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Pharmacology

Demography and Biostatistics (STA 312)

Assignment on hypothesis testing

1) What do you understand by hypothesis testing.

Hypothesis testing is an act in statistics whereby an analyst tests an assumption regarding a population parameter. The methodology employed by the analyst depends on the nature of the data used and the reason for the analysis.

Hypothesis testing is used to assess the plausibility of a hypothesis by using sample data. Such data may come from a larger population, or from a data-generating process. The word "population" will be used for both of these cases in the following descriptions.

2) Differentiate between the classical and p-value approach for hypothesis testing.

The Classical Approach to hypothesis testing is to compare a test statistic and a critical value.

The Classical Approach also has three different decision rules, depending on whether it is a left tail, right tail, or two tail test.

One problem with the Classical Approach is that if a different level of significance is desired, a different critical value must be read from the table.

## While

The P-Value Approach, short for Probability Value, approaches hypothesis testing from a different manner. Instead of comparing z-scores or t-scores as in the classical approach, you're comparing probabilities, or areas.

The p-value is the area to the right or left of the test statistic. If it is a two tail test, then look up the probability in one tail and double it.

If the test statistic is in the critical region, then the p-value will be less than the level of significance.

 It does not matter whether it is a left tail, right tail, or two tail test. This rule always holds.

3) what is the importance of hypothesis testing in research.

 Hypothesis testing is used in an experiment to define the relationship between two variables.

The purpose of a hypothesis  is to find the answer to a question. A formalized hypothesis  will force us to think about what results we should look for in an experiment. The first variable is called the independent variable.