

### SPSS 3 Practice – answers to output generation questions

A researcher is interested in the effects of music on stress levels, and how stress levels might be related to anxiety and life satisfaction.

1. Conduct a 2 (gender) x 3(music type) completely between subjects factorial ANOVA on stress ratings. Be sure to include means, standard deviations, and effect sizes.

#### Descriptive Statistics

Dependent Variable: Stress Level

Gender	Music	Mean	Std. Deviation	N
Male	No music	2.71	.951	7
	Hardcore Gangster Rap	7.40	.548	5
	Mozart	4.33	.516	6
	Total	4.56	2.064	18
Female	No music	2.20	1.095	5
	Hardcore Gangster Rap	7.29	1.254	7
	Mozart	3.83	.753	6
	Total	4.72	2.421	18
Total	No music	2.50	1.000	12
	Hardcore Gangster Rap	7.33	.985	12
	Mozart	4.08	.669	12
	Total	4.64	2.219	36

#### Tests of Between-Subjects Effects

Dependent Variable: Stress Level

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	147.282 <sup>a</sup>	5	29.456	35.314	.000	.855
Intercept	756.577	1	756.577	907.028	.000	.968
Gender	1.250	1	1.250	1.498	.230	.048
Music	144.528	2	72.264	86.634	.000	.852
Gender * Music	.302	2	.151	.181	.835	.012
Error	25.024	30	.834			
Total	947.000	36				
Corrected Total	172.306	35				

a. R Squared = .855 (Adjusted R Squared = .831)

2. Conduct a Oneway ANOVA on life satisfaction using music conditions as the independent factor. Conduct a Tukey post-hoc test, and show the means and standard deviations.

**Descriptives**

Life Satisfaction								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
No music	12	4.67	1.775	.512	3.54	5.79	2	9
Hardcore Gangster Rap	12	5.25	2.301	.664	3.79	6.71	2	9
Mozart	12	7.50	1.168	.337	6.76	8.24	5	9
Total	36	5.81	2.149	.358	5.08	6.53	2	9

**ANOVA**

Life Satisfaction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53.722	2	26.861	8.214	.001
Within Groups	107.917	33	3.270		
Total	161.639	35			

**Multiple Comparisons**

Life Satisfaction  
Tukey HSD

(I) Music	(J) Music	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
No music	Hardcore Gangster Rap	-.583	.738	.712	-2.39	1.23
	Mozart	-2.833*	.738	.002	-4.64	-1.02
Hardcore Gangster Rap	No music	.583	.738	.712	-1.23	2.39
	Mozart	-2.250*	.738	.012	-4.06	-.44
Mozart	No music	2.833*	.738	.002	1.02	4.64
	Hardcore Gangster Rap	2.250*	.738	.012	.44	4.06

\*. The mean difference is significant at the 0.05 level.

3. Conduct a Chi-Square Test of Independence on the relationship between gender and whether or not subjects exercise. Be sure to include expected values and measures of effect size. Include a clustered bar graph of this relationship as well.

**Gender \* Exercise Crosstabulation**

			Exercise		
			no exercise	exercise	Total
Gender	Male	Count	11	7	18
		Expected Count	9.0	9.0	18.0
	Female	Count	7	11	18
		Expected Count	9.0	9.0	18.0
Total		Count	18	18	36
		Expected Count	18.0	18.0	36.0

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1- sided)
Pearson Chi-Square	1.778 <sup>a</sup>	1	.182		
Continuity Correction <sup>b</sup>	1.000	1	.317		
Likelihood Ratio	1.793	1	.181		
Fisher's Exact Test				.318	.159
Linear-by-Linear Association	1.728	1	.189		
N of Valid Cases	36				

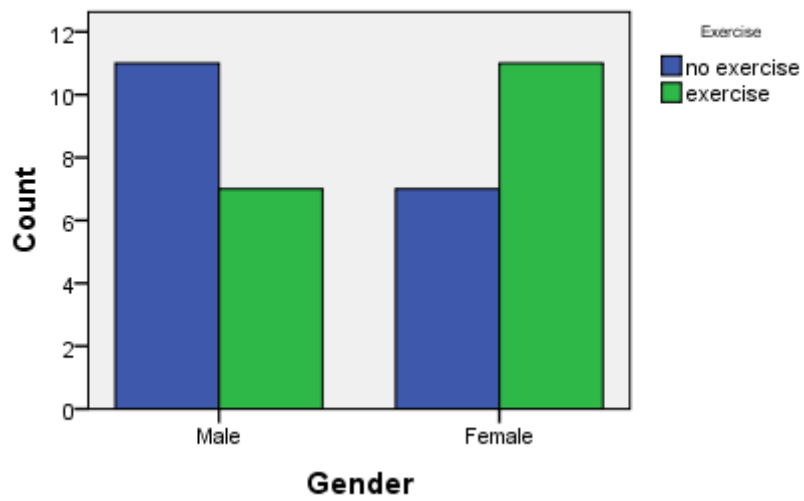
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.00.

b. Computed only for a 2x2 table

### Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.222	.182
	Cramer's V	.222	.182
N of Valid Cases		36	

### Bar Chart



4. Calculate the correlations between stress, anxiety, and life satisfaction ratings.

**Correlations**

		Stress Level	Anxiety	Life Satisfaction
Stress Level	Pearson Correlation	1.000	-.261	-.003
	Sig. (2-tailed)		.125	.985
	N	36.000	36	36
Anxiety	Pearson Correlation	-.261	1.000	-.253
	Sig. (2-tailed)	.125		.136
	N	36	36.000	36
Life Satisfaction	Pearson Correlation	-.003	-.253	1.000
	Sig. (2-tailed)	.985	.136	
	N	36	36	36.000

5. Calculate a point-biserial correlation between exercise and anxiety ratings.

**Correlations**

		Exercise	Anxiety
Exercise	Pearson Correlation	1.000	-.818**
	Sig. (2-tailed)		.000
	N	36.000	36
Anxiety	Pearson Correlation	-.818**	1.000
	Sig. (2-tailed)	.000	
	N	36	36.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).