Hypothesis Testing II

Spring 2011

Unpaired T-Test

- One measurement per individual

- Break our population into two natural subgroups
  - Male/Female; Smoker/Non-Smoker; Oak/Maple
  - Do the groups have a difference in measurement?

- Our primary statistic of concern is the p-value
  - How likely to occur by chance?

Problem 12.1

Question: Are the prices of houses near the Charles River more expensive than the prices of houses away from the Charles River.

State the Null Hypothesis

Perform an unpaired t-test (Independent Samples T-Test in PASW)

Problem 12.1

- What is the test variable? Why?

- What is the grouping variable? Why

- Next, Define Groups

- Do you accept or reject the Null Hypothesis? Why?

- State your conclusion

Correlation Analysis

- Correlation Analysis addresses the following: Is there a statistically significant association between variable X and variable Y?

- Interpreting the Pearson Correlation Coefficient is not an exact science. We might use the following interpretation:

  - ➢ -1.0 to -0.7 strong negative association

  - ➢ -0.7 to -0.3 weak negative association

  - ➢ -0.3 to +0.3 little or no association

  - ➢ +0.3 to +0.7 weak positive association

  - ➢ +0.7 to +1.0 strong positive association

Correlation Analysis Visual

- Use Scattergrams (Scatterplots) to visually display data analyzed with this test.

- You can also produce a correlation matrix of the relationship of all variables in the matrix.

- Analyze | Correlate | Bivariate

Problem 12.2

- Create a correlation matrix of Cholesterol, Triglycerides, HDL, and LDL.

Identify the strongest positive correlation in the matrix.

Analyze | Correlate | Bivariate