Research Question/problem

Outlines:

1-Research & Research Process

2-Characteristics of research

3-Research Ethics

4-Research problem

5-Literature review

Prepared by

Assisst. Prof. Dr. Furat Hussein

Research from French word:
"cerchier" meaning to seek or to search
prefix *"re"* means *"again"* and signifies replication of the search

Research comprises "creative work undertaken on a systematic basis in order to increase the stock of knowledge including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications.

- ❖ It used to confirm facts, reaffirm the results of previous work, solve new or existing problems, support or develop new theories.

-A research project may also be an expansion on past work in the field.

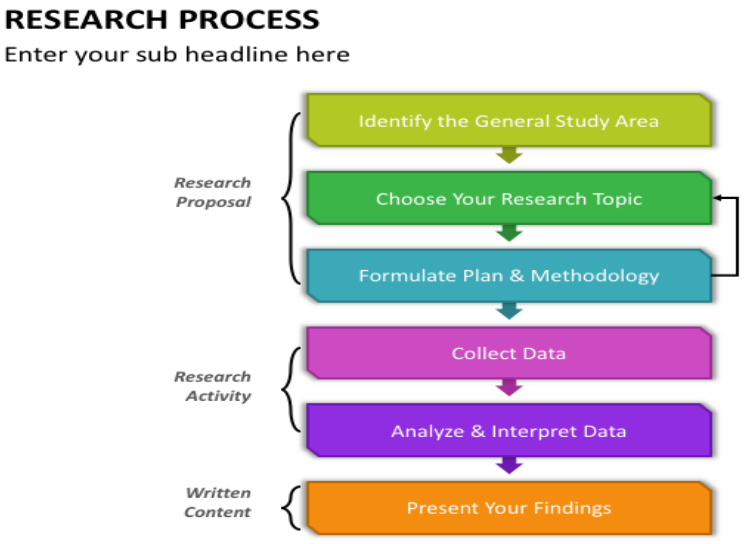
Research

- ✓ Systematic inquiry-------Practice
- ✓ Scientific method--------Education
- ✓ Solve Problems and answer questions----Administration

CHARACTERISTICS OF RESEARCH

- ➢ Systematic- All steps must be inter related- one to another
- ➢ Logical- Agreeing with the principles of logic
- ➢ Empirical-Conclusions should be based on evidences/ observations
- ➢ Objectivity- It must answer the research questions
- ➢ Replicable- reproducible
- ➢ Transmittable
- ➢ Quality control- Accurate measurements

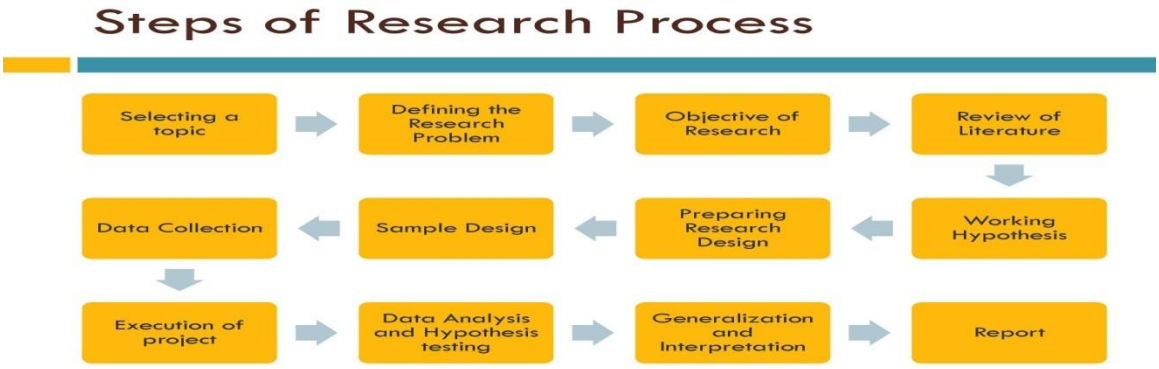
All well designed and conducted research has potential application



DEFINITION OF RESEARCH PROCESS

systematic process of gathering information for the purpose of initiating, modifying or terminating particular investment or group of investments.

- It is a step by step process involves- identifying, locating, assessing & analyzing the research question then developing and expressing your ideas in order to find answers and choosing the tasks and ways in which they are carried out



Research Goals:

- Refine
- Expand
- Develop

Factors Affecting Researcher Decision

- -Researcher beliefs
- -Researcher experience
- -Ethical consideration
- -Resources
- -Ethical issues.
- -Personal motivation.
- -Researcher qualifications.
- -Feasibility of study.
- -Time.
- -Cost.
- -Supplies, equipment.
- -Availability of subject.
- -Administrative support.

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

- **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

Ethical implications for nursing research.

1. Respect for participants.

This key principles is based on the belief that every individual matters and has the right to be treated with respect. Most adult are autonomous: that is , they have the mental ability to deliberate about issues that affect them and to make decision for them.

Nurse researchers have an obligation to obtain informed consent from study participants; such consent constitutes an underlying ethical premise of the research processes.

