

RESEARCH DEVELOPMENT & MANAGEMENT

# Focusing the research topic

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# LESSON

- ★ Variable
- ★ Purpose statement
- ★ Research questions
- ★ Hypotheses
- ★ Study objectives

# 1. VARIABLES

## What is a variable?

A **variable** is a characteristic of phenomenon that can take on different values

A **variable** is a characteristic or attribute of an individual or a population that (a) researchers can measure or observe and (b) varies among individuals or populations studied

# variables

## Numeric

Age

Blood  
pressure

Number of  
parasites

## Non- numeric

Sex

Color of  
urine

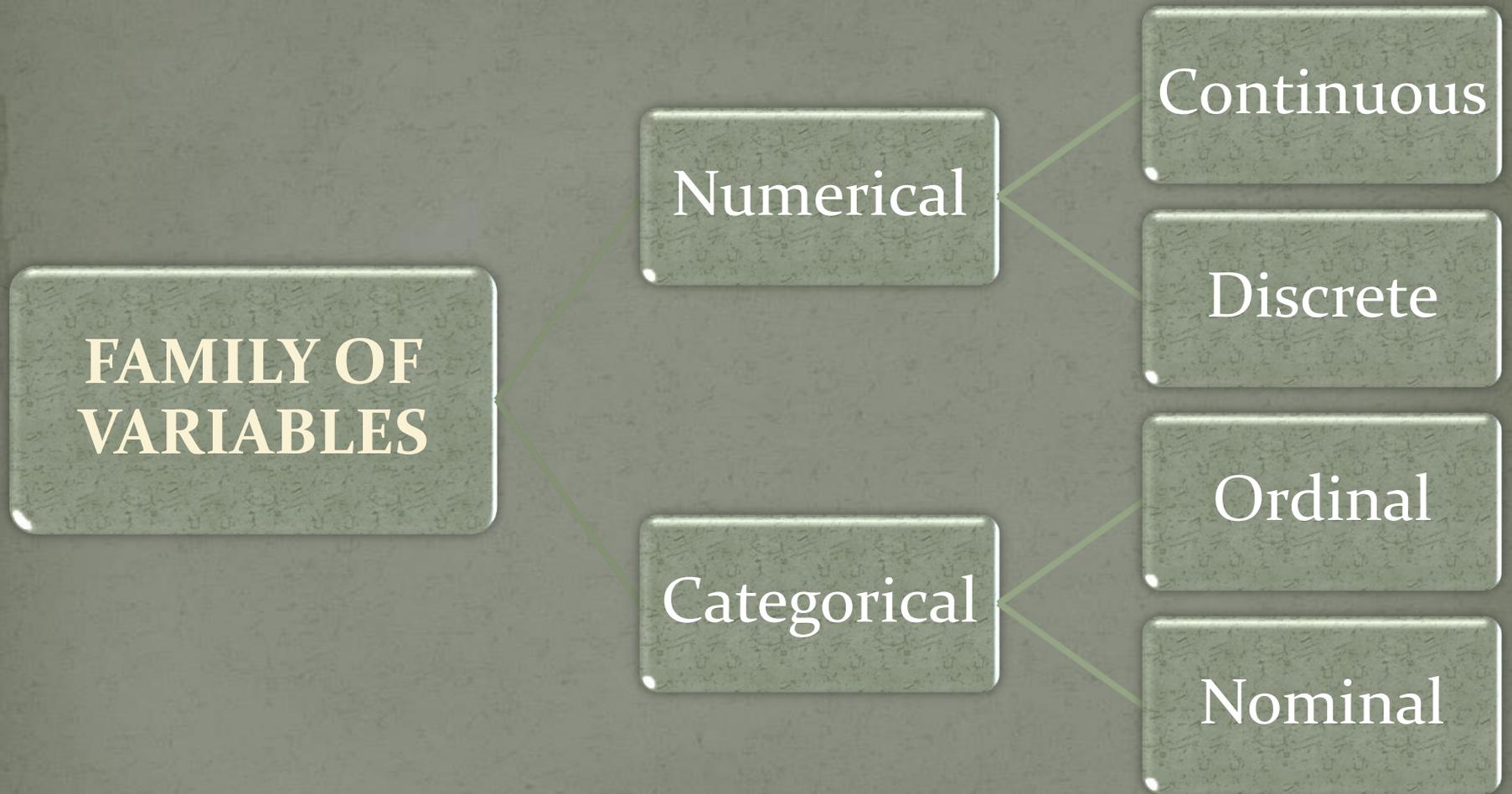
Outcome  
of disease

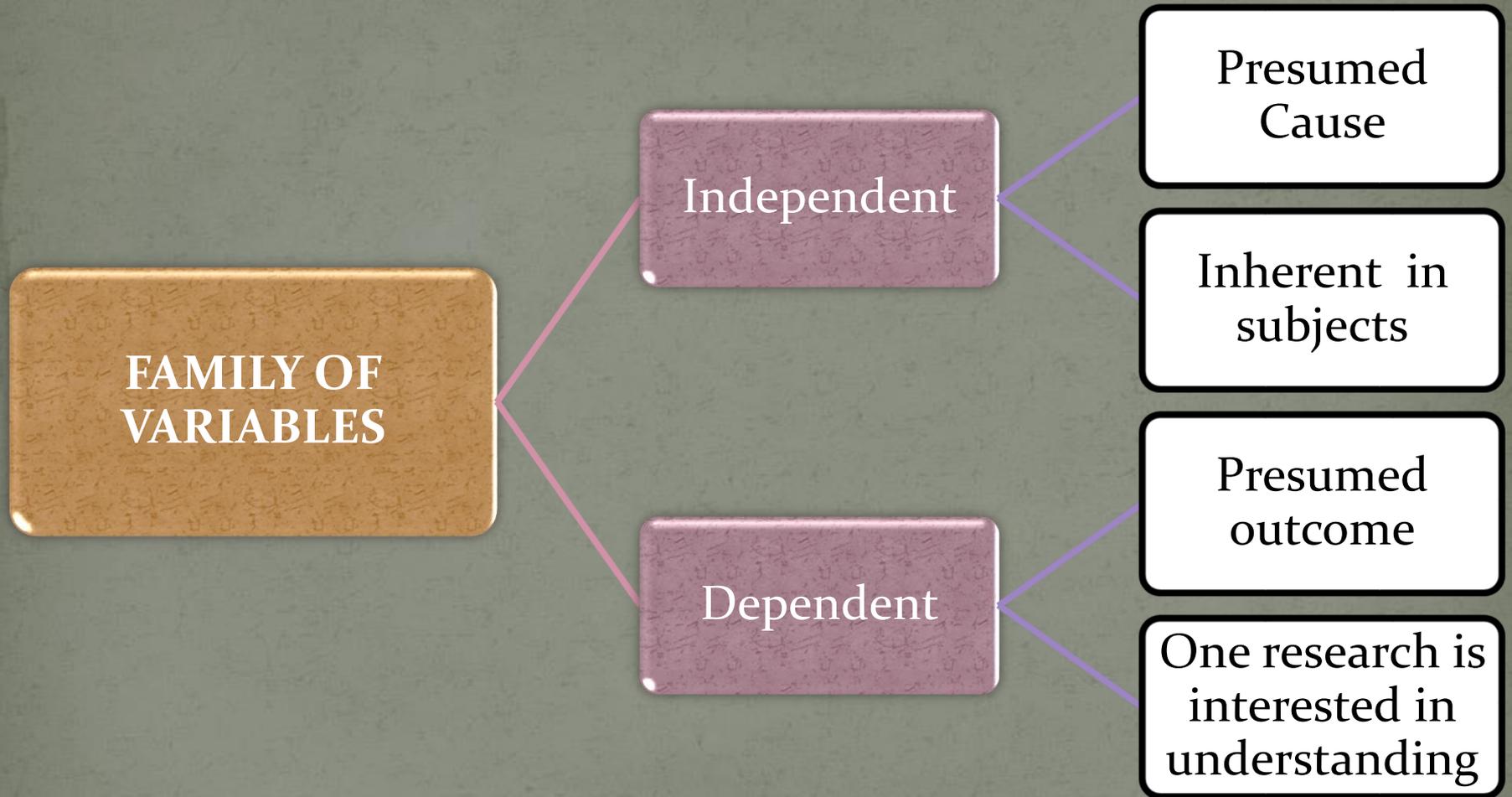
# Variables and research

Research is based on variation of phenomenon

Understand these variations

Correlations between variables





# FAMILY OF VARIABLES

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graph LR; A[FAMILY OF VARIABLES] --> B[Active]; A --> C[Attributable];
```

Active

Attributable

end

# RESEARCH DIRECTION

# Research direction

## Distinguishing among Various Forms of Direction in Research

	Purpose Statement	Research Questions	Research Hypotheses	Research Objectives
Intent	Overall direction	Raise questions to be answered	Make prediction about expectations	State goals to be accomplished
Form	One or more sentences	One or more questions	One or more statements	One or more objectives
Use	Quantitative and qualitative research	Quantitative and qualitative research	Quantitative research	Typically quantitative research
Placement	End of introduction	End of introduction, after literature review, or in a separate section of the study		

## 2. THE PURPOSE STATEMENT

A **quantitative purpose statement** identifies the variables, their relationship, and the participants and site for research.

- ◆ A single sentence.
- ◆ If you'll use a theory, state theory.
- ◆ Three options exist for using variables in this statement:
  - relate two or more variables
  - compare a variable composed of two or more groups in terms of the dependent variable
  - describe one variable.
- ◆ State the independent and dependent variables

# A qualitative purpose statement

- A **purpose statement in qualitative research** indicates the intent to **explore or understand** the **central phenomenon** with specific individuals at a certain research site.
- As you design this statement, be sure to:
  - Consider mentioning that the study is “qualitative”.
  - Indicate the type of research design you plan to use.
  - State the central phenomenon you plan to explore.
  - Use words that convey intent about the exploration, such as *explore*, *discover*, *understand*, and *describe*.
  - Mention the participants in the study.
  - Refer to the research site where you will study the participants.

# Example templates for purpose statement

## Quantitative

The purpose of this study is to test (the theory) by relating (the independent variable) to (the dependent variable) for (participants) at (the research site).

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## Qualitative

The purpose of this qualitative study will be to (explore/discover/understand/describe) (the central phenomenon) for (participants) at (research site).

