

General Linear Model

Notes

Output Created		28-MAY-2024 14:24:30
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.

Notes

Syntax		GLM RecogRTblock RecogRTintermixed RecogAccblock RecogAccintermixed BY mTBISStatus WITH BISBrief /WSFACTOR=Condition 2 Polynomial /MEASURE=RT Accuracy /METHOD=SSTYPE(3) /SAVE=SRESID /PLOT=PROFILE (Condition*mTBISStatus) TYPE=LINE ERRORBAR=NO MEANREFERENCE=NO YAXIS=AUTO /EMMEANS=TABLES (mTBISStatus) WITH (BISBrief=MEAN) COMPARE ADJ (BONFERRONI) /EMMEANS=TABLES (Condition) WITH (BISBrief=MEAN) COMPARE ADJ (BONFERRONI) /EMMEANS=TABLES (mTBISStatus*Condition) WITH(BISBrief=MEAN) /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY /CRITERIA=ALPHA(.05) /WSDESIGN=Condition /DESIGN=BISBrief mTBISStatus.
Resources	Processor Time	00:00:00.53
	Elapsed Time	00:00:00.73
Variables Created or Modified	SRE_3	Studentized Residual for RecogRTblock
	SRE_4	Studentized Residual for RecogRTintermixed
	SRE_5	Studentized Residual for RecogAccblock
	SRE_6	Studentized Residual for RecogAccintermixed

Within-Subjects Factors

Measure	Condition	Dependent Variable
RT	1	RecogRTblock
	2	RecogRTintermixed
Accuracy	1	RecogAccblock
	2	RecogAccintermixed

Between-Subjects Factors

N		
mTBI Status	0	25
	1	12

Descriptive Statistics

	mTBI Status	Mean	Std. Deviation	N
Recog RT (block)	0	.8097572	.17566527	25
	1	.6998283	.09537945	12
	Total	.7741046	.16147324	37
Recog RT (intermixed)	0	.9211420	.21898803	25
	1	.8104658	.15973930	12
	Total	.8852470	.20621855	37
Recog Acc (block)	0	.7933512	.06186292	25
	1	.7992342	.05818020	12
	Total	.7952592	.05994521	37
Recog Acc (intermixed)	0	.8074552	.05493086	25
	1	.7820775	.07631963	12
	Total	.7992246	.06274086	37

**Box's Test of
Equality of
Covariance
Matrices^a**

Box's M	14.823
F	1.255
df1	10
df2	2251.398
Sig.	.251

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

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

Multivariate Tests^a

Effect			Value	F	Hypothesis df
Between Subjects	Intercept	Pillai's Trace	.921	191.407 ^b	2.000
		Wilks' Lambda	.079	191.407 ^b	2.000
		Hotelling's Trace	11.600	191.407 ^b	2.000
		Roy's Largest Root	11.600	191.407 ^b	2.000
	BISBrief	Pillai's Trace	.006	.106 ^b	2.000
		Wilks' Lambda	.994	.106 ^b	2.000
		Hotelling's Trace	.006	.106 ^b	2.000
		Roy's Largest Root	.006	.106 ^b	2.000
	mTBISStatus	Pillai's Trace	.097	1.773 ^b	2.000
		Wilks' Lambda	.903	1.773 ^b	2.000
		Hotelling's Trace	.107	1.773 ^b	2.000
		Roy's Largest Root	.107	1.773 ^b	2.000
Within Subjects	Condition	Pillai's Trace	.302	7.150 ^b	2.000
		Wilks' Lambda	.698	7.150 ^b	2.000
		Hotelling's Trace	.433	7.150 ^b	2.000
		Roy's Largest Root	.433	7.150 ^b	2.000
	Condition * BISBrief	Pillai's Trace	.159	3.125 ^b	2.000
		Wilks' Lambda	.841	3.125 ^b	2.000
		Hotelling's Trace	.189	3.125 ^b	2.000
		Roy's Largest Root	.189	3.125 ^b	2.000
	Condition * mTBISStatus	Pillai's Trace	.079	1.413 ^b	2.000
		Wilks' Lambda	.921	1.413 ^b	2.000
		Hotelling's Trace	.086	1.413 ^b	2.000
		Roy's Largest Root	.086	1.413 ^b	2.000

