SPSS Tip 10.1
Computing *t* from means, *SD*s and *N*s ▮▮▮▮

Using syntax, you can compute an independent *t*-test from just the group means, standard deviations and sample sizes. Set up six variables in the data editor: **x1** (mean of group 1), **x2** (mean of group 2), **sd1** (standard deviation of group 1), **sd2** (standard deviation of group 2), **n1** (sample size of group 1) and **n2** (sample size of group 2). Type the values of each of these in the first row of the data editor. Open a syntax window and type the following:

```
COMPUTE df = n1+n2−2.
COMPUTE poolvar = (((n1−1)*(sd1**2))+((n2−1)*(sd2**2)))/df.
COMPUTE t = (x1−x2)/sqrt(poolvar*((1/n1)+(1/n2))).
COMPUTE sig = 2*(1−(CDF.T(abs(t),df))).
Variable labels sig 'Significance (2-tailed)'.
EXECUTE.
```

The first line computes the degrees of freedom, the second the pooled variance, s_p^2, the third *t* and the fourth its two-tailed significance. All these values will be created in new columns in the data editor. The line beginning 'Variable labels' labels the significance variable so that we know that it is two-tailed. To display the results in the viewer window we could use this syntax:

```
SUMMARIZE
/TABLES = x1 x2 df t sig
/FORMAT = VALIDLIST NOCASENUM TOTAL LIMIT = 100
/TITLE = 'T-test'
/MISSING = VARIABLE
/CELLS = NONE.
```

These commands produce a table of the variables **x1**, **x2**, **df**, **t** and **sig**, so you'll see the means of the two groups, the degrees of freedom, the value of *t* and its two-tailed significance.

You can run lots of *t*-tests at the same time by putting different values for the means, SDs and sample sizes in different rows. If you do this, though, I suggest having a string variable called **Outcome** in the file in which you type what was being measured (or some other information so that you can identify to what the *t*-test relates). I've used these commands in a syntax file called **Independent t from means.sps**. My file is a bit more complicated because it also calculates Cohen's *d*. For an example of how to use it see Labcoat Leni's Real Research 10.1.