Lab 8
Research Design and Types of Analyses

Outline
• Final project research topics
• Research designs
• How to read and interpret research articles
• APA in-text citations
• Homework #8

Research Topics
• Pick something you are interested in!
• Make sure your question is compatible with the assignment requirements (see Lab 6).
• Examples:
  – Does art therapy impact depression?
  – Does office cubicle size affect worker productivity?
  – Does chronic stress influence parenting ability?

Research Design

The Distinction Between Experimental and Correlational Research
• Experiments: Researchers use random assignment and actually manipulate something. That is, they manipulate levels of the IV and measure its impact on the DV.
• Correlational Studies: Researchers associate naturally occurring variation on the IV with variation on the DV. Neither manipulation nor random assignment is involved in the process.

Are there any general questions about the papers?
Types of Analyses

These Two Types are Often Used with Experiments...

Independent samples (between-groups) t-test
- Used to determine mean differences in the dependent variable for two different groups
- Used with dichotomous independent variables (Two groups on the IV)
- The DV is a continuous variable
- Example research hypothesis: Does exposure to a heated room (Hot versus Normal) make people more aggressive?

Analysis of Variance (ANOVA)
- Like a t-test, it’s used to determine mean differences on the DV, but you can use it when there are more than two groups/two levels of your IV
- Example research hypothesis: Does exposure to a heated room (Very Hot, Hot, Average, Cold, Very Cold) make people more aggressive?

These Two Types Are Often Used with Correlational Designs...

Correlations
- Used when one is interested in assessing the strength of association between two variables
- Typically, used with continuous variables
- Examples: Are higher levels of stressful life events associated with lower levels of depression?
Regression

- Like correlation, it's used to assess the strength of association between two variables
- However, Regression is used when one's primary interest is predicting scores, not just testing the associations between scores
- It can also be used when there is more than one IV (but remember, your paper can only have one IV)

Example research hypothesis: Do more friends in middle childhood predict lower levels of depression in adolescence?

Exception

- We can use t-tests/ANOVA to compare naturally occurring groups....
- Question: Is there a gender difference in depression? Is there a difference in life satisfaction between groups of people who are either married, living together, dating, or single?
- These questions fall under the heading of Correlational Research.
- Why? We did not manipulate anything.

Bottom Line

- Research Design influences the conclusions and inferences that you make from your research.
- Statistics help you summarize and make sense of the results. They do not tell you the difference between these two cases:
  - X causes Y
  - X is associated with Y

Summary of a correlational study

- 180 young nuns wrote autobiographies
  - Mean age = 22
- Many years later, 2 researchers coded these autobiographies for emotional content.
  - Kappa coefficients ranged from .79 - .85
- The researchers also noted the age at which the nuns died.

Danner, Snowdon, & Friesen, 2001

- The women who used the most positive emotion words in their autobiographies (when they were in their twenties!) lived an average of 6.9 years longer than the women who had used the fewest positive emotion words.

Danner, Snowdon, & Friesen, 2001

- What makes this a correlational study and NOT an experiment?
- What was the independent variable?
- What was the dependent variable?
- Are there reliability concerns?
- Are there validity concerns?

How to approach articles

- What were the authors’ hypotheses?
- How did they test these hypotheses?
  - Participants?
  - Measures?
  - Procedure? What type of study was it?
- What were the results?
- How do the authors interpret the results?
- What are the strengths and weaknesses of the study?

APA in-text citations

- Do NOT use quotes in your final project.
- Paraphrase ideas in your own words and cite them appropriately. You must give the author credit even if you do not use her or his exact words.
- General form:
  (Last name of author(s), Publication Year)

Single author

- Stress has been shown to inhibit performance on memorization tasks (Garcia, 2001).

Multiple authors

- Include each author’s last name the first time you cite an article.
  - Seventy-five percent of smokers surveyed would like to quit (Wilson, Xiao, & Mills, 2006).
- In subsequent citations...
  - If there are two authors, continue to use both names.
    - (Smith-Gilbert & Lewis, 1999)
  - If there are more than two authors, use only the first author’s name and “et al.”
    - (Wilson et al., 2006).
Multiple citations

- Sometimes a sentence requires several citations.
- Arrange citations alphabetically by first author's last name.
- Separate citations with a semicolon.
- Several studies have demonstrated that attitudes are often imperfect predictors of behavior (Jones, 1999; Le, Allan, & Simmons, 2005).

What you need to do for HW #8

Part 1
- What was the hypothesis? (1 point)
- What was the IV? What was the DV? (2 points)
- Summarize the findings. (2 points)

Part 2
- Find another article that is relevant to your final paper topic.
- What was the hypothesis? (1 point)
- Summarize the findings. (2 points)
- Provide a properly formatted reference for the article. (2 points)