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Medical Research



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INTRODUCTION

1. DEFINITION OF RESEARCH

- Research is defined as a **planned course of action** that aims to understand a phenomenon or find answers to research questions (Johnston, 2010).
- All research (Quantitative and Qualitative):
- Seeks answers to **questions**.
- Utilised a **predetermined group of procedures (methods)** to get these answers.
- Collects **data**.
- Generates **results** that were not determined in advance.
- Generates results that are often applicable beyond the immediate boundaries of the study.

2. RESEARCH DESIGN

- The **blueprint** for performing the research.
- The **scheme or action plan** for achieving the objectives of the research.
- The **logical sequence** that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions.
- It includes how the study will be conducted, type of **data**, the means (tools and techniques) to be used to obtain these data, sample size, and research setting.

3. RESEARCH METHODOLOGY AND METHODS

- Research **Methodology**: The pathway or approach of action that justifies the selection and employment of certain methods (Adams et al., 2007).
- Research **Methods**: The means of execution of the research (Adams et al., 2007).

4. WHAT IS QUALITATIVE RESEARCH?

- Qualitative research is linked to the “**Quality**” **concept** (What, How, When, Where, and Why).
- It refers to the **meanings, concepts, definitions, characteristics, symbols, and descriptions** of things (Lune & Berg, 2016).
- Provides a **holistic view** for the social phenomenon.
- Answers “**how**” **questions** rather than “how many”: It looks at how X varies in different circumstances rather than how big X is (Anderson, 2010).
- Seeks to understand a research problem from the perspective of the **local population** it involves.
- Effective in obtaining **culturally specific information** about values, opinions, behaviours, and social contexts.
- Offers unique opportunities for understanding **complex situations** (Austin & Sutton, 2014).
- Findings or theory may only be applicable to a **similar group** (Auerbach & Silverstein, 2003).
- Studies phenomena in the context of the **culture or the setting** in which it has been studied (naturalistic) (Al-Busaidi, 2008).
- Associated with adjectives like: **Rich, Deep, and Thick**.

5. THE QUALITATIVE PERSPECTIVES

1. • The Researcher’s Goal: “I want to understand the **world from your point of view**. I want to know what you know in the way you know it. I want to understand the **meaning of your experience**, to walk in your shoes, to feel things as you feel them.”

- Key Characteristic: It enables a researcher to understand the **social phenomenon** and the meanings attributed to them by participants in the social setting or context in which they occur.
- The Aim: To identify the **meaning of a social phenomenon** the way the participants experience it and also perceive it (According to Mavereid, 2001).

6. CHARACTERISTICS OF QUALITATIVE RESEARCH

- Focus: Focused on **process, understanding, and meaning**.
- Researcher's Role: The researcher is the **primary instrument** for data collection and analysis.
- Approach: The process is **inductive**.
- Outcome: The product is **richly descriptive**.

7. FOCUS ON MEANING AND UNDERSTANDING

- Core Interest: How people interpret their **experiences**, construct their worlds, and what meaning they attribute to those experiences.
- Goal (Patton, 1985): To understand the **uniqueness of a particular context** and the interactions within it. It does not necessarily attempt to predict the future, but to understand the nature of the setting and what it means for participants.
- Analysis: Strives for **depth of understanding** to communicate the setting faithfully.
- Perspectives:
 - **Emic (Insider's perspective):** Understanding the phenomenon from the participants' view (Qualitative).
 - **Etic (Outsider's view):** Corresponds with quantitative research.

8. RESEARCHER AS PRIMARY INSTRUMENT

- Responsiveness: As a human instrument, the researcher is **immediately responsive and adaptive** during data collection.
- Advantages:
 - Can expand understanding through both **verbal and nonverbal communication**.
 - Processes information **immediately**.
 - Clarifies, summarizes, and checks **accuracy with respondents**.
 - Explores **unusual or unanticipated responses**.

9. THE INDUCTIVE PROCESS

2. • Purpose: Often undertaken when there is a **lack of existing theory** or when current theories fail to explain a phenomenon.
 - Inductive vs. Deductive:



- **Inductive (Qualitative):** Gathering data to build concepts, hypotheses, or theories.
- **Deductive (Quantitative):** Testing existing hypotheses.
- Method: Moving from the **particular to the general** by combining bits of information (interviews, observations, documents) into larger themes.

10. MAJOR TYPES OF QUALITATIVE RESEARCH

- Ethnography: Studying an **intact cultural group** in a natural setting over a prolonged period. It is flexible and responds to lived realities in the field.
- Case Study: In-depth exploration of a **program, event, process, or individual(s)**.

- Narrative Research: Studying the lives of individuals by asking them to provide **stories about their experiences**.
- Phenomenology: Identifying the **essence of human experiences** regarding a phenomenon. It focuses on “lived experiences” and the meanings participants attribute to them.
- Grounded Theory: Aiming to derive a **general, abstract theory of a process or interaction**, “grounded” in the views of the participants.

11. DATA COLLECTION METHODS

1. Observations: Taking **field notes** on behaviors and activities at the research site in an unstructured or semi-structured way.
2. Interviews:
 - Modes: **Face-to-face, telephone, or Focus Groups (6–8 people)**.
 - Nature: Uses few, **open-ended questions** to elicit views and opinions.
3. Document Review/Analysis: Collecting **public or private documents** (newspapers, reports, letters, emails).

