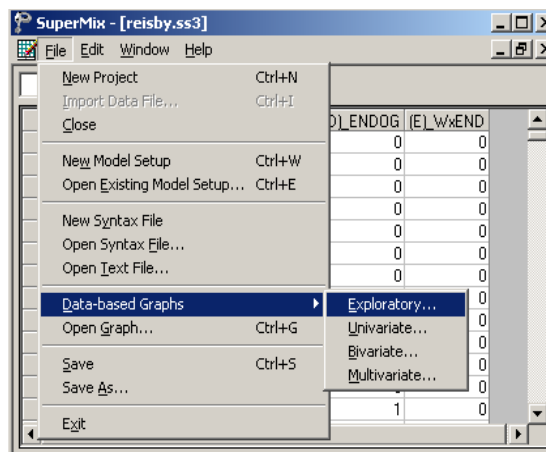




Data-based graphs: Exploratory graphics

The exploratory utility is specifically useful for the visual display of trends in longitudinal studies with continuous outcome variables.

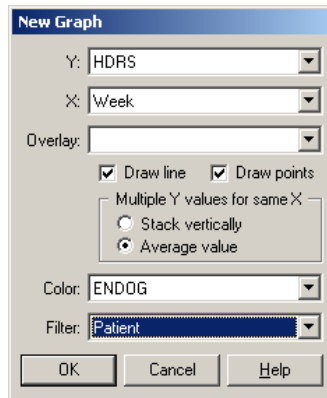
To invoke the exploratory graphics procedure, a SuperMix data file (*.ss3) has to be opened. To illustrate we use **Examples\Primer\Graphics\reisby.ss3**. Select the **File, Data-based graphs, Exploratory** option as shown below.



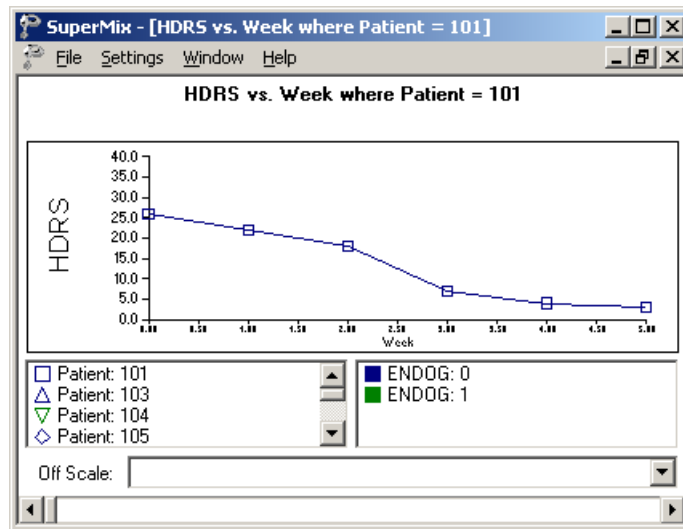
This selection activates the **New Graph** dialog box shown next. Select HDRS and Week as the dependent (vertical axis) and independent (horizontal axis) variables.

Additionally, select Patient as the so-called **Filter** variable. This specifies that a trend line will be displayed for each patient. To indicate whether a specific patient has been classified as endogenous or non-endogenous, the variable ENDOG is selected

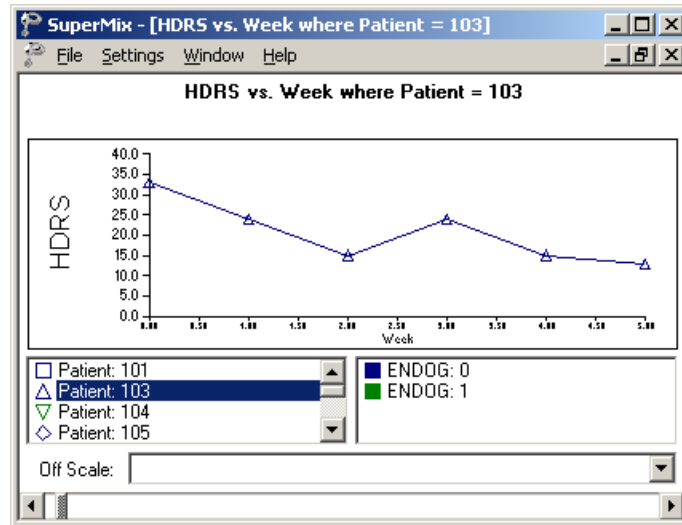
as the **Color** attribute. The color option is very useful when the data set includes predictors such as gender (female, male) and cholesterol level (low, normal, high).



The graph below shows the trend in HDRS scores over time for patient 101, who is classified as non-endogenous.



By clicking on the right-hand arrow of the slider bar at the bottom of the graphics screen, the trend in HDRS scores is shown for the next patient (patient 103). This patient is classified as endogenous.



