

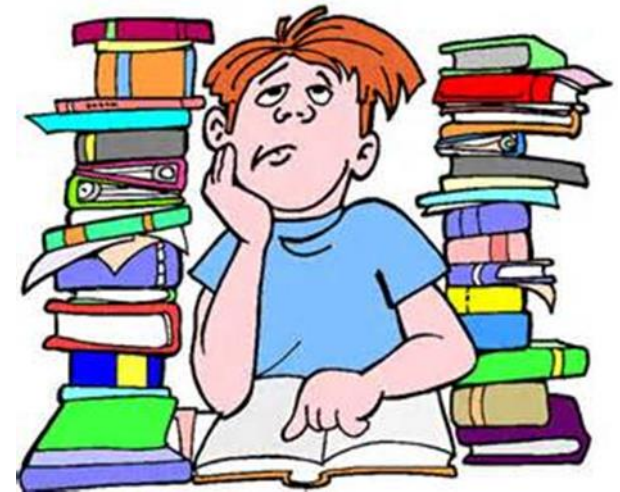
NURSING RESEARCH

Research from French word:

- “*cerchier*” meaning to seek or to search
- prefix “*re*” means “*again*” and signifies replication of the search

Research

- Systematic inquiry
- Scientific method
- Solve Problems and answer questions



Research Goals:

- Refine
- Expand
- Develop



Characteristics of research

1. Involves gathering of new data from new sources
2. Directed towards the solution of problem
3. Analytical and empirical
4. Requires expertise
5. Logical, honest and innovative
6. Can be replicated
7. Carefully recorded



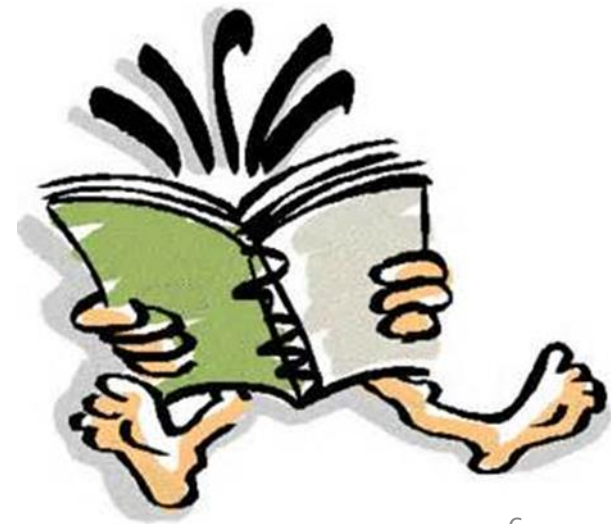
Nursing Research

- *systematic study and assessment of nursing problems or phenomena.*
- *finding ways to improve nursing practice and patient care through creative studies, initiating change and taking action to make new knowledge useful to nursing*



Nursing Research

- Systematic → Practice
- Scientific → Education
- Solve Problem → Administration



Purposes of NURSING research

1. Provide scientific basis for nursing practice
2. Develop new techniques, tools, new knowledge
3. Provide solutions to problems concerning health
4. Help determine the areas of need in nursing
5. Prepare oneself to be a diligent researcher.



Why is research important in nursing?

- Knowledge generated through research is essential to provide a scientific basis for:

Description

- What exist in N/practice and discover a new knowledge.

Explanation

- Explains the existing knowledge in relation to the effect and the outcome.

ex. Like bed sore occur in the old people due to lack of mobility

Prediction

- A nurse could predict the out come on the bases of interventions

Control

- Ability to write a prescription to produce the desire result.

- Research ethics
 - Refers to a diverse set of value, norms and institutional regulations that help constitute and regulate scientific activity.
 - pertains to research demands VS participant rights



Declaration of Helsinki (1964)

- Developed by the World Medical Association
Set of ethical principles for the medical community regarding human experimentation, and is widely regarded as the cornerstone document of human research ethics.

Nuremberg Code (1949)

– Developed to prevent any inhumane experimentation which were historically conducted by the German Nazi's through its medical experiments on Jews.



