

This guide provides an overview of SPSS: what it is, how it works, and a glossary of some key terms, which will help you as you begin to use it. SPSS (Statistical Package for the Social Sciences) is a specialist software package used in a variety of industries and sectors to analyse statistics. As its name suggests, it is most commonly associated with social sciences, such as economics and sociology, but it is also frequently used in health sciences like psychology. Please note, this guide is intended for beginners; it is recommended that you use it together with one of the many SPSS guides available in the libraries.

What is SPSS?

As noted above, SPSS is specialist software most commonly used to analyse statistics. In addition, it also provides means of managing and documenting data. The software can produce descriptive statistics (such as descriptives and frequencies), bivariate statistics (such as means and t tests), predictions for numerical outcomes (for example, linear regression), and predictions for identifying groups (such as cluster analyses).

In order to implement its features effectively, it is vital that you spend time developing a carefully planned and cogent design for your study. Questions to consider at the planning stage include: what type of research design will you be using? What sort of data will I be collecting and how will I measure it? Is it appropriate to use a questionnaire to collect this data? Your study then needs to be completed efficiently.

Having carried out your study, you will need to create a 'codebook' to convert the data you have collected into a format suitable for SPSS. At a basic level, this 'codebook' requires you to label each of the variables and number each of the potential responses.

How does SPSS work?

The software functions through a series of windows. The principal windows you will be using are: *Data Editor*; *Viewer*; *Pivot Table Editor*; *Chart Editor*; and *Syntax Editor*. Several of these windows will be open at the same time, so it is a good idea to check which one you are using before entering any information. What do these windows do?

Data Editor

Displays contents of your data file; allows you open, save and close existing data files, create new files, enter data, and run statistical analyses.

Viewer

Displays results of analyses run, including tables and charts; allows modification of output; includes navigation pane on the left of the screen containing all analyses run.

Pivot Table Editor

Allows modification of tables displayed in Viewer window.

Chart Editor

Allows modification of histogram, bar graph or scatterplot charts.

Syntax Editor

Displays the syntax or language used by SPSS underneath the menus in each window.

Glossary of key terms

You will meet a variety of technical terms used within SPSS as you work more closely with the software. Here is a list of some of the most common ones:

Alpha

Significance level, commonly expressed as a proportion.

ANCOVA

Acronym standing for 'analysis of covariance'.

ANOVA

Acronym standing for 'analysis of variance'.

Bivariate

Of or relating to two variables.

Case

A collection of values belonging to a unit in the Data File.

Correlation

Linear relationship between two variables; correlation analysis is used to express this relationship.

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Covariate

A factor exerting influence on the variable being studied; this factor, and others like it, can be included in an ANCOVA analysis.

Descriptives

Statistics giving you an overview of your data, including mean, standard deviation and range of scores.

Discriminant analysis

An analysis used to predict a categorical dependent variable by one or more continuous independent variables.

F test

A test to determine if two variances are equal.

Factor analysis

A process used to identify factors explaining variation and covariation among variables.

Frequencies

Statistics indicating occurrences of particular responses (for example).

MANOVA

Acronym for 'multivariate analysis of variance'. A MANOVA test, like an ANOVA, uses independent variables as factors. However, in a MANOVA, there are multiple dependent variables rather than only one.

Mean

The arithmetic average of given values.

Median

Value positioned at the midpoint of a set of distributed values.

Mode

The value appearing most often in a set of values.

Multivariate

Of or relating to many variables.

Nonparametric procedures

Tests used to address problems including one or more variables measured on scales not based on numbers (e.g. the binomial test).

Outlier

An observation point located at an abnormal distance from other observations.

Partial correlation

Examining a relationship between two variables while controlling another.

Regression analysis

A method used to approximate relationships among variables.

Reliability analysis

A command within SPSS to run Cronbach's alpha test.

Scaling procedures

Methods used to examine relationships among scales or other evaluative instruments in order to assess psychometric properties.

Screening or cleaning data

A process used to ensure that collected data is ready to use (e.g. checking for outliers).

T test

A test used to compare the mean scores of two groups or two sets of data on the same continuous variable.

Univariate

Of or relating to one dependent variable.

Value

In SPSS, data found in any cell entry.

Variable

A factor that can assume more than one value.

Variance

A statistic indicating the extent to which a set of numbers stand apart; equal to the squared standard deviation.

Resources

Before looking at any resources on SPSS, check to see which version of the software is being looked at. The libraries have many books on SPSS, but a good place to start is with Julie Pallant's *SPSS Survival Manual*. For more information, visit the Academic Skills pages on Study.

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