

Research Methodology

2

Ad-din Akij Medical College

Dr. Muhammod Abdus Sabur

1 April 2024

Steps in Research

1. Problem Identification
2. Identifying Research Topic
3. Literature Review
4. Research Objective identification
5. Identifying types of study
6. Identifying variables
7. Study Population, sampling
8. Data collection
9. Data analysis
10. Research Report preparation

Criteria for selecting a research topic

1. **Relevance:** The topic you choose should be a priority problem:

Questions to be asked include:

- *How large or widespread is the problem?*
- *Who is affected?*
- *How severe is the problem?*

2. **Avoidance of duplication:** Investigate whether the topic has been researched.

If the topic has been researched, the results should be reviewed to explore whether major questions that deserve further investigation remain unanswered.

If not, another topic should be chosen

Criteria for selecting a research topic

- 3. Feasibility:** Consider the complexity of the problem and the resources you will require to carry out the study.

Thought should be given first to personnel, time, equipment and money that are locally available. In situations where the local resources necessary to carry out the project are not sufficient, you might consider sources available at the national level.

- 4. Political acceptability:** It is advisable to research a topic that has the interest and support of the authorities. This will facilitate the smooth conduct of the research and increases the chance that the results of the study will be implemented.

Criteria for selecting a research topic

5. Applicability of possible results and recommendations

Is it likely that the recommendations from the study will be applied? This will depend not only on the blessing of the authorities but also on the availability of resources for implementing the recommendations.

6. Urgency of data needed

How urgently are the results needed for making a decision? Which research should be done first and which can be done late?

7. Ethical acceptability

We should always consider the possibility that we may inflict harm on others while carrying out research. Therefore, it will be useful to review the proposed study.

Research Topic

Clear statement of Research Topic is needed

- Is the foundation for the further development of the research proposal (research objectives, methodology, work plan, etc.);
- Makes it easier to find information and reports of similar studies from which your own study design can benefit;
- Enables the researcher to systematically point out why the proposed research on the problem should be undertaken and what you hope to achieve with the study results.

Examples of Research Topics

- Redesigning Career Path of Public Sector Health Care Providers for Effective Service Delivery in Bangladesh
- Job Mobility and Informality in Urban Bangladesh
- Rapid assessment on knowledge, attitudes, practices (KAP) and health care seeking behaviours on paediatric non-communicable diseases (PNCD)
- Social Behaviour Change Communication (SBCC) for Strengthening the Maternal and Neonatal Health System in Rangpur and Lalmonirhat districts
- Needs Assessment on Justice for Children in Rohingya Camps

Literature Review

- It prevents you from duplicating work that has been done before.
- It increases your knowledge on the problem you want to study and this may assist you in refining your "statement of the problem".
- It gives you confidence why your particular research project is needed.
- To be familiar with different research methods

Sources of Information in LR

- Books in libraries
- Organizations (institutions)
- Published information (books, journals, etc.)
- Unpublished documents (studies in related fields, reports, etc.)
- Computer based literature searches
- Opinions, beliefs of key persons

Research Objectives

Having decided what to study, and knowing why s/he wants to study it, the investigator can now formulate his/her study objectives. Objectives should be closely related to the statement of the problem. For example, if the problem identified is low utilization of health facilities in a upazila or union, the general objective of the study could be to assess the reasons for this low utilization. If we break down this general objective into smaller and logically connected parts, then we get specific objectives.

Redesigning Career Path of Public Sector Health Care Providers for Effective Service Delivery in Bangladesh

General Objective: To develop a (guideline) career plan for medical doctors working in public health sector

Specific Objectives:

- To review the existing career paths of a medical doctor in the public sector
- To know how the career path of a medical doctor in the public sector differs in comparison with other professional sectors
- To redesign the career path of medical doctors based on specialization in public sector
- To propose an organogram in different public sector health care facilities and public health sector administration.

Types of Research Design

1. Prospective
2. Retrospective
3. Descriptive
4. Cross-sectional
5. Longitudinal
6. Case Control/Intervention Control
7. Cohort
8. Experimental
9. Quasi-experimental
10. Case Study

Prospective Research

The term *prospective* usually implies in which a group of subjects are selected in the present and followed into the future.

For example, the effect of exposure to a specific risk factor on the eventual development of a particular disease can be studied. The group of the subjects are then followed over a period of time to determine the incidence rates of the outcomes being studied as they relate to the original factors.

Retrospective Research

The Retrospective Research looks backward in time, usually using records and interviews with patients who already known to have a disease.

Descriptive Research

Descriptive research is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question (what are the characteristics of the population or situation being studied?). The characteristics used to describe the situation or population are usually some kind of categorical scheme also known as descriptive categories.

Cross-sectional Research

In public health research and social science a cross-sectional study (also known as a cross-sectional analysis, transversal study, prevalence study) is a type of observational study that involves the analysis of data collected from a population, or a representative subset, *at one specific point in time*—that is, cross-sectional data.

Longitudinal Research

Longitudinal research is a correlational research/study that involves repeated observations of the same variables over long periods of time, often many decades. It is a type of observational study.

Case control/Intervention control

It is a type of observational study in which two existing groups differing in outcome are identified and compared on the basis of some supposed causal attribute. Case-control studies are often used to identify factors that may contribute to a medical condition by comparing subjects who have that condition/disease (the "cases") with patients who do not have the condition/disease but are otherwise similar (the "controls").

Cohort Research

A cohort study or panel study is a form of longitudinal study (a type of observational study). For instance in medicine, it is an analysis of risk factors and follows a group of people who do not have the disease, and uses correlations to determine the absolute risk of subject contraction. It is one type of clinical study design and should be compared with a cross-sectional study. Cohort studies are largely about the life histories of segments of populations, and the individual people who constitute these segments.

A cohort is a group of people who share a common characteristic or experience within a defined period (e.g., are born, are exposed to a drug or vaccine or pollutant, or undergo a certain medical procedure).

Experimental Research

An experiment is a procedure carried out to verify, refute, or validate a hypothesis.

Experiments provide insight into cause-and-effect by demonstrating what outcome occurs when a particular factor is manipulated.

Experiments vary greatly in goal and scale, but always rely on repeatable procedure and logical analysis of the results.

Quasi-experimental Research

Quasi-experimental research to study individuals within the same environment facing similar circumstances. Although circumstances or environments are the same, the groups or individuals have very different experiences based on a variety of factors. Quasi-experimental research studies these factors and the effects that they have on the outcome.

Case Study

Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more method. The case that is the *subject* of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an *object* — within which the study is conducted and which the case illuminates and explicates.