T-Test

[DataSet1]

Group Statistics

	mTBI Status	N	Mean	Std. Deviation	Std. Error Mean
BIS-Brief	0	25	16.28	3.221	.644
	1	12	16.00	4.328	1.249

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
BIS-Brief	Equal variances assumed	1.629	.210	.221	35
	Equal variances not assumed			.199	17.076

Independent Samples Test

		t-test for Equality of Means			
		Significance		Mean Difference	Std. Error Difference
		One-Sided p	Two-Sided p		
BIS-Brief	Equal variances assumed	.413	.826	.280	1.266
	Equal variances not assumed	.422	.844	.280	1.406

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
BIS-Brief	Equal variances assumed	-2.291	2.851
	Equal variances not assumed	-2.685	3.245

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
BIS-Brief	Cohen's d	3.606	.078	-.611	.766
	Hedges' correction	3.685	.076	-.598	.749
	Glass's delta	4.328	.065	-.626	.752

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.

General Linear Model

Notes

Output Created		28-MAY-2024 13:18:52
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.

Syntax		GLM RecallErrorblock RecallErrorintermixed BY mTBIStatus WITH BISBrief
		  /WSFACTOR=Condition 2 Polynomial
		  /MEASURE=Error
		  /METHOD=SSTYPE(3)
		  /SAVE=SRESID
		  /PLOT=PROFILE (Condition*mTBIStatus) TYPE=LINE ERRORBAR=NO MEANREFERENCE=NO YAXIS=AUTO
		  /EMMEANS=TABLES (mTBIStatus) WITH (BISBrief=MEAN) COMPARE ADJ (BONFERRONI)
		  /EMMEANS=TABLES (Condition) WITH (BISBrief=MEAN) COMPARE ADJ (BONFERRONI)
		  /EMMEANS=TABLES (mTBIStatus*Condition) WITH(BISBrief=MEAN)
		  /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
		  /CRITERIA=ALPHA(.05)
		  /WSDESIGN=Condition
		  /DESIGN=BISBrief mTBIStatus.

Resources	Processor Time	00:00:00.94
	Elapsed Time	00:00:00.80

Notes

Variables Created or Modified	SRE_1	Studentized Residual for RecallErrorblock
	SRE_2	Studentized Residual for RecallErrorintermixed

Within-Subjects Factors

Measure: Error

Condition	Dependent Variable
1	RecallErrorblock
2	RecallErrorintermixed

Between-Subjects Factors

		N
mTBI Status	0	25
	1	12

Descriptive Statistics

	mTBI Status	Mean	Std. Deviation	N
Recall Error (block)	0	26.565428	7.4077860	25
	1	30.060717	11.0923401	12
	Total	27.699035	8.7710133	37
Recall Error (intermixed)	0	44.207352	7.3080169	25
	1	49.107142	7.0232631	12
	Total	45.796473	7.4889142	37

Box's Test of Equality of Covariance Matrices[a]

Box's M	3.261
F	1.005
df1	3
df2	10401.868
Sig.	.389

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + BISBrief + mTBIStatus
 Within Subjects Design: ...

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df
Condition	Pillai's Trace	.088	3.286[b]	1.000	34.000
	Wilks' Lambda	.912	3.286[b]	1.000	34.000
	Hotelling's Trace	.097	3.286[b]	1.000	34.000
	Roy's Largest Root	.097	3.286[b]	1.000	34.000
Condition * BISBrief	Pillai's Trace	.055	1.995[b]	1.000	34.000
	Wilks' Lambda	.945	1.995[b]	1.000	34.000
	Hotelling's Trace	.059	1.995[b]	1.000	34.000
	Roy's Largest Root	.059	1.995[b]	1.000	34.000
Condition * mTBIStatus	Pillai's Trace	.010	.351[b]	1.000	34.000
	Wilks' Lambda	.990	.351[b]	1.000	34.000
	Hotelling's Trace	.010	.351[b]	1.000	34.000
	Roy's Largest Root	.010	.351[b]	1.000	34.000

Multivariate Tests[a]