2. ***adequate information on which to base choices.***

A constant concern for researchers in healthcare is how much information to give people (particularly about unlikely risks) without worrying them unduly. However, the key aspects of participation should be made clear to potential recruits for them to make an informed choice.

3. Understanding and evaluating the issues involved.

While most adults are able to understand a sufficient depth of information or detail to allow for rational decision making. It is possible for this ability to be temporarily or permanently lost through illness, traumaor degenerative processes of aging or disease so, under normal circumstances, potential participants need to know what harm, if any, might result.

4-Vulnerable individuals and groups.

Every recipient of healthcare is in some way vulnerable, but those with more limited ability to act autonomously can also be more vulnerable to the impact of research activity. For example, people with different language, young children are self-evidently vulnerable and minority ethnic populations are sometimes difficult to involve in research especially where there are cultural different.

5. Informed Consent.

- Information must be provided so that subjects can make an informed and educated decision about participation including the following:

a) Nature /purpose of study.
b) Purpose, extent and duration of participation.
c) Type of information that is requested.
d) Use of record.
e) Use of information during and after study.
f) Potential risks and benefits.
g) Freedom to withdraw at any time without recrimination.

- Verbal or written consent must be obtained, provided ethical considerations are observed.

Other persons affected by the subjects participation must be informed about the study and consent obtained e.g. spouse

6. Confidentiality.

- The collection of data, usually about people is the principal strategy of nursing research. often these data include personal, biographical and demographic information which, while essential to the analysis should normally be used for this purpose.
- Information must be handled so that confidentiality and anonymity are maintained.
- Information may not be used or released outside the terms of agreement.

7. Protection of subjects.

- Subjects must be protected from all types of harm.
- Potential benefits must outweigh potential risks.
- When the well-being of the subject conflicts with the integrity of the research a decision must be made that favors the subject.

8. Research setting.

- The investigator must make a specific request to the agency where the research is to be conducted and provide the agency with the knowledge needed to make an informed consent about approval.
- The agency has an obligation to provide a valid system for review.
- All nurses have an obligation to collaborate in the research process with the investigator.
- Investigators have a responsibility to provide adequate information to the staff members involved in or affected by the study.
- Staff members have the right to participate or not and should be informed if this is the condition of employment in a particular agency.
- **Strategies for ethical research.**

1. Balancing risks and benefits.

In some forms of experimental research, the evidence for and against the planned intervention may already be substantial and can be summarized for both approval bodies and research participants. Certainly, obvious risks (such as allergic reaction)and discomfort or pain should be made very clear to all concerned in the context of rationale that includes the likely benefits of the research.

2. Potential benefits from participation in research.

Before any research project is undertaken, the possible benefits should be clear to all concerned. **First,** among these might be a direct improvement in

the health or care of individuals participating in the study. **Second** are longer term benefits for others. Each of these possible benefits must be carefully balanced with any likely disadvantages.

3. Minimizing harm.

Most patient care and treatment contains an element of risk of harm or at the very least, discomfort such as injections or dress painful wound. Research is little different but the level of risk depends on the nature of the research.

The trial of new products may cause harm, such as allergic reaction or worsening of the condition to particular individuals.

Others risk are less obvious such as the possibility of upsetting people during research about sensitive subjects or inadvertently stimulating or revealing cause for conflict between participants.

It is therefore important to be clear about harms and discomforts and to discuss these openly with research participants

Institutional Ethics Committees.

The council feels that clinical research on normal volunteers or on patients whether for therapeutic, non-therapeutic or diagnostic purpose should be undertaken only after an ethical committee of the concerned institute or college has gone thoroughly into the proposed research, assessed carefully the balance between the possible benefit to the patient/volunteer or to society. The potential risk of the individual participating in the trial and on the basis of such an assessment as approved in the project from an ethical point of view.

The ethical committee should meet at least once in every 3 months and review all proposals for clinical research proposed by investigators in the institute. The committee should assess all such proposals and only after approval by the committee should the research be initiated by the investigator and his co-investigators.

The ethics committee should review every proposal for research on human subjects to assess among other considerations whether:

- Voluntary consent of the individual is being obtained.

- The experiments would be conducted in a manner to avoid all unnecessary physical and mental suffering and injury.
- Proper preparations would be made and adequate facilitates provided to protect the experimental subject against even remote possibilities of injury, disability or death.
- Safeguards have been taken to see that the experimentation would be conducted only by scientifically qualified persons who possess the requisite competence, experience and qualities to carry out the research.

Sources of Research Topics

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

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

- 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."*

A research Question/ problem is:

a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and investigation.

A research problem **does not** state how to do something, offer a vague or broad proposition, or present a value question.

Definition of Research problem/ Question:

Is an enigmatic, perplexing or troubling condition.

The purpose of the research is to solve the problem.

Definition of Problem Statement

A problem statement is an expression of a dilemma or disturbing situation that needs investigation .

A problem statement identifies the nature of the problem that is being addressed in the study and typically its context and significance.

