

Power & Power Analysis

- Estimating power
 - First need to do what?
 - Estimate effect size
 - How can we do this?
- Cohen's rule of thumb for effect sizes
- What is delta?
 - Related to d , n
 - Is delta the same thing as power?

Power & Power Analysis

- Related to which type of hypothesis testing error? How?
- What affects power?
 - How is power related to these variables?
 - Which of these is most easily controlled by the experimenter?

Power & Power Analysis

- What is power?
 - Probability of finding an effect if it exists
 - Probability of correctly rejecting false null
 - $1 - \beta$
- Why is power important?
- An issue **only when** you don't find a significant result

Chi-Square

- Degrees of freedom
 - Goodness-of-fit test?
 - $k - 1$
 - Contingency table analysis?
 - $(R - 1)(C - 1)$
- Limitations
 - Data points must be independent
 - Can only be used with frequency data
 - Expected frequencies must be 5 or greater

Chi-Square

- How do you determine what the expected frequencies would be?
 - Goodness-of-Fit test
 - What would you expect to see if the null hypothesis were true
 - Contingency table analysis
 - Marginal means multiplied together (column X row) & then divided by total n

Chi-Square

- When do we use a chi-square analysis?
- What is the difference between the Goodness-of-fit test and the Contingency table analysis?
 - Classifying on the basis of one variable or two
- What would the null hypotheses be for each type of test?

Multiple Regression

- Know how to interpret intercept
 - Often doesn't make sense but necessary for accuracy of equation
- Should predictors be highly correlated?
 - Multicollinearity
 - Makes regression equation unstable
- Different types of multiple regression
 - When to use each

Multiple Regression

- Looking at individual predictors
 - What is the difference between b and β ?
 - How do we know if an individual predictor is significant?
 - Look at t-test
- Interpreting slope
 - Unstandardized vs. standardized
 - Dummy coded predictors
 - Holding other predictors constant

Multiple Regression

- How different from simple regression?
- What is R?
 - Multiple correlation coefficient
 - How do we know when it is significant?
 - F test (ANOVA box) on output
 - If significant, look at individual predictors
- Why is R^2 important?

- Two parts
 - 35 multiple choice questions
 - 5 calculation problems with multiple parts
- Full class time (lecture & lab)
- Bring pencil & calculator

Overview

- Multiple regression
- Chi-square analyses
- Power & power analysis