

COURSE: NURSING RESEARCH

CHAPTER I: INTRODUCTION

1. TERMINOLOGY

1.1 Research

Research is a systematic enquiry about a particular situation for a certain *truth*. That is:

- i. It is a search for knowledge in a focused manner.
- ii. It must answer a particular question or questions
- iii. It has research strategy
- iv. It uses selected methods
- v. It has an organized way to collect data.
- vi. It has organized data analysis and interpretation, conclusions and recommendations
- vii. It is reported in an orderly manner

Knowledge is defined as a justified, true belief.

- Only true things can be known, so no false ideas qualify as knowledge.

Justification:

- Is the reason why someone (properly) believes in something
i.e. It is the explanation as to why the belief is true.

Truth:

Is that which is considered to be the supreme (highest) reality, and to have the ultimate (fundamental) meaning and value of existence.

All types of research are designed to find out the *truth* or *reality* about a situation. However, ultimate (i.e. total) truth can never be achieved in practice. This is because attempt to find out ultimate truth is constrained (i.e.inhibited) by *Perspective philosophy* which states that different people can have different points of view (i.e. perspectives) about the same thing.

Therefore in research strive to achieve truth that is as close as possible to ultimate truth by doing the following:

- Make multiple (i.e. more than one) observations
- Use more than one method of investigation. That is, use triangulation of methods.
- Listen positively to criticism (i.e. different opinions) and take them or reject them depending on their validity.
- Always maintain an inquisitive critical mind and observation by asking yourself questions such as:
 - Are there no other better alternatives to this situation (e.g. technique, method, place, system, etc.?)
 - Why this and not the other? i.e. What is the basis for this?



- How or what about that?

NB: Where it is feasible, go ahead and try to answer these questions practically!!

Belief:

Is the mental acceptance of statement or thing as truth, or real, or valid.

A scientific fact is an objective and verifiable observation, that is considered to be true, but which might be refuted at some point.

i.e. **Facts** are **things** that can be **observed** and/or **measured** and are considered to be true so far.

- *Hypothesis* or *theory*, is intended to explain or interpret facts.
- Facts may be interpreted in different ways by different individuals, but that doesn't change the facts themselves.

1.2 Hypothesis

A hypothesis is a specific statement of prediction of an outcome.

- It is also called a tentative explanation, (or tentative guess) that has not yet been **thoroughly** tested but considers fully what is already known in literature.
- It is framed in such a way that it can be tested **empirically** by an experiment or controlled observation.

Example: In 1865, Gregor Mendel **studied** how one characteristic (trait), e.g. colour, is inherited in garden peas i.e. how colour is passed from parent to offspring. He then formed a hypothesis based on his observations included the following:

- i. In the organism there is a pair of factors that controls the appearance of a given characteristic.
- ii. The organism inherits these factors from its parents, one from each.
- iii. Each is transmitted from generation to generation as a discrete (i.e. separate), unchanging unit.
- iv. When the gametes are formed, the factors separate and are distributed as units to each gamete. (This statement is also known as *Mendel's rule of segregation.*)
- v. If an organism has two unlike factors for a characteristic, one may be expressed to the total exclusion of the other.

1.3 Theory

A theory is a coherent (i.e. logical, consistent) explanation for principles (i.e. a large number of facts and observations) based upon proven hypotheses about a situation, that form a frame of reference (i.e. basis) for an inquiry and from which laws about natural phenomena can be deduced (i.e. established).

i.e.



- A theory is a coherent explanation for **a large number** of facts and observations about a phenomenon.
- It is generally accepted as being an accurate explanation of an observation.
- However, the process of scientific enquiry ensures that theories will always be re-examined and new information added to them, as new facts emerge.

Characteristics of a theory

- It is internally consistent (i.e. it is reliable)
- Firmly grounded in and based upon evidence (i.e. as long as there is no other evidence to refute it)
- Tested against a wide range of phenomena
- Demonstrably effective in problem-solving

To the general population, a theory is often assumed to imply mere speculation, but ***in science, something is not called a theory until it has been confirmed over many independent experiments.*** Theories are more certain than hypotheses, but less certain than laws. The procedures and processes for testing a theory are well-defined within each scientific discipline.

Examples of Theory:

1. Mendel's Theories of genetic inheritance

- Between 1856 and 1863 **Mendel** cultivated and tested some **28,000 pea plants** which brought forth **two theories** of how character traits are inherited.

NB: *Surprisingly, when Mendel's paper was published on 1866, it was ignored until the early 20th century when the importance of his ideas was realized).*

2. John Listers theory of anti-sepsis in surgery

- He postulated that sepsis might be caused by a 'pollen-like dust'.
 - With the use of Carbolic acid sprays in theatre and sterilization of surgical instruments sepsis of surgical wounds were quite significantly reduced. (They prevented the entry of germs into wounds)

3. Nursing theories (which are various) have four common concepts that influence and determine nursing practice. These concepts are:

- The person (patient): *(The most important of all).*
- The environment
- Health
- Nursing (goals, roles, functions)

NB: The various Nursing Theories and Models can be categorized as:

- "Need" theories: helping individuals (i.e. patients) to fulfill their physical and mental needs.



- ii. *"Interaction" theories*: relationships of nurses with patients.
- iii. *"Outcome" theories*: A nurse is the changing force, who enables individuals to adapt to or cope with ill health
- iv. *"Humanistic" theories* : Person's destiny was determined early in life and each has capacity for self actualization

Source: http://currentnursing.com/nursing_theory/nursing_theories_overview.htm

1.4 Model

This is a representation of the interaction among and between the concepts of the theory to show patterns.

