

## Effects Sizes

The main focus of inferential statistics is to establish whether there is a statistically significant effect in the data (i.e., it has not occurred by chance).

However, the probability value does not tell us anything about the degree of the effect (they just say if there is a significant difference, for example).

Therefore, we need to check if the data has any practical or theoretical significance.

One way to assess the importance of findings is in the effect size.

Many statistical analyses that are conducted through SPSS include the option of calculating effect size (you would just need to tick the relevant box to select this option while conducting the analysis). Guidelines proposed by Cohen (1988) can then be used to determine whether the effect size is small, medium, or large (you would need to consult your SPSS books relating to the specific analysis you have conducted to see what type of effect size statistic has been conducted to know how to apply the guidelines – e.g., partial eta squared).

However, when conducting a t-test analysis, there is no option in SPSS to calculate the effect size. Therefore, we need to calculate this ourselves by hand.

### Calculating effect size using Eta-Squared

**Independent** samples t-test =

$$\frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

Use this formula for the  
t-test assessment report

**Paired** samples t-test =

$$\frac{t^2}{t^2 + (N - 1)}$$

The guidelines proposed by Cohen (1988) for interpreting this value from the t-test are:

.01 = Small

.06 = Medium

.14 = Large