Multivariate Tests^a

Effect			Error df	Sig.	Partial Eta Squared
Between Subjects	Intercept	Pillai's Trace	33.000	<.001	.921
		Wilks' Lambda	33.000	<.001	.921
		Hotelling's Trace	33.000	<.001	.921
		Roy's Largest Root	33.000	<.001	.921
	BISBrief	Pillai's Trace	33.000	.900	.006
		Wilks' Lambda	33.000	.900	.006
		Hotelling's Trace	33.000	.900	.006
		Roy's Largest Root	33.000	.900	.006
	mTBISStatus	Pillai's Trace	33.000	.186	.097
		Wilks' Lambda	33.000	.186	.097
		Hotelling's Trace	33.000	.186	.097
		Roy's Largest Root	33.000	.186	.097
Within Subjects	Condition	Pillai's Trace	33.000	.003	.302
		Wilks' Lambda	33.000	.003	.302
		Hotelling's Trace	33.000	.003	.302
		Roy's Largest Root	33.000	.003	.302
	Condition * BISBrief	Pillai's Trace	33.000	.057	.159
		Wilks' Lambda	33.000	.057	.159
		Hotelling's Trace	33.000	.057	.159
		Roy's Largest Root	33.000	.057	.159
	Condition * mTBISStatus	Pillai's Trace	33.000	.258	.079
		Wilks' Lambda	33.000	.258	.079
		Hotelling's Trace	33.000	.258	.079
		Roy's Largest Root	33.000	.258	.079

a. Design: Intercept + BISBrief + mTBISStatus

Within Subjects Design: Condition

b. Exact statistic

Mauchly's Test of Sphericity^a

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b Greenhouse-Geisser
Condition	RT	1.000	.000	0	.	1.000
	Accuracy	1.000	.000	0	.	1.000

Mauchly's Test of Sphericity^a

		Epsilon ^b	
Within Subjects Effect	Measure	Huynh-Feldt	Lower-bound
Condition	RT	1.000	1.000
	Accuracy	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 + mTBISStatus

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

Multivariate^{a,b}

Within Subjects Effect		Value	F	Hypothesis df	Error df
Condition	Pillai's Trace	.302	7.150 ^c	2.000	33.000
	Wilks' Lambda	.698	7.150 ^c	2.000	33.000
	Hotelling's Trace	.433	7.150 ^c	2.000	33.000
	Roy's Largest Root	.433	7.150 ^c	2.000	33.000
Condition * BISBrief	Pillai's Trace	.159	3.125 ^c	2.000	33.000
	Wilks' Lambda	.841	3.125 ^c	2.000	33.000
	Hotelling's Trace	.189	3.125 ^c	2.000	33.000
	Roy's Largest Root	.189	3.125 ^c	2.000	33.000
Condition * mTBISStatus	Pillai's Trace	.079	1.413 ^c	2.000	33.000
	Wilks' Lambda	.921	1.413 ^c	2.000	33.000
	Hotelling's Trace	.086	1.413 ^c	2.000	33.000
	Roy's Largest Root	.086	1.413 ^c	2.000	33.000

Multivariate^{a,b}

Within Subjects Effect		Sig.	Partial Eta Squared
Condition	Pillai's Trace	.003	.302
	Wilks' Lambda	.003	.302
	Hotelling's Trace	.003	.302
	Roy's Largest Root	.003	.302
Condition * BISBrief	Pillai's Trace	.057	.159
	Wilks' Lambda	.057	.159
	Hotelling's Trace	.057	.159
	Roy's Largest Root	.057	.159
Condition * mTBISStatus	Pillai's Trace	.258	.079
	Wilks' Lambda	.258	.079
	Hotelling's Trace	.258	.079
	Roy's Largest Root	.258	.079

