Post-Hoc Test

The ANOVA we have just calculated tells us there is a difference in the mean police confidence levels depending on whether or not a survey respondent is worried about an attack. However, we don't yet know what these differences are. Let's say now you want to see how all the categories in **wattack** are different from each other. You can run a post-hoc test in addition to the ANOVA to produce comparisons between all the categories in your model.

Go back to **Analyze**, **Compare Means**, and then **One-Way ANOVA**. The information from our previous ANOVA should still be there. Click on **Post Hoc** on the right side of the dialogue box and select **LSD** (or Least Square Difference) under the **Equal Variances Assumed** header. This just defines what type of post-hoc comparison we're running. There are many different types we could use, but the LSD is a standard one. Click **Continue**, and then **OK** in the original dialogue box.

You should have an output table like this:

Multiple Comparisons

Dependent Variable: I have confidence in the police

LSD

(I) How worried about being physically attacked by strangers	(J) How worried about being physically attacked by strangers	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Very worried	Fairly worried	-.20779	.16782	.216	-.5367	.1212
	Not very worried	.25281	.14854	.089	-.0383	.5440
	Not at all worried	.76757*	.15634	.000	.4611	1.0740
	(Not applicable)	2.04704	1.20259	.089	-.3103	4.4043
Fairly worried	Very worried	.20779	.16782	.216	-.1212	.5367
	Not very worried	.46060*	.11788	.000	.2295	.6917
	Not at all worried	.97536*	.12757	.000	.7253	1.2254
	(Not applicable)	2.25484	1.19919	.060	-.0958	4.6055
Not very worried	Very worried	-.25281	.14854	.089	-.5440	.0383
	Fairly worried	-.46060*	.11788	.000	-.6917	-.2295
	Not at all worried	.51475*	.10087	.000	.3170	.7125
	(Not applicable)	1.79423	1.19665	.134	-.5514	4.1399
Not at all worried	Very worried	-.76757*	.15634	.000	-1.0740	-.4611
	Fairly worried	-.97536*	.12757	.000	-1.2254	-.7253
	Not very worried	-.51475*	.10087	.000	-.7125	-.3170
	(Not applicable)	1.27948	1.19764	.285	-1.0681	3.6271
(Not applicable)	Very worried	-2.04704	1.20259	.089	-4.4043	.3103
	Fairly worried	-2.25484	1.19919	.060	-4.6055	.0958
	Not very worried	-1.79423	1.19665	.134	-4.1399	.5514
	Not at all worried	-1.27948	1.19764	.285	-3.6271	1.0681

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

If you look at the first row of the post-hoc **Multiple Comparisons** table, you can see that the category "Very worried" has been compared to all the other categories in **wattack**. Let's consider the mean comparison between "Very worried" and "Fairly worried." In the **Mean Difference** column of this table, you can see that the mean difference in police confidence score between "Very worried" and "Fairly worried" is -0.20779. This can be interpreted as meaning that the mean police confidence score reported by people who were "Fairly worried" is, on average, 0.20779 points less than the mean police confidence score reported by people who were "Very worried." Remembering that a lower score on the police confidence scale actually means higher confidence in the police, we can

say that on average, respondents who were “Fairly worried” about physical violence have more confidence in the police than respondents who were “Very worried.”

*Take a look at the comparison between “Fairly worried” and the rest of the categories in **wattack**. What is the mean difference between “Fairly worried” and “Not worried at all”? How would you interpret this?*

*Run another one-way ANOVA using **policeconf1** as the dependent variable and **homealon**, a measure of feelings of safety while home alone at night, as the independent variable. Remember to check if **homealon** has any missing data values, and if so, make sure to recode them before running your ANOVA. Is there a statistically significant difference in mean police confidence scores in **homealon**?*

Summary

Using a Post-Hoc Test, you’ve just calculated the mean differences in police confidence score between all the categories of wattack. This allows you to have a better understanding of the relationship wattack has with our dependent variable policeconf1, and also illuminates trends in police confidence score for different levels of worry about physical violence.