

# Nursing Education and Research

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## LEARNING OBJECTIVES

After mastering the contents of this lecture, the student should be able to:

1. Define the terminologies.
2. Describe the Educational Preparation for Nursing Practice
3. Explain the Practical and Vocational Nursing Education
4. Describe the Graduate Education in Nursing
5. List the Methods of Conducting Nursing Research
6. Reporting Protection of the Rights of Human Subjects

## TERMINOLOGIES

Applied research

Basic research

Continuing Education

Informed consent

Licensed practical nurse

Nursing research

Qualitative research

Quantitative research

Registered nurse

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## Educational Preparation for Nursing Practice

Educational preparation for nursing practice involves several different types of programs that lead to **licensure** or the legal authority to practice as a nursing professional.

Students may choose to enter a practical nursing program and become a licensed practical nurse (LPN), or they may enter a diploma, an associate degree, or a baccalaureate program to be licensed as a registered nurse (RN).

Various levels of nursing education are providing programs for educational advancement. For example, the LPN can complete an associate degree and become an RN, and the RN prepared at the diploma or associate degree level can attain a bachelor of science in nursing (BSN) degree.

There are also programs that provide RN-to-master's degrees as well as BSN and master's degree-to-PhD. Graduate programs in nursing provide masters and doctoral degrees.

Educational preparation for the nurse has become a major issue in nursing.

### **The multiple methods of preparation are:**

1. Confusing to employers.
2. Consumers of healthcare services, and nurses themselves.

## Practical and Vocational Nursing Education

Practical (vocational) nursing programs were established to teach graduates to give bedside nursing care to patients.

**Schools for practical nursing programs are located in varied settings, such as:**

High schools,  
Technical or vocational schools,  
Community colleges, and  
Independent agencies

Most programs are 1 year in length, divided into one-third classroom hours and two-thirds clinical laboratory hours.

**LPNs work under the direction of a physician or RN:**

1. To give direct care to patients,
2. Focusing on meeting healthcare needs in hospitals,
3. Nursing homes, and
4. Home health agencies.

## Registered Nursing Education

Three types of educational programs lead to licensure as an RN:

- (1) Diploma,
- (2) Associate degree, and
- (3) Baccalaureate programs.

**Table (1) summarizes the types of education for RNs**

	Diploma	Associate Degree	Baccalaureate
Location	Hospital	Community college	Senior college or university
Length	24–36 mo	2 academic or calendar years	4 academic years
Course work	Biologic science Physical science Nursing theory Nursing practice	Basic sciences Social sciences General education Nursing theory Nursing practice	Basic sciences General education Social sciences Nursing theory Nursing practice Nursing research Community health Management
Clinical component	Both hospital and community settings	Both hospital and community settings	A variety of settings in which healthcare and nursing care are provided
Further education opportunity	If affiliated with a college, may transfer some credit toward a bachelor of science in nursing (BSN) degree	Credits often apply toward a bachelor of science in nursing (BSN) degree	Base for advanced education at the master's and doctoral levels
Competencies on graduation	Plans and gives direct care to patients in structured settings  Works with other members of the healthcare team to plan and provide care to ill patients	Plans and gives direct care to patients in structured settings  Works with other members of the healthcare team to plan and provide care to ill patients	Plans and gives direct care to individual patients, groups, and communities  Directs other members of the healthcare team in planning and providing care to ill and well patients in a variety of settings; assumes beginning leadership roles; provides comprehensive healthcare, including health promotion, illness prevention, and rehabilitative, educational, and health counseling



## Graduate Education in Nursing

The two levels of graduate education in nursing are the master's and doctoral degrees.

A master's degree prepares advanced practice nurses to function in educational settings, in managerial roles, as clinical specialists, and in various advanced practice areas.

Nurses with doctoral degrees meet requirements for academic advancement and organizational management. They also are prepared to carry out research necessary to advance nursing theory and practice.

