Chapter 10  Rubin and Babbie (2008)
Causal Inference and Correlational Design

There are times in human service settings when a social worker may want to know whether a particular intervention caused a specific outcome.

There are three criteria for establishing causation:
1. the cause must precede the effect
2. the two variables in a causal relationship must be empirically correlated with one another (a change in one variable is accompanied by a change in the other variable)
3. the empirical correlation between two variables cannot be explained away as being due to the influence of some third variable that relates to both of them

Internal validity refers to the confidence we have that the results of a study accurately depict whether one variable is or is not a cause of another.

Threats to internal validity refer to possible alternative reasons why two variables appear to be related, including the following (the first seven are described in the other handout):
1. history
2. maturation (passage of time)
3. testing
4. instrumentation changes
5. statistical regression
6. selection biases
7. ambiguity about the direction of causal inference--cannot determine which variable affects the other

External validity refers to the extent to which a causal relationship depicted in a study can be generalized beyond the study conditions.

Experimental designs control for threats to internal and external validity and are described in chapter 11.

Correlational designs can be used to examine the plausibility of causal relationships when experimental designs are not possible:

Cross-sectional designs—examine a phenomena by taking a cross-section of it at one point in time

Case-control studies—compares groups of cases that have had contrasting outcomes and then collects retrospective data about past differences that might explain the differences in outcome (subject to recall bias)

Longitudinal studies—describe processes occurring over time, thus conducting observations over an extended period
The **elaboration model** studies the effects of an original relationship between two variables (bivariate) by introducing other variables and examining the effects on the original relationship. This model usually depends on using multivariate analysis, which is not often accessible to the social work practice community. Factors to consider include:

- Replication
- Explanation
- Interpretation
- Specification
- Suppressor variables
- Distorter variables