EX: Breast cancer is a serious health concern and a major public health challenge in the US. It is accounting for approximately 30% of new cancer cases . A significant number of women will experience side effects associated with cancer and the most commonly reported psychosocial side effect of cancer diagnosis and treatment is depression.

Sources of Research Questions

- Clinical practice
- Educational experience
- Patient feedback
- Professional literature
- Performance improvement/Quality Improvement (QI)

Examples- Research questions

- What is the effect of ___Cigattete smoking _____on_Lung cancer_____?
- What is the effect of _____versus_ on __?
- What is the relationship between ___ and ___?
- Does ___ have a significant effect on__?
- Is there a significant correlation between ___ and ____

The purpose of a problem statement is to:

1-Introduce the reader to the importance of the topic being studied. The reader is oriented to the significance of the study and the research questions or hypotheses to follow.

2-Places the problem into a particular context that defines the parameters of what is to be investigated.

3-Provides the framework for reporting the results and indicates what is probably necessary to conduct the study and explain how the findings will present this information.

What is a research question?

A research question is the question around which you center your research. It should be:

- **clear**: it provides enough specifics that one's audience can easily understand its purpose without needing additional explanation.
- **focused**: it is narrow enough that it can be answered thoroughly in the space the writing task allows.
- **concise**: it is expressed in the fewest possible words.
- **complex**: it is not answerable with a simple "yes" or "no," but rather requires synthesis and analysis of ideas and sources prior to composition of an answer.
- **arguable**: its potential answers are open to debate rather than accepted facts.

Using PICO/T to develop clinical questions:

PICO/T is an acronym that describes the elements of a well-formed clinical question, which is often the essence of a clinical topic.

- Generally, PICO works better with experimental type studies that use hypotheses, but that is not always the case. The structure includes:
  - P — for the 'patient' or 'problem'
  - I — for the 'intervention' of interest
- C — for 'comparison'
- O — for 'outcome'
- T — for 'timeframe' (not always used)

A good PICO question can guide clinical research. Many clinical research studies are designed to answer just this sort of well structured clinical question. For example, you might want to know if paracetamol is more effective than ibuprofen for children experiencing acute pain.

The clinical question in PICO/T format would be something like: 'Among young children experiencing acute pain in hospital, which is the better analgesia to give — paracetamol or ibuprofen?' The 'patient' is young children; the 'intervention' is analgesia usage in acute pain management; the 'comparison' is paracetamol versus ibuprofen, the 'outcome' is which intervention gives better results; there is no 'timeframe' in this PICO question.

The general keywords would be ‘children’, ‘acute pain’, ‘analgesia’, ‘paracetamol’ / ‘ibuprofen’ and ‘outcome.

Example PICO Questions

Intervention/Therapy:

1-In school-age children (P), what is the effect of a school-based physical activity program (I) on a reduction in the incidence of childhood obesity (O) compared with no intervention (C) within a 1 year period (T)?

Etiology:

Are males 50 years of age and older (P) who have a history of 1 year of smoking or less (I) at an increased risk of developing esophageal cancer (O) compared with males age 50 and older (P) who have no smoking history (C)?

Prognosis/Predictions

Does monitoring blood glucose 4 times a day (I) improve blood glucose control (O) in people with Type 1 diabetes (P) during the first six months after being diagnosed with the condition (T)?

Prevention:

For adults over age 65 (P) does a daily 30 minute exercise regimen (I) reduce the future risk of heart attack (O) compared with no exercise regimen (C)?

EX: Does hand washing among healthcare workers reduce hospital acquired infections?

The question above includes the **PICO** elements:

Example:

P (**P**roblem or **P**atient **or P**opulation)
hospital acquired infection
I (intervention/indicator)
hand washing
C (comparison)
no hand washing; other solution; masks
O (outcome of interest)
reduced infection

Conducting literature review

-The innovation of any research question is determined by a thorough literature search.

-Any replication of the study already existing in the literature is not worth repeating as it is.

- Depending upon the research question, sometimes the study can be replicated if your question approaches an existing problem in a refreshing way.

- This can be achieved by using a different populations, different techniques, new conceptual approaches, or linking two different studies in which outcomes did not solve the problem.

The goal of the literature review is to determine what research has been conducted on the topic of interest? and how has it been conducted? and what are the gaps in the knowledge?.
It is recommended to use PubMed, MedlinePlus, CINAHL, or Web of Science as the main search databases, but other databases can be used as well.

What is a "Literature Review?

a literature review surveys scientific articles, books, medical journals, dissertations and other sources […] relevant to a particular issue, area of research, or theory, providing a description, summary, and critical evaluation of each work."

Components of Lit. Review

- Development of the literature review requires four stages:
  - ✓ Problem formulation—which topic or field is being examined and what are its component issues?
  - ✓ Literature search—finding materials relevant to the subject being explored.
  - ✓ Data evaluation—determining which literature makes a significant contribution to the understanding of the topic
  - ✓ Analysis and interpretation—discussing the findings and conclusions of pertinent literature