

Undergraduate Nursing Evaluation

The OSCE Approach

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In India, Nursing education has come a long way from being a few bedside instructions by physicians on the most basic physical care of clients, to the use of sophisticated educational technology and supportive machineries. Still, the infrastructure needs to be re-examined for its effectiveness in bridging the widening gap between idealistic planning, the process carried out and the actual product.

This article is focused on only one aspect of Nursing educational process, i.e., 'evaluation'.

The teaching-learning objectives in Nursing education are designed on the basis of three well-known domains identified by the educational theorist Bloom (1964), as cognitive, affective and psychomotor domains.

1. The cognitive domain emphasises intellectual skills, i.e., knowledge, comprehension, application, analysis, synthesis and evaluation.

2. The affective domain includes feelings, attitude and appreciation.

3. The psychomotor domain features the working skills.

In practice, Nursing is a systematic 'problem-solving' approach to carry out Nursing's independent functions, that is known as 'Nursing Process'. It consists of four major components, such as : 1. Identification of client's health needs amenable to Nursing care; 2. determination of client's goals in terms of the outcomes of Nursing care; 3. implementation of planned Nursing interventions; 4. evaluation of Nursing interventions on the basis of client-oriented objectives of Nursing care.

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The 'subjective data' obtained through health history, life-style analysis and socio-economic background, though not measurable always, are necessary to understand the client's unique life-experiences, that have implications to his/her health and illness. Moreover, the 'objective data' obtained by physical examinations and analysing clinical laboratory reports confirm the subjective information.

'Data analysis' gives rise to 'Nursing diagnoses', which explain the cause and effect relationship of health and illness dimensions and give directions for implementation and evaluation of Nursing measures. 'Nursing Process' takes into consideration several conceptual models for solving a client's health problems, such as, Roy's Model of Adaptation, Orem's Self-Care Model, Johnson's Behavioural System Model, Roger's Model of Unitary Man, Maslow's Hierarchy of Human Needs Model; Imogene King's Model of Interpersonal Relationship, etc.¹

The evaluation (examination) of clinical skills involves all these domains with varying degrees of emphasis. Conventionally, students are assigned to 1 to 2 selected patients. 3 to 5 hours are given to carry out the sequential steps of the Nursing Process. A part of the *viva voce*, that is related to the assigned patient, is conducted at the bedside while observing skill performances. The remaining part of oral-examination is done separately after the scheduled time of clinical examination. Two examiners, internal and external, are involved in evaluating each student.

Though the clinical examination

is managed in an actual health care set-up, it has many drawbacks :

1. As there are usually 12 to 15, and sometimes 20, students in a batch for examination, every student's performance in clinical skills can not be observed by the examiners satisfactorily.

2. All the domains of learning objectives can not be evaluated in such a short time.

3. Mostly the questions are theoretical, only recall type.

4. There is subjectivity in evaluation.

5. There is little scope for students to demonstrate skill in 'total patient care'.

In short, the existing system of clinical examination is not comprehensive, often inclined to bias and incompatible to the established learning objectives.

Most of these shortcomings may be minimised by the Objective Structured Clinical Evaluation (OSCE) system of evaluation.

What is OSCE ?

According to Harden (1988), Objective Structured Clinical Evaluation is an approach to assess the clinical competence, in which the components of competence are assessed in a planned or structured way with attention being paid to the objectivity of examination.²

This approach has been established through experiments and is being used for undergraduate medical, clinical and practical evaluation in some institutions.

