

Research Process

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Learning objectives

- **Describe the components of research process.**
- **Review basic concept, advantages and characteristics of each step.**

STEPS OF RESEARCH PROCESS

- Define and formulate a research problem.
- Formulate hypotheses, research objectives & variables (1, 2 introduction)
- Review the literature ..concepts and theories, previous research findings
- Selection of appropriate study design
- Sampling of population.
- Collection of data
- Analyse data (test hypothesis if any)
- Interpret and report

Points that need to be considered for
justifying the selected research problem???

Formulating the problem statement

“statement of the problem”

- ***Why is it important to define a clear problem statement?***
 - ❖ Makes it easier to find similar studies from which you can benefit;
 - ❖ **?** is the foundation for the (research objectives, methodology, work plan, etc);
 - ❖ Enables the researcher to systematically point out why the proposed problem should be undertaken and the results will achieve.

Information included in the statement of a problem

- A brief description of certain characteristics about health status.
- A more detailed description about the problem; its size (who is affected, where, since when, etc.)
 - An analysis of the major factors influencing the problem and convincing others that it is insufficient.
 - A brief description of what have been tried, how well, and why further research.
 - A description of the type of information expected to result from the project.
 - If necessary, a short list of definitions of crucial concepts used in the statement of the problem.

Introduction

- *The introduction generally covers the following elements:*
 1. State the research problem and hypothesis, (purpose of the study).
 2. Provide the context and show its necessity and importance with boundaries of your proposal.
 3. Present the rationale of your proposed study.
 4. Briefly describe the major issues and sub-problems.
 5. Identify the key independent and dependent variables of your experiment.
 6. Provide definitions of key concepts. (This is optional.)
 7. Ending with objectives ...

Does a R Problem states how to do something ??

Objectives

- The General objective (Aim)
- Specific objectives.
 - measurable statements.
 - More specific
 - Indicate the variable to be examined..

Example:

“to assess missed opportunities for EPI in Baghdad”??.

the specific objectives could be:

- To find out the magnitude of missed opportunities for children who attend OPD, MCH, CDD, etc. in Baghdad,
- To examine the reasons for children not being immunized while attending the OPD, MCH, CDD, etc. services.

The formulation of objectives will help us to:

- Focus the study (narrowing it down to essentials)
- Avoid collection of data that are not strictly necessary for understanding and solving the identified problem
- Organize the study and selecting suitable design in clearly defined parts

IN OBJECTIVE BE SURE ...

- Cover the problem in a coherent way and in a logical sequence
- Are clearly expressed in measurable terms
- Are realistic
- Meet the purpose of the study
- Use action verbs that are specific enough to be measured

Examples : - to determine - to compare - to verify -
to calculate - to describe - to find out - to establish

NOTES IN OBJECTIVES

- Avoid the non-action verbs; - to appreciate - to understand - to study - to believe
- Avoid stating too many study objectives .
- will be forgotten (should not exceed three).
- On the bases of these specific objectives, the methods, results and discussion sections will be presented.

Literature Review

WHY??

- It prevents you from duplicating other's work.
- It increases your knowledge and refining your "statement of the problem".
- It gives you more confidence
- To be familiar with different research methods

Review of literature should do the following

:

- compare and contrast different authors' views on an issue by summarising what the literature says
- group authors who draw similar conclusion
- note areas in which authors are in disagreement
- criticise aspects of methodology
 - highlight exemplary studies
 - highlight gaps in research
 - show how your study relates to previous studies
 - show how your study relates to the literature in general

Tips for Writing a Literature Survey

1. BE A HUNTER ... Some data bases you can try:

- <http://search.epnet.com>
- www.who.int/hinari,
- <http://www.bioline.org.br/journals>
- <http://www.thesis.patent-invent.com/>
- <http://www.openthesis.org/>

2. Appropriate referencing procedures using the APA style

3. Give emphasis to both positive and negative findings and avoid any distortion of information.

Tips for Writing a Literature Survey

4. Useless references do not mean a better list.
5. Identify which approaches and/or methods you will use and omit in your research.
6. Write in a formal, academic style. (clear and concise) avoiding personal language. Be respectful of others. If you thought something was rubbish, use words such as "inconsistent", "lacking in certain areas" or "based on false assumptions"!
7. Avoid plagiarizing your sources.

4. RESEARCH DESIGNS

- Describe the activities necessary for the completion of your project (work plan).

the method section typically consists of the following sections:

1. Design: What kind of design do you choose?
2. Subjects or participants - What kind of sampling procedure do you use?
3. Instruments - What kind of measuring instruments or questionnaires do you use? Why did you choose them? Are they valid and reliable?
4. Procedure - How do you plan to carry out your study? What activities are involved? How long does it take?
5. The Method should contain sufficient information for the reader to determine whether methodology is sound and to implement.

5. Sampling and data collection

- then the researcher must determine the participants.
- So you need to know the effective techniques of data collection to gather necessary and relevant information with regard to research.
- Collects data, records information,
- In collecting the data, the researcher must decide:
 1. Which data to collect
 2. How to collect the data
 3. Who will collect the data
 4. When to collect the data

7. Data analysis

- Now work on the implications of data you gathered,
- Choose the analytic methods ...
- Does your challenges are over??

8. Interpret and Reporting research findings

- Interpret your results to report the findings.
- Convert these ideas into written text that makes sense to the reader
- A research report discusses questions that remained unanswered and suggest further research in the future .
- You must write your research findings in a proper way ... then how to write an article.



A research design

is a framework of research methods and techniques applied to incorporate different resources in a systematic manner intends to answer RQ efficiently. So it provides insight how to conduct a research using a particular research methodology.

***Most problems in studies are due to
poor design (to less extend poor
analysis)***

***Results from a single study are
seldom definitive (or even clear)***

Functions of RD

1. The RD provides. A BLUEPRINT
2. You can concentrate precisely on objectives ...
pointless research becomes an endless practice so far.
3. RD helps to resolve many shortcomings before the study start through review of literature. So you can decide some possible alternative ways to solve the research problem.

HOW TO CHOOSE STUDY DESIGNS

We select the study design according to:

- ▣ **Nature of the research question**
- ▣ **Objective(s) of the study**
- ▣ **Our resources**
- ▣ **Should know the Types of study design**

The main types are divided as:

Epidemiological studies:

A. Observational:

I. Descriptive studies:

1. Case report & case series
2. Ecological

Cross sectional

II. Analytic studies:

1. Case Control study
2. Cohort study

B. Interventional :

- . Randomized Clinical Trial (RCT)
- . Community trials
- . Field trial.