

# Research: Why? How? & When?

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# Research

- Course of critical study (*Oxford Dictionary*)
- ‘Diligent inquiry or examination of data, reports and observations in search of facts and principles’ (*Mosby 's*)
- ‘The making of observations, proposing a hypothesis to explain them , testing the hypothesis by experiment, and reaching a conclusion’ (*Calnan, 1984*)
- “systematized effort to gain new knowledge” (*Redman and Mory*)

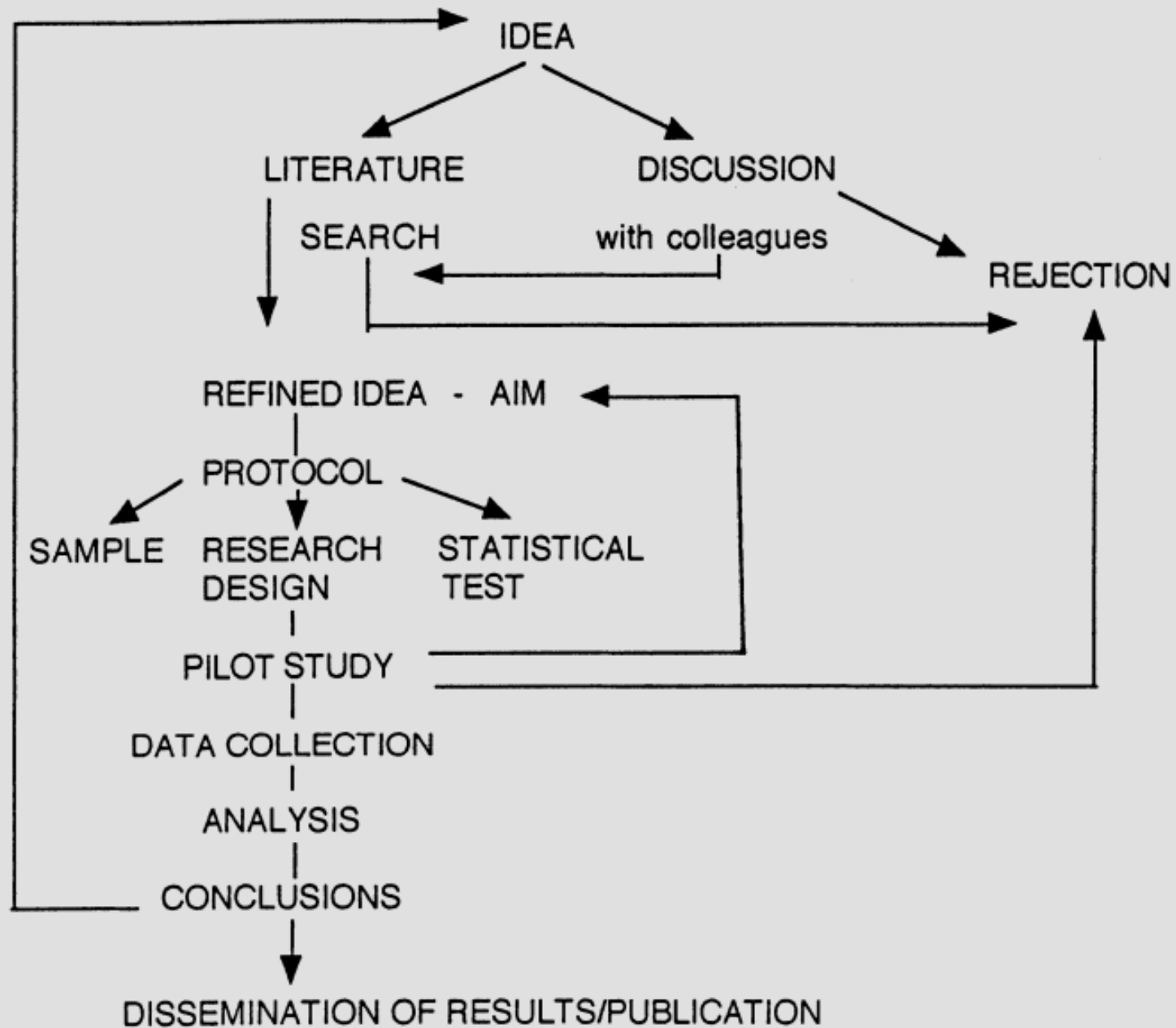
- According to Hockey (1985) the successful researcher has five attributes:
  - curiosity
  - competence
  - integrity
  - common sense
  - a sense of humour
- Research as part of practice is essential, not only for the wellbeing of our patients and clients, but for the survival of the professions