Effect		Sig.	Partial Eta Squared
Condition	Pillai's Trace	.079	.088
	Wilks' Lambda	.079	.088
	Hotelling's Trace	.079	.088
	Roy's Largest Root	.079	.088
Condition * BISBrief	Pillai's Trace	.167	.055
	Wilks' Lambda	.167	.055
	Hotelling's Trace	.167	.055
	Roy's Largest Root	.167	.055
Condition * mTBIStatus	Pillai's Trace	.558	.010
	Wilks' Lambda	.558	.010
	Hotelling's Trace	.558	.010
	Roy's Largest Root	.558	.010

a. Design: Intercept + BISBrief + mTBIStatus
   Within Subjects Design: Condition

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: Error

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
Condition	1.000	.000	0	.	1.000

Mauchly's Test of Sphericity[a]

Measure: Error

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
Condition	1.000	1.000

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + BISBrief + mTBIStatus
   Within Subjects Design: Condition

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Error

Source		Type III Sum of Squares	df	Mean Square	F
Condition	Sphericity Assumed	90.137	1	90.137	3.286
	Greenhouse-Geisser	90.137	1.000	90.137	3.286
	Huynh-Feldt	90.137	1.000	90.137	3.286
	Lower-bound	90.137	1.000	90.137	3.286
Condition * BISBrief	Sphericity Assumed	54.721	1	54.721	1.995
	Greenhouse-Geisser	54.721	1.000	54.721	1.995
	Huynh-Feldt	54.721	1.000	54.721	1.995
	Lower-bound	54.721	1.000	54.721	1.995
Condition * mTBIStatus	Sphericity Assumed	9.624	1	9.624	.351
	Greenhouse-Geisser	9.624	1.000	9.624	.351
	Huynh-Feldt	9.624	1.000	9.624	.351
	Lower-bound	9.624	1.000	9.624	.351
Error(Condition)	Sphericity Assumed	932.498	34	27.426	
	Greenhouse-Geisser	932.498	34.000	27.426	
	Huynh-Feldt	932.498	34.000	27.426	
	Lower-bound	932.498	34.000	27.426	

Tests of Within-Subjects Effects

Measure: Error

Source		Sig.	Partial Eta Squared
Condition	Sphericity Assumed	.079	.088
	Greenhouse-Geisser	.079	.088
	Huynh-Feldt	.079	.088
	Lower-bound	.079	.088
Condition * BISBrief	Sphericity Assumed	.167	.055
	Greenhouse-Geisser	.167	.055
	Huynh-Feldt	.167	.055
	Lower-bound	.167	.055
Condition * mTBIStatus	Sphericity Assumed	.558	.010
	Greenhouse-Geisser	.558	.010
	Huynh-Feldt	.558	.010
	Lower-bound	.558	.010
Error(Condition)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: Error

Source	Condition	Type III Sum of Squares	df	Mean Square	F	Sig.
Condition	Linear	90.137	1	90.137	3.286	.079
Condition * BISBrief	Linear	54.721	1	54.721	1.995	.167
Condition * mTBIStatus	Linear	9.624	1	9.624	.351	.558
Error(Condition)	Linear	932.498	34	27.426		

Tests of Within-Subjects Contrasts

Measure: Error

Source	Condition	Partial Eta Squared
Condition	Linear	.088
Condition * BISBrief	Linear	.055
Condition * mTBIStatus	Linear	.010
Error(Condition)	Linear	

Levene's Test of Equality of Error Variances[a]

	F	df1	df2	Sig.
Recall Error (block)	.033	1	35	.856
Recall Error (intermixed)	.028	1	35	.869

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

a. Design: Intercept + BISBrief + mTBIStatus
   Within Subjects Design: Condition

Tests of Between-Subjects Effects

Measure: Error

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	6479.465	1	6479.465	65.770	<.001	.659
BISBrief	158.013	1	158.013	1.604	.214	.045
mTBIStatus	269.680	1	269.680	2.737	.107	.075
Error	3349.575	34	98.517			

Estimated Marginal Means

1. mTBI Status

Estimates

Measure: Error

mTBI Status	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
0	35.424[a]	1.404	32.571	38.278
1	39.505[a]	2.027	35.386	43.624

a. Covariates appearing in the model are evaluated at the following values: BIS-Brief = 16.19.

