

SPSS Analysis of Using General Linear Model – Univariate

The data are from an experiment run to evaluate the effect of solitary confinement on brain activity of prisoners, i.e. frequency of brain waves. There are two factors of interest: the whole plot factor (Solitary Confinement – 1 = “Yes”, 2 = “No”) and the subplot factor (Day – 1, 4, 7). The prisoners are repeatedly measured on days 1, 4, and 7. There are four columns in the SPSS Data Table: Solitary, Prisoner, Day and Frequency.

Solitary	Prisoner	Day	Frequency
1	1	1	14
1	2	1	24
1	3	1	21
1	4	1	20
1	5	1	15
1	6	1	17
1	7	1	16
1	8	1	10
1	9	1	6
1	10	1	32
2	11	1	20
2	12	1	16
2	13	1	15
2	14	1	20
2	15	1	14
2	16	1	13
2	17	1	4
2	18	1	22
2	19	1	21
2	20	1	13
1	1	4	7
1	2	4	16
1	3	4	10
⋮	⋮	⋮	⋮
2	18	7	21
2	19	7	22
2	20	7	14

You will need to use Analyze – General Linear Model – Univariate

- The Dependent Variable is Frequency.
- The Fixed Factors are Solitary and Day.
- A Random Factor is Prisoner.
- Click on Model and change Factorial to Custom.
- Use the Build Term(s) arrow to include Solitary, Prisoner, Day and Day*Solitary in your model. The interaction term, Day*Solitary, can be included by highlighting both Day and Solitary under Factors & Covariates and clicking on Build Term(s). Click on Continue.
- Click on Post Hoc and select LSD and put Solitary and Day under Post Hoc tests for. Click on Continue.
- Click on OK.

The output from this analysis appears below.

Tests of Between-Subjects Effects

Dependent Variable: Frequency

Source		Type I Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	11426.400	1	11426.400	127.733	.000
	Error	1610.200	18	89.456(a)		
Solitary	Hypothesis	248.067	1	248.067	2.773	.113
	Error	1610.200	18	89.456(a)		
Prisoner	Hypothesis	1610.200	18	89.456	31.573	.000
	Error	102.000	36	2.833(b)		
Day	Hypothesis	256.900	2	128.450	45.335	.000
	Error	102.000	36	2.833(b)		
Solitary * Day	Hypothesis	260.433	2	130.217	45.959	.000
	Error	102.000	36	2.833(b)		

(a) MS(Prisoner)

(b) MS(Error)

Warnings

Post hoc tests are not performed for Solitary because there are fewer than three groups.

Multiple Comparisons

Dependent Variable: Frequency

LSD

(I) Day	(J) Day	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
1.00	4.00	3.7000(*)	.53229	.000	2.6205	4.7795
	7.00	4.8500(*)	.53229	.000	3.7705	5.9295
4.00	1.00	-3.7000(*)	.53229	.000	-4.7795	-2.6205
	7.00	1.1500(*)	.53229	.037	.0705	2.2295
7.00	1.00	-4.8500(*)	.53229	.000	-5.9295	-3.7705
	4.00	-1.1500(*)	.53229	.037	-2.2295	-.0705

Based on observed means.

* The mean difference is significant at the .05 level.