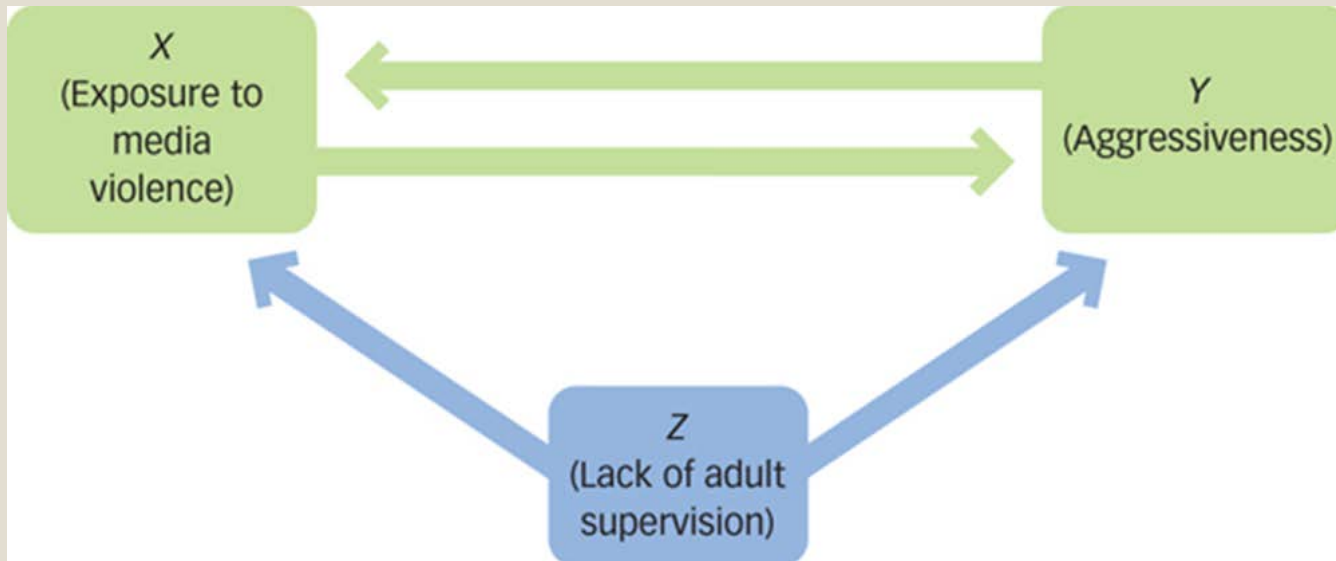
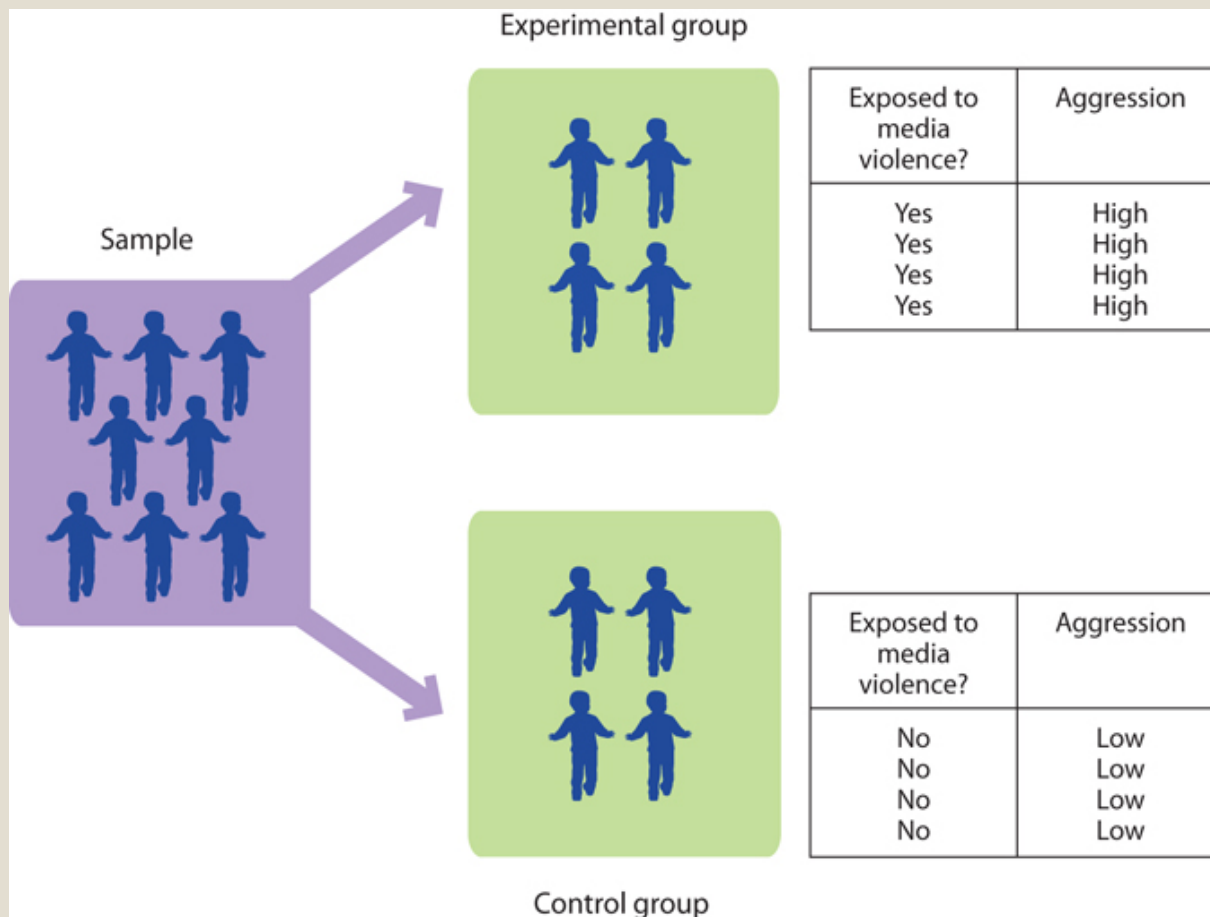