Important Features

The structure of a typical OSCE is

A Sample Plan of Examination is Given Below

Station	Teaching Learning Objectives	Activities	Learning Skill	Maximum Score Total (100)	Station	Teaching Learning Objectives	Activities	Learning Skill	Maximum Score Total (100)
1.	The students are able to — State the pre-disposing and etiological factors of diseases.	1. List two important pre-disposing/etiological factors of the following diseases — (a) Bronchial asthma; (b) Hypertension; (c) Intestinal Obstruction; (d) hepatitis B; (e) TAO	Intellectual Skill	5	8.	Carry out the nursing process for the assigned patient on the basis of scientific principles.	8. Plan and implement post-operative nursing interventions for the assigned patient, following the steps of nursing process. (In Surgical Unit)	Intellectual, Practical and Communication Skills	10
2.	Demonstrate critical thinking in analysing clients' health problems	2(i) Explain the probable pathological changes occurring in adult persons having — (a) Cirrhosis of liver; (b) Acute Renal Failure; (Draw Schematic diagrams) (ii) List two important clinical features of each disease	Intellectual Skill	10	9.	Demonstrate minimum required skill in observing and recording patient's health condition.	9. Answer the following questions — (i) What are the observable signs and symptoms of hypovolemic shock? (ii) Record your observation of the wound (shown in a slide)	Practical, Intellectual and Communication Skills	5
3.	Recall the normal values of the clinical laboratory tests	3. Mrs Ameena, a 56 years old housewife is diagnosed to have acute urinary tract infection. She is a known diabetic, on treatment. List five most significant laboratory investigations required for Mrs Ameena and mention the normal value of each.	Intellectual Skill	5	10.	Derive appropriate nursing diagnoses from given data.	10. Mr Salim, 40, is received after an open heart surgery. List five immediate post-operative nursing diagnoses based on his prioritised needs.	Intellectual Skill	5
4.	Explain the medical management of a given disease and related nursing responsibilities.	4. Mr Kanu, 60 year old, a retired primary school teacher is being treated medically for congestive cardiac failure (CCF) with oral Digoxin and Lasix. (i) List the actions and side effects of these drugs in relation to CCF; (ii) List the nursing responsibilities regarding administration of these drugs.	Intellectual Skill	5	11.	Prepare the patient's unit adequately for receiving a patient after surgery.	11. Mr Ashok, 35 year old, has been taken for below knee amputation following a road-traffic accident. He also suffers from chronic bronchial asthma. List the articles required for his immediate post-operative care.	Intellectual Skill	5
5.	State the principles of therapeutic nutrition, applicable to the given situation.	5. Mr Suresh, a 42 year old Bank Manager has undergone Gastro-Jejunostomy and Vagotomy for peptic ulcer. (i) State three principles of diet therapy applicable to Mr Suresh. (ii) Prepare a 24 hours tentative diet plan for him, including the major food values.	Intellectual Skill	5	12.	Prepare patients physically and psycho-socially to undergo anaesthesia and surgery.	12. Ms Meena, 27 year old, is to undergo total mastectomy for breast cancer. List five nursing objectives and respective and respective interventions in relation to her preoperative preparation.	Communication Skill	10
6.	Demonstrate the minimum required skill in performing nursing procedures.	6. Demonstrate the following nursing procedures — (i) Deep breathing exercises; (ii) Administering insulin injection.	Practical Skill	10	13.	State the indications of specific surgical procedures.	13. List the important indications of the following surgical procedures : (i) total knee replacement; (ii) Ileostomy; (iii) Incision and drainage; (iv) Splenectomy; (v) Escharotomy.	Intellectual Skill	10
7.	Carry out the nursing process for the assigned patient on the basis of scientific principles.	7. Plan and implement nursing measures for the assigned patient, following the steps of nursing process. (In Medical Unit)	Intellectual, Practical and Communication Skills	10	14.	Identify the surgical instruments with their specific use in performing surgical procedures.	14. List the usage of the following surgical instruments : (i) (ii) (iii) (iv) (v)	Practical Skill	5

made up of a series of 12 to 20 stations, each testing one or two components of clinical competencies. The students are rotated to all stations at a pre-determined time interval, thus one series (circuit) of 12 to 20 stations will accommodate 12-20 students, who will be examined simultaneously. The process is repeated till all students are examined.

In a non-clinical area, a similar approach is adopted which is referred to as Objective Structured Practical Examination (OSPE).

Some of the competencies examined at various stations are : 1. Taking clinical history, 2. Physical examination, 3. Critical thinking in therapeutic management, 4. Problem solving, 5. Communication and Inter-personal Relationship.

In OSCE, the process as well as the product is examined. It is structured in a way that it covers all areas of subjects and is designed to encompass the overall objective of the course.

The objectivity of an OSCE is maintained and bias is minimised as much as possible by the following means.

1. The students are examined by 8 or more examiners at a time, who are trained in this approach of examination.

2. Each station activities and marking schedule is planned in advance.

3. Examiners use check-lists for scoring competencies.

4. Each component of competency is evaluated comprehensively.

5. A standardised system is followed.

6. A wide range of skills are examined, which improves the reliability of the system.

7. There is uniformity in evaluation as all students perform the same tasks.

Since this system of clinical

examination is found to satisfy the standard criteria of evaluation, a modified OSCE structure is suggested for examining second year undergraduate Nursing students on Medical-Surgical Nursing subjects.