12. DATA ANALYSIS AND INTERPRETATION

- Ongoing Process: Analysis is not a separate phase; it involves **continual reflection**, asking analytic questions, and writing memos during the study.
- Thick Description: The first step is to develop **thorough and comprehensive descriptions** of the phenomenon.

13. QUALITATIVE RESEARCH PROCESS

3. Select Topic & Identify Problem.
4. Justify Significance of the study.
5. Design Study (Note: Designs are **emergent**; they can shift once data collection begins).
6. Identify & Gain Access to subjects.

7. Select Subjects & Data: Often uses **Purposive Sampling**.

8. Analyze Data.

9. Interpret Results & Conclusions.

14. KEY APPROACHES

- No “Right” Way: The approach depends on the specific **research goals**.
- Emergent Design: The initial plan is not tightly prescribed and may **change after entering the field**.

15. WHAT QUESTIONS CAN QUALITATIVE RESEARCH ANSWER?

- Qualitative research is best suited for questions focusing on:
 - **Lived Experience**: Understanding how individuals experience specific events.
 - **Insider Perspective (Emic)**: Interpreting data from the viewpoint of the population under study.
 - **Context and Meaning**: Focusing on direct interaction and behavior within a real-world setting rather than measurement.

16. QUALITATIVE SAMPLING

- Sampling is usually **non-probability**, focusing on accessibility and specific characteristics:
 - **Convenience Sampling**: Selecting participants who are readily available or accessible.
 - **Purposive Sampling**: Selecting accessible participants who specifically possess the qualities or experiences required for the study.

17. RIGOUR IN QUALITATIVE RESEARCH

- **Rigour** refers to the quality of the research. Strategies to achieve it include:
 1. Clear descriptions of the sample.
 2. Justification of how and why the sample was chosen.
 3. Engagement with other researchers for data coding/discussion.
 4. Using direct **quotations** to represent findings.
 5. Assessing researcher assumptions.

6. **Peer review** of findings.
7. Clearly defined study design.
8. **Triangulation**: Examining the phenomenon from different angles (methods, researchers, or measures).

18. TRUSTWORTHINESS

- Trustworthiness assesses the overall quality and worth of the study via four components:
 1. **Credibility** (vs. Internal Validity): Confidence that the findings are a correct interpretation of the participants' original data.
 2. **Transferability** (vs. External Validity): The extent to which findings or theoretical positions can be applied to other contexts or groups.
 3. **Dependability** (vs. Reliability): Whether the findings could be repeated if another researcher conducted the same study using the same methods.
 4. **Confirmability** (vs. Objectivity): Ensuring findings represent the participants' views rather than the researcher's preferences.

19. FEASIBILITY

- Feasibility must be considered early to ensure the study can be successfully completed. Key factors include:
 - **Resources**: Staffing for data collection/analysis and budget constraints.
 - **Time Frames**: Ensuring the workload (e.g., survey length or meeting duration) is realistic for participants.
 - **Scope**: Refining the research question to a focused, manageable topic.
 - **Expertise**: Considering the limitations of the researcher's own skills.

20. LIMITATIONS

- **Limited Generalizability**: The main limitation is that findings cannot be extended to wider populations with the same certainty as quantitative research.

21. CHECK YOUR UNDERSTANDING

- Question: Which of the following is true about qualitative research?
- A. Data are usually collected in a laboratory setting.
- **B. Focus is on studying the “whole”.**
- C. Focus is on generalisation.
- D. Qualitative research is deductive.
- Answer: **B. Qualitative research focuses on understanding the whole, consistent with a holistic**

Rigor and Quality in Research Methods

Quantitative

- › Internal Validity
- › External Validity
- › Reliability
- › Objectivity

Qualitative

- › Credibility (truth value)
- › Transferability (applicability)
- › Dependability (consistency)
- › Confirmability (neutrality)

Qualitative vs. Quantitative Research

	Qualitative Research	Quantitative Research
Purpose	Discover ideas; develop a detailed and in-depth understanding of a phenomenon	Test hypotheses or specific research questions
Approach	Observe and interpret	Measure and test
Data Collection Methods	Unstructured; free- forms	Structured; response categories provided
Researcher Independence	Researcher is intimately involved; results are subjective	Researcher is uninvolved; results are objective
Sample	Small samples – often natural setting	Large samples to allow generalization
Most often used in:	Exploratory research designs	Descriptive and causal research designs

Criterion	Strategy employed
Credibility	<ul style="list-style-type: none"> • Prolonged engagement • Peer briefing • Triangulation • Member checks
Transferability	<ul style="list-style-type: none"> • Providing thick description • Purposive sampling
Dependability	<ul style="list-style-type: none"> • Create an audit trail • Triangulation
Confirmability	<ul style="list-style-type: none"> • Triangulation • Practise reflexivity

Qualitative research	Quantitative research
Inductive	Deductive
Subjective	Objective
Impressionistic	Conclusive
Holistic, interdependent system	Independent and dependent variables
Purposeful, key informants	Random, probabilistic sample
Not focused on generalization	Focused on generalization
Aims at understanding, new perspectives	Aims at truth, scientific acceptance
Case studies, content and pattern analysis	Statistical analysis
Focus on words	Focus on numbers
Probing	Counting

Source: Based on Patton (1990) and Chisnall (2001)

Table 1. Qualitative versus quantitative research methods