**SECTION MEETING RECAP: 10/1/14**

**Instructor**: Jess Karanian

**Homework**: “Assignment 5: Dionne & Martini (2011)” due on Friday 10/3/14 on Canvas

**(1) Descriptive Statistics vs. Inferential Statistics**

Descriptive Statistics: numbers used to describe or summarize a sample

-descriptive statistics present only the facts for just that particular subset/sample of the broader population

- cannot use descriptive statistics to generalize beyond the collected data

 -Examples:

-measures of central tendency

 -mean, median, mode

-measures of spread/variability

 -range, quartiles, variance, and standard deviation

Inferential Statistics: a type of statistical procedures that are used to draw conclusions about the broader population based on the results found within a sample

 -this generally requires random sampling and random assignment to experimental conditions

 -use of data from a sample to answer questions about a population

 -allow you to generalize beyond the data at hand

 -Examples:

-linear regression analyses, ANOVA, correlation analyses, structural equation modeling

**(2) Assignment #5: Dionne & Martini (2011)**

(1) Is inferential statistical analysis needed for this study?

-The article only uses descriptive statistical analyses, which include visual analyses (i.e., a line graph to display the data) and use of standard deviation to assess the effectiveness of the treatment (i.e., Floor Time Play).

-If the author’s wanted to generalize the results from this study to all autistic patients, then inferential statistical analyses would be necessary. However, changes in the study design would be necessary for this to happen.

(2) Provide a good argument in favor and against generalizing these results to other children with autism.

*Argument in Favor:*

-A common symptom of autism is delayed/impaired social and communication skills. Floor time play directly addresses this symptom.

*Arguments Against:*

(a) Autism is a spectrum disorder so severity is highly variable – this may only work in certain cases.

(b) Only one subject is used: 3.5 year old boy. What about older children, or females with autism?

(c) Would this treatment be effective if it was carried out by someone other than the child’s mother?

(d) Does FTP increase circles of communication in all children, or is this specific to autistic children?

**(3) Penny Flip Demonstration**

What is a Binomial Experiment?

-the experiment must consist of *n* repeated trials

-each trial must only result in 2 possible outcomes (i.e., heads or tails)

-one of the outcomes must be denoted as a “success” (i.e., heads), and one as “failure” (i.e., tails)

-the probability of success (i.e., heads) is the same on each trial (*P = .5)*

*-*each trial (i.e., coin toss) must be independent, meaning previous trials do not affect the following trial outcome

Notation:

*N* = the number of trials in the binomial experiment

*P* = the probability of success on an individual trial

*Q* = the probability of failure on an individual trial (1 - *P*)

Important Formulas: $ $

$\left(1\right) µ = N P \left(2\right) $ σ=$\sqrt{N P Q}$