Sheria Johnson
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Week 4 Quiz

Question 1: Explain what inferential statistics are. Provide a sample research question (from your thesis or from anything else) that could be answered with inferential statistics.

Inferential statistics allows a researcher to make inferences from the data. Based on the population, the researcher will make generalizations on the sample. This is done by hypothesis testing. For my thesis, I will randomly select a sample of employees at my company and collect data on how they perceive organizational support and their state of workplace happiness. I will use the inferential statistics to make inferences and test hypotheses about the whole population based on my research of the sample data.

Question 2: Compare and contrast a Type 1 and Type II error in statistics. Why do we want to avoid these?

Whenever you conduct a test, it is possible to receive results that is an outlier or falls outside of the normal range and considered null. A Type 1 error occurs when you reject a null hypothesis (p value is less than or equal to the level of significance). In the event a researcher incorrectly retains the null hypothesis this is called a Type II error.

Question 3: How can one reduce the chance of a Type I error? Type II error? Describe a few for each.

The researcher can avoid or reduce Type 1 reducing the significance level. Also, to reduce a Type 1 error the researcher should you a two-tail test instead of a one-tail test. Type II error by ensuring the test has a high statistical power. The higher the statistical power, the higher the chance of avoiding an error. One factor that impact the power of a study is having larger sample size equals more power.

Question 4: What is the difference between a one-sample and two-sample hypothesis test?

One sample test is done when a researcher has one population and the sample is drawn from that one population. Two sample tests must have two populations and the hypothesis testing. During the test the researcher would define the null and alternative hypothesis, the decision rule, the results, and the conclusions.