Ethics in Research

- Principles of Beneficence
- Principle of Respect for Human Dignity
- Principles of Justice



Principles of Beneficence

1. Freedom from Harm
2. Freedom from exploitation
3. Risk/ Benefit Ratio

Principle of Respect for Human Dignity

1. Right to self-determination
2. Right to full disclosure

Principles of Justice

1. Right to fair treatment
2. Right to Privacy



The researcher can expect to deal with the following ethical issues:

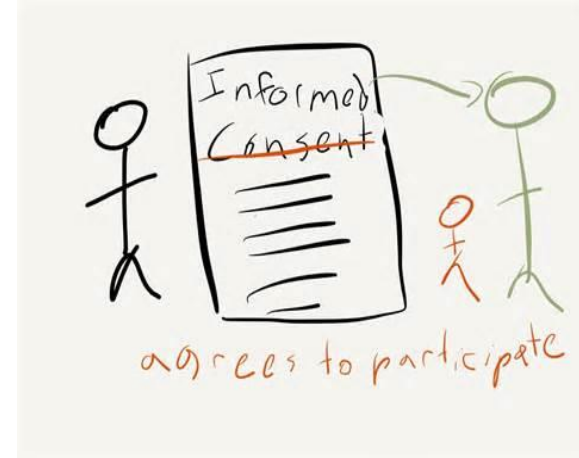
- Worthiness of the project
- Informed consent
- Benefits, cost, reciprocity
- Honesty and trust
- Privacy, confidentiality, and anonymity
- Ownership of data and conclusions
- Use and misuse of results
- Interventions and advocacy



Institutional Review Board (IRB)

- Informed consent
- Protected populations,(children, correctional facilities, mental disability etc.)





Informed Consent

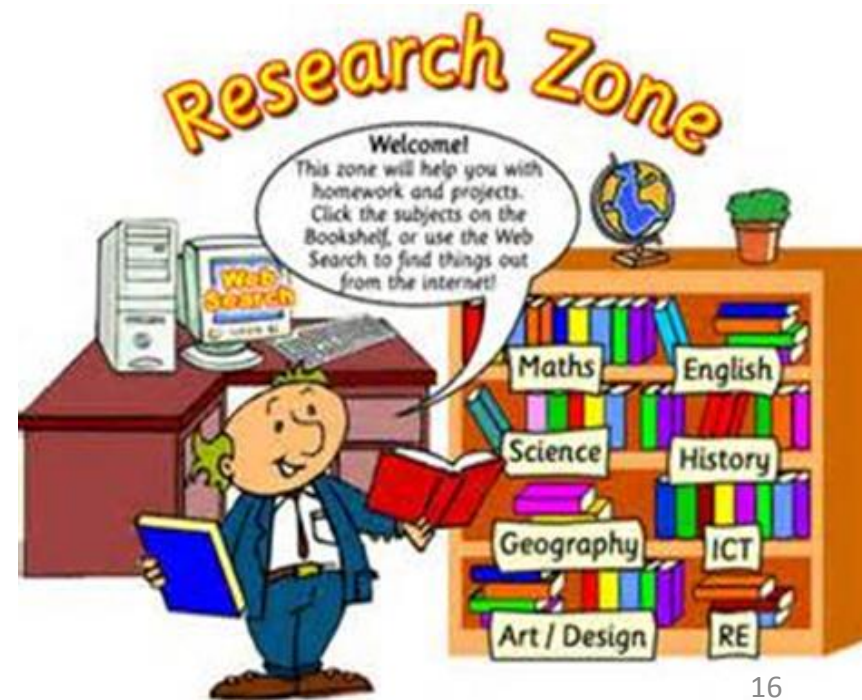
- adequate information regarding the research
- capable of comprehending the information.
- free choice, enabling them to consent or decline participation voluntarily.

Implied Consent

- assumption that consent is granted
- ex: return of completed questionnaire reflects voluntary consent to participate.

Sources of Research Topics

- Journal Articles
- Professional Conferences
- Electronic Publication
- Thesis and Dissertation



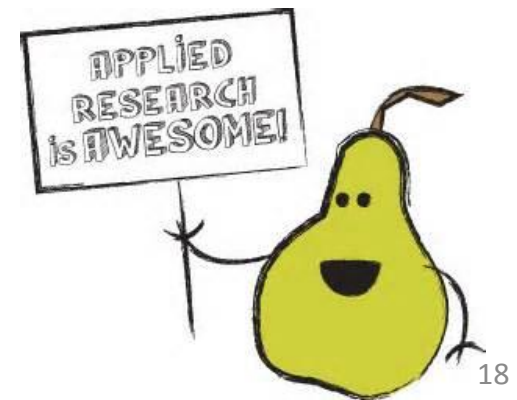
Types of study

- Exploratory – research studies that are conducted when little is known about the phenomenon being studied.
- Descriptive – research studies in which phenomena are described in the relationship between variables is examined; no attempt is made to determine cause-and- effect relationship.
- Explanatory – research studies, that search for casual explanation; usually experimental

Types of Research According to Motive or Objective

- a. Basic research – research that is conducted to generate knowledge rather than to solve immediate problems.

