

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 are the analysis of the data gathered from a sample in order to make conclusions about a population from which the sample is drawn. A sample research question from my thesis that could be answered inferentially would be, "How well do the athletes that believe they perform well sleep daily?". Based on my research you would be able to inferentially answer that.

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

A Type 1 error in statistics consists of the probability of rejecting a true null hypothesis while being defined by the probability of significance level of your findings. On the other hand, a Type 2 error in statistics is the probability of incorrectly retaining a false null hypothesis.

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

You can reduce the chance of a Type 1 error by setting a lower significance level that was set at the beginning of your study. To add to that, you can use the more stringent two-tailed test, even if you have a one-tailed hypothesis. On the other hand, you can reduce the chance of a Type 2 error by increasing the sample size of your study and you can also increase the significance level. Also, you can reduce the risk of Type 2 errors by making sure the test has a high statistical power, which increases the chance of avoiding an error.

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

A one-sample hypothesis test is an inferential parametric statistic that compares a sample mean to a known population mean. While a two-sample hypothesis test is used to compare the difference between two unknown population means.