HSCC 470
Research Methods and Data Analysis in the Health Sciences

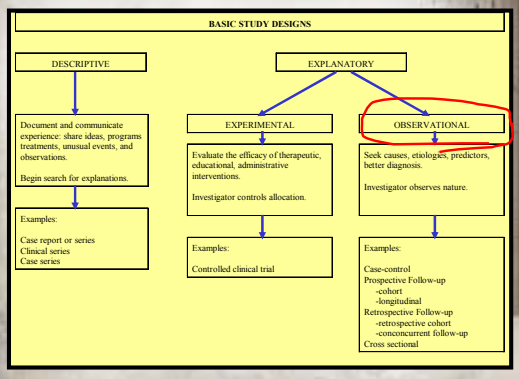
Research Designs III:
Correlational and Quasi-experimental Designs

Unit Objectives

- **Upon completion of this unit, the student will be able to:**
  - List the common characteristics of correlational and quasi-experimental designs.
  - Describe the structure, advantages and disadvantages of the following research designs:
    - Correlational (cross-sectional) design
    - Contrasted group design
    - Non-equivalent control group design
    - Time series design
    - Control-series design

Unit Objectives continued

- **Describe the structure, advantages and disadvantages of the following pre-experimental designs:**
  - One-shot case study design
  - One-group pretest-posttest design



Characteristics of Correlational and Quasi-experimental Designs

- **Used when true experimentation is not possible or is impractical.**
- **Weaker on internal validity than experimental designs.**
- **No intervention.**

Correlational (cross-sectional) Design

Property of interest	After
Yes	O_1
No	O_2

- **Typical design of survey research**
- **Property (e.g., gender, education, health status) cannot be manipulated as in experimentation**
- **With statistical techniques (e.g., cross-tabulation), similar to post-test only**
- **No control, no causal inference, poor internal validity**
- **Use of random samples improves external validity**

Quasi-experimental designs

O_1
O_2
O_3
.
.
O_k

- **Contrasted group design**
  - Each group is homogenous
  - Allows for comparisons among groups

Quasi-experimental designs continued

- **Non-equivalent control group**

Pretest	Intervention	Post-test
O_1	X	O_2
O_3		O_4

- Similar to experimental design except for control group
- Must still compare groups on several variables for equivalency
- Similar benefits and limitations of experimental design

Quasi-experimental designs continued

- **Time Series Design**

O_1	O_2	O_3	X	O_4	O_5	O_6

- **No comparison group**
- **Group serves as its own control**
- **Can separate effects of pretest from effect of independent variable**
- **Can determine changes in effect over time**

Quasi-experimental designs continued

- **Control-series Design**

Experimental	O_1	O_2	O_3	X	O_4	O_5	O_6
Control	O_7	O_8	O_9		O_{10}	O_{11}	O_{12}

- **Uses non-equivalent control group**
- **Controls for testing effects and effects of other threats to internal validity.**

Pre-experimental Designs

- **No control group**
- **No randomization**
- **Weakest research designs**
  - One-shot case study design
    - Single observation of a single group

Intervention	
X	**O1**

  - One-group pretest-posttest design

	Intervention	
O_1	**X**	O_2