**Table (2) expanded educational and career roles of nursing**

Title	Description
Clinical nurse specialist (e.g., enterostomal therapist, geriatrics, infection control, medical-surgical, maternal-child, oncology, quality assurance, nursing process)	A nurse with an advanced degree, education, or experience who is considered to be an expert in a specialized area of nursing; carries out direct patient care; consultation; teaching of patients, families, and staff; and research
Nurse practitioner	A nurse with an advanced degree, certified for a special area or age of patient care; works in a variety of healthcare settings or in independent practice to make health assessments and deliver primary care
Nurse anesthetist	A nurse who completes a course of study in an anesthesia school; carries out preoperative visits and assessments; administers and monitors anesthesia during surgery; and evaluates postoperative status of patients
Nurse-midwife	A nurse who completes a program in midwifery; provides prenatal and postnatal care; and delivers babies for women with uncomplicated pregnancies
Nurse educator	A nurse, usually with an advanced degree, who teaches in educational or clinical settings; teaches theoretical knowledge and clinical skills; conducts research
Nurse administrator	A nurse who functions at various levels of management in healthcare settings; is responsible for the management and administration of resources and personnel involved in giving patient care
Nurse researcher	A nurse with an advanced degree who conducts research relevant to the definition and improvement of nursing practice and education
Nurse entrepreneur	A nurse, usually with an advanced degree, who may manage a clinic or health-related business, conduct research, provide education, or serve as an adviser or consultant to institutions, political agencies, or businesses

## Continuing Education

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The ANA defines continuing education as those professional development experiences designed to enrich the nurse's contribution to health.

Colleges, hospitals, voluntary agencies, and private groups offer formal continuing education through **courses, seminars, and workshops**.

## In-Service Education

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Many hospitals and healthcare agencies provide education and training for employees of their institution or organization, called in-service education.

This is designed to increase the knowledge and skills of the nursing staff. Programs may involve learning, for example, a specific nursing skill or how to use new equipment.

## Nursing Research

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**Research** most simply defined means to examine carefully or to search again. Research as scientific inquiry is a process that uses observable and verifiable information **(data)**, collected in a systematic manner, to describe, explain, or predict events.

Research is conducted to validate and refine current knowledge or to develop new knowledge. The goals of research are to develop explanations (in theories) and to find solutions to problems.

**Nursing research**, broadly defined, encompasses both research to improve the care of people in the clinical setting and also the broader study of people and the nursing profession, including studies of **education, policy development, ethics, and nursing history**.

## Methods of Conducting Nursing Research

### 1. Quantitative Research Methods

**Quantitative research** involves the concepts of basic and applied research.

**Basic research**, sometimes called pure or laboratory research, is designed to generate and refine theory, and the findings are often not directly useful in practice.

**Applied research**, also called practical research, is designed to directly influence or improve clinical practice.

#### Definitions of important terms for quantitative research

- **Variable:** Something that varies and has different values that can be measured
- **Dependent variable:** The variable being studied, determined as a result of a study
- **Independent variable:** Causes or conditions that are manipulated or identified to determine the effects on the dependent variable
- **Hypothesis:** Statement of relationships between the independent and dependent variables that the researcher expects to find
- **Data:** Information the researcher collects from subjects in the study (expressed in numbers)
- **Instruments:** Devices used to collect and record the data, such as rating scales, pencil and paper tests, and biologic measurements. Instruments should be both reliable (produce the same results [data] on repeated use) and valid (test what they are supposed to test).

The types of quantitative research depend on the level of current knowledge about a research problem. **Table (3) describes the various types.**

Type	Purpose
Descriptive Research	To explore and describe events in real-life situations, describing concepts and identifying relationships between and among events. Often used to generate new knowledge about topics with little or no prior research.
Correlational Research	To examine the type and degree of relationships between two or more variables. The strength of the relationship varies from a $-1$ (perfect negative correlation, in which one increases as the other decreases) to a $+1$ (perfect positive correlation, with both variables increasing or decreasing together).
Quasi-experimental Research	To examine cause-and-effect relationships between selected variables. Often conducted in nursing to examine the effects of nursing interventions on patient outcomes.
Experimental Research	To examine cause-and-effect relationships between variables under highly controlled conditions. These are often conducted in a laboratory setting.



