Quiz #2 K-group ANCOVA with Multiple Covariates

Here's the ANOVA comparing the average depression of three marital status groups

Descriptive Statistics

Dependent Variable: depression (BDI)

MARITAL	Mean	Std. Deviation	N
single	8.14	7.032	242
married	5.98	5.470	121
divorced	7.79	5.867	42
Total	7.45	6.544	405

Compute the pairwise mean differences

Single vs. married

Single vs. divorced

Married vs. divorced

Tests of Between-Subjects Effects

Dependent Variable: depression (BDI)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	381.908[a]	2	190.954	4.537	.011
Intercept	13243.335	1	13243.335	314.675	.000
MARITAL	381.908	2	190.954	4.537	.011
Error	16918.497	402	42.086		
Total	39805.000	405			
Corrected Total	17300.405	404			

a. R Squared = .022 (Adjusted R Squared = .017)

Parameter Estimates

Dependent Variable: depression (BDI)

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	7.786	1.001	7.778	.000	5.818	9.754
[MARITAL=1]	.351	1.084	.323	.747	-1.781	2.482
[MARITAL=2]	-1.811	1.162	-1.558	.120	-4.095	.474
[MARITAL=3]	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Is there a group difference in average depression scores?

What kind of coding did SPSS use?

Reconstruct the codes SPSS used

Which groups have significantly different depression means?

Would you be comfortable giving this difference a causal interpretation? Why or why not?

Here's a related ANCOVA…

Tests of Between-Subjects Effects

Dependent Variable: depression (BDI)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9301.454[a]	6	1550.242	77.135	.000
Intercept	3742.597	1	3742.597	186.219	.000
TSS	236.333	1	236.333	11.759	.001
STRESS	1000.328	1	1000.328	49.773	.000
SES	3656.315	1	3656.315	181.926	.000
AGE	1.478	1	1.478	.074	.786
MARITAL	9.059	2	4.529	.225	.798
Error	7998.951	398	20.098		
Total	39805.000	405			
Corrected Total	17300.405	404			

a. R Squared = .538 (Adjusted R Squared = .531)

Parameter Estimates

Dependent Variable: depression (BDI)

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	31.298	2.546	12.293	.000	26.293	36.304
TSS	-.723	.211	-3.429	.001	-1.137	-.308
STRESS	.231	.033	7.055	.000	.167	.296
SES	-.662	.049	-13.488	.000	-.759	-.566
AGE	-9.65E-03	.036	-.271	.786	-7.960E-02	6.030E-02
[MARITAL=1]	.658	1.024	.643	.521	-1.354	2.671
[MARITAL=2]	.466	.819	.569	.569	-1.143	2.075
[MARITAL=3]	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

MARITAL

Dependent Variable: depression (BDI)

MARITAL	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
single	7.580[a]	.382	6.828	8.332
married	7.388[a]	.538	6.329	8.446
divorced	6.922[a]	.825	5.299	8.544

a. Evaluated at covariates appeared in the model: total social support = 5.6233, STRESS = 8.70, self seteem scale = 33.30, AGE = 28.48.

Is there a "marital status" effect after controlling for TSS, STRESS & AGE?

Why do you think the bivariate and multivariate models differed?

Which do you "believe"? Why?

What question "haunts" you?

What would you like to be able to do about it?

What's the "best you can do" instead of what you'd like to do?????