- a. Design: Intercept + BISBrief + mTBISStatus
Within Subjects Design: Condition
- b. Tests are based on averaged variables.
- c. Exact statistic

Univariate Tests

Source	Measure		Type III Sum of Squares	df	Mean Square
Condition	RT	Sphericity Assumed	.063	1	.063
		Greenhouse-Geisser	.063	1.000	.063
		Huynh-Feldt	.063	1.000	.063
		Lower-bound	.063	1.000	.063
	Accuracy	Sphericity Assumed	.001	1	.001
		Greenhouse-Geisser	.001	1.000	.001
		Huynh-Feldt	.001	1.000	.001
		Lower-bound	.001	1.000	.001
Condition * BISBrief	RT	Sphericity Assumed	.024	1	.024
		Greenhouse-Geisser	.024	1.000	.024
		Huynh-Feldt	.024	1.000	.024
		Lower-bound	.024	1.000	.024
	Accuracy	Sphericity Assumed	.002	1	.002
		Greenhouse-Geisser	.002	1.000	.002
		Huynh-Feldt	.002	1.000	.002
		Lower-bound	.002	1.000	.002
Condition * mTBISStatus	RT	Sphericity Assumed	5.227E-5	1	5.227E-5
		Greenhouse-Geisser	5.227E-5	1.000	5.227E-5
		Huynh-Feldt	5.227E-5	1.000	5.227E-5
		Lower-bound	5.227E-5	1.000	5.227E-5
	Accuracy	Sphericity Assumed	.004	1	.004
		Greenhouse-Geisser	.004	1.000	.004
		Huynh-Feldt	.004	1.000	.004
		Lower-bound	.004	1.000	.004
Error(Condition)	RT	Sphericity Assumed	.165	34	.005
		Greenhouse-Geisser	.165	34.000	.005
		Huynh-Feldt	.165	34.000	.005
		Lower-bound	.165	34.000	.005
	Accuracy	Sphericity Assumed	.050	34	.001
		Greenhouse-Geisser	.050	34.000	.001
		Huynh-Feldt	.050	34.000	.001
		Lower-bound	.050	34.000	.001

Univariate Tests

Source	Measure		F	Sig.	Partial Eta Squared
Condition	RT	Sphericity Assumed	12.887	.001	.275
		Greenhouse-Geisser	12.887	.001	.275
		Huynh-Feldt	12.887	.001	.275
		Lower-bound	12.887	.001	.275
	Accuracy	Sphericity Assumed	.915	.346	.026
		Greenhouse-Geisser	.915	.346	.026
		Huynh-Feldt	.915	.346	.026
		Lower-bound	.915	.346	.026
Condition * BISBrief	RT	Sphericity Assumed	4.831	.035	.124
		Greenhouse-Geisser	4.831	.035	.124
		Huynh-Feldt	4.831	.035	.124
		Lower-bound	4.831	.035	.124
	Accuracy	Sphericity Assumed	1.039	.315	.030
		Greenhouse-Geisser	1.039	.315	.030
		Huynh-Feldt	1.039	.315	.030
		Lower-bound	1.039	.315	.030
Condition * mTBISStatus	RT	Sphericity Assumed	.011	.918	.000
		Greenhouse-Geisser	.011	.918	.000
		Huynh-Feldt	.011	.918	.000
		Lower-bound	.011	.918	.000
	Accuracy	Sphericity Assumed	2.827	.102	.077
		Greenhouse-Geisser	2.827	.102	.077
		Huynh-Feldt	2.827	.102	.077
		Lower-bound	2.827	.102	.077
Error(Condition)	RT	Sphericity Assumed			
		Greenhouse-Geisser			
		Huynh-Feldt			
		Lower-bound			
	Accuracy	Sphericity Assumed			
		Greenhouse-Geisser			
		Huynh-Feldt			
		Lower-bound			

