SPSS Chapter 1 Example 1 – Data Analysis

See class notes, chapter 1 for all the data.

The Survey of Study Habits and Attitudes (SSHA) is a psychological test that evaluates how happy students are at school. A university administration gave the SSHA to 18 women students. The data are entered into SPSS and look like the following (Please note that only cases 1-12 are shown although all 18 cases have been entered):

P29a - SPSS Data Editor

File Edit View Data Transform Statistics Graphs Utilities Window Help

1:ssha 154

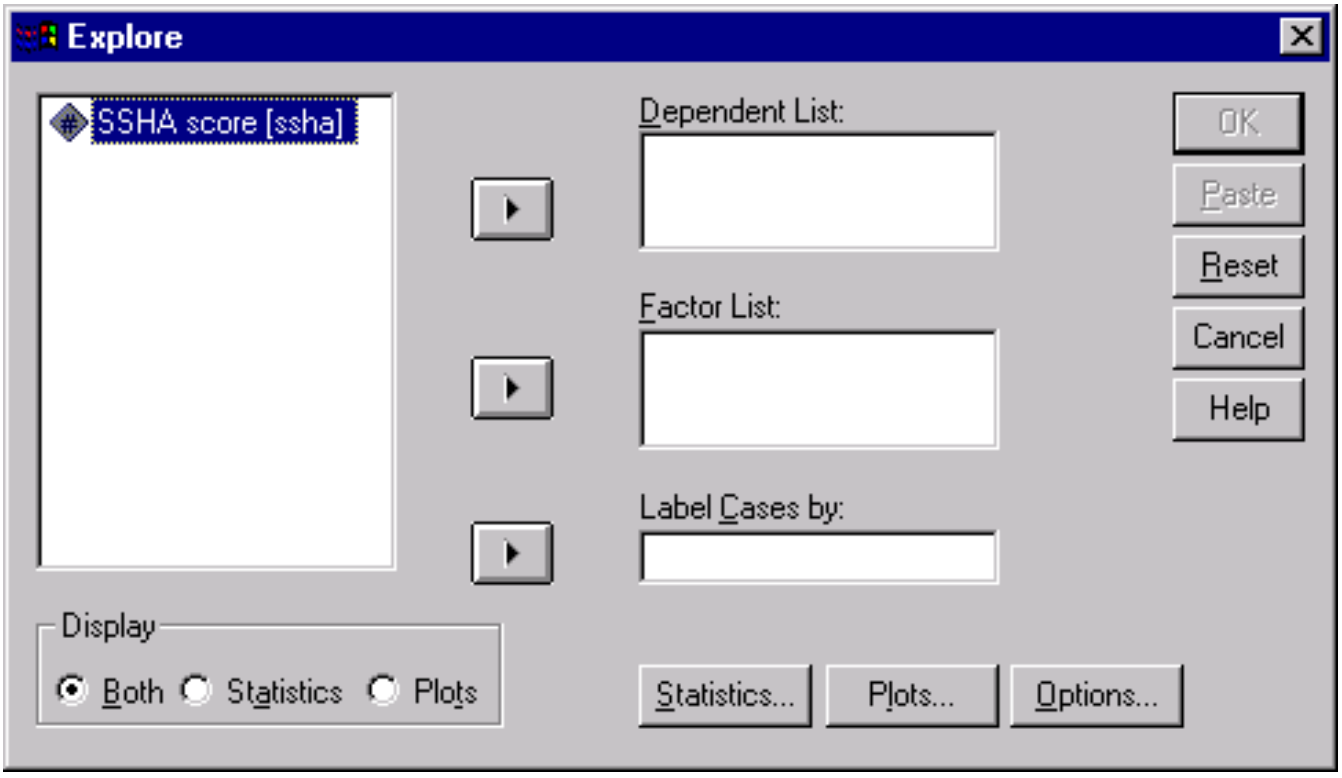
	ssha	var	var	var	var	var
1	154					
2	109					
3	137					
4	115					
5	152					
6	140					
7	154					
8	178					
9	101					
10	103					
11	126					
12	126					

SPSS Processor is ready

We now calculate some of the descriptive measures discussed in the course notes using the SPSS statistical package.

