HSCC 470
Research Methods and Data Analysis in Health Sciences

Reliability and Validity

Unit Objectives

Upon completion of this unit, the student will be able to:

- Define internal validity.
- List and explain the major intrinsic and extrinsic threats to internal validity.
- Define external validity.
- Describe major threats to external validity.
- Define content validity.
- Define empirical validity.
- Define construct validity.
- Explain reliability.
- Describe techniques for ensuring valid and reliable research.

Internal Validity (control)

- **Did the independent variable, in fact, cause the change in the dependent variable?**

Internal Validity (continued)

- **Threats to internal validity**
  - Extrinsic factors
    - Sampling errors
  - Intrinsic factors
    - History
    - Maturation
    - Experimental mortality
    - Instrumentation
    - Testing
    - Regression artifact
    - Interactions with selection
      - Selection-history
      - Selection-maturation

External Validity (generalizability)

- **If the independent variable is manipulated in a similar way in the general population, will we get the same results as observed in our experimental group?**
  - Representativeness of the sample
  - Reactive arrangements

Content Validity

- **Face validity**

- **Sampling validity**

Empirical Validity

- **Predictive validity**

Construct Validity

- **What is the instrument actually measuring?**

Reliability

- **Will my instrument always give me the same result under similar circumstances?**
  - Test-retest method
  - Parallel-forms technique
  - Split-half technique
  - Inter-observer technique