The steps of quantitative research are followed carefully, although they may be designed in different ways. **The basic steps of the quantitative research process are outlined and described briefly in Table (4).**

Step	Description
1. State the research problem.	Often stated as a question, the problem should be focused narrowly on the problem being studied. For example: "What is the optimal time for taking a rectal temperature with a digital thermometer?"
2. Define the purpose of the study.	The purpose explains "why" the problem is important and what use the findings will be.
3. Review related literature.	The literature review provides information about what is already known, provides information about concepts, and how the concepts have been measured. It also identifies gaps in knowledge that will be studied.
4. Formulate hypotheses and variables.	Hypotheses are statements about two or more concepts or variables. Variables are concepts of varying levels of abstraction that are measured, manipulated, or controlled in a study.
5. Select the research design.	The design is a carefully determined, systematic, and controlled plan for finding answers to the question of the study. This provides a "road map" for all aspects of the study, including how to collect and analyze the data.
6. Select the population and sample.	The population is the group to be studied. The sample refers to specific people or events in the population from which data will be collected.
7. Collect the data.	Sources of data may include people, literature, documents, and findings (for example, from sources such as laboratory data or measurements of vital signs). Data may be collected from interviews, questionnaires, direct measurement, or examinations (such as physical or psychological tests).
8. Analyze the data.	Statistical procedures are used to analyze the data and provide answers to the research question.
9. Communicate findings and conclusions.	Through publications and presentations, the researcher explains the results of the study and links them to the existing body of knowledge in the literature. The researcher also describes the implications of the study and suggests directions for further research.

## 2. Qualitative Research Methods

**Qualitative research** is a method of research conducted to gain insight by discovering meanings. It is based on the belief that reality is based on perceptions, which differ for each person and change over time. The research design follows many of the same steps as quantitative research, but differs in that the researcher primarily analyzes words rather than numbers. **Table (5) outlines and briefly describes the methods of qualitative research.**



Method	Description
Phenomenology	The purpose of phenomenology (both a philosophy and a research method) is to describe experiences as they are lived by the subjects being studied. Analysis of data provides information about the meaning of the experience within each person's own reality (for example, the experience of health or of having a heart attack).
Grounded Theory	The basis of grounded theory methodology is the discovery of how people describe their own reality and how their beliefs are related to their actions in a social scene. The findings are grounded in the data from subjects and are used to formulate concepts and to generate a theory of the experience, supported by examples from the data (for example, coping with a seriously ill child).
Ethnography	Developed by the discipline of anthropology, ethnographic research is used to examine issues of a culture that are of interest to nursing.
Historical	Historical research examines events of the past to increase understanding of the nursing profession today. Many historical studies focus on nursing leaders, but there is increasing interest in the historical patterns of nursing practice.

## Protection of the Rights of Human Subjects

### Nurses play an important role:

1. In ensuring that patient interests are not sacrificed to research interests.
2. Nursing priorities include determining that the studies have met appropriate scientific and ethical criteria before their implementation.
3. Protecting patient rights.

### Specific patient rights include:

1. **Informed consent**, the patient's right to consent knowledgeably to participate in a study without coercion.
2. The right to refuse to participate without jeopardizing the care.
3. The right to confidentiality.
4. The right to be protected from harm.

## Application of Research to Practice

### The most common impediments to nursing research include:

1. Restricted access to resources.
2. Limited time to participate in research-related activities.
3. Lack of educational preparation needed by nurses for research.

Unless the research findings of nurse researchers are used by practicing nurses to improve the quality of patient care, clinical nursing research is useless.

### ***References:***

Taylor , C., et al.: **Fundamentals of Nursing : The Art and Science of Nursing care**, 7<sup>th</sup> ed.,2011, Lippincott.P.P.(14-17),(73-78).