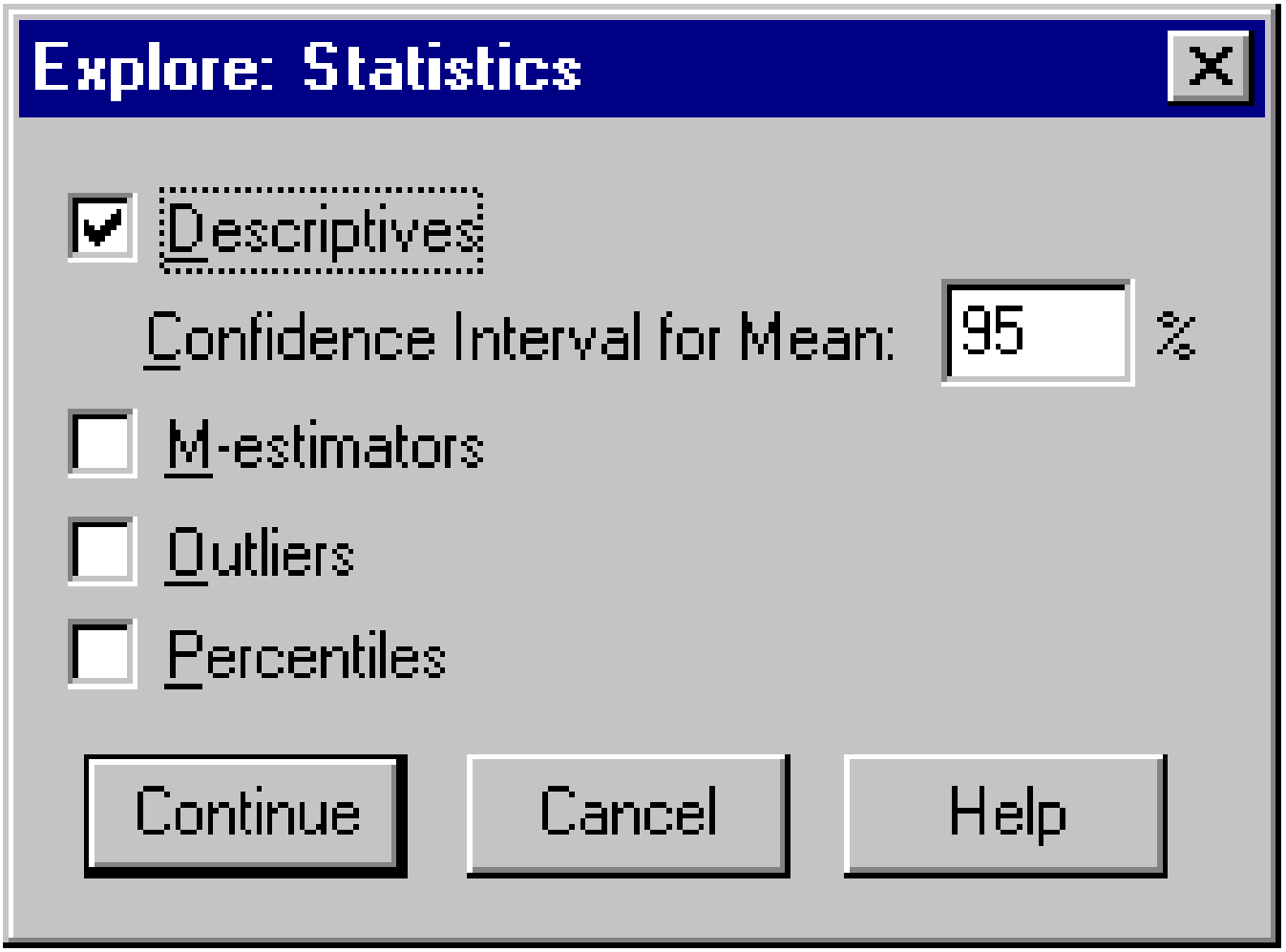
Follow these steps to perform the analysis:

