## **DIET AND LONGEVITY STUDY**

## **11.** Displaying and Describing the Data with SPSS

In this part, we will demonstrate how to use SPSS to produce the computer outputs we referred to in Sections 4 and 5. There are hyperlinks between the section and Sections 4 and 5 containing the statistical outputs.

Open the file *case0501* with the data in the experiment. It consists of two columns, named *lifetime* and *treatmt*. The column *lifetime* contains the lifespan of the mice expressed in months, the entry in the column *treatmt* contains the name of the treatment the mouse is subjected to.

In our analysis with SPSS it will be necessary to recode the variable *treatmt* by assigning the consecutive integer numbers to the six treatments. In order to do this, click on *Transform* from the main menu, then on *Recode* from the pull-down menu, and finally on *Into Same Variable*. This opens the *Recode into same variable* dialog box. For each value you want to recode, you must indicate the old value and the new values, and click on *Add*. Old values are the names of the treatments that exist in the original data file. New values are the consecutive integer numbers from 1 to 6. The variable *treatmt* will be recoded.

In order to obtain side-by-side boxplots of the lifetimes of mice fed on the six diet regimens, and then the summary statistics for each group, click on *Statistics* in the main menu, select *Summarize*, and then *Explore* from the pull-down menu.

<u>S</u> tatistics	<u>G</u> raphs	<u>U</u> tilities	<u>W</u> indov	N	<u>H</u> elp	
S <u>u</u> mmarize >		Þ	<u>F</u> requencies			
Custom	<u>T</u> ables	•	<u>D</u> escripti∨es			
Compare <u>M</u> eans		•	<u>E</u> xplore			
ANO <u>V</u> A Models 🔹 🕨			<u>C</u> rosstabs			
<u>C</u> orrelate •		• • =	Linones			
Regression + L <u>og</u> linear + Classify +.		•	<u>Beport Summaries in Rows</u>			
		•				
		- +	Report	<u></u>	immaries in Co	iumns
<u>D</u> ata Ri	eduction	•				
Sc <u>a</u> le		• •				
Nonparametric Tests 🔸		ests 🕨 🛓				
Time Series 🔹 🕨		•				
<u>S</u> urvival •		•				
Mu <u>l</u> tiple Response 🔹 🕨		e 🕨				

Fill out the *Explore* dialog box as follows:

Explore			×
		<u>D</u> ependent List: lifetime	OK <u>P</u> aste
		<u>F</u> actor List: treatmt	<u>R</u> eset Cancel Help
		Label <u>C</u> ases by:	
−Display <u>@B</u> oth CSt <u>a</u> tist	ics C Plo <u>t</u> s	<u>Statistics</u> P <u>l</u> ots	<u>O</u> ptions

In order to make sure that your output will include side-by-side boxplots, click on Plots and check the radio button *Factor levels together*.

Explore: Plots		×
Boxplots © <u>Factor levels together</u> © <u>D</u> ependents together © <u>N</u> one	Descriptive □ <u>S</u> tem-and-leaf □ <u>H</u> istogram	Continue Cancel Help
□ Normality plots with tests Spread vs. Level with Level None C Power estimation C Iransformed Power: C Untransformed	ene Test Natural log	

The side-by-side boxplots displayed in Section 4.1 and summary statistics output displayed in Section 5 will be produced by SPSS.

Now we will we will plot the cumulative percentage of mice survived in each of the six treatment groups over time using line charts. Click on *Graphs* in the main menu and then on *Line*...

<u>G</u> raphs <u>U</u> tilities	
<u>B</u> ar	
<u>L</u> ine	
<u>A</u> rea	
<u>P</u> ie	
<u>H</u> igh-Low	
Pa <u>r</u> eto	
<u>C</u> ontrol	
B <u>o</u> xplot	
<u>E</u> rror Bar	
<u>S</u> catter	
H <u>i</u> stogram	
<u>N</u> ormal P-P	
Normal <u>Q</u> -Q	
Seq <u>u</u> ence	
<u>T</u> ime Series	

The following *Line charts* dialog box is displayed.

Line Charts	×			
Simple Multiple Composition	Define Cancel Help			
Data in Chart Are © Summaries for groups of cases © Summaries of separate <u>v</u> ariables © Values of <u>i</u> ndividual cases				

Click on *Multiple* and *Summaries for groups of cases*. The *Define Multiple Line* dialog box displayed below should be filled out as follows:

B Define Multiple Line:	Summaries for Groups of Cases		×
	Lines Represent		
	С <u>N</u> of cases	℃% of c <u>a</u> ses	UK
	਼ <u>C</u> um. n of cases	⊙ Cu <u>m</u> . % of cases	<u>P</u> aste
	© Other <u>s</u> ummary function		<u>R</u> eset
			Cancel
	C <u>h</u> ange Sur	nmary	Help
	Category A <u>x</u> is: lifetime		
	Define Lines by: treatmt		
	_ Template		
	□ <u>U</u> se chart specifications fr	om:	<u>T</u> itles
	<u>F</u> ile		Options

Click on OK to obtain the graph and edit it. The chart is displayed in Section 4.2

In order to obtain the descriptive statistics for the data, click on *Statistics* tab in the *Explore* dialog box.

Explore: Statistics	×
<b>₽</b> <u>D</u> escriptives	
<u>C</u> onfidence Interval for Mean:	95 %
□ <u>M</u> -estimators	
⊠ <u>O</u> utliers	
□ <u>P</u> ercentiles	
□ <u>G</u> rouped frequency tables	
Continue Cancel	Help

SPSS produces the following output: