitative and qualitative data were collected concurrently and used to describe the evaluation techniques and their influences on students' academic and clinical performances

### Population and sampling

The study population were tutors (91), clinical instructors (31), 2nd and 3rd year students, and the final year students for General Nurse's examination (698). Five Schools of Nursing were selected in Northern Nigeria. Cluster random sampling was applied to select three (3) states from the seven (7) states.

Five (5) available schools in the selected states were used for the study. All the 73 tutors (who thought 2nd year and 3rd year students) participated in the survey. On the part of students, we purposefully chose 28 students from each school across the levels (2nd and 3rd year). There were seven discussants for each focus group making a total of 140 discussants for the five (5) selected schools. Foreign students in adaptation programme were excluded from the study.

### **Instrument for data collection**

Three developed instruments were used for data collection. These were structured questionnaire, Focused Group Discussion Guide (FOGDIG), and Checklist for the assessment of students' clinical and academic performances. The questionnaire assessed sociodemographic characteristics (age, gender, school, and levels); and evaluation techniques used in testing students' performances. Each item was rated "yes" or "no" for the respondent to choose one option for each item. The focus group discussion guide also sought participants' sociodemographic data and questions outlined to explore various evaluation techniques used in the schools. For the student' performances, a checklist was devised to ascertain the students' clinical and academic performances from the students' records in the schools.

We extracted and adapted questions from Questionnaire for the assessment of teaching methods and evaluation techniques (QATE). Based on the study objectives, we developed the focus group discussion guide and the checklist for the study.

A pre-test was conducted among 11 students from another school of Nursing (different from the selected states). The pre-test yield a reliability index of 0.83 (Cronbach's Alpha). We also pre-test the discussion guide in different schools using two FGDs groups (seven participants per group in a). The responses from the two groups were consistent. In addition, five (5) experts in

the fields of nursing education validate the content of the three assessment tools.

### **Data collection**

Prior to data collection, we sought ethical clearance and permission from the heads of the training institutions. Each participant was informed about the objective of the study and their consent was obtained. The trained research assistants administered the questionnaires to the tutors and the students. Four FGDs (two in each of the 2nd and 3rd year classes) were conducted using seven discussants per group in each school. Each FGDs last over 20-30 minutes. An audio tape recorder was used to record each FGD. The checklist was used to obtain the students clinical and academic performances from the school records.

### **Data analyses**

Data were analysed using descriptive statistics. The socio-demographic characteristics were presented using frequency, percentage, and mean. The evaluation techniques were also summarised using descriptive statistic in the form of frequencies and percentages. We used ONE-WAY Analyses of variance to compare the three most used evaluation technique for each subject against the overall academic performances of students. For the data from FGDs, we used thematic content analysis to extract and present themes and subthemes with participants' responses quoted verbatim. Data form qualitative component was presented after the quantitative component based on the study objective in a form of triangulation.

## **RESULTS**

### **Sociodemographic Characteristics**

On average results showed that the tutors were aged 36.5 years, mostly males (74.6%) and had a degree or HND (58.7%). The average age of the students was 19.2 years; mostly were females (69%) and the majority of them (37.1%) were in the third year.

## Evaluation Techniques and Approaches

Results in Table 1 indicated that, the most often used evaluation techniques were written examination (77.8%), followed by a written assignment (66.7%, homework (58.7%), and class attendance (57.1%). Overall combined summative and formative approach were used to give the students final academic and clinical performances.

The majority of the teachers indicated using written examinations as an evaluation techniques employed in the schools of nursing. The qualitative study from the students' perspective confirmed that long essays and multiple-choice questions (MCQ) were the most frequent evaluation technique employed by tutors in schools of nursing. Although most of the schools were using a combination of long essays and MCQ, the combination was started on the 2nd or 3rd year of the study as stated by FGD 2;

"When we are at 300 level the new system say we will be writing semester exams that consists of three essay questions and

40 objectives." In a related development, some schools employed the use of various evaluation methods in the exams as stated by FGD 16; "They are mixing long essays with MCQ, true/false, cross matching, and objectives".

Moreover, some schools used computer-based tests (CBT) as a method of evaluation of nursing students as described by FGD 9:

"Well our teachers are using the long essay and objectives to evaluate us. The objective questions are using computer-based test. Before the last semester that we started using CBT, they use to give us three essay questions and 40 objectives with cross-matching" (FGD 9). On the other hand, most schools of nursing had adopted objective structured clinical examinations (OSCE) as the method of evaluation of clinical skills of nursing students. Most schools started OSCE examinations at 2nd and 3rd year of the study as stated by FGD 2:

"Issue of OSCE we have started the OSCE since we are in level two. The NMCN has changed the pattern of practical examination to adopt OSCE. Since year two we have changed the practice exams to OSCE and viva after the OSCE" (FGD 1).