1. Click **Analyze**, click **Descriptive Statistics**, and click **Explore**. The following window will appear.



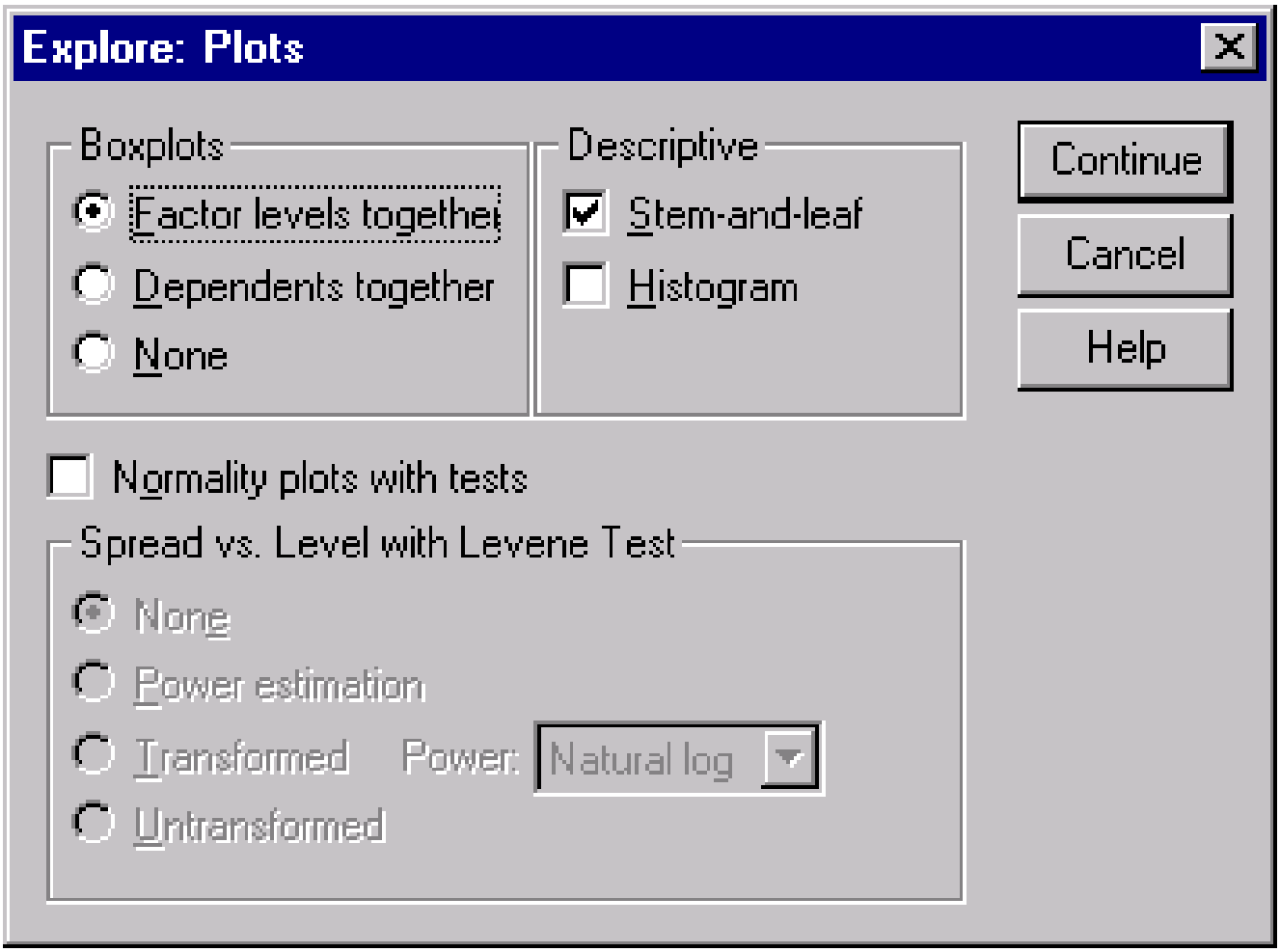
2. Click the top ▸ button and "**SSHA**" (a.k.a. "**SSHA score**") will appear in the box entitled ***Dependent List***.