- b. Applied Research – research that is conducted to find a solution to an immediate practice problem.



Types of Research According to **Design**

- the blueprint of the study
- the overall plan for gathering data in research study.

a. Quantitative research

– concerned with objectivity, tight controls over the research situation, and the ability to generalize findings.

b. Qualitative research

- Research that is concerned with the subjective meaning of an experience to an individual.

Types of Research According to CONTROL of variable

Quantitative research

- i. Experimental – concerned with cause-and-effect relationship.

- ii. Non-experimental – research in which the researcher does not manipulate or control the independent variable.

Types Experimental Design

- True experimental – manipulates experimental variable.
 - Pretest-posttest control group
 - Posttest only control group
 - Solomon four group
- Quasi-experimental – there is either no comparison group or no random assignment of subjects to groups.
 - Nonequivalent control group
 - Time series
- Pre-experimental – the researcher has a little control over the research situation.
 - One-shot case study
 - One-group pretest-posttest



Types Non- Experimental Design



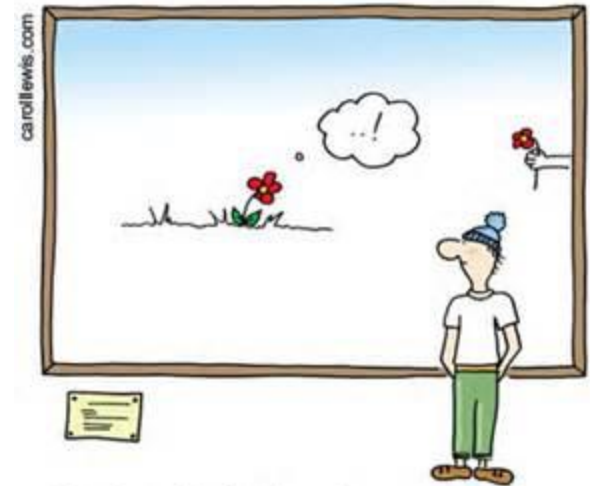
- i. Survey
- ii. Comparative studies
- iii. Correlational studies
- iv. Methodological studies
- v. Secondary analysis studies

Types Non- Experimental Design

- i. Survey – are investigation in which self-report data are collected from samples with the purpose of describing populations on some variables of interest.
- ii. Comparative studies – examine the differences between intact groups on some dependent variable of interest.
- iii. Correlational studies – the researcher examines the strengths of relationships between variables by determining how changes in one variable are associated with changes in another variable.
- iv. Methodological studies – concerned with the development, testing, and evaluation of research instruments and methods.
- v. Secondary analysis studies – data are analyzed that were gathered in a previous study.

Types Qualitative Research

- I. Phenomenological
- II. Ethnographic
- III. Case studies
- IV. Action research studies



"..It asks people what they and their life are about, and tries to see the big picture.."

Types Qualitative Research

Phenomenological – examine human experiences through descriptions provided by the people involved. These experiences are called *live experiences*.

*****The goal of phenomenological study is to describe the meaning that experiences hold for each subject.*

Ethnographic – involve in the collection and analysis of data about cultural groups.

Case studies – are in-depth examinations of people. It can be a qualitative or a quantitative study.

Grounded theory – are studies in which data are collected and analyzed, and then a theory is developed that is grounded in the data.

Action research studies – is a type of qualitative research that seeks action to improve practice and study the effects of the action that was taken.