Tests of Within-Subjects Contrasts

Source	Measure	Condition	Type III Sum of Squares	df	Mean Square	F
Condition	RT	Linear	.063	1	.063	12.887
	Accuracy	Linear	.001	1	.001	.915
Condition * BISBrief	RT	Linear	.024	1	.024	4.831
	Accuracy	Linear	.002	1	.002	1.039
Condition * mTBISStatus	RT	Linear	5.227E-5	1	5.227E-5	.011
	Accuracy	Linear	.004	1	.004	2.827
Error(Condition)	RT	Linear	.165	34	.005	
	Accuracy	Linear	.050	34	.001	

Tests of Within-Subjects Contrasts

Source	Measure	Condition	Sig.	Partial Eta Squared
Condition	RT	Linear	.001	.275
	Accuracy	Linear	.346	.026
Condition * BISBrief	RT	Linear	.035	.124
	Accuracy	Linear	.315	.030
Condition * mTBISStatus	RT	Linear	.918	.000
	Accuracy	Linear	.102	.077
Error(Condition)	RT	Linear		
	Accuracy	Linear		

Levene's Test of Equality of Error Variances^a

	F	df1	df2	Sig.
Recog RT (block)	5.569	1	35	.024
Recog RT (intermixed)	2.531	1	35	.121
Recog Acc (block)	.098	1	35	.756
Recog Acc (intermixed)	1.537	1	35	.223

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

- a. Design: Intercept + BISBrief + mTBISStatus
Within Subjects Design: Condition

Tests of Between-Subjects Effects

Transformed Variable: Average

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	RT	2.490	1	2.490	40.849	<.001
	Accuracy	2.136	1	2.136	339.248	<.001
BISBrief	RT	.011	1	.011	.182	.672
	Accuracy	.000	1	.000	.028	.867
mTBIStatus	RT	.201	1	.201	3.290	.079
	Accuracy	.002	1	.002	.251	.620
Error	RT	2.072	34	.061		
	Accuracy	.214	34	.006		

Tests of Between-Subjects Effects

Transformed Variable: Average

Source	Measure	Partial Eta Squared
Intercept	RT	.546
	Accuracy	.909
BISBrief	RT	.005
	Accuracy	.001
mTBIStatus	RT	.088
	Accuracy	.007
Error	RT	
	Accuracy	

Estimated Marginal Means

1. mTBI Status

Estimates

Measure	mTBI Status	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
RT	0	.866 ^a	.035	.795	.937
	1	.754 ^a	.050	.652	.857
Accuracy	0	.800 ^a	.011	.778	.823
	1	.791 ^a	.016	.758	.824

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

Pairwise Comparisons

Measure	(I) mTBI Status	(J) mTBI Status	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for ^a ... Lower Bound
RT	0	1	.111	.061	.079	-.013
	1	0	-.111	.061	.079	-.236
Accuracy	0	1	.010	.020	.620	-.030
	1	0	-.010	.020	.620	-.050

Pairwise Comparisons

Measure	(I) mTBI Status	(J) mTBI Status	95% Confidence Interval for ^a ... Upper Bound
RT	0	1	.236
	1	0	.013
Accuracy	0	1	.050
	1	0	.030

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.097	1.773 ^a	2.000	33.000	.186	.097
Wilks' lambda	.903	1.773 ^a	2.000	33.000	.186	.097
Hotelling's trace	.107	1.773 ^a	2.000	33.000	.186	.097
Roy's largest root	.107	1.773 ^a	2.000	33.000	.186	.097

Each F tests the multivariate effect of mTBI Status. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Univariate Tests

Measure		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
RT	Contrast	.100	1	.100	3.290	.079	.088
	Error	1.036	34	.030			
Accuracy	Contrast	.001	1	.001	.251	.620	.007
	Error	.107	34	.003			