3. Click **Statistics** and the following window will appear. The default condition for this window is **Descriptives**, (e.g., mean, median, standard deviation) which is indicated by a checkmark (✓). If you want to perform any other statistical calculations for this example, just check (✓) them. Now click **Continue** to return to the ***Explore*** window.



Note: A 95% confidence interval is the default for the ***Statistics*** window. If you wish to change the confidence level, change "**95**" to the desired confidence level in the box entitled ***Confidence Interval for Mean***, and click **Continue**. We will talk about confidence intervals in Chapter 6.

4. Click **Plots** and the following window will appear.



5. The default conditions for the ***Plots*** window are a *Boxplot* and a *Stem-and-leaf Plot*. Click **Histogram**, and then **Normality plots with tests** so that a checkmark (✓) appears in the box before each. Click **Continue**.

6. Click **OK**.

SPSS Chapter 1 Example 1 – Data Analysis (continued)

The SPSS output for this example is the following:

Case Processing Summary

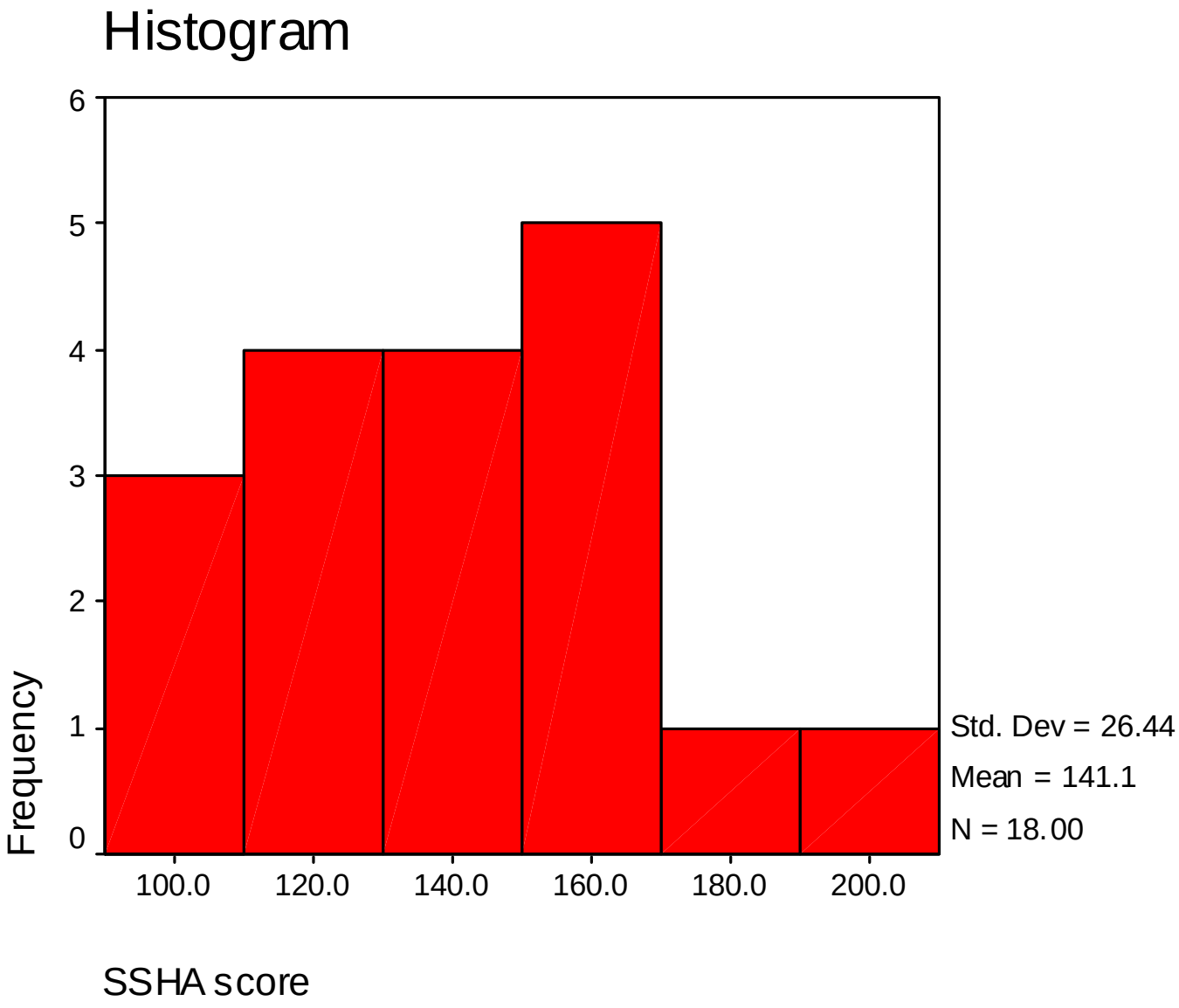
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SSHA score	18	100.0%	0	.0%	18	100.0%