Pairwise Comparisons

Measure: Error

(I) mTBI Status	(J) mTBI Status	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for[a]..
					Lower Bound
0	1	-4.081	2.467	.107	-9.093
1	0	4.081	2.467	.107	-.932

Pairwise Comparisons

Measure: Error

(I) mTBI Status	(J) mTBI Status	95% Confidence Interval for[a]..
		Upper Bound
0	1	.932
1	0	9.093

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Measure: Error

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	134.840	1	134.840	2.737	.107	.075
Error	1674.788	34	49.258			

The F tests the effect of mTBI Status. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

2. Condition

Estimates

Measure: Error

Condition	Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
1	28.281[a]	1.497	25.238	31.323
2	46.649[a]	1.282	44.044	49.253

a. Covariates appearing in the model are evaluated at the following values: BIS-Brief = 16.19.

Pairwise Comparisons

Measure: Error

(I) Condition	(J) Condition	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-18.368[*]	1.301	<.001	-21.011	-15.725
2	1	18.368[*]	1.301	<.001	15.725	21.011

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.854	199.454[a]	1.000	34.000	<.001	.854
Wilks' lambda	.146	199.454[a]	1.000	34.000	<.001	.854
Hotelling's trace	5.866	199.454[a]	1.000	34.000	<.001	.854
Roy's largest root	5.866	199.454[a]	1.000	34.000	<.001	.854

Each F tests the multivariate effect of Condition. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.
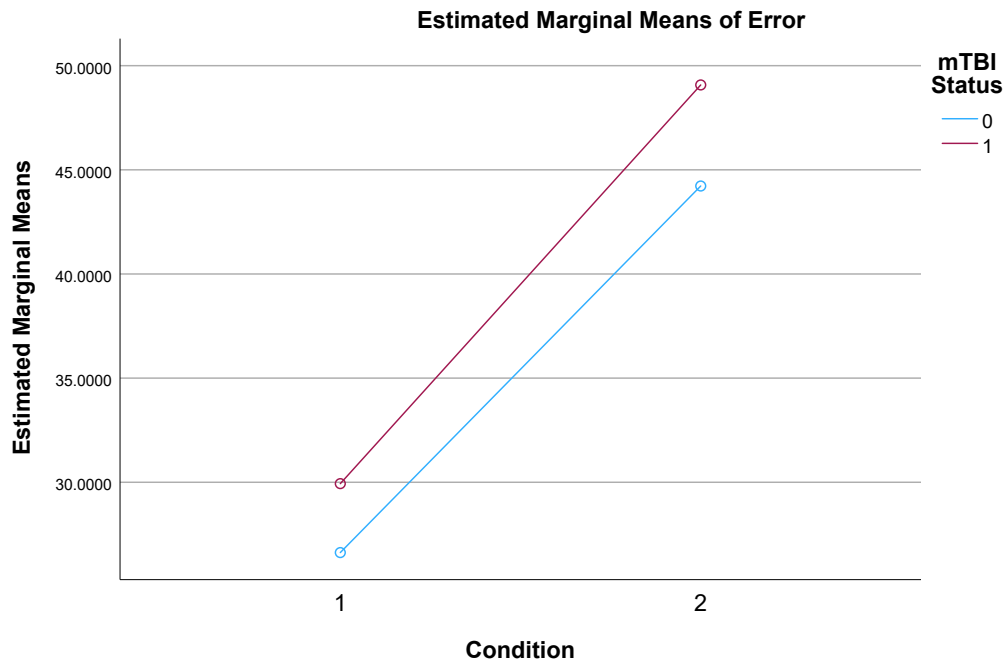
a. Exact statistic

3. mTBI Status * Condition

Measure: Error

mTBI Status	Condition	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
0	1	26.626[a]	1.705	23.160	30.091
	2	44.223[a]	1.460	41.256	47.190
1	1	29.935[a]	2.462	24.932	34.939
	2	49.075[a]	2.108	44.791	53.358

a. Covariates appearing in the model are evaluated at the following values:
BIS-Brief = 16.19.

Profile Plots

Estimated Marginal Means of Error

Covariates appearing in the model are evaluated at the following values: BIS-Brief = 16.19