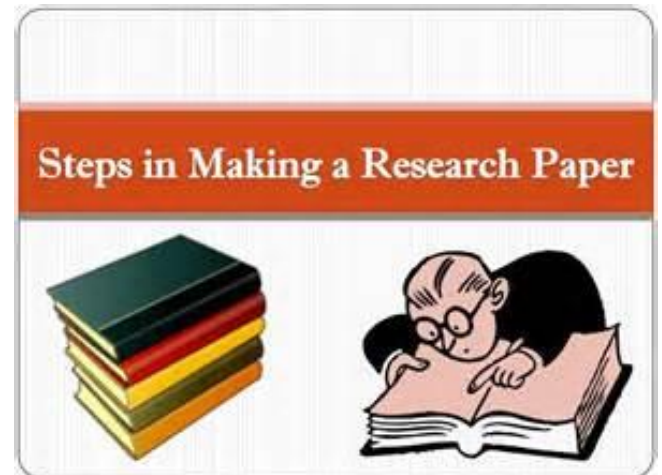
Types of Research According to Time Frame

a. Historical Research - concern the identification, location, evaluation, and synthesis of data from the past. Not only to discover the events of the past but also to relate these past happenings to the present and to the future.

b. Descriptive Research – research studies in which phenomena are described or the relationship between variables is examined; no attempt is made to determine cause-effect relationship.

Steps in Quantitative Research

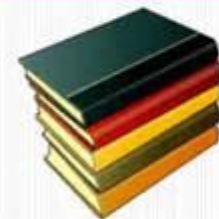
- ❖ Identify the research problem
- ❖ Determine the purpose of the study
- ❖ Formulate the research question.
- ❖ Review the literature



Steps in Quantitative Research

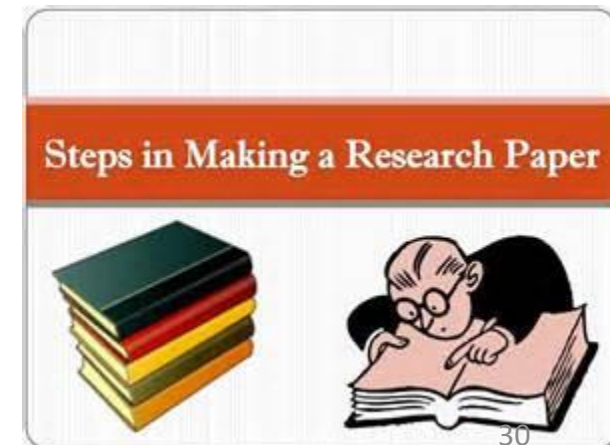
- ❖ Develop a theoretical/conceptual framework
- ❖ Acknowledge the limitation of the study
- ❖ Formulate the hypothesis
- ❖ Define the study variables/terms

Steps in Making a Research Paper



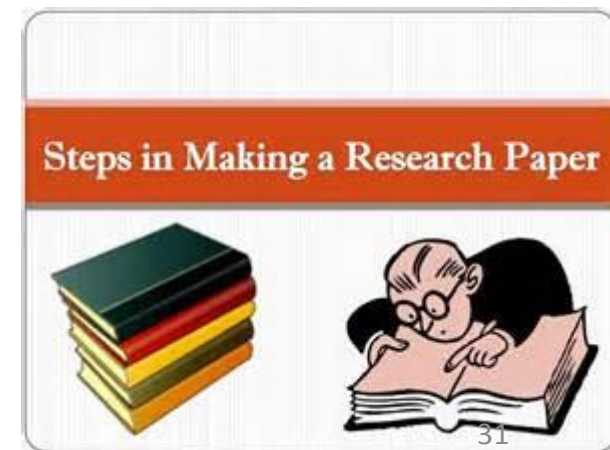
Steps in Quantitative Research

- ❖ Select the research design
- ❖ Identify the population
- ❖ Select the sample
- ❖ Conduct a pilot study
- ❖ Collect the data



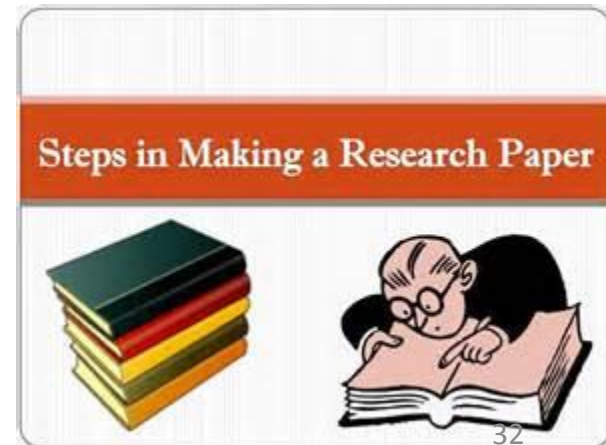
Steps in Quantitative Research

- ❖ Organize the data for analysis
- ❖ Analyze the data
- ❖ Interpret the findings
- ❖ Communicate the findings
- ❖ Utilize the findings