# WHY DO RESEARCH?

- Professional and personal, why we decide to begin research projects
- As a course requirement
- To produce material for **publication**
- To improve prospects for **promotion**
- To specialize and gain **expertise** in an area
- To take up the challenge of **unravelling** an interesting problem
- Research can assist in the **development** of an enquiring attitude in all aspects of work
- Help to evaluate the work of others in a critical and constructive way

# How to do Research?

- The only way to learn to write is by writing , and the only way to learn research is by **doing it** one self



# When to do Research?

- As part of coursework, thesis, or dissertation requirements
- When launching new products, improving services, or making decisions
- Pursuing personal interests or hobbies that require investigation
- Identifying and addressing specific challenges or exploring new ideas

# Purpose

- Discover answers to questions through the application of scientific procedures
- Find out the truth which is hidden and which has not been discovered as yet
- To gain familiarity with a phenomenon or to achieve new insights into it (*exploratory or formulative research*)
- To portray accurately the characteristics of a particular individual, situation or a group (*descriptive research*)
- To determine the frequency with which something occurs or with which it is associated with something else (*diagnostic research*)
- To test a hypothesis of a causal relationship between variables (*hypothesis-testing research*)



# Approaches

- Broadly categorized into *quantitative* & *qualitative* approaches

## Quantitative approaches

- Generation of data in quantitative form which can be subjected to rigorous quantitative analysis
- Involves the collection and analysis of numerical data to identify patterns, test hypotheses, and make prediction
- *Surveys, experiments, longitudinal studies*
- Statistical techniques are used to analyze the data, such as descriptive statistics and inferential statistics

# Examples

- **Prevalence of Antimicrobial Resistance in Clinical Isolates**
  - **Objective:** To determine the prevalence of antimicrobial resistance in bacterial isolates obtained from a hospital's clinical laboratory
  - **Method:** *Cross-sectional study*
  - **Data Collection:** Analyze the antibiotic susceptibility profiles of bacterial isolates collected over a specified period
- **The Effect of a High-Protein Diet on Weight Loss in Obese Adults**
  - **Objective:** To assess the impact of a high-protein diet on weight loss compared to a standard diet in obese adults
  - **Method:** *Randomized controlled trial (RCT)*
  - **Data Collection:** Randomly assign participants to either a high-protein diet group or a standard diet group, and measure weight, body mass index (BMI), and body fat percentage before and after the intervention

- **The Efficacy of Physiotherapy Interventions in Reducing Chronic Lower Back Pain**
  - **Objective:** To compare the efficacy of different physiotherapy interventions in reducing pain intensity in patients with chronic lower back pain
  - **Method:** *Randomized controlled trial (RCT)*
  - **Data Collection:** Randomly assign patients to receive one of several interventions (e.g., manual therapy, exercise therapy, or a control group receiving standard care). Measure pain intensity using a standardized pain scale (e.g., Visual Analogue Scale) at baseline, mid-treatment, and post-treatment

## Qualitative approaches

- Subjective assessment of attitudes, opinions and behaviour
- Approach to generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis
- Focuses on understanding phenomena from a **subjective perspective**, emphasizing the **meanings**, **experiences**, and **interpretations** of participants
- *Interviews, focus groups, Phenomenological, case studies*
- Statistical analysis, Involves thematic analysis, content analysis, or narrative analysis to identify patterns and themes in the data

# Examples

- **Understanding the Perceptions of Quality Control Measures in Clinical Laboratories**
  - **Objective:** To explore how laboratory professionals perceive the importance and implementation of quality control measures in clinical settings
  - **Method:** Focus groups
  - **Data Collection:** Conduct focus group discussions with laboratory staff, including technicians, technologists, and managers
- **Barriers to Healthy Eating Among University Students**
  - **Objective:** To understand the factors that prevent university students from maintaining a healthy diet
  - **Method:** In-depth interviews
  - **Data Collection:** Conduct interviews with students from various academic programs

- **Patients' Experiences of Living with Chronic Pain and Seeking Physiotherapy**

- **Objective:** To gain insight into the lived experiences of patients dealing with chronic pain and their journey in seeking physiotherapy treatment
- **Method:** Phenomenological study
- **Data Collection:** Conduct in-depth interviews with patients suffering from chronic pain who have received physiotherapy treatment

To be continued...