# Causation

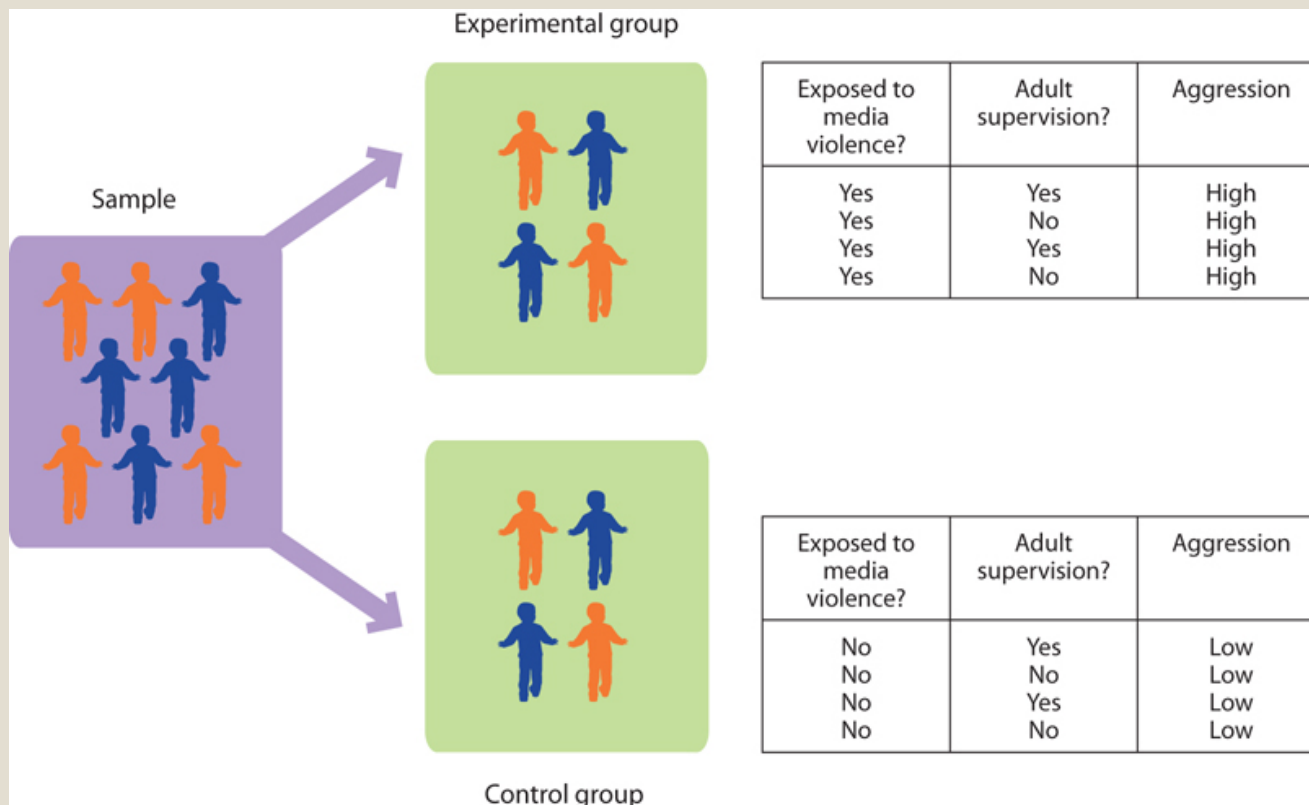
- **Natural correlations:** a correlation observed in the world around us
- **Third variable problem:** the fact that a causal relationship between two variables cannot be inferred from the naturally occurring correlation between them because of the ever-present possibility of third variable correlation



