

Correlation Coefficients

Studies that involve the use of correlation coefficients focus on the relationship between two or more measures for a single group of subjects. In other words, there is no attempt to determine if one group outperforms another, since the sample is not separated into groups for comparison.

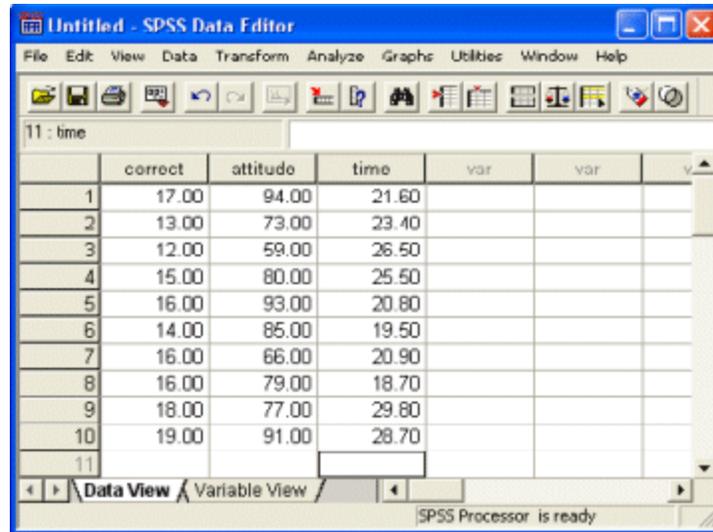
Consider the following example:

A researcher is interested in determining if there is a relationship between the total number of problems correct and subjects' attitude toward test taking. In order to conduct the study, the research selects a group of 10 individuals to serve as the subjects. Each subject is administered a 20 item test and an attitude toward test taking survey with a possible score of 100. Additionally, the researcher recorded the amount of time that each subject required to complete the test. The following data was obtained from the subjects.

Subject	Number of Problem Correct	Attitdue Toward Test Taking	Time to Required to Complete the Test (in minutest
1	17	94	21.6
2	13	73	23.4
3	12	59	26.5
4	15	80	25.5
5	16	93	20.8
6	14	85	19.5
7	16	66	20.9
8	16	79	18.7
9	18	77	29.8
10	19	91	28.7

Since columns in the SPSS data editor correspond to the measurements that are obtained, this example will require two columns: one for the number correct information and one for the attitude information. The following illustration shows the proper data format when obtaining correlation coefficients.

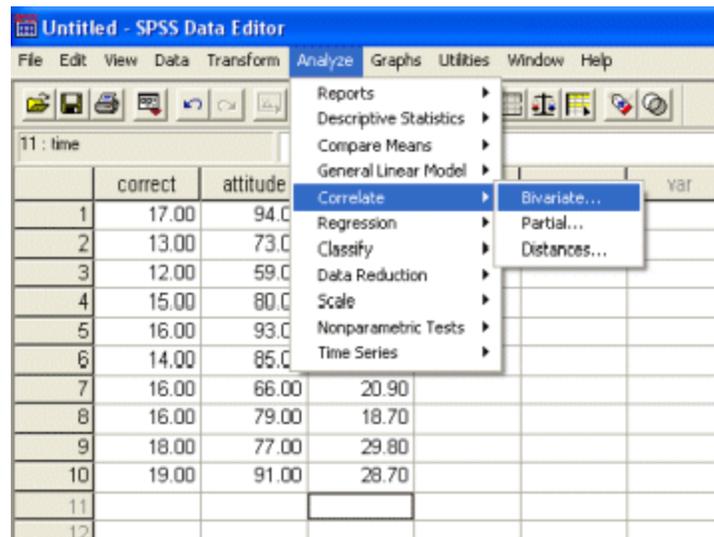
Correlation Coefficient



	correct	attitude	time	var	var	v
1	17.00	94.00	21.60			
2	13.00	73.00	23.40			
3	12.00	59.00	26.50			
4	15.00	80.00	25.50			
5	16.00	93.00	20.80			
6	14.00	85.00	19.50			
7	16.00	66.00	20.90			
8	16.00	79.00	18.70			
9	18.00	77.00	29.80			
10	19.00	91.00	28.70			
11						

In the above illustration, the columns correspond to the measurements that were collected while the rows correspond to the subjects. For example, the first row contains the number of problems correct and attitude score for subject number 1. **When entering data for a correlation, each row must contain data from one and only one subject. If row one contains the number correct for subject 1 and the attitude value for subject 3 (perhaps because the researcher reordered the attitude values from lowest to highest), then the resulting correlation value will not be correct.**