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# 3. RESEARCH QUESTIONS

RESEARCH  
QUESTIONS  
FOR  
QUANTITATIVE  
STUDIES

Research questions  
[Answers]

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Hypotheses  
[Predictions]

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Purpose of QT  
study is focused by:

Objectives  
[Goals]

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# Qualitative research questions

Research questions or objective

Questions assume two forms

- The central question
- Associated sub-questions

# *Open discussion*

**Types of questions for quantitative  
research**

For each of the research questions listed below, state the following:

1. The type of study to be used (Descriptive/analytical).
2. The type of question it is, based on the type of study to be used.
3. The type of variable the research question is focussing on.

- A. How do patients rate nursing care at the ART clinic in UTH?
- B. What are the patient's compliance levels to ART?
- C. What are the levels of compliance to ART of the parents whose under-five children are ART defaulters?
- D. Does the patient's rating of nursing care at the ART clinic affect ART compliance levels?

# Types of QT research questions

## a) Descriptive questions

How do patients rate nursing care at the ART clinic in UTH?

(A descriptive question focussed on the independent variable)

What are the patient's compliance levels to ART?

(A descriptive question focused on dependent variable)

What are the levels of compliance to ART of the parents whose under-five children are ART defaulters?

(A descriptive question focussed on another control variable, compliance to ART of the parents)

# Types of QT research questions

## b) Inferential questions

Does the patient's rating of nursing care at the ART clinic affect ART compliance levels?

(An inferential question relating the independent and the dependent variables)

# General guidelines on qualitative research questions

1 to 2 central questions

3 to 5 sub-questions

# General guidelines on qualitative research questions

Central question & qualitative strategy of inquiry

Discover (e.g. grounded theory)

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Seek to understand (ethnography)

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Explore (case study)

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Describe experiences (phenomenology)

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Report stories (narrative research)

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# *Example of QL research questions*

How and to what extent do community members perceive under-five children to be at risk of worm infections?

How do community members view Community directed treatment for worm infections?

- What experiences have community members had with community directed treatment programs?

- How do they describe the positive and negative aspect of community directed treatment programs?

- Under what circumstances do the community members believe community directed treatment is an appropriate choice?

- Who decisions do mothers believe it is to use community directed treatment for their under-five children?

