Central Tendency and Variability
HW #1

Directions: Please complete all of the sections. You get half of your points for finishing/turning it in on time and the other half for correctness. For the Jamovi section, please print the output from Jamovi and staple the two documents together. Have fun!

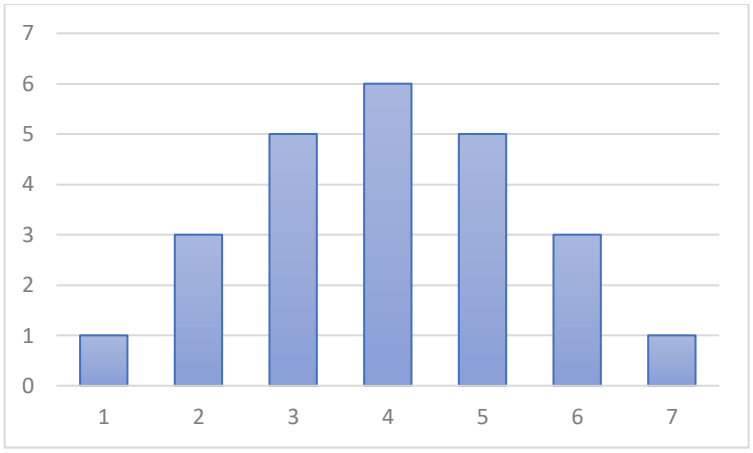
Section 1. Central Tendency

1. When is the median the best measure of central tendency? What about the mean?

2. What measure of central tendency is always at the 50th percentile?

3. Some person approaches you on the street and asks you to state what the differences between the mean and the median are. At first you are alarmed, but then you remember that you took EDUC 6050. You confidently respond:

4. If the distribution looks like the following figure, about where is the mean and about where is the median? Also, where is the mode?



Mean:

Median:

Mode:

5. For the previous answers, how did you determine where the mean and median were?

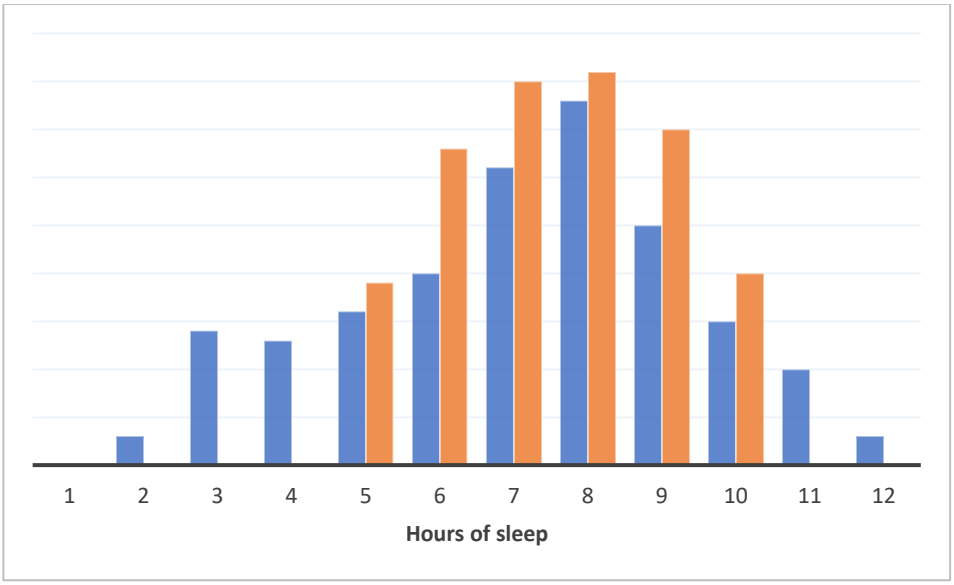
Section 2. Variability

1. In the bar chart on the previous page, what is the range of the data?

2. In that same chart, is the distribution skewed? Why?

3. You are told the standard deviation of the hours of sleep the individuals with a concussion is 3.2 hours. Next you are told that the standard deviation of the hours of sleep for individuals without a concussion is 1.1 hours. Which has more variability? Why?

4. Just judging visually, which group of bars (orange or blue) represent the concussed group?



5. When is the standard deviation NOT an appropriate measure of variability?

6. Optional. Is there anything that is particularly confusing about variability for you?

Section 3. Other Terminology

1. What is a sample in relation to the population? What makes it a "good" sample?

2. What is inferential statistics? How is it different than descriptive?

3. Provide two examples of each:

   Nominal variables:

   Ordinal variables:

   Interval variables:

   Ratio variables:

Section 4. Jamovi

Using your own data or the "OfficeParks" data:

1. Import the data set into Jamovi.
2. Pick two variables that you will use.
3. Clean the two variables (make sure Jamovi knows what is missing if there are missing values; check if there are any impossible values and if so, correct it; select the proper variable type for each variable [scale, nominal, ordinal]).
4. Produce a table showing the mean, median, and mode of each chosen variable in Jamovi.
5. What do these statistics tell us about the variable?

6. Produce a table showing the range and standard deviation of these two variables in Jamovi.
7. What do these statistics tell us about the variable?

8. Based on your understanding of this variable, do you think this variable is skewed? (We'll talk about visualization for the next assignment.)