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How to Approach a Study: Concepts, Hypotheses, and Theoretical Frameworks

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The Problem

- A problem is observed
  - For example, older adolescents have the highest rates of untreated sexually transmitted disease
  - They use medical care less than any other group
Specifying the Problem

- Why do some adolescents obtain inadequate medical care?
- What system factors prevent adolescents from getting medical care?
- Does a system of school health clinics improve rate of treatment?
Developing a Conceptual Framework for the Problem

- First, some definitions
- Concept
- Construct variables
- Conceptual framework
- Theory/ hypothesis
- Model
- Variables
Concept

- The building blocks of theory
- An idea about the problem
  - Example—adolescents use less health care
  - This may contribute to their higher rate of sexually transmitted disease
Developing a Conceptual Framework: Summary

- The framework states the interrelationships among the variables in the model
- The framework informs the:
  - Study design
  - Sample selection
  - Data collection strategies
- The framework determines final interpretation of results
Conceptual Framework

Personal Factors
- Adolescent demographics
- Adolescent behavior
- Social milieu

System Factors
- Access to care

Outcome of Interest
- Higher rate of occurrence of sexually transmitted diseases
Theory

- A theory is a system of concepts that are interrelated in ways that are clearly described
- A theory suggests the causal mechanisms that lead to specific outcomes
- A theory allows explanation and prediction of phenomena
Hypothesis

- A formal statement of your theory
  - It should identify variables that are capable of observation
  - The relationship among the variables must be explained or predicted
  - The theory must be testable
  - Alternative hypotheses should be explored
Modeling Your Hypothesis

- Gives a visual picture so that the hypothesized relationships among variables can be seen
- Identifies all of the potential variables in your problem
- Has a dynamic aspect to it, showing direction of relationships
Variables

- These are the operational pieces that you believe are a part of the problem or that contribute to the conceptual framework.
- It is important to specify all variables that may contribute to the problem.
- You should be able to measure these variables or note the limits to your study.
More on Variables

- Dependent (or outcome) variable
  - Your major interest in the study—what happens?
- Independent (or causal) variable
  - The program, intervention, or factor that you believe leads to the outcome
- Intervening (or modifying) variable
  - Doesn’t “cause” the outcome but may modify it
Drawing a Model to Explore Relationships

Three Major Components

Independent  Intervening  Dependent
Add Variables Under Each Component

Three Major Components

Independent
The Program: yes / no

Intervening
Age
Gender

Dependent
Has disease: yes/ no

School Achievement

Other Intervening factors
Other Intervening Variables that May Modify Outcome

- Intervening
  - Sexual activity
  - Number of partners
  - Awareness of STD
  - Social network (peer pressure)
  - Access to clinic
School Health Clinic

- Does the student have easy and comfortable access to the school health clinic?
- *Intervening* Dependence
  - Geographic
  - Privacy
  - Hours of operation
  - Relationship with providers
Operationalize the Variables

- Define all variables in measurable terms
  - Sociodemographics will be straightforward
  - Attitudinal variables will be difficult to measure
  - Can’t have too many missing values
- Choose accepted measurement instruments whenever available
- Select reliable and valid measures
Access to Medical Care Model

- Predisposing
  - Age/cognitive development
  - Male gender
  - Past experience with illness
  - Poor general health knowledge (about susceptibility, severity, treatments)
  - Family norms regarding medical help
  - Peer values regarding getting help from doctor/nurse
Enabling Variables

- Access to program
  - Geographic
- Cost
- Knowledge of program
Need for Care Variables

- Presence of disease
  - Severity
  - Discomfort
  - Awareness of disease
  - Complications of disease