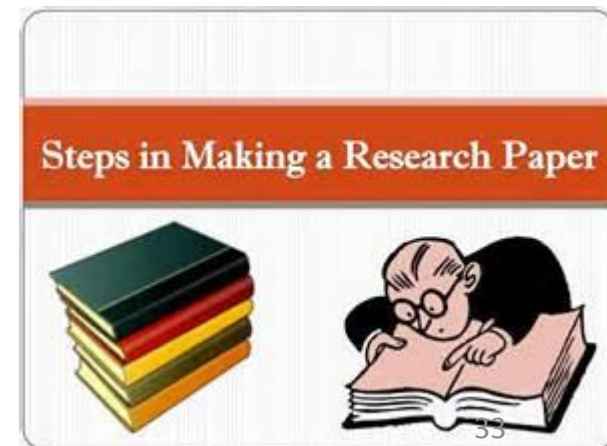
Steps in Qualitative Research

- ❖ Identify the problem of the study
- ❖ State the purpose
- ❖ Select the research design
- ❖ Review the literature
- ❖ Select the sample

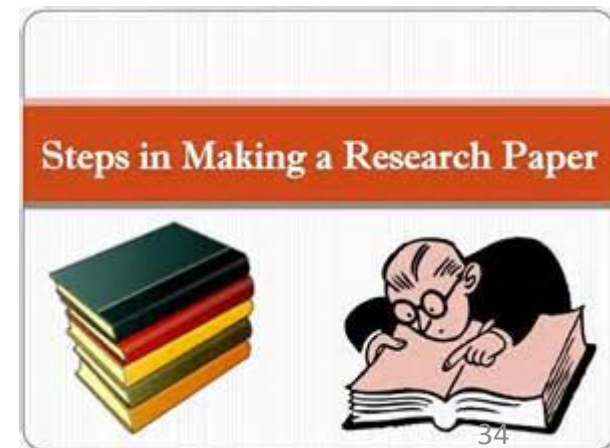


Steps in Qualitative Research

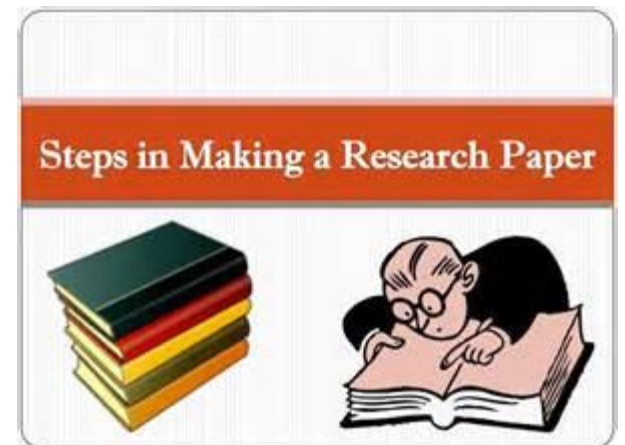
- ❖ Gain entry to the research site
- ❖ Protect the rights of the participants collect the data
- ❖ Interpret the data
- ❖ Communicate the study result
- ❖ Utilize the study results



- ❖ Research problem
- ❖ Is an area where knowledge is needed to advance the practice of nursing.
- ❖ Sources of nursing research problems
- ❖ Personal experience
- ❖ Literature sources
- ❖ Existing theories
- ❖ Previous research



- ❖ Research problem consideration
- ❖ Ethical issues
- ❖ Significance to nursing
- ❖ Personal motivation
- ❖ Researcher qualification
- ❖ Feasibility study



- ❖ Research question criteria
- ❖ Is written in interrogative sentence form
- ❖ Includes the population
- ❖ Includes variables
- ❖ Empirically testable

Steps in Making a Research Paper



Step 1: Identify the research problem

Research problem

- One of the most important steps
- Is an area where knowledge is needed to advance the practice of nursing
- Broad topic is identified and then the topic is narrowed down to a specific problem to be studied.

