Central tendency refers to measures used to assess the average of observations. These measures include mode, median, and mean. Mode describes the attribute of a variable that appears most frequently. Median describes, in an ordinal, interval, or ratio variable, the middle value. Mean describes the mathematical average.

**Objective:**
1. Learn to calculate the measures of central tendency using SPSS
2. Learn how to choose the correct measure of central tendency. (In conjunction with class lecture)
3. Learn to interpret central tendency output. (In conjunction with class lecture)
4. Learn to present measures of central tendency in a table

**SPSS Procedure:**
1. Open the data set in SPSS
2. From the tool bar select Analyze>Descriptive Statistics>Frequencies. See Figure 6.1. This will cause a window to open up. See Figure 6.2.
3. In the “Frequencies” window select “Statistics.” This will cause a widow similar to that in Figure 6.3 to come up.
4. In the “Frequencies: Statistics” window select “Mean,” “Median,” and “Mode” as shown in Figure 6.3. Select “Continue.”
5. In the “Frequencies” window uncheck the box in the bottom left hand corner that says “Display frequency tables.”
6. Select “OK” and the output will appear (see Figure 6.4).

**Reading the Output:**
The columns in the output window display the same data (see Figure 6.4). At the top is the variable name followed by the valid frequency, the missing frequency, the mean, median, and mode.

Note that should any measure of central tendency have a value that is higher or lower than a value associated with a variable then there is likely some kind of error. Think of it this way: if a student has taken three exams with the scores of 75, 80, and 85 then it is not possible for the student to have an exam average that is lower than a 75 or higher than an 85.

**Displaying Data:**
See Table 6.1 for a sample of what a central tendency table might look like. **Note that unlike in SPSS output, the variables are presented in columns as opposed to rows. This is done so that several measures can be presented at the same time in one table. Students are REQUIRED to follow this practice.**
Analyzing Central Tendency:
Measures of central tendency are best selected by considering the level of measurement of a variable. Using the following table to decide which measure is best.

<table>
<thead>
<tr>
<th></th>
<th>Nominal</th>
<th>Ordinal</th>
<th>Interval/Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Best</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Median</td>
<td>No</td>
<td>Best</td>
<td>OK</td>
</tr>
<tr>
<td>Mean</td>
<td>No</td>
<td>No</td>
<td>Best</td>
</tr>
</tbody>
</table>

Assignment:
1. Produce measures of central tendency for the variables: “age,” “partyid,” “hlth5,” “empathy5r,” “ager,” and “empathyindex.”
2. Make a table to present the data from the variables in step 1.
3. Write a report with the following:
   a. Describe the measures of central tendency and how they are calculated.
   b. Describe how the best measure of central tendency is selected for a variable.
   c. Analysis of the table you created. This includes selecting the measure that is most appropriate given the variable, explaining why it is the most appropriate, and analysis of what the measure means.
4. A copy of table and the output.
Figure 6.1.

Figure 6.2.
Figure 6.3.

Figure 6.4.
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital</td>
<td>2.35</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>45.96</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Empathy1</td>
<td>4.12</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

n=2,812
Source: 2004 General Social Survey