

### SPSS 3 Practice – Interpretation 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.

- Below is the output of a 2 (gender) x 3(music type) completely between subjects factorial ANOVA on stress ratings

#### 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)

Report the results of this analysis in apa format, including means and standard deviations along with reporting effect sizes for gender, music type, and the gender by music type interaction.

Interpret the effect size for the main effect for music type.

Should there have been a post-hoc analysis for the main effect for music type? Why or why not?

2. Below is the output of a Oneway ANOVA on life satisfaction using music conditions as the independent factor along with a Tukey post-hoc test.

**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.

Write the results of the analysis in a paragraph in APA format, and include the means and standard deviations, the effect size, and the results of the post-hoc test.

3. Below is the output from a Chi-Square Test of Independence on the relationship between gender and whether or not subjects exercise.

**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.

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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	

Write the results of the analysis in APA format including the measure of effect size. In addition, report the probability of exercising, given you are a male and the probability of exercising, given you are a female.

4. Below is the correlation matrix for correlations between stress, anxiety, and life satisfaction.

**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

Write the results of these analyses in APA format.

4. Below is the output of 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).

Report this analysis in APA format. In your writeup, include and interpret the effect size.