There are 18 cases in this data set.

Descriptives

			Statistic	Std. Error
SSHA score	Mean		141.06	6.23
	95% Confidence Interval for Mean	Lower Bound	127.91	
		Upper Bound	154.20	
	5% Trimmed Mean		140.01	
	Median		138.50	
	Variance		698.879	
	Std. Deviation		26.44	
	Minimum		101	
	Maximum		200	
	Range		99	
	Interquartile Range		33.50	
	Skewness		.394	.536
	Kurtosis		-.012	1.038

The mean of the SSHA scores is 141.06; the standard deviation is 26.44; the median is 138.5; the minimum is 101; and the maximum is 200.



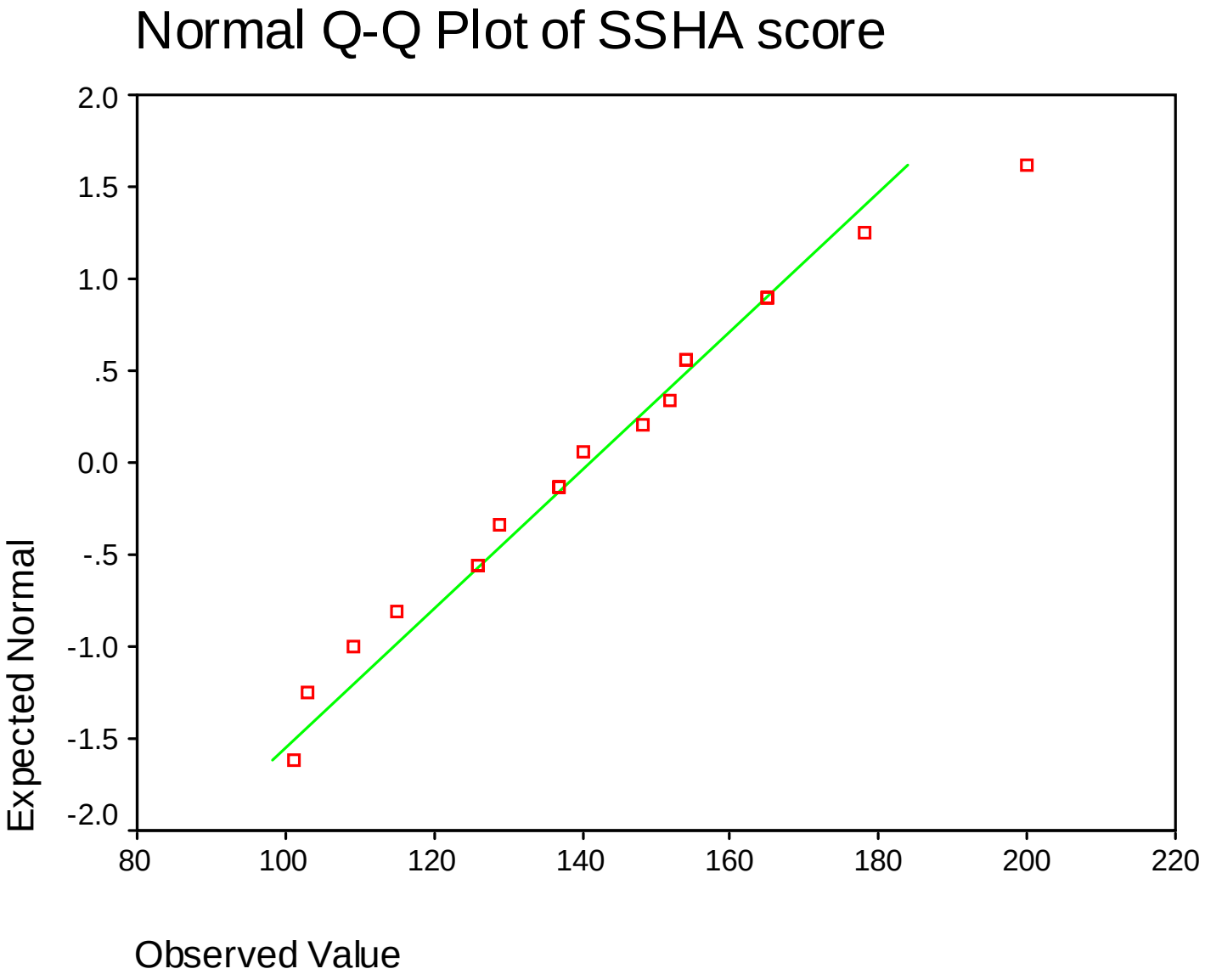
The histogram shows that most scores are between 100 and 160. The distribution is skewed to the right by two observations.