Stated in two forms:

- Interrogative – statement that ask
- Declarative

Interrogative form

- *“Is there a correlation between the number of hours that baccalaureate nursing students have studied and their anxiety levels before the midterm examination?”*

Declarative form

- *“This study examines the relationship between the number of hours that baccalaureate nursing students have studied and their anxiety levels before the midterm examination.”*

Variables

- A characteristic, attribute of a person or object that differs among the persons or object being studied (eg. Age, sex, blood type etc.)

Classification of research variables

1. One variable study/ univariate study

Ex. “what sources of work stress are identified by thoracic care unit nurses?”

2. Two variables study/bivariate study

One is dependent and the other is independent

Ex. Is there a correlation between the number of sources of stress reported by nurses in a thoracic intensive care. The independent variable is “the number of reported sources of stress.” and the dependent variable is the desire to leave to leave employment in the thoracic intensive care unit.”

3. Multi-variables study/ multivariate study

more than two variables are examined in a study

Ex. Why clients do not take their medications as directed after they are discharged?

Why do nursing students pass/fail the examination?

Types of variables

- Independent variable
 - *The “cause” or the variable thought to influence the dependent variable in experimental research it is the variable manipulated by the researcher.*
- Dependent variable
 - *The “effect” a response or behavior that is influenced by the independent variable; sometimes called critierion variable.*

Types of variables

- Intervening variables
 - Comes between dependent and independent variable
- Extraneous variable
 - Influence can be change
- Dichotomous variable
 - Two choice or result (male/female)
- Polychotomous variables
 - Multiple variables

Step 2: Determine the purpose of the study

purpose of the study

- Addresses the WHAT will be studied;
- Provides WHY the study is being done.

Example:

“This study will try to determine whether a back rub is an effective means of reducing anxiety levels of women who are about to undergo a hysterectomy.”

Step 3: Formulate a Research Question

- Research question
 - Is the specific question that the researcher expects to be answered in a study.
 - Should specify the variables and the population that are being studied

Example;

“Is there a difference in anxiety levels of women about to undergo hysterectomy between those women who receive a back rub and those who not receive a back rub?”

Sources of nursing research problems

- Personal experiences
- Literature sources
- Existing theories
- Previous research

Personal
Experience



Research problem considerations

- Ethical issues
- Significance to nursing
- Personal motivation
- Researcher qualifications
- Feasibility of study
 - Time
 - Cost
 - Equipment and supplies
 - Administrative support
 - Peer support
 - Availability of subjects



**Legal
&
Ethical
Issues**



Research question format

- Research questions for studies that examine more than one variable are usually written as correlational statement or comparative statement.

1. Correlational Statement

(dependent and independent)

“ Is there a correlation between anxiety and midterm scores of baccalaureate nursing students?”



Research question format

2. Comparative Statement:

a. Descriptive study:

“Is there a difference between in readiness to learn about preoperative teaching between preoperative patients who have high anxiety levels compared to preoperative patients who have low anxiety levels?”

b. Experimental study:

“Is there a difference in the preoperative anxiety levels of patients who where taught relaxation techniques compared to those patients who were not taught relaxation techniques?”

Step 3: Review the literature

- Importance of the Review the literature
- Is important to determine what knowledge exists of the study topic.
- Helps to develop theoretical or conceptual framework.
- Instruments or tools may also be discovered that can be used to measure the study variables.
- Also help the researcher plan a study method.
- Research problems may also identified following suggestions or recommendations of the researchers who have conducted previous study.

Sources of literature

- **Primary**
 - Is a description of a research study written by the original investigator.
- **Secondary**
 - Is a summary or description of a research study written by someone other than the study investigator.
- **Grey literature**
 - Defined as any document that is not commercially published and is not usually indexed or made available in the major data bases.

Examples:

Theses, dissertations, conference proceedings, technical reports, unpublished research reports

Sources of literature

- **Print sources**

Two types:

- Indexes – contain reference materials on periodicals and some books.
- Abstract – contain brief summaries of articles which includes purpose, methods and major study findings.

- **Electronic sources**

- Online catalogs
- Online data bases

CINAHL(Cumulative index to Nursing & Allied health Literature)

Registry of Nursing Research

MEDLINE Databases

Cochrane Database of Systematic Review

Step 4: develop a Theoretical or Conceptual Framework

- Assist in the selection of the of the study variables and in defining them.
- Directs the hypothesis and the interpretation of the findings.
- Research without theory provides a set of isolated facts.

Step: 5 Identify the Study Assumptions

Assumptions

- Are beliefs that are held to be true but have not necessary been proven.
- Each scientific investigation is based on assumptions.