An attempt was made to test OSCE concept on a very small scale on a group of 10 students. The following difficulties were encountered while attempting to apply this concept :

1. Non-availability of many faculty members at a time, to conduct the examinations.

2. Lack of enthusiasm of the teachers to try out different concepts of evaluation. Probably it was because those teachers were new to the teaching profession and not well oriented to the OSCE concept.

3. Students' apprehension for having to learn even the smallest detail of the subjects.

4. Lack of physical facilities and cooperation in the clinical settings.

5. Controversies over the evaluation criteria.

Yet, it is believed that the difficulties can be overcome by the following strategies :

1. A short training course for the faculty on OSCE.

2. Preparation of the students from the beginning of the course for this type of examination.

3. Proper communication with the administrators of clinical areas regarding OSCE.

4. Ensuring reliability and validity of the evaluation criteria.

5. Adequate planning and organisation of the whole exercise.

A SUGGESTED OSCE DESIGN

Aim : Testing the students' performances in Nursing adult patients requiring Medical and Surgical Therapies, in terms of all the

domains of learning objectives.

Placement in Curriculum : II Year B.Sc. Nursing

Objectives (Medical Nursing):

The students are able to :

1. State the pre-disposing and etiological factors of diseases;

2. demonstrate critical thinking in analysing client's health problems;

3. recall the normal values of the clinical laboratory tests;

4. explain the medical management of any given disease and related Nursing responsibilities;

5. state the principles of therapeutic nutrition, applicable to the given situation;

6. demonstrate the minimum required skill in performing Nursing procedures;

7. carry out the Nursing process for the assigned patient, on the basis of scientific principles.

Objectives (Surgical Nursing)

Students are able to :

8. carry out the Nursing Process for the assigned patient, on the basis of scientific principles;

9. demonstrate minimum required skill in observing and recording patient's health condition;

10. derive appropriate Nursing diagnoses from given data;

11. prepare the patient's unit adequately for receiving a patient after surgery;

12. prepare patients physically and psycho-socially to undergo anaesthesia and surgery;

13. state the indications of specific surgical procedures;

14. identify the surgical instruments with their specific use in performing surgical procedures.

The OSCE Structure

	5 Therapeutic Nutrition	6 Nursing Procedure Skills	7 Nursing Process (Medical)	8 Nursing Process (Surgical)	9 Nursing Observation Skills	10 Immediate Post-operative Care
4.	Knowledge of Medical Management (drugs etc.,)			Pre-operative Preparation (Patient's Unit)		
3.	Clinical Laboratory Parameters.			Pre-operative preparation of Patient for Anaesthesia and surgery.		
2.	Problem Analysis.			Knowledge of Surgical Procedures		
1.	Pre-disposing and Etiological Factors of Diseases.			Identification of Surgical Instruments.		

The number of activity-stations and the time assigned to complete the respective tasks are similar for all students.

In stations 1, 2, 3, 4, 5, 10, 11, 12, 13, 14, the activities involve answering maximum 5 and minimum 2 related questions. In stations 6 and 9, students' specific skills are evaluated. In stations 7 and 8 the students actually render total Nursing care to patients using problem-solving steps of Nursing Process.

Situational type of questions are best to identify students' ability for critical thinking, correlation, clinical application, interpretation skills and decision making.

The number of examiners may be 6 to 8, with 1 or 2 for the stations 1 to 5; one each for stations 6, 7, 8, 9 and 1 or 2 for stations 10 to 14. The examiners will observe the activities and grade the performances, using standardised rating scales for each station. The question-answer stations may be in written or oral form.

The *viva-voce* will be conducted separately with a separate grading system. Considering the extent of emphasis on the teaching-learning skills, the examination scheme may be altered according to varied objectives of evaluation and activities.

Evaluation in any form aims to test the extent of students' achievements in terms of the teaching-learning objectives. Therefore the tools for evaluation need to be constructed as objectively as possible. From this point of view, OSCE ensures comparability and integrity in educational system and gives directions for attaining the ultimate aim of the teaching-learning process.

References

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