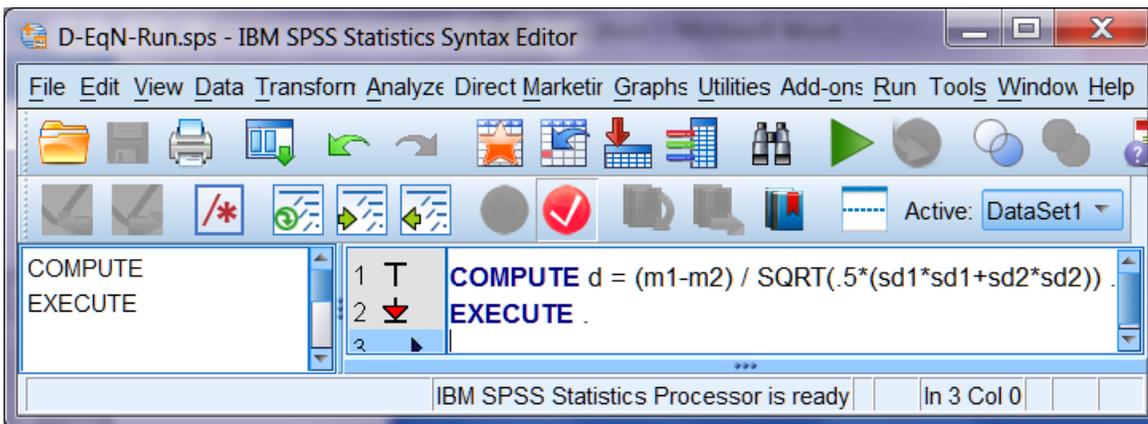


SPSS Script for Estimating Cohen's d , Equal Sample Sizes.

I find this most useful when conducting correlated t tests, in which case the sample sizes will always be equal. IMHO, one should ignore the correlation between samples when estimating d with correlated samples. That is, $\hat{d} = \frac{M_1 - M_2}{S_{pooled}}$, where $S_{pooled} = \sqrt{.5(s_1^2 + s_2^2)}$.

SPSS does not include d in its output for t tests, but you can use my script to get SPSS to compute it for you. After you have conducted the t test, bring into SPSS the data file [D-EqN-Dat](#). Enter, in the appropriate cells, the values for the mean (m1) and standard deviation (sd1) for the first sample, and then do the same for the second sample (m2 and sd2). Then bring into SPSS the script [D-EqN-Run](#). In the syntax editor window click Run, All. Look back at the data sheet and you will see the value of d .



	m1	sd1	m2	sd2	d
1	22.729	10.443	13.292	10.466	.903

Why not use the standard deviation of the difference scores as the standardizer?

Think about the r in the variance sum law: $\sigma_{Y_1-Y_2} = \sqrt{\sigma_{Y_1}^2 + \sigma_{Y_2}^2 - 2 * \rho * \sigma_{Y_1} * \sigma_{Y_2}}$. Now suppose that you found a difference on a test of clerical accuracy between individuals tested after taking a placebo and individuals tested after taking a sedating antihistamine. The difference in means is 3. Within each group the standard deviation is 10. You have independent samples. The d is $3/10 = .3$. Now suppose that you had correlated samples with the same difference in means and the same within-condition standard deviations. The correlation between samples will result in the standard deviation of the difference scores being less than the standard deviation within each group (again, remember

the ρ in the variance sum law). Suppose it is reduced to a value of 7. If you were to use the standard deviation of the difference scores as the standardizer when estimating d , you would obtain a value of $3/7 = .43$ – but the difference between the means is still just 3 points. Why should $d = .3$ with independent samples but $.43$ with correlated samples when the difference between means is the same in both cases and the within-conditions standard deviations the same as well?

[Want to put a Confidence Interval on Estimated \$d\$?](#)

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