- i. It is a sub-class of a theory providing a plan for investigating and or addressing a phenomenon
- ii. It does not attempt to explain the underlying processes, but only to represent them
- iii. Provides the channel for applying the theories

*NB: 1. **Concepts** are words (i.e. terms) that describe objects , properties, or events and are basic components of theory. Basically concepts are means of expression of thought that involve images.*

2. Sometimes theory and model are used interchangeably and this can be confusing.

Example of Model:

Health Belief Model:

It postulates that health-seeking behaviour is influenced by a person's perception of a threat posed by a health problem and the value associated with actions aimed at reducing the threat.

- i.* It mainly focuses on issues of patient compliance and preventive health care practices.
- ii.* It addresses the relationship between a person's beliefs and behaviors.
- iii.* It provides a way to understanding and predicting how clients will behave in relation to their health and how they will comply with health care therapies.

The Major Concepts and Definitions of the Health Belief Model include:

- i. **Perceived Susceptibility:** refers to a person's perception that a health problem is personally relevant or that a diagnosis of illness is accurate.
- ii. **Perceived severity:** even when one recognizes personal susceptibility, action will not occur unless the individual perceives the severity to be high enough to have serious organic or social complications.
- iii. **Perceived benefits:** refers to the patient's belief that a given treatment will cure the illness or help to prevent it.
- iv. **Perceived Costs:** refers to the complexity, duration, and accessibility of the treatment
- v. **Motivation:** includes the desire to comply with a treatment



- vi. **Modifying factors:** include personality variables, patient satisfaction, and socio-demographic factors.

Source: http://currentnursing.com/nursing_theory/nursing_theories_overview.htm

1.5. Law

A Law consists of verified (i.e. confirmed) theory (or theories) based on generalized facts or measurements and it is considered to be true and universal under specific conditions and circumstances

Example of law:

Mendels laws of heredity

1. The law of segregation (i.e. separation) : It states that the alleles governing a trait are separated during the creation of gametes (meiosis).
2. The law of independent assortment (i.e. mixing) : It states that the genes controlling different traits are distributed separately from each other during meiosis.

Note that Mendel's Laws of Heredity were accepted by the general scientific community in the early 20th century, *after repeated tests and rejection of all competing theories.*

1.6. Empiricism

It is a theory of knowledge which states that knowledge arises from **experience and evidence** especially sensory perception (e.g. seeing, etc.) and not only from *a priori* (i.e. prior) reasoning, intuition (i.e. instinct), or revelation.

- It requires that all hypotheses and theories must be tested against observations (e.g. by experiment, etc.). This makes science to be considered methodologically empirical in nature.

1.7 Quantitative Measurements

These are measurements of physical qualities of length, area, volume, speed, etc.

1.8 Qualitative measurements

These are measurements of intensity, e.g. colour, sex, size (e.g big, small), height (e.g tall, short).

1.9 Deductive and Inductive Reasoning in research

Research can be divided into two main categories based on reasoning approach used:

- i. Deductive research and
- ii. Inductive research



1.9.1 Deductive research:

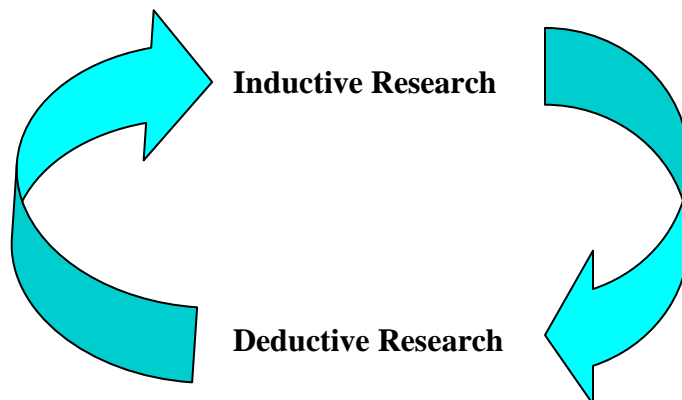
- i. It is designed to confirm or reject original theories already established
- ii. It tests the hypotheses
- iv. It is a top-down approach.

1.9.2 Inductive research.

- i. It starts with specific observations and measures of a new situation
- ii. Then detects patterns and regularities in the events, and
- iii. Formulates some tentative hypothesis and
- iv. Hypothesis is tested
- v. Hypothesis confirmed (or rejected)
- vi. Theory formed (after adequate reproducible results)
- v. It is bottom up

1.9.3 Combination of Inductive and Deductive research

Most studies in research tend to involve both the inductive and deductive processes whereby one leads to another, as shown in the figure below:



2. REASONS FOR DOING RESEARCH IN NURSING SCIENCES

- Research is very necessary in nursing because it makes you aware of what is happening and what to do “If you can’t measure something you can’t control” Philosophically, all types of research are designed to find out the truth or reality about a situation.
- To indicate that a person has project and personal management skills, capable of independent thinking, critical, can solve problems and communicate effectively.
- Research highlights the distribution, determinants of diseases and find out their preventive and control measures.
- It solves an existing problem in the delivery services.
- Research also is necessary to be awarded a qualification or advancement.
- To solve an existing problem in the delivery of services
- To get material for publishing to be awarded a qualification or advancement.