- **Manipulation:** the creation of an artificial pattern of variation in a variable in order to determine its causal powers
  - **Independent variable** the variable that is manipulated in an experiment
  - **Dependent variable** the variable that is measured in a study



- **Random assignment:** a procedure that uses a random event to assign people to the experimental or control group
  - **Experimental group** the group of people who are treated in a particular way in an experiment
  - **Control group** the group of people who are not treated in the particular way that the experimental group is treated in an experiment
  - **Self-selection:** a problem that occurs when anything about a person determines whether they will be included in the experimental or control group



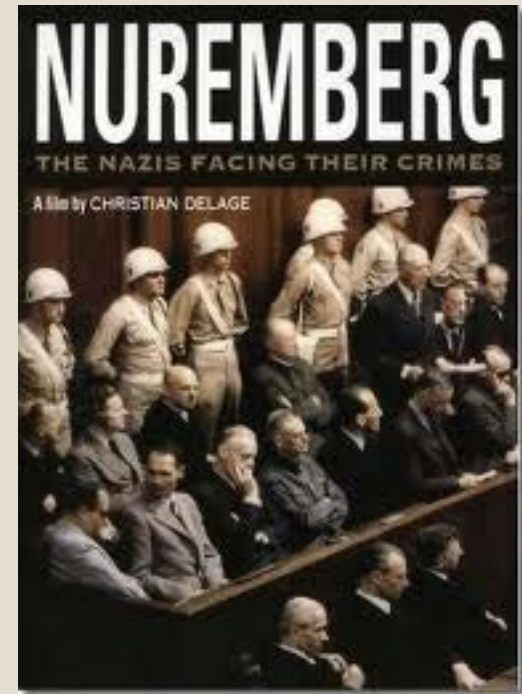
# Representative People



- In an experiment, a researcher cannot observe an entire population, so instead draws a sample.
  - **Population:** the complete collection of participants who might possibly be measured -  $N$
  - **Sample:** the partial collection of people drawn from a population -  $n$
- **Random sampling:** a technique for choosing participants that ensures that every member of a population has an equal chance of being included in the sample
- COVID-19 sampling at PITT
  - Non-random sampling is acceptable if the similarity between a sample and the population doesn't matter, when replication is available, and if the similarity between the two is reasonable enough.
- **Case method:** a method of gathering scientific knowledge by studying a single individual

# Development of the NUREMBERG CODE 1947

Ice Bath Experiments at Dachau



# Willowbrook State School: Staten Island, 1956-1963

- Institutionalized children, many with Down's Syndrome, deliberately infected with hepatitis A virus
- Later, with overcrowding, parents unable to gain admission for children... unless they agreed to study participation
- coercion





# Tuskegee Syphilis Experiment

Macon County, Alabama  
1932-1973



# U.S. Apologizes for Syphilis Tests in Guatemala

By **DONALD G. McNEIL Jr.**  
Published: October 1, 2010

- From 1946 to 1948, American public health doctors deliberately infected nearly 700 Guatemalans — prison inmates, mental patients and soldiers — with venereal diseases in what was meant as an effort to test the effectiveness of penicillin.





# APA code of ethics:

- 1. Informed consent
- 2. freedom from coercion
- 3. protection from harm
- 4. risk-benefit analysis
- 5. deception
- 6. debriefing
- 7. confidentiality