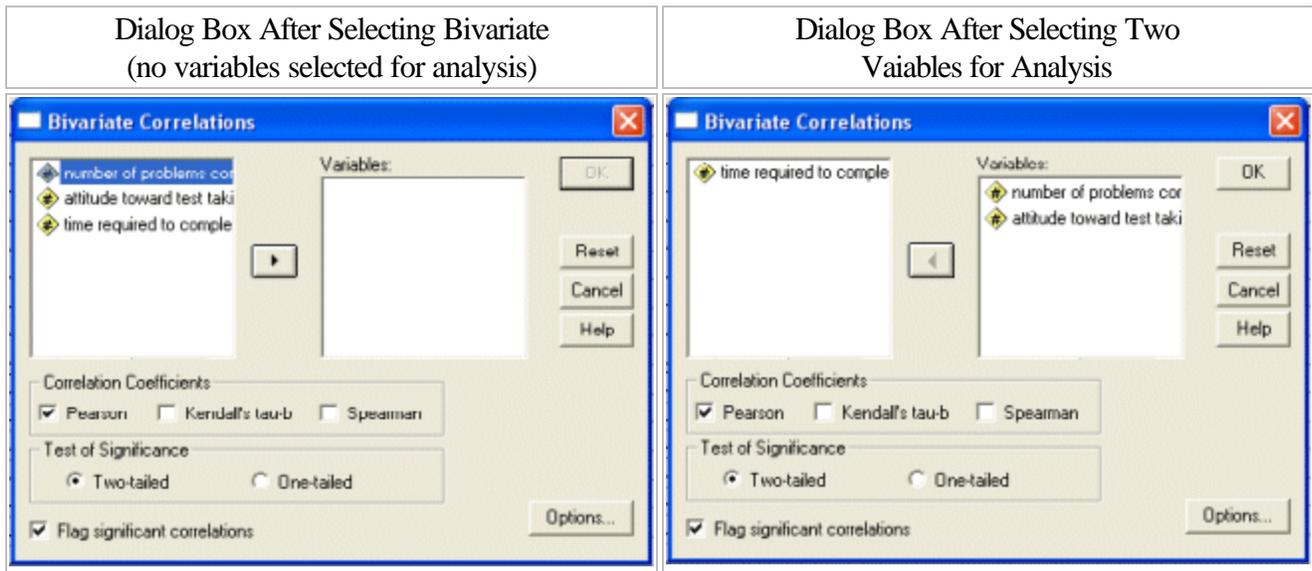
After the data has been entered, the correlation coefficient and significance level can be obtained by selecting Analyze -> Correlate -> Bivariate (see illustration below)



After selecting Bivariate, the Bivariate Correlations dialog box will be displayed. This box contains two windows. The window on the left side contains a list of the variables in the current data file. The window on the right contains the list of variables that you want to use for calculating the correlation coefficients. When

Correlation Coefficient

the dialog box is first opened, the window on the right will be empty. In order to move a variable from the window on the left to window on the right, double click on the desired variable **or** single click on the desired variable and then click the arrow button located between the two windows. The following illustrations show the dialog box when first opened and after two variables (number correct and attitude value) have been selected for analysis.

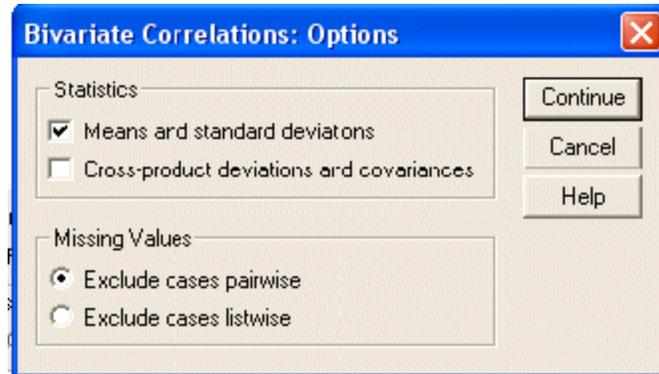


If a variable is inadvertently selected (or if another analysis is to be conducted involving different variables), it can be removed from the window on the right by double clicking on the variable **or** by single clicking and clicking the arrow located between the windows.

Note: If an additional correlation analysis is conducted without beginning a new data file, the variables from the first correlation analysis will be displayed in the window on the right after selecting Analyze -> Correlate -> Bivariate. In this situation, simply remove the unneeded variables from the window on the right using the procedure in the previous paragraph and then selecting the new variables from the window on the left.

After the desired variables have been selected, additional information can be requested by selecting Options. By selecting the box preceding Means and Standard Deviations, the resulting output will include not only the correlation coefficient and significance level, but also the mean and standard deviation for each measurement.

Correlation Coefficient



After selecting the desired options from the Options dialog box, click Continue and return to the Bivariate Correlation dialog box. Selecting OK will perform the analysis and generate the requested output. Based on the above example, the output would include the correlation coefficient for the relationship between the number of problems correct and attitude toward test taking, the significance level for the reported correlation coefficient, and the mean and standard deviation for each measurement.