3 types:

1. Universal
2. Based on theory or research findings
3. Common sense

Step 6: limitation of the study

Limitations

- Are uncontrolled variables that may affect the study results and limit the generalizability of the findings.
- Limitations must be taken into consideration when the conclusions of a study are formulated and when recommendations are made for future research.

Step: 7 Formulate Hypothesis

Hypothesis

- Predicts the relationship between two or more variables.
- Furnishes the predicted answer to the research questions.
- Contains the population and variables
- Proposes the relationship between the independent and the dependent variables.

Classification of Hypothesis

- Simple and complex
- Null and research
- Non-directional and directional

Simple Hypothesis

- Concerns the relationship between one independent and one dependent variable.

Example:

There is negative relationship between denial and reports of anxiety among post-myocardial infarction patients.

Complex Hypothesis

- Concerns a relationship where two or more independent variables or two or more dependent variables, or both are being examined in the same study.

Example:

Daily weight loss is greater for adults who follow a reduced calorie diet and exercise daily than for those who do not follow a reduced calorie diet and do not exercise daily.

- Null hypothesis (H_0)
 - Predicts that no relationship exists between variables.
 - Subject to statistical analysis
- Research hypothesis (H_1)
 - Also called alternative hypothesis
 - States the expected relationship between variables.
 - Others names are scientific, substantive, and theoretical

Non-directional hypothesis

- Researcher merely predicts that relationship exists.
- The direction of the relationship is not presented.

Directional hypothesis

- The researcher predicts the type of relationship that is expected.

Hypothesis criteria

A hypothesis should:

- ✓ Be written in a declarative sentence
- ✓ Be written in the present tense
- ✓ Contain the population
- ✓ Contain variables
- ✓ Reflect the problem statement, purpose statement, or research question
- ✓ Be empirically testable

Step 8: Define the Study variables/Terms

- **Conceptual definition**
 - Is a dictionary definition or theoretical definition of an abstract idea that is being studied by the researcher.
- **Operational definition**
 - Indicates how a variable will be observed or measured.
 - Include the instrument that will be used to measure the variables.

Step 9: Select a Research Design

- Is the plan for how the study will be conducted
- Concerned with the type of data that will be collected and the means used to obtain these data.

Step 10: Identify the Population

Population

- *A complete set of persons or objects that possess some common characteristic of interest to the researcher.*

Target population

- *The entire group of people or objects to which the researcher wishes to generalize the findings of a study.*
- *Also called the universe*

Accessible population

- *The group of people or objects that is available to the researcher for a particular study.*

Step: 11 Select Sample

Sample

- a subset of the population that is selected to represent the population.

Types of sampling method

1. Probability sampling method
2. Non-probability sampling methods

Probability sampling method

- The use of random sampling procedure to select a sample from elements or members of the population.

Types of probability sampling method

- I. Simple random
- II. Stratified
 - I. Proportionate
 - II. Disproportionate
- III. Cluster
- IV. Systematic

Types of probability sampling method

- Simple random

- *A method of random sampling in which each element of the population has an equal and independent chance of being chosen for the sample.*

- Stratified

- *A random sampling process in which a sample is selected after the population has been divided into subgroups or strata according to some variable of importance to the research study.*

- Cluster

- *A random sampling process that involves two or more stages. The population is first listed by clusters or categories and then the sample elements are randomly selected from these clusters.*

- Systematic

- *A random sampling process in which every k^{th} (every fifth) element or member of the population is selected the sample*

- Non-probability sampling method

- *A sampling process in which a sample is selected from elements or members of a population through non-random methods*

Types of Non-probability sampling method

- Convenience sampling
- Also referred to as accidental or incidental and involves choosing readily available people or objects for a study
 - Snowball sampling
 - Also called network sampling
 - A sampling method that involves the assistance of study
- Quota sampling – researcher's desired population variable of interest
- Purposive sampling
 - handpicking of subjects
 - Also called judgmental

Time frame for studying the sample

- **Longitudinal study**

- Follows subjects over a period of time in the future
- Cohort study a special type of longitudinal study the focus is on a subgroup of the population, frequently persons who are of a similar age group

- **Cross-sectional study**

- Examines subjects at one point in time

- **Sampling error**
 - Defined as the difference between data obtained from random sample and the data would be obtained if an entire population were measured.
- **Sampling bias**
 - Occurs by chance
 - Caused by the researcher
 - Sample not carefully selected