## Influence of evaluation techniques on students performances

Results in Table 2 indicate that the evaluation technique has significant influence on students' academic performance in two subjects (mental health and pharmacology),  $p$ , values  $<0.05$ . However, evaluation techniques had no significant influence on the academic performances in other subjects compared ( $p$ -values  $>0.05$ ).

As lamented by a group of students who participated in the FGD, evaluation techniques had an influence on the academic and clinical performance of nursing students. Most of the students revealed that long essays have an impact that is more positive about their academic performance as compared with other methods of evaluation. The majority said that

**Table 1: Evaluation Techniques**

<i>Evaluation Technique and Approaches</i>	<i>Frequency</i>	<i>Percent (%)</i>
<i>Evaluation Technique</i>		
Instructor observation	22	34.9
Peer Assessment	14	22.2
Attendance or participations in class	36	57.1
Written examination	49	77.8
Oral examinations	28	44.4
Steeple chase	16	25.4
OSCE	33	52.4
QUIZ	24	38.1
Assignment	42	66.7
Homework	37	58.7
Class presentation	25	39.7
<i>Evaluation Approach</i>		
Summative only	3	4.8
Both formative and summative	60	95.2
Total	63	100.0



**Table 2: Summary on influence of evaluation technique on academic performance**

<i>Subject Areas</i>	<i>Evaluation Tech.</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Anatomy and Physiology 3rd Year	Between Groups	.008	1	.008	.007	.934
	Within Groups	69.643	61	1.142		
	Total	69.651	62			
Pharmacology 3rd Year	Between Groups	.875	1	.875	.989	.324
	Within Groups	53.982	61	.885		
	Total	54.857	62			
Research 3rd Year	Between Groups	.127	1	.127	.295	.589
	Within Groups	26.286	61	.431		
	Total	26.413	62			
Mental health 3rd Year	Between Groups	128.960	1	82.960	<b>5.568</b>	<b>.045</b>
	Within Groups	37.357	61	.612		
	Total	38.317	62			
Medical-surgical Nursing 3rd Year	Between Groups	.032	1	.032	.059	.808
	Within Groups	32.571	61	.534		
	Total	32.603	62			
Nutrition 2nd Year	Between Groups	.161	1	.161	.501	.482
	Within Groups	19.554	61	.321		
	Total	19.714	62			
Pharmacology 2nd Year	Between Groups	132.643	1	91.643	6.298	0.039
	Within Groups	30.214	61	.495		
	Total	30.857	62			
Medical Surgical Nursing 2nd Year	Between Groups	.240	1	.240	.703	.405
	Within Groups	20.839	61	.342		
	Total	21.079	62			

they recorded good grade with long essay examinations as compared with MCQs and combination of long essays and MCQs. FGD 1 stated that long essay exams had more influence on academic performance as shown below:

FGD 1: "I think the long essay has an impact that is more positive on the academic performances of us the students."

Another group of participants compares the impact of long essay examinations on their performance as compared with MCQs. FGD 11 stated;

"Like I say initially, the essay is better like if you are asking describe so-so-so and is five marks you can be able to write something that

you can get three marks or two even if you don't know but MCQ if you don't know that is all" (FGD 11).

Participants cited several reasons for why a long essay method of evaluation had more impact on their academic performances such as the most common exams, in-depth knowledge and poor performance with the other methods. FGD 9 and 10 narrated that long essay questions have more impact on their academic performance because the nature of all exams were long essays. FGD 10 shares; "To me is a long essay question because all exams have theory questions in the entire subject". Furthermore, FGD 14 stated that long essays were the most common

type of evaluation they were exposed to since their first year and had good result with it as compared with MCQs. They elaborated:

"The long essay method of examination has an impact on our results than the MCQ because is the essay exams is the one we started since from our first year of introductory classes up to 3rd year. Now they introduce objectives with the essays. If you check our results is better with the objectives than the essays. So long essays are better for us" (FDG 14).

Moreover, some participants lamented poor results with CBT in their last semester examinations as the reasons why long essay examinations have more impact on their academic performances. FDG 9 lamented their experience with CBT examinations; "to me is long essay questions. The last exam has a problem because the last semester we had very poor results. I think the problem is the CBT. I think they should improve it."

