**Manual for Research Methodology in Nursing**

**Introduction:**

Nursing research involves a systematic search for -validation of knowledge about issues of importance to the nursing profession. Nursing research has, experienced remarkable growth in the past three decades, providing nurses with an increasingly sound base*,* of knowledge from which to Practice .yet many health care question remain to be answered by nurse researchers and many answers remain to be utilized practicing nurses.

**Definition: Is** a systematic inquiry designed to developed knowledge about issues of importance to nurse including nursing practice, nursing education and nursing administration.

**The purpose of nursing research:**

 Changing life style behavior for better health (starting healthy behavior).

 Managing the effect of chronic illness to improve the quality of life

 Identify effective strategies to reduce health problem.

 Using advanced technologies to serve human needs.

 Enhancing end -of life experience for patients and families

**The importance of nursing research:**

 The ultimate goal of any profession is provide the client with maximum effective and, efficient services:

 Help the Professional nurse to know the patients need and know what has been working for them and what does not

 The finding that we obtain from. Doing research will provide us with strong foundation to what we do every day for patients.

 He1p the nurses to have evidence -based data to utilize new ways to assess, evaluate and deliver nursing care.

 Allow to professional growth by supplying us with the most accurate tools and opportunities to advance the specialty where we work.

 On personal level, it will create leader ship characteristics for yourself.

**Research Methods**

**Outline:-**

1-Definition of research

2-Objectives of research

3-Importance of research in nursing

4-Sources of human knowledge

**Definition of research:** Is scientific process that validates old knowledge and generate new knowledge that directly or indirectly influences clinical nursing practices. The process through which is systematic logical and empirical into the possible relationships among particular phenomena.

**Objectives of research:**

1- Generating knowledge.

2- Expand current body of scientific knowledge.

3- Develop and test nursing theories.

4- Increase confidence knowledge as decision making.

**Importance of research in nursing:-**

**1-Professionalism:** nursing like other occupations seeking to establish themselves profession is experiencing concerns for the development of services orientation. Research usually associated with university education it helps to improve quality of the decision by position out the effectiveness or non-effectiveness of certain practices.

**2-Accountability:** The quality of nursing care cannot be improved until scientific accountability becomes as much as part of nursing tradition as humanitarianism is scientific accountability is essential for the teacher in dealing with students for nurses dealing with patients.

A professional nurse who is scientifically accountability bases as many decision and actions as are possible on scientifically documented knowledge and seeks to find scientific answer to perplexing problems. Scientific accountability also includes reading the scientific literature for new knowledge so that application of this knowledge becomes part of nursing practice.

5- Social relevance of Nursing: Nursing research has proliferated in the area of educational practices, administration practices and nursing practices. In recent years, still many practices remain to be empirically tested for their effectiveness.

**There are two categories of research methods:**

1-Quantitative data collection usually involves numbers, graphs and charts

2- Qualitative data collection methods deal with feelings and other non-quantifiable elements.

Questionnaires can be used as qualitative, as well as, quantitative method. Specifically, if open-ended questions are used qualitative methods will be used for data analysis. Alternatively, if questionnaire consists of closed-ended questions, then quantitative approach is adopted for data analysis.

**Differences between Qualitative and Quantitative Methods:** The main differences between qualitative and quantitative research methods can be summarized in the following points:

1- Data in quantitative research appears in the forms of numbers and specific measurements and in qualitative research data can be in forms of words, images, transcripts, etc.

2- Research findings in quantitative research can be illustrated in the forms of tables, graphs and pie-charts, whereas, research findings in qualitative studies is usually presented in analysis by only using words.

**Types of researches:**

1- Explanatory research: To explain things it offers understanding of the phenomena. This type of research focuses on questions such as (Why? why such a relationship exists? Example, why premature neonates have a certain patterns of feeding and not the other?

2- Experiment research: Here the research manipulates the independent variable observes and measures the subsequent changes in the dependent variable Example: Effect of drug X on heart failure condition.

3- Historical research: It is frequently utilized by nurse researchers. It is related to the history of nursing which explores documentary data sources.

**Characteristics of good research:**

I- It should add new information:

a- New facts: for example: effect of exposure to sonography in utero on growth and development during the first two years of life. b-validates previous research findings.

c- New relationship among present phenomena for example: effect of moist or dry beat on healing of episiotomy.

d- Explain previous finding.

