

Table 30-7 Analysis of Covariance for Comparison of Clinical Performance Following Two Teaching Strategies

Several analysis are included. Correlations show a relationship between GPA and clinical performance. The Imovarotate ANOVA (GLM) specifies GPA as a covariate. A one-way ANOVA and t-test are also run, showing that there is no significant difference between groups with consideration of a covariate.

Correlations

Showing that GPA is correlated with clinical performance, making it a reasonable covariate.

Correlations

		GPA	ClinicalPerf
GPA	Pearson Correlation	1	.833**
	Sig. (2-tailed)		.000
	N	24	24
ClinicalPerf	Pearson Correlation	.833**	1
	Sig. (2-tailed)	.000	
	N	24	24

** . Correlation is significant at the 0.01 level (2-tailed).

```
UNIANOVA ClinicalPerf BY Strategy WITH GPA
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES (Strategy) WITH (GPA=MEAN) COMPARE ADJ(LSD)
  /PRINT F ETASQ DESCRIPTIVE HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Strategy GPA GPA*Strategy.
```

Univariate Analysis of Variance

Run using General Linear Model > Univariate: Specifying GPA as a covariate

Between-Subjects Factors

		Value Label	N
Strategy	1	Video	12
	2	Discussion	12

Descriptive Statistics

Dependent Variable: ClinicalPerf

Strategy	Mean	Std. Deviation	N
Video	49.3333	18.50962	12
Discussion	44.1667	24.11651	12
Total	46.7500	21.18911	24

Levene's Test of Equality of Error Variances^a

Dependent Variable: ClinicalPerf

F	df1	df2	Sig.
.018	1	22	.893

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + Strategy + GPA + Strategy * GPA

Tests of Between-Subjects Effects

Dependent Variable: ClinicalPerf

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	9567.675 ^a	3	3189.225	84.057	.000	.927	252.171	1.000
Intercept	3607.588	1	3607.588	95.084	.000	.826	95.084	1.000
Strategy	232.949	1	232.949	6.140	.022	.235	6.140	.655
GPA	9004.537	1	9004.537	237.328	.000	.922	237.328	1.000
Strategy * GPA	55.024	1	55.024	1.450	.243	.068	1.450	.209
Error	758.825	20	37.941					
Total	62780.000	24						
Corrected Total	10326.500	23						

a. R Squared = .927 (Adjusted R Squared = .915)

b. Computed using alpha = .05

Estimated Marginal Means

Strategy

Estimates

Dependent Variable: ClinicalPerf

Strategy	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Video	56.718 ^a	1.943	52.666	60.770
Discussion	35.530 ^a	1.906	31.555	39.505

a. Covariates appearing in the model are evaluated at the following values:

GPA = 2.9158.

```

ONEWAY ClinicalPerf BY Strategy
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS.

```

Oneway

ANOVA showing no difference between strategy groups without consideration of a covariate

Descriptives

ClinicalPerf

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Video	12	49.3333	18.50962	5.34327	37.5729	61.0938	19.00	76.00
Discussion	12	44.1667	24.11651	6.96184	28.8438	59.4896	6.00	83.00
Total	24	46.7500	21.18911	4.32521	37.8026	55.6974	6.00	83.00

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
ClinicalPerf	Based on Mean	.367	1	22	.551
	Based on Median	.267	1	22	.611
	Based on Median and with adjusted df	.267	1	18.195	.612
	Based on trimmed mean	.365	1	22	.552

ANOVA

ClinicalPerf

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	160.167	1	160.167	.347	.562
Within Groups	10166.333	22	462.106		
Total	10326.500	23			

```

T-TEST GROUPS=Strategy(1 2)
/MISSING=ANALYSIS
/VARIABLES=ClinicalPerf
/CRITERIA=CI (.95) .

```

T-Test

Showing no difference between strategy groups (same result as ANOVA) without consideration of a covariate. The results of the t -test are the same as the ANOVA ($F = tsq$)

Group Statistics

Strategy		N	Mean	Std. Deviation	Std. Error Mean
ClinicalPerf	Video	12	49.3333	18.50962	5.34327
	Discussion	12	44.1667	24.11651	6.96184

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
ClinicalPerf	Equal variances assumed	.367	.551	.589		.562	5.16667	8.77597	-13.03358	23.36692
	Equal variances not assumed			.589	20.621	.562	5.16667	8.77597	-13.10441	23.43774