

# Example Calculation of Eta-squared from Mixed ANOVA SPSS Output

## Tests of Within-Subjects Effects

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
healthtype	Sphericity Assumed	2.238	1	2.238	14.590	.000	.073	14.590	
	Greenhouse-Geisser	2.238	1.000	2.238	14.590	.000	.073	14.590	
	Huynh-Feldt	2.238	1.000	2.238	14.590	.000	.073	14.590	
	Lower-bound	2.238	1.000	2.238	14.590	.000	.073	14.590	
healthtype * gender	Sphericity Assumed	.217	1	.217	1.411	.236	.008	1.411	
	Greenhouse-Geisser	.217	1.000	.217	1.411	.236	.008	1.411	
	Huynh-Feldt	.217	1.000	.217	1.411	.236	.008	1.411	
	Lower-bound	.217	1.000	.217	1.411	.236	.008	1.411	
Error(healthtype)	Sphericity Assumed	28.377	185	.153					
	Greenhouse-Geisser	28.377	185.000	.153					
	Huynh-Feldt	28.377	185.000	.153					
	Lower-bound	28.377	185.000	.153					

a. Computed using alpha = .05

$$SS_T = 2.238 + 0.217 + 28.377$$

$$= 30.832$$

$$\eta^2 \text{ for Health Type} = 2.238 / 30.832 = 0.073$$

$$\eta^2 \text{ for interaction} = 0.217 / 30.832 = 0.010$$

$$\eta^2 \text{ for error} = 28.377 / 30.832 = 0.920$$

The sum of the  $\eta^2$ s is 1.

In this example, the within-subject IVs explain 8% of the within-subject variance health (physical and mental). Differences between physical and mental health explain 8% of the health variance, whilst the interaction between gender and type of health explains 1%.

### Tests of Between-Subjects Effects

Measure: MEASURE\_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Intercept	1059.088	1	1059.088	4005.377	.000	.956	4005.377	1.000
gender	.104	1	.104	.395	.531	.002	.395	.096
Error	48.917	185	.264					

a. Computed using alpha = .05

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

$$\begin{aligned} SS_T &= 0.104 + 48.917 \\ &= 49.021 \end{aligned}$$

$$\eta^2 \text{ for Gender} = 0.104 / 49.021 = 0.002$$

$$\eta^2 \text{ for error} = 48.917 / 49.021 = 0.998$$

The sum of the  $\eta^2$ s is 1.

In this example, Gender, the between-subject IV explains 0% of the between-subject variance in health (physical and mental).