2-There should have a problem that need solution.

3-It should achieve a general objective and not personal one4- Research result should be liable to test? it if another followed the same steps, he is going to get the same result.

The scientific approach should be used in the research.6- It should be ethical it does not violate the right s of patient's profession community of the researcher himself.

7- It should protect patients, profession, community and research rights.

**The research Process:**

The research process is the tool of science it involves a series of progressive steps that usually include some version of the following: 1- Stating a research problem.

2- Defining the purpose of the research.

3- Reviewing related literature.

4- Formulating hypothesis of the variable.

5- Selecting the research design.

6- Selecting the population and sample.

7- Conducting a pilot study.

8- Collecting the data.

9- Analysis of data 10-Communicating conclusions

**Ethical aspects of nursing research:**

1- Informed and voluntary consent of the subject.

2-Confidentiality of the data collected.

2- Privacy.

3- Protection of the individual from harm.

Researches process:

**1-Stating.the research problem: Out line:**

1- What is a research problem?

2- Sources of research problem.

3- Criteria for evaluating research problem.

4- Statement of the research problem.

**What is the research problem?**

A statement or question it identifies an area of concern and indicates the concepts and population to be studied and the study setting.

**Sources of research problem:**

1-Nursing practices and experience from observation of patient and his family-patients chart.

2-Theory:

4- Research reports both published and those presented at research conference classes on thesis.

4-Literatures:

5 Technologies.

6- Refining and expanding previous studies.

7- Replication: repeat of study in other circumstances as time place or sample.

**Criteria of research problem evaluation:**

There are no fixed rules for making a final selection of a research problem there however some criteria that should be kept in mind in the decision process. The, four most important considerations are: The significance research,

ability, feasibility of the problem and its interest to the researchers.

**I-Significance of the Problem:** The problem must be significant to nursing. the research question should have the potential of contributing to the body of knowledge in nursing in a meaningful form.

**II- Research ability of the problem:** The problem involves variables that can be precisely defined and measured. Sometimes variables are so ambiguous vague or difficult to define. The research would have to find a mean of the concept so that could be observed and measured before proceeding to subsequent steps in the research process.

**III- Feasibility of the problem:** Problem that is both significant researchable may still inappropriate if they are not feasible. The issue of feasibility is a complex one and encompasses a variety of considerations.

Not all of factors are relevant for every problem but most of them should be kept in mind making a final selection:

1- Time.

2- Availability

3- Cooperation of others: It is almost always necessary to secure permission of parents or others who are responsible in institutional

setting such as hospital clinics. Schools usually require administrative approval.

4-Facilities and equipment

5- Money for literature costs, personal costs, subject's costs, supplies equipment, and transportation costs computer service charge and duplicating materials.

6-Experience of the researcher

7-Ethical considerations

**1V- Interest to the researcher:** Genuine interest in and curiosity about the chosen research are important prerequisites chosen to a successful study.

**Statement of the research problem:**

The problem should be carefully stated in written from before proceeding with the design of the study.

A good statement of the problem should serve a guide to the researcher in the course of designing the study. The statement identifies the key variables that the study specifies the nature of the population being studied.

**Formulating research purpose:** Why the study is being done the purpose should identify the variable population and setting of the study. The purpose is the aim of the study where may be to describe, to explain or to predict something: -related to the problem's solution.

**Review of related literature (Out lines) :**-

Purpose of a literature review - Source of literature review- Writing the literature review.

- Formulating hypothesis.

A literature review involve the systematic identification location and summary of written materials that contain information a research problem

**Purpose of literature review:**

1- Sources of research idea: Helps researcher to generate idea or focus on the research topic when a general topic has already been selected reading on that topic help to being the problem and did in the formulation of appropriate research questions.

2-Orientation to what is already known of the major functions of the literature review is to ascertain what is already know in relation to the problem of interest. 3- Information on research approach: as research strategies specific procedures instruments and analysis.

**Sources for literature review:**

1-Books

2-Journals

3-Reports

4-Indexes as nursing or index medicine

5-Computer search

**Writing the literature review:** It will be useful to write outline, organize and summarize the references. Review should point out both consistence and contradictions in the literature as well as offer possible explanations.

