

An Visual Alternative to Correlations: Scatterplots

SPSS Menu: GRAPHS

There are lots of different types of charts and figures you can draw in SPSS. The option called “Scatter...” will allow you to visualize the relationship between two interval level variables.

There are 4 initial choices

1. **Simple.** Use this option to show the bivariate distribution of two variables. It will reproduce the results of “Correlate...Bivariate”
2. **Matrix.** This type of chart will reproduce the results of a bivariate correlation matrix. That is, it will represent several correlations, all combinations of the variables you choose.
3. **Overlay.** This option provides another way to visualize multiple relationships or to overlay a regression line on a bivariate scatterplot.
4. **3-D.** This last option allows you to visualize multivariate relationships.

Let's focus on "Simple" Scatterplots:

The "Simple Scatterplot" window requires two basic decisions.

1. What is the dependent variable – to be represented by the Y axis?
2. What is the independent variable – to be represented by the X axis?

You may also chose

- To set the markers for the cases
- To add case labels
- To add titles
- To handle missing data

Having answered the first two questions, click OK and let's save the fine tuning until we see the basic setup of the chart.

Open the “Cholera1849.sav” file:

Create a simple scatterplot of V3 (Deaths/100,000) by V4 (Housing Value):

Enter V3 in the Y field.

Enter V4 in the X field.

Click OK.

Does it look like you hoped?

If “Yes”, you’re very lucky. Usually we will need to do some fine-tuning – and to add a variety of titles and labels to help the reader understand just what this graph is all about.

Assuming the picture facing you is one you’d like to “fix up”, double-click on the graph. A new window will open called the “Chart Editor”.

You now face a series of pull-down menu items. The most important ones are Chart, Series and Format. You also have a number of new buttons that will also allow you to modify the chart.

Editing Decisions

Add labels to this figure by using the Chart menu to add titles, subtitles, and footnotes. Experiment with their location. Do they look best at the top or bottom of the figure? Once they're in place you can edit them by clicking on the text.

For example:

Title1. Did the 1849 Cholera Epidemic Affect

Title2. All London Neighborhoods Equally?

Subtitle. Source: Snow, Table 3, 1852

Does this look better centered above the chart or below it? Should it be left justified or not?

Add Frames (use the chart menu) to improve the look of your figure.

Add labels to the axes. Click on the values on the X and Y labels to open a menu to edit the labels for the axes as well as change many of the attributes of these axes.

To change the plot further, use the Attributes menu or many of the buttons found just below the main menu line.

Attributes commonly altered include

- **Color.** (Great for visuals if you can project or reproduce these charts, e.g., you can alter the colors of different districts to reflect location or water source.)
- **Marker Style.** (Experiment with depth and size.)
- **Marker Labels.** (Incorporate data values into your graphs.)

Checking your graph.

Does it communicate the same message as the correlation it represents?

Do you have the correct independent and dependent variables in the graph?

Print/Save

When you finish composing a graph you like, print it out.

Under the file menu, choose “Print”.

If no printer is defined go to the “setup” sub-menu within the print menu. Send the graph to the “hp1” printer in Ketchum 3. Choose postscript “landscape” or “portrait” to control the orientation of the chart.

Click OK to return to the print menu.

Change the “Aspect” for the printer from print “as is” to “best for printer” to get a chart that appropriately fills the page.

Click OK.

Use the “Save As” command in the File Menu to save a chart or figure for when you return.