

For a one-way ANOVA effect size is measured by  $f$  where

$$f = \sqrt{\frac{\sum_{i=1}^k p_i * (\mu_i - \mu)^2}{\sigma^2}}$$

where  $p_i = n_i / N$ ,  
 $n_i$  = number of observations in group  $i$   
 $N$  = total number of observations  
 $\mu_i$  = mean of group  $i$   
 $\mu$  = grand mean  
 $\sigma^2$  = error variance within groups

where  $k$  is the number of groups and  $n$  is the common sample size in each group.

Cohen suggests that  $f$  values of **0.1**, **0.25**, and **0.4** represent small, medium, and large effect sizes respectively.

So if you end up with an effect size value of 0.45, you can assume the effect size is very large. It also means that 45% of the change in the Dependent variable can be accounted for by the Independent variable.