



RESEARCH METHODOLOGY:

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Outline

- Introduction
- Steps in research
- Carrying out the research
- Writing up
- Study designs

Popular sayings

- I am doing research
- I want to make a discovery
- I am navigating
- I am looking for new things
- I am experimenting

Definition of Research

- **The Advanced Learner's Dictionary of Current English:** “a careful investigation or inquiry specially through search for new facts in any branch of knowledge.”
- Data driven leading to a scientific discussions and conclusion
- It is essentially **an academic evidence based activity**

Research - Why and where

- Something's strikes our mind
- Unusual occurrence ?
- Unusual results ?
- Contributing to body of knowledge
- Breaking new grounds
- Anywhere, Anybody
- More or less academic activities

Steps involved in Research

- Conceptualization
- Planning
- Literature search
- Preparation for data collection
- Data collection and project administration
- Data processing
- Interpretation of findings
- Report writing

Conceptualization

This starts with the **selection of research topic:**

- Define the problem that has led to the topic of your study- nature and size of the problem
- Define the purpose of your research
- **Relevance**

Sources:

- Day to day work
- Your environment
- Patients /Workers/ Community

Conceptual/theoretical framework

- Explain theoretical basis of the topic illustrating the logic behind the various assumptions
 - Where are we
 - What is wrong be being there
 - What can we do
 - Where can we be after then

Examples

Planning for the Research

- Identify problems
- Prioritization of problem if desired
- Develop a problem statement
- Identify research questions
- Formulate study objectives
 - General and specific
- Formulate hypothesis
 - Null
 - Alternative

Literature review

- Has it been done before?
- What methods have worked/ has not worked?
- Standard methods
 - Standard definitions
 - Classification
 - Epidemiology
 - Prevention
 - Local perspectives
 - Global perspectives
 - Policy statements
 - Literature review along the line of your specific objectives

Sources of Literature

- Formal literature
 - Journals, books
 - Report of Expert Committee
 - Conference proceedings
- Electronic lit. search – pub med, medline, cochrane collection
 - Project reports
 - Thesis/ Dissertation

Preparation for data collection

- Visit study site- HF or Community based
 - Permission for study
 - Check type of data available eg in case notes
 - No of patients seen monthly
 - No of admissions

If not adequate for sample size may need to use other centres

Preparation for data collection

- Test equipment to be used- ensure calibration
- Recruitment of interviewers, supervisors, project administrator
- Training of Research Assistants
- Development and Pretest of instruments- e.g. Questionnaire, FGD guide

Your research is only as good as your data collection instrument is, extensive lit. search helps in dev. of good research instruments

Data collection and Project administration

- Performance of procedures
 - No of patients seen and examined, refusals, drop outs
- Quality of data collected
 - Completion of questionnaire etc
- Regular checking and calibration of instruments
 - Standard preparations can be processed at intervals to ensure the same results

Response rate can be improved by making the procedure as painless as possible, flexible schedule, minimum waiting times, persuasion

Data processing

- Data entry
 - Check for errors
 - Coding instructions- suitable for deductions
 - Check data entered
- Data Analysis
 - Frequency tables,
 - Charts
 - statistical tests

Report Writing

- Write up dissertation
- Read over and over
- Let groups read
- Do formatting
- Be familiar with Journals instructions for author
- Publish the findings in very visible
Scholarly Journals



THE WRITE UP

TITLE

- Concise
- Subject of study
- Research design
- Location

INTRODUCTION

- BACKGROUND & RATIONALE
 - Statement of the problem
 - Justification
 - Research questions
- OBJECTIVES -general
 - Specific
- State hypothesis if you wish
 - Hypothesis is a supposition that is tested by collecting data leading to rejection or acceptance
 - Usually stated as the Null and the alternative hypothesis

LITERATURE REVIEW

MATERIALS AND METHODS (with examples)

- Description of study area
 - Give all relevant information
- Study population
 - Reference/target population
 - Study population
- Research design
 - 2 broad type of research design
- Subject selection
 - State eligible criteria
- Sampling technique
 - Probability
 - Non probability

SAMPLING TECHNIQUES

- Simple random
- Systematic
- Stratified
- Cluster
- Multistage

Research tools

- Questionnaires
- Data sheet
- Focus group discussion guide
- Observational check lists
- Clinic record – case notes
- Laboratory reports

SUBJECT SELECTION

- Selection of cases
 - Inclusion criteria
 - Exclusion criteria
- Selection of controls
 - Normal 'healthy' controls
 - Hospital controls
 - Matched for age, sex and socio- economic status
- Ethical issues
 - Informed consent
 - Right to withdraw
 - Reasons for the study
 - Permission for access to medical records
 - Provision of study results

Questionnaire

Layout

- avoid overcrowding
- put question in sections

Types of question

- Close ended
 - Exhaustive
 - mutually exclusive
- Open ended
- Likhert scale

Mode of administration

- Self
 - Interview
 - Phone
-
- Pre-coding
 - Pretesting
 - Translation

PROCEDURES

- Training of interviewers
- Informed consent, incentives
- Pilot study / Pretest
- Sample collection, storage
- Laboratory tests / sample analysis
- Clinical examination
- **DATA MANAGEMENT**
- Collection
- Storage
- Processing
- Analysis – methods
- Evaluation



- **REFERENCE LIST**

- **Vancouver**
- **Harvard/APA**
- **Other variants of these two**

- **APPENDIX**

- **Questionnaire**
- **FGD guide**
- **Maps**
- **etc**

Research design

Two main types

- **OBSERVATIONAL**
 - Descriptive
 - Analytical
- **EXPERIMENTAL**
 - Clinical trials
 - Field trials/ Community trials
 - Natural experiment



Thank For Listening