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EDG500: Educational Research and Statistics

Week 9

SPSS Chapter 13

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	11.5556	9	2.29734	.76578
	Posttest	9.6667	9	2.23607	.74536

Paired Samples Correlations

		N	Correlation	Significance One-Sided p	Significance Two-Sided p
Pair 1	Pretest & Posttest	9	.527	.072	.145

Paired Samples Test

		Paired Differences					t	df	Significance One-Sided p	Significance Two-Sided p
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper				
Pair 1	Pretest - Posttest	1.88889	2.20479	.73493	.19414	3.58364	2.570	8	.017	.033

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper
Pair 1	Pretest - Posttest	Cohen's d	2.20479	.857	.065	1.611
		Hedges' correction	2.31534	.816	.062	1.534

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation of the mean difference.
Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Figure 13.7 SPSS Statistics output for the paired-samples *t* test.

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	32.8000	10	4.61399	1.45907
	Posttest	34.0000	10	5.05525	1.59861

Paired Samples Correlations

		N	Correlation	Significance One-Sided p	Significance Two-Sided p
Pair 1	Pretest & Posttest	10	.843	.001	.002

Paired Samples Test

		Paired Differences					t	df	Significance One-Sided p	Significance Two-Sided p
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper				
Pair 1	Pretest - Posttest	-1.20000	2.74064	.86667	-3.16054	.76054	-1.385	9	.100	.200

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper
Pair 1	Pretest - Posttest	Cohen's d	2.74064	-.438	-1.078	.224
		Hedges' correction	2.86185	-.419	-1.032	.215

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation of the mean difference.
Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Figure 13.2 Output for Pretest and Posttest Self-Esteem Scores Before and After Psychological Counseling

a. The mean for the pretest is 32.8000.
b. The mean for the posttest is 34.0000.
c. The value of *t* is -1.385.
d. The associated probability is .200.
e. The difference between the pretest and posttest means is statistically significant at the .05 level.
f. The mean self-esteem score increased from 32.80 (sd = 4.61) on the pretest to 34.00 (sd = 5.06) on the posttest. The difference between the two means is statistically significant ($t(9) = p > .200$).