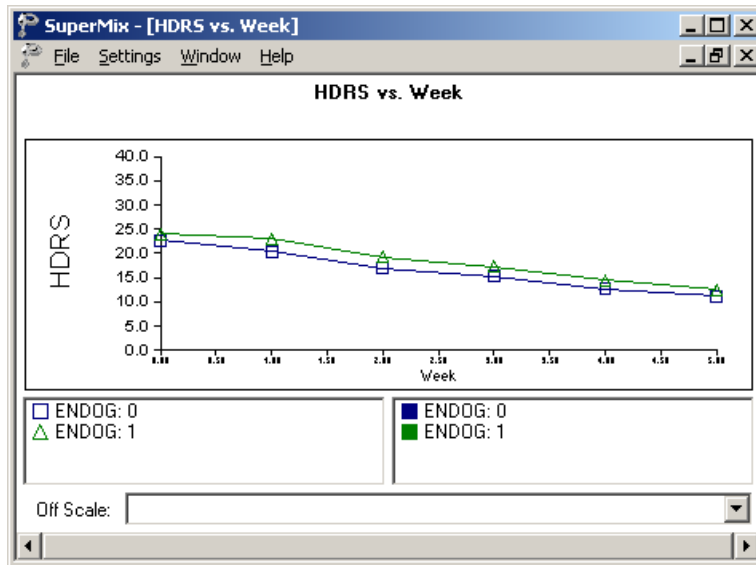
The "slider" can be used to skip over patients and the left arrow used to obtain the previous graph.

Average trends

It is often of interest to obtain a graphical display of the trend of the outcome variable over time for subgroups of the data. In the next illustration, a simultaneous graphical display of HDRS against Week is requested for non-endogenous and endogenous patients. This is accomplished by selecting ENDOG as the **Overlay** variable. The default display is black and white, but by specifying ENDOG as the **Color** attribute, the trend lines are displayed in color.

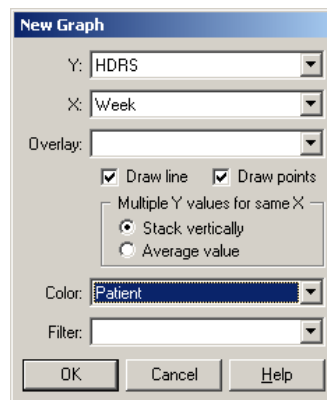
The "New Graph" dialog box has the following settings: Y-axis: HDRS; X-axis: Week; Overlay: ENDOG; Draw line; Draw points; Multiple Y values for same X: Stack vertically, Average value; Color: ENDOG; Filter: (empty). Buttons for OK, Cancel, and Help are at the bottom.

From the display below, it is evident that the average HDRS scores for non-endogenous patients (the square symbol) are consistently lower over time when compared to the endogenous patients (the triangle symbol).

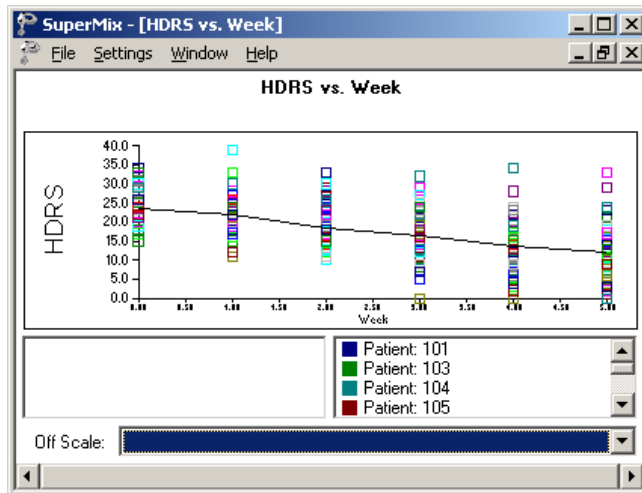


Variability in trend

It is often of interest to visually display the range of values of an outcome variable at different time points. To illustrate this type of graphic, select the **Stack vertically** option and select Patient as the **Color** attribute.



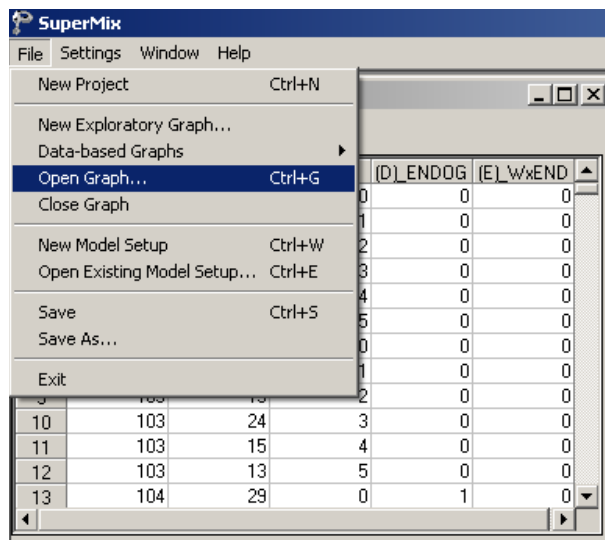
The resulting graph is shown below.



