**Class 4 Activity**

**Central Tendency**

**Part 1**

On a scrap piece of paper, answer the following questions (put your name on it and turn it in! I have scrap paper if you need some).

You ask a sample of UD students how much they have enjoyed their time in college so far on a scale of 1 (not at all) to 5 (very much). You get the following data:

1, 2, 1, 4, 5, 4, 5, 5, 5, 5, 3, 4, 2, 5, 3

1) Write out the formula to solve for a mean. Label each character (try doing this from memory first and then check your notes!)

2) Now use the formula to solve for the mean of the scores above. Write out your work by hand.

3) What is the mode?

4) What is the median?

11, 15, 19, 20, 16, 10, 20, 19, 20, 20, 19, 10

5) Solve for the mean of the scores above. Write out your work by hand.

6) What is the mode?

7) What is the median?

**Part 2**

Download Class4.csv and open the data in JASP. Complete the following questions on this document and **upload your answers to Part 2 on** **Canvas** by the end of class!

Participants were asked to report their age, gender, levels of depression (total score on a depression inventory ranges from 0 to 29), anxiety (total score on an anxiety inventory ranges from 0 to 19), and a rating of how much they like statistics on a scale of 1 (not at all) to 10 (very much). *Note: these are the same variables from last class, but the data are different.*

Remember to check that the level of measurement is correct!

1) Run “descriptive statistics” for all of the variables (except subjID). Select “mean” “median” and “mode” under Statistics >> Central Tendency. Fill in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mean** | **Median** | **Mode** |
| **Depression** | 15.12 | 27.00 | 1.00 |
| **Anxiety** | 13.40 | 15.00 | 16.00 |
| **Rating** | 5.00 | 5.00 | 5.00 |
| **Age** | 8.84 | 5.00 | 4.00 |
| **Gender** | - | - | - |

2) Are any of the boxes above empty? Why?

The boxes for gender are empty because that was not a variable where there were not nominal.

3) Now, create histograms for the variables in JASP. Use the distributions to help you understand the central tendency of each variable (make sure to check the skewness statistics to be sure!) and fill out the table below.

|  |  |  |
| --- | --- | --- |
|  | **Describe the distribution!** | **Which measure of central tendency would be best?** |
| **Depression** | Bimodal | two modes |
| **Anxiety** | Negatively skewed/ceiling effect | median |
| **Rating** | Normal/unimodal | mean and mode |
| **Age** | Bimodal | Median |

4) Using the information from the two tables above, write a couple sentences for each variable describing the distribution and central tendency. Is one measure of central tendency best? Explain why (compare the mean, median, and mode to each other- are they similar, or different?).

Depression: For depression it is a bimodal distribution and because of this there would be two modes that would be best to measure the central tendency. For example if we were to choose the median then it would disregard both of those modes because they are on both extremes.

Anxiety: The distribution of anxiety was negatively skewed with a ceiling effect. For skewedness it is best to look at the median. If we were to look at the mean it doesn’t give a good representation of the other variables.

Rating: This is a normal distribution. For normal distributions it is best to choose the mean although all measures hit at the same place.

Age: This was bimodal. For bimodal distributions it is best to represent all of the modes because those are all of the peaks.

Gender: For gender you should use both modes because it was bimodal.