# Hypotheses

# 4.HYPOTHESES

■ Tentative answers or solutions to research questions.

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Tentative prediction or explanation of relationship between two variables

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# Characteristics of workable hypothesis

Predicted relationship

justifiable rationale

Testability

Simplicity

# *Types of Hypotheses*

Simple vs. Complex

Directional vs. non-directional

Descriptive vs. Relational

Null vs. alternative

The purpose of hypothesis is to guide the research process.

Study design

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Data collection and analysis

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Interpretation

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# Study Objectives

# 4. Study Objectives

Summarise  
the goal of  
study.

Closely related to the statement of  
the problem, and hypotheses

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Types

→ General

→ Specific

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# Objective

## General Objective

- Higher goal
  - Intended accomplishment
  - Intended contribution

## Specific Objectives

- Specific experiments & accomplishment
- Address components of research problem

# *Example*

## Study

- A study into the cost and quality of Community home-based care (CBHC) for HIV/AIDS patients and their communities in Malawi

## General objective

- To explore to what extent CHBC projects in Malawi provide adequate, affordable and sustainable care of good quality to people with HIV/AIDS, and how these services can be improved.

## Specific objectives

To identify the economic, psychosocial, nursing care and other needs of patients and their families affected by AIDS.

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To determine the extent to which formal and informal support systems address these needs from the viewpoint of service providers & patients.

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To determine the economic costs of CHBC to the patient and family as well as to the formal CHBC programmes themselves.

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How  
should we  
state our  
objectives?

Cover aspects of the problem and its contributing factors

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Coherent way and in a logical sequence

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Clearly expressed (in measurable terms for QT studies)

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Are realistic considering local conditions

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Meet the purpose of the study

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Use action verbs that are specific enough (to be measured)

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# CONCLUSION

*Purpose statements, research questions, and hypotheses provide critical information to readers about the direction of a research study.*

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*They also raise questions that the research will answer through the data collection process.*

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*As such, they deserve special attention.*

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The end