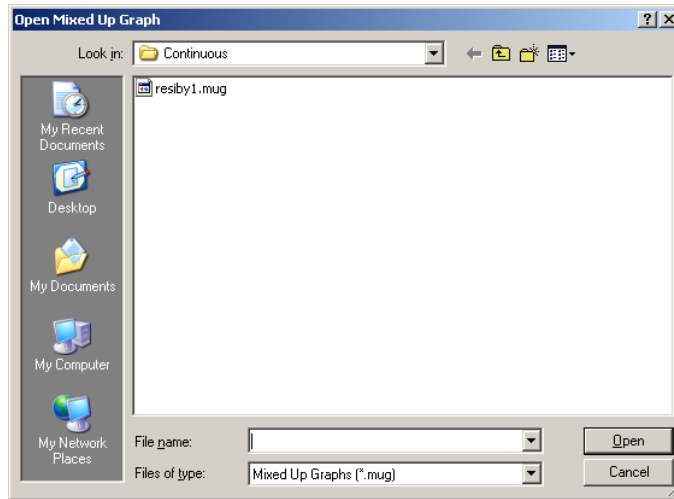
It is evident that there exists substantial variation in the HDRS scores at each time point. There also appear to be outlier values, corresponding to a few patients with much higher than average HDRS scores. At week 1 (recoded to 0), the range of HDRS values is approximately 14 to 35, whereas the range of HDRS values is approximately 0 to 35 at the end of sixth week (recoded to 5).

Editing exploratory graphs

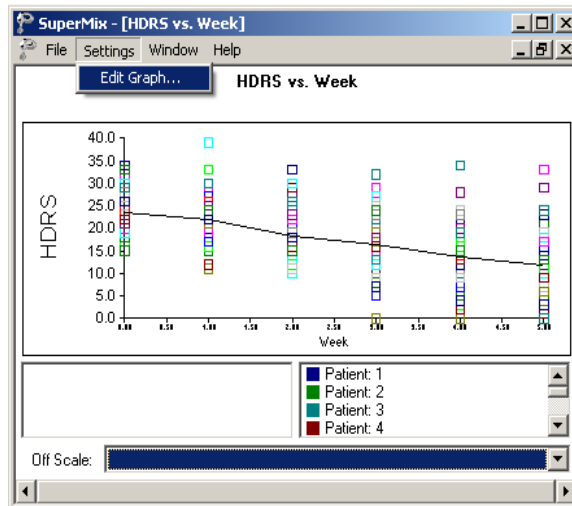
Exploratory graphics created using the **Data-based Graphs, Exploratory...** option can be saved as a **.mug** file via the **File, Save** or **File, Save As** options. To illustrate, we saved the previous graph as **reisby1.mug** in the **Graphics** folder. To display or edit a saved graphics file on a later occasion, select the **File, Open Graph** option from the main menu bar.



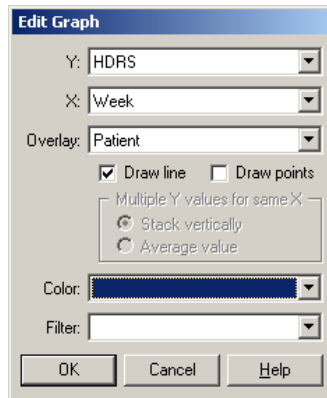
Browse for the file **reisby1.mug** and click the **Open** button to display the graph.



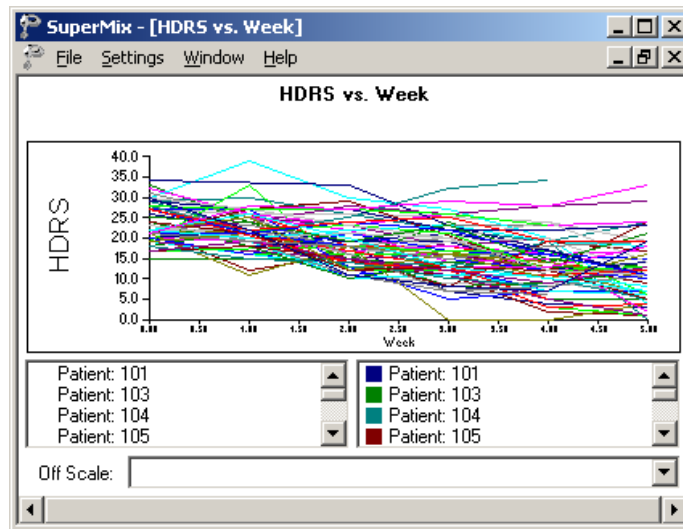
To edit the previously defined settings, select the **Settings, Edit Graph** option from the main menu bar.



Change the previous displayed graph by choosing the settings shown on the **Edit Graph** dialog box below. Note that a trend line will be displayed for each patient.



These trend lines are overlaid on a single axis system as shown below.



The visual display of the HDRS trends clearly demonstrates the large variation in HDRS scores over time.