**Formulating hypothesis:**

Hypothesis is an answer to the research question. It is a statement of expected outcome of the study that includes attentative prediction or expectation of relationships between two or more variable in the study.

**Selecting a research design (Outline):**

1-Definition.

2-Types of research

3-Characteristics

**Research design**: is defined as the overall plan for collecting and analyzing data including specifications for improving the validity of the study.

1-What to do?

2-When to do?

3-Where to do?

5- How to do?

5-Why to do what? where and when?

**Types of research design-: A-** Experimental research design.

B- Non experimental research design.

C- Other types of research design.

**Experimental research design:**

**Definition:** are search study which the researcher manipulate the independent variable and measures variations in the dependent variables

Types of experimental research design:

True- experimental research design: The experimental research design is scientific investigation in which observations are made and data are collected according to a set of well defined criteria

**It is characterized by:**

A-Manipulation

B-Control c- Randomization

**A-Manipulation:** These three characteristics increase the validity of the study. It grantees that the change in the dependent variable is not because any other extension variable but as a result of manipulation of the independent variable.

**B- Control:** the process of holding constant possible influences on the dependent variable under investigation control group refers to group of subjects in the experimental study treatment or manipulation and who's of interest.

**c- Randomization**

Quasi experimental research design: It is research design in which there is lack at least one of the three characteristics of the true experimental research designs which are manipulation control or randomization.

**Non experimental research design (Outlines):**-

Definition.

- Reasons for choosing non experimental research design.- Types of non- experimental

Research design

Non experimental research, design in which the researcher is a passive agent that is he collects data without manipulation intervention or introduction of any new change or 'treatment.

Reasons for choosing experimental research design

1- Independent variables are inherently not manipulated:

Eg we cannot confer upon incoming hospital patients various diagnosis in order to study the effect of diagnosis upon preoperative anxiety.

2-Ethical constraints on manipulation, eg when study polio vaccine Salk or Sabin and incidence of the disease.

Group I .................. salk

Group II.........:........ sabin

Group III :.................. No vaccine

Such a research could not be done for ethical reason.

3- Practical constraints\_\_ such as

- Insufficient time. - Inconvenience

- Lack of cooperation

- Lack of adequate= funds.

Types of non- experimental research design pure descriptive research design: this study is to obtain information about the current status o phenomena of interest that is to describe what exists in terms of the frequency of occurrence rather than to describe a relationship between variables. Eg : Determination of the„ \_percent of ^teenage ~pregnant mothers, whose babies are premature.

~ Correlation descriptive research design

It is research design that explore the inter - relationship among variables of interest without .any active "intervention or manipulation the,

Independent variables by the researcher, it only 'describe the existing relationships without fully 'understanding or explaining the complex, casual pathway that exist. Eg Are men more likely than` woman to become alcoholics? Whether or not a particular shape of sex chromosomes has caused a predisposition of alcohol. `

**Retrospective research design:**

This is a study that begins with manifestation of the dependent variable in the present ( eg. Lung cancer or low birth weight) and then t to some presumed cause occurring in the past. Eg. Cigarette, smoking or addiction. A study begins with presumed causes and then goes forward in time fb observe -presumed effect.

Eg. A research wants to test the hypothesis that the incidence of rubella during pregnancy is related to malformation in the spring to do this research prospectively. He begins with a sample of pregnant women (two groups) one group go to active research design, in ;an examination of rubella in pregnancy , other group did not get rubella in pregnancy and then observe the incidence of malformation in both groups. The 'result of this study would say that the incidence was higher in which group.

**Other types of non- experimental research design**

1- The term survey can be used to describe any research activity in which the investigator gathers data from aortionulation for.

the purpose of examining the characteristics

Opinions or intentions of populations, eg

what are people eat ? . -\_ .

What is their compliance in taking medication? What are their sleeping patterns?

c- Case study

It does not have a specific research design it could be performed in several ways and steps -4 according to the phenomena to be studied according to the phenomena to be studied an the purpose of the study.

Case studies are naturalistic studies, conducted in a setting that is not controlled by the researcher, it involves one or served cases that are studied over time using multi~ Gathering methods. In fact almost all methods of data collecting could be used in the case study