

Example Calculation of Eta-squared from SPSS Output

- SPSS doesn't provide the recommended eta-squared (η^2) as a measure of effect size for ANOVA effects.
- η^2 can be calculated from the ANOVA table.
- The 2 x 2 Factorial ANOVA example below has two IVs and one DV:
 - IV1 = Gender (Male/Female)
 - IV2 = Health (Low/High)
 - DV = No. of hours slept per night

Tests of Between-Subjects Effects

Dependent Variable: sleep

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Corrected Model	28.954 ^b	3	9.651	6.548	.000	.096	19.644	.970
Intercept	9851.781	1	9851.781	6684.094	.000	.973	6684.094	1.000
gender	4.212	1	4.212	2.858	.093	.015	2.858	.391
health	26.196	1	26.196	17.773	.000	.088	17.773	.987
gender * health	.090	1	.090	.061	.805	.000	.061	.057
Error	271.200	184	1.474					
Total	11192.500	188						
Corrected Total	300.154	187						

a. Computed using alpha = .05

b. R Squared = .096 (Adjusted R Squared = .082)

$$\eta^2 = \frac{SS_{\text{between}}}{SS_{\text{total}}}$$

$$SS_T = 4.212 + 26.196 + .090 + 271.200 = 301.70$$

$$\begin{aligned} \eta^2 \text{ for Gender} &= 4.212 / 301.70 = 0.01 \\ \eta^2 \text{ for Health} &= 26.196 / 301.70 = 0.09 \\ \eta^2 \text{ for interaction} &= 0.090 / 301.70 = 0.00 \\ \eta^2 \text{ for error} &= 271.200 / 301.70 = 0.90 \end{aligned}$$

The sum of the η^2 is 1.

In this example, the IVs explain 10% of the variance in Sleep. Health explains 9%.