

DIET AND LONGEVITY STUDY

12. Model Checking with SPSS

In order to verify whether the assumption of normality is plausible for our data, you can use either normal quantile plot of observations or the normal quantile plot of residuals, the differences between each observation and its group mean. As SPSS doesn't provide a normal quantile plot for the residuals, we will obtain a normal quantile plot for each of the six treatment groups.

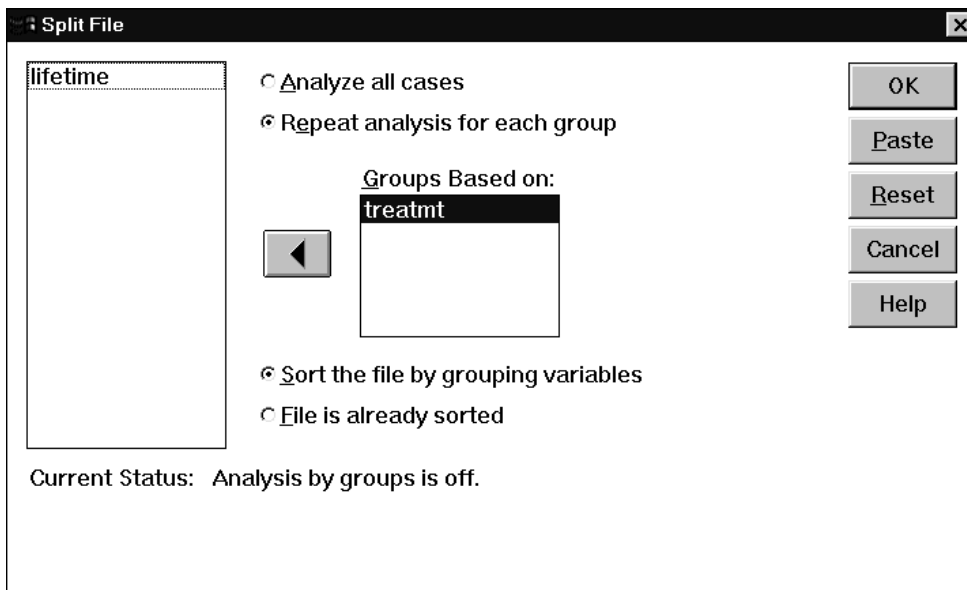
In order to determine whether or not a variable is normally distributed, you can use one of the two available procedures: *Normal Q-Q* plot or *Normal P-P* plot from the *Graphs* submenu.

The *Normal Q-Q* plot plots the quantiles of a variable's distribution against the quantiles of the normal distribution. If the data come from a normal distribution, the plot should resemble a straight line. The *Normal P-P* plot plots the cumulative proportions of a variable's distribution against the cumulative proportions of the normal distribution. Similarly, if the sample is from a normal distribution, points will cluster around a straight line.

We will produce the normal quantile plot of lifetime for each of the six treatment groups. In order to apply the normal Q-Q plot feature in SPSS, it is necessary to split the original file into six smaller files corresponding to the six treatment groups. We will use *Split File...* feature in *Data*.



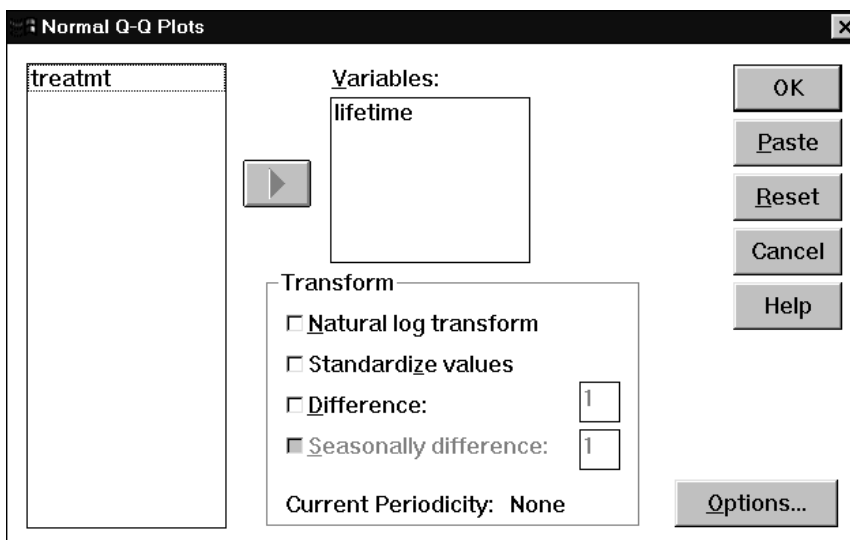
The *Split File* dialog box will be displayed. Fill out the dialog box in the following way:



Now we are ready to use the Normal Q-Q plot feature to check normality of the data. Click on *Graphs* in the main menu, and then on *Normal Q-Q...*



The *Q-Q Plots* dialog boxes is displayed. Fill out the box as follows:



Click OK. The normal probability plots for lifetimes for each of the six treatments will be displayed. You can view them in Section 6.

If you now want to merge all six subfiles into the original file with the data for all six treatments, click on *Split File...* in *Data*, and check *Analyze All Cases* radio button.