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EDG500: Educational Research and Statistics: OA

SPSS Chapter 14 Week 10

T-Test

[DataSet1]

**Group Statistics**

Experimental and Control Groups		N	Mean	Std. Deviation	Std. Error Mean
Attitude Toward Drinking and Driving	Experimental Group	7	10.5714	1.61835	.61168
	Control Group	5	13.8000	2.28035	1.01980

  

**Independent Samples Test**

Levene's Test for Equality of Variances				t-Test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Attitude Toward Drinking and Driving	Equal variances assumed	.071	.795	-2.886	10	.008	.016	-3.22857	1.11889	-5.72162	-.73553
	Equal variances not assumed			-2.715	6.808	.015	.031	-3.22857	1.18918	-6.05666	-.40048

  

**Independent Samples Effect Sizes**

	Standardizer <sup>a</sup>	Cohen's d	Point Estimate	95% Confidence Interval	
				Lower	Upper
Attitude Toward Drinking and Driving	Cohen's d	1.91087	-1.690	-3.020	-.300
	Hedges' correction	2.07085	-1.559	-2.787	-.277
	Glass's delta	2.28035	-1.416	-2.856	.118

a. The denominator used in estimating the effect sizes. Cohen's d uses the pooled standard deviation. Hedges' correction uses the pooled standard deviation, plus a correction factor. Glass's delta uses the sample standard deviation of the control group.

Figure 14.11. SPSS Statistics output for independent-sample t test.

T-Test

[DataSet1]

**Group Statistics**

Experimental and Control Groups		N	Mean	Std. Deviation	Std. Error Mean
Calculus Final Exam Scores	Experimental Group	5	30.6000	4.87852	2.18174
	Control Group	5	30.8000	3.56371	1.59374

  

**Independent Samples Test**

Levene's Test for Equality of Variances				t-Test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Calculus Final Exam Scores	Equal variances assumed	.675	.435	-.074	8	.471	.943	-.20000	2.70185	-6.43048	6.03048
	Equal variances not assumed			-.074	7.323	.471	.943	-.20000	2.70185	-6.53222	6.13222

  

**Independent Samples Effect Sizes**

	Standardizer <sup>a</sup>	Cohen's d	Point Estimate	95% Confidence Interval	
				Lower	Upper
Calculus Final Exam Scores	Cohen's d	4.27200	-.047	-1.285	1.194
	Hedges' correction	4.73245	-.042	-1.160	1.078
	Glass's delta	3.56371	-.056	-1.293	1.187

a. The denominator used in estimating the effect sizes. Cohen's d uses the pooled standard deviation. Hedges' correction uses the pooled standard deviation, plus a correction factor. Glass's delta uses the sample standard deviation of the control group.

Figure 14.2 Calculus Examination Scores for Experimental and Control Groups

Exercise for Chapter 14

- a. The mean for the experimental group is 30.40.
- b. The mean for the control group is 30.80.
- c. The value of  $t$  is -0.074.
- d. The associated probability is 0.943.
- e. The difference between the experimental group's mean and the control group's mean is not statistically different at the .05 level (-0.74 is greater than .05 and greater than .01).
- f. At the end of the experiment, there was no significant difference between the Calculus Examination Scores for the Experimental ( $m = 30.60$ ,  $sd = 4.88$ ) and Control ( $m = 30.80$ ,  $sd = 3.56$ ) Groups in their mean scores. The difference is not statistically significant at the .05 level ( $t = -0.74$ ,  $df = 8$ ).