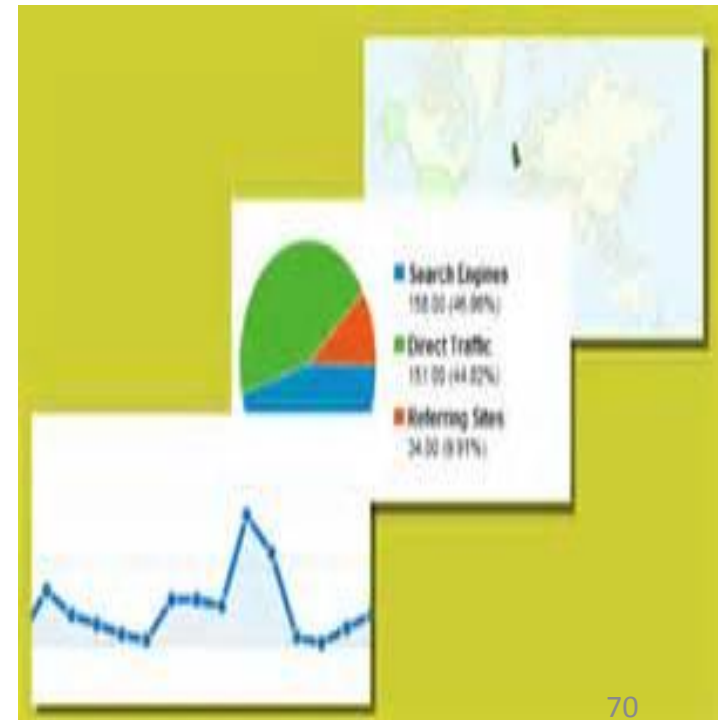
Measurement Principles

Measurement

- Is the process of assigning numbers to variables, includes counting, ranking, and comparing objects or events.

Level of measurement

- I. Nominal level of measurement
- II. Ordinal level of measurement
- III. Interval level of measurement
- IV. Ration level of measurement



Level of measurement

- Nominal level of measurement
 - The lowest level of measurement
 - Numbers are obtained for this type of data through counting the frequency or percentage
 - Objects or events are “named” or categorized.

Examples: *race, gender, religious affiliation, marital status.*

- Ordinal level of measurement
 - Data can be ranked ordered and placed into categories

Example; small, medium, and large

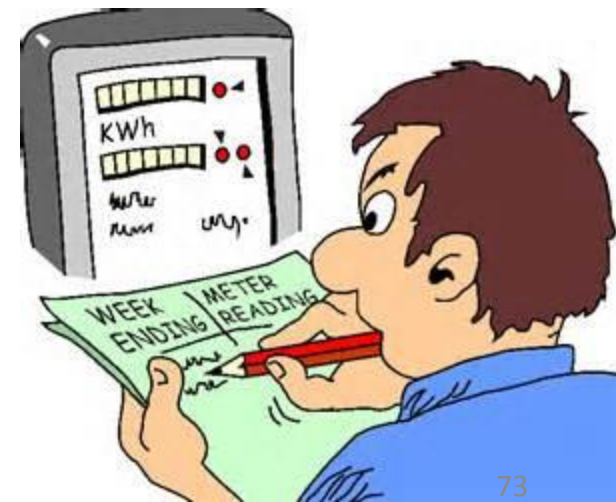
Level of measurement

- Interval level of measurement
 - Consist of real numbers
 - Concerns data that not only can be placed in categories and ranked, but also *distance* between the ranks can be specified.
- Ratio level of measurement
 - Considered the highest or most precise level of data
 - Includes data that can be categorized and ranked the distance between ranks can be specified and a true or natural zero point can be identified.

Data Collection Process

Five questions in data collection process

1. Who will collect the data
2. When will the data be collected
3. Where will the data be collected
4. What data will be collected
5. How will the data be collected



Data Collection Method

1. Questionnaires
2. Interviews
3. Observation methods
4. Physiological measures
5. Attitude scales



- Questionnaires

- Is a paper and pencil report instrument.
- Contains questions that respondents are asked to answer in writing.

Types of questions

1. Demographic questions – characteristic of the sample
2. Closed-ended questions – chose from given alternatives
3. Open-ended-questions – to complete in their own words
4. Consistency questions
5. Filler question