SSHA score Stem-and-Leaf Plot

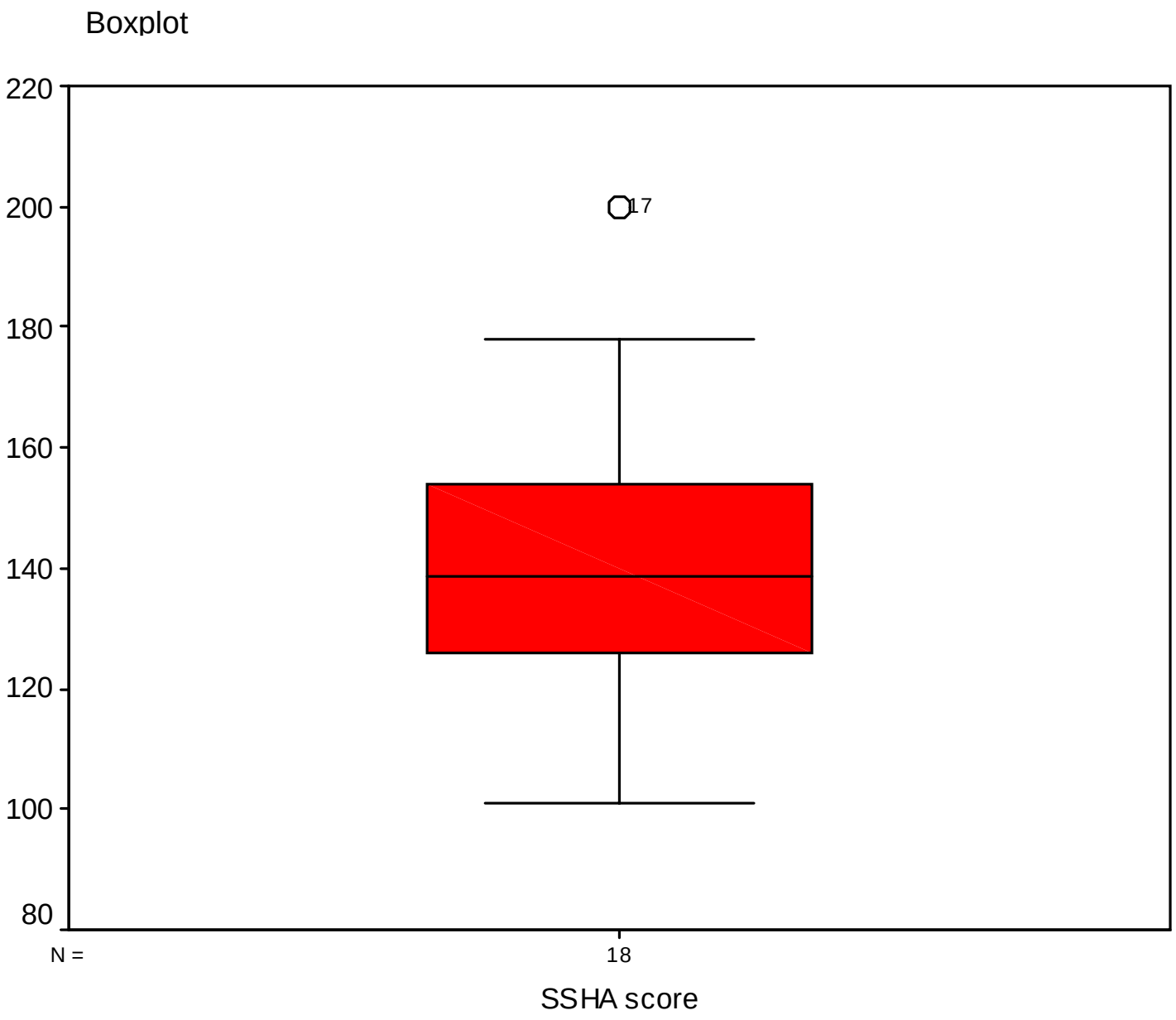
Frequency	Stem	&	Leaf
3.00	10	.	139
1.00	11	.	5
3.00	12	.	669
2.00	13	.	77
2.00	14	.	08
3.00	15	.	244
2.00	16	.	55
1.00	17	.	8
1.00 Extremes			(>=200)

Stem width: 10
Each leaf: 1 case(s)

The above SSHA scores ranged from 101 to 200. The stemplot was created by making the hundreds (the digit three places left of the decimal) and tens (the digit two places left of the decimal) column the stem while the ones (the digit left of the decimal) column the leaves. Thus, the first row of the stemplot shows that the 100s stem contains three leaves: 101, 103, and 109. the Frequency column confirms there are 3 observations. According to the stemplot there is one extreme observation: 200.



Given the small sample size, the Q-Q plot is indicative of an approximately normal distribution. The points should fall close to the line if the distribution is normal.



SPSS distinguishes between minor and major outliers. A minor outlier (denoted by a ○) is an observation 1.5 x IQR outside the central box. A major outlier (denoted by a *) is an observation 3.0 x IQR outside the central box. SPSS puts the case number next to the outlier symbol for the purpose of identification. Thus, as you can see there is one minor outlier in this boxplot: 17.