Meanwhile, the participants lamented that the OSCE had more impact on their clinical performance because of the objectivity and smart nature of the examinations. Participants cited reasons why OSCE had more impact of their performances such as easements, objectivity, in-line with the Nursing and Midwifery Council of Nigeria Professional Examinations. FDG 4 shared their experiences:

"We agreed is an OSCE because the Council is using it for the exam. Though is a new tradition for us, but I really love OSCE, it is like objectives and prevent patients that will not cooperate with you and affect your performance" (FDG 4).

## DISCUSSION

The average age of the tutors and students were 36.5 years and 19.2 years respectively. Most of the tutors were male, but the majority of the students were females.

In the present study, the tutors identified several evaluation methods they regularly employ and majority of them submitted that they use written examination consisting of essay and MCQs in evaluation, and

another large proportion reported that they use assignment, while a few uses peer assessments to grade their students' learning achievements. Most of the tutors used both formative and summative evaluation approaches. Iqbal, Samiullah and Anjum,<sup>11</sup> found that continuous assessment had positive effects on students' achievement. These submissions were corroborated by the students in the FGDs where they confirmed that long essay and MCQ test items were the most frequently used by the tutors. Sabzevari, Abbaszade and Borhani<sup>12</sup> conducted a study on assessment methods for Nursing Students of Kerman University of Medical Sciences in Iran. The findings indicated that mixed assessment methods including true or false were the most frequently used to evaluate students learning.

For clinical performance evaluation, like the tutors, the students confirmed that OSCE is the strategy been used by the school since its introduction by the NMCN however, some schools still find it difficult to leave the traditional practical examination and use the OSCE exclusively as one of the focus groups confirmed that the traditional practical examination is still been used by their schools in the 1st year but they will use the OSCE for the 2nd and 3rd year evaluations respectively. These findings are not far from those reported by Margret, Young and Nddi in a study where they established that nursing institutions in Nigeria still practice the Oral Practical and the OSCE in clinical performance evaluation.<sup>13</sup>

From the findings, a relationship was found between students' academic performance two subjects (mental health and pharmacology). When compared to the students' submissions in the FGD, across all schools and levels they did not segregate the positive impact of evaluation techniques on their general performances across all the courses and they were emphatic in describing their love for long essay tests and have describe their dislike for MCQs and CBT exams as they felt that the tests do not have desired influence on their academic performance. The student submitted

that they recorded good grade with long essay examinations as compared with MCQs and combination of long essays and MCQs. Findings contradicted that of Sabzevari, et al. who found that mixed assessment approach, including MCQs (in the form of True and false) significantly affect students learning.<sup>12</sup> This requires efforts to improve the students' position with the MCQ test items and the CBT exams as virtually all educational agencies and institutions in Nigeria are gradually moving to the use of MCQs and CBT examinations, including the Nursing and Midwifery Council of Nigeria as currently 40% of the council's prelicensure/professional examination marks come from MCQs.

For clinical performance, the participants agreed that OSCE has more impact on their performances than the traditional practical examination which is still being used in the schools in addition to the OSCE recommended by the NMCN. The findings corroborate with Ghazanfar, mature, Alireza, Kojuri, and Mousavinasab.<sup>14</sup> Ghazanfar, et al. conclude based on the findings that besides focusing on upgrading the current clinical evaluation forms, nursing trainers should improve their knowledge and apply objective clinical evaluation methods and tools, and perform a formative and summative clinical evaluation.<sup>14</sup> A systematic review of studies suggested that traditional practical assessment of clinical competes is open to the subjective bias of the assessors, and the quality of assessments varies greatly.<sup>15</sup> This coincides with the NMCN's rationale behind the shift from the traditional examination to OSCE in 2018 (in Nigeria) as the later promotes the development of better clinical competence.

## CONCLUSION

The tutors used long essay questions and multiple choice questions in theory examinations and the OSCE for practical, though some schools still deploy a combination of OSCE and the traditional practical examination. The tutors also adopted formative and summative evaluation approaches. Evaluation techniques

have significant influence on students' academic performance in mental health and pharmacology. Students revealed that long essays have an impact that is more positive about their academic performance compared to other evaluation technique. For the clinical evaluation, OSCE yields much impact than traditional clinical examination. Schools should encourage tutors to employ a variety of techniques in evaluation to involve the students actively in their evaluation using methods such as peer evaluation.

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