

Please download the Excel file **S:\GEO\Marr\Quantitative Methods\SPSS Exercises\State Health Data.xls**. Import the file into SPSS.

Part A.

The One-Sample Kolmogorov-Smirnov procedure is used to test the null hypothesis that a sample comes from a particular distribution. It does this by finding the largest difference (in absolute value) between two cumulative distribution functions (CDFs)--one computed directly from the data; the other, from mathematical theory. If the probability is low (significant) that indicates that the data are significantly different from the test distribution. In this case we are looking for high (insignificant) probabilities. Generally, a significant Kolmogorov-Smirnov test means one of two things--either the theoretical distribution is not appropriate, or an incorrect parameter was used to generate that distribution.

The method determining normality in SPSS is through the Analyze > Descriptive Statistics > Explore menu. Click on the Plots button and check the box for ***Normality plots with tests***. Here you are given several tests for normality. The Shapiro-Wilk test is for small sample sizes and the Kolmogorov-Smirnov is for samples greater than 50.

Please test the suicide (Suicides) and lung cancer (Lung_cancer) variables for normality. Fill in the blanks below and staple your annotated output to this sheet.

	<u>Suicides</u>	<u>Lung Cancer</u>
Mean:	_____	_____
Standard Deviation:	_____	_____
Kolmogorov-Smirnov z (stat):	_____	_____
Probability (signif):	_____	_____

Part B.

Another means of assessing normality is by plotting the observed data against a test distribution to see if the sample data vary from what would be expected. The most common of these plots is the Q-Q Plot. In a Q-Q plot the closer the data points fall to the line, the more normally distributed the sample.

Go to the Q-Q plot for suicides and double click on the graph to open the Chart Editor. In the chart editor, click on the Identify Point button: 

Select the two points that are to the far upper right. Note the observation numbers that appear for each. Activate the SPSS Data Editor window and look up the observation numbers.

What are the names of the selected states ? State1 _____

State2 _____

Go to the Q-Q plot for suicides and highlight the graph. Right click on the graph and from the popup menu select Chart Object > Open. In the chart editor, click on the Identify Point button. Select the point that are to the far lower left. Note the observation numbers that appear for each. Activate the SPSS Data Editor window and look up the observation numbers.

State1 _____