

Week 12 Review

What does variance measure? What is the problem with variance?

- The average deviation score (average distance in data from mean)
- Can't compare across samples with different sizes

What is standard deviation? How would you get this score?

- Average dispersion expressed in same units you used

What would your data look like if you had a small standard deviation? What would it look like if you had a large standard deviation?

- Small Standard Deviation
 - The scores for people tend to be close together
 - The average separation between the mean score and any individual's score is small
- Big Standard Deviation
 - The scores for people tend to be spread out
 - The average separation between the mean score and any individual's score is large

Why is standard deviation important relative to the margin of error we talked about earlier this semester?

- The margin of error is essentially two standard deviations from the mean

How do inferential statistics differ from descriptive statistics?

- Looks at two or more variables at the same time
- Descriptive statistics summarizes the data
- Allows us to make statistical inferences about the relationships between variables

What is the null hypothesis? Why do we have the null hypothesis?

- States that there is no relationship between the two variables
- We must start with the assumption that no relationship exists and find evidence to the contrary

What is an alternative hypothesis? What are the two types of alternative hypotheses that you can propose?

- What the researcher thinks the relationship will look like
 - Directional hypothesis (one-way/one-tailed)
 - Non-directional hypothesis (two-way/two-tailed)

What does hypothesis testing tell us?

- If we reject or fail to reject the null hypothesis

What is the p value and what does it tell us?

- P value is the significance level
- The chance we are wrong

What p value do we use in the social sciences?

- P value must be less than .05, then you can reject the null
- You have a 5% chance of being wrong ($P > .05$)

What is type I error? What is type II error?

- Type 1(False positive)
 - Wrongly reject when its actually true
 - Finding a difference that isn't there
 - $P > .05$ means that there's a fewer than 5 times in 100 chance of a type 1 error occurs
- Type 2(False Negative)
 - Fail to reject when it's actually there
 - Not finding a difference that is there

What types of variables do you need to use for a correlation test (i.e., what type of variable should be the IV and DV)?

- Two quantitative variables
- Examines a relationship between two variables measured at the ordinal level or higher

What types of variables do you need to use for an ANOVA (i.e., what type of variable should be the IV and DV)?

- Asses whether means of a quantitative variable (DV) differ across categories of a nominal variable (IV)

What types of variables do you need to use for a cross-tab (i.e., what type of variable should be the IV and DV)?

- Two nominal variables
- Test a relationship between two nominal variable

What type of question can a correlation test answer?

- Is A related to B?
- The relationship between two quantitative variables

What are the two directions of correlations we can get? Please describe each of these and provide an example of each.

- Positive correlation
 - Individuals who score higher on X tend to score higher on Y

- Negative Correlation
 - Individuals who score higher on X tend to score lower on Y

What could we informally use to observe a correlation?

- Scatter Plot

What statistic do we use to test for a correlation?

- Pearson's R

What is the rule of thumb relative to assessing the strength of correlations?

- 1st look at significance
 - Tells us whether statistically the relationship is different from zero
 - Is P value smaller than .05
- 2nd look at direction and strength
 - Direction is it positive or negative
 - Strength is the rule of thumb
 - Between .3 and .5 weak relationship
 - Between .5 and .7 moderate relationship
 - Over .7 Strong relationship