

## How to conduct the test of equal variances using Excel

SPSS gives you Levene's test by default when you are conducting the independent t-test. In Excel, on the other hand, Levene's test is not provided when conducting the independent t-test. So, what should we do? Certainly, it does not mean that you can skip the test of equal variances (that is an assumption of the independent t test). I have two suggestions.

### Option 1.

You can conduct "F-Test Two-Sample for Variances", an option available in Excel. This is an OK test. You just have to assume that the data are pretty much normally distributed. A step-by-step guide can be seen at: [http://www.stattutorials.com/EXCEL/EXCEL\\_TTEST1.html](http://www.stattutorials.com/EXCEL/EXCEL_TTEST1.html).

### Option 2. (Advanced Users Only)

Now for those who would like to conduct Levene's test using Excel, I found an Excel sheet in the internet ([www.stat.ufl.edu/~winner/computing/excel/levene.xls](http://www.stat.ufl.edu/~winner/computing/excel/levene.xls)). I checked it out and it works! Levene's test is considered to be more robust when data are not normally distributed. In the sheet, you need to enter the number of groups, the number of subjects in each group, and the raw data. Everything else will be automatically calculated. Now, when I first tried this, I did not get the same Levene's statistic as SPSS gives us. Then, I found out there are 4 ways to calculate Levene's statistic! In the formula to calculate Levene's statistic (which is rather complicated, thus not shown here), you can use mean, median, or two other measures of central tendency. SPSS uses mean. The sheet from the above site uses median. So, if you just have to get the same value of Levene's statistic as in SPSS (like I was determined to do so), all you have to do is to replace the median values with the mean values in the Excel sheet. Then, you get the same Levene's statistic in Excel as you see in SPSS. Good luck!