

## Correlation vs Causation

## Descriptive vs Inferential Statistics

↳ Summarizing Data      ↳ Drawing conclusions

## Levels of measurement:

Nominal → categorical

Ordinal → order is important → Rank ordering

Interval → ordering + equal interval → Fahrenheit

Ratio → ordering, equal interval + absolute zero

### Variables

Numerical

↳ Discrete

↳ Continuous

Categorical

↳ Nominal

↳ Ordinal

Dependent variable relies on independent variable

Use sample to generalize the population

	mean	standard dev
Population	$\mu$	$\sigma$
Sample	$\bar{x}$	$s$

## Types of Sampling:

Convenience

easy to find sample group

Random

everyone in the population has a chance to be chosen

Stratified

Divide population into groups (strata)

Place similar groups in the same strata

Use random samples to select  $n$  from each strata

Useful when cases in each stratum are similar

Cluster

Divide population into groups (clusters)

Choose  $n$  clusters

Include all observations from the cluster

Combine types for multi-state sampling

## Random assignment

Participants are independently & randomly assigned to just one group

Equal probability to be in any group

Groups all have  $n$  participants

## Observational vs Experimental Study

A confounding variable is an 'extra' variable that you didn't account for

Bias can be mitigated with blind / double-blind trials and/or Placebo