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	Condition	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
RT	1	.755 ^a	.028	.699	.811
	2	.865 ^a	.036	.793	.938
Accuracy	1	.796 ^a	.011	.774	.818
	2	.795 ^a	.011	.772	.817

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

Pairwise Comparisons

Measure	(I) Condition	(J) Condition	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for ...
						Lower Bound
RT	1	2	-.111 [*]	.017	<.001	-.146
	2	1	.111 [*]	.017	<.001	.075
Accuracy	1	2	.002	.010	.863	-.018
	2	1	-.002	.010	.863	-.021

Pairwise Comparisons

Measure	(I) Condition	(J) Condition	95% Confidence Interval for ...
			Upper Bound
RT	1	2	-.075
	2	1	.146
Accuracy	1	2	.021
	2	1	.018

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	.547	19.887 ^a	2.000	33.000	<.001	.547
Wilks' lambda	.453	19.887 ^a	2.000	33.000	<.001	.547
Hotelling's trace	1.205	19.887 ^a	2.000	33.000	<.001	.547
Roy's largest root	1.205	19.887 ^a	2.000	33.000	<.001	.547

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

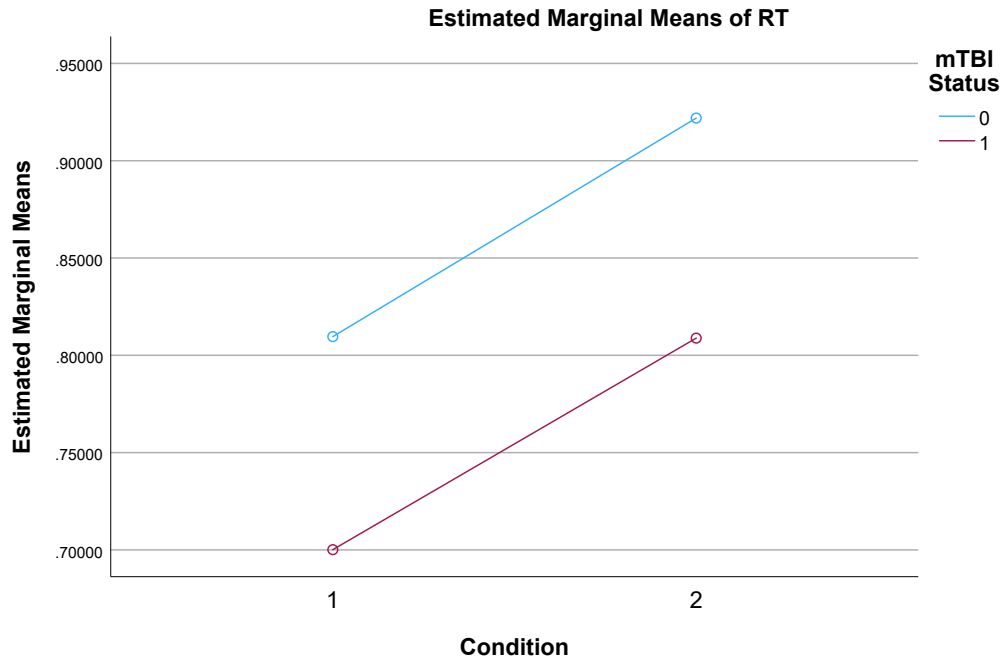
3. mTBI Status * Condition

Measure	mTBI Status	Condition	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
RT	0	1	.810 ^a	.031	.746	.873
		2	.922 ^a	.041	.839	1.004
	1	1	.700 ^a	.045	.608	.792
		2	.809 ^a	.059	.690	.928
Accuracy	0	1	.793 ^a	.012	.768	.818
		2	.808 ^a	.013	.782	.833
	1	1	.799 ^a	.018	.763	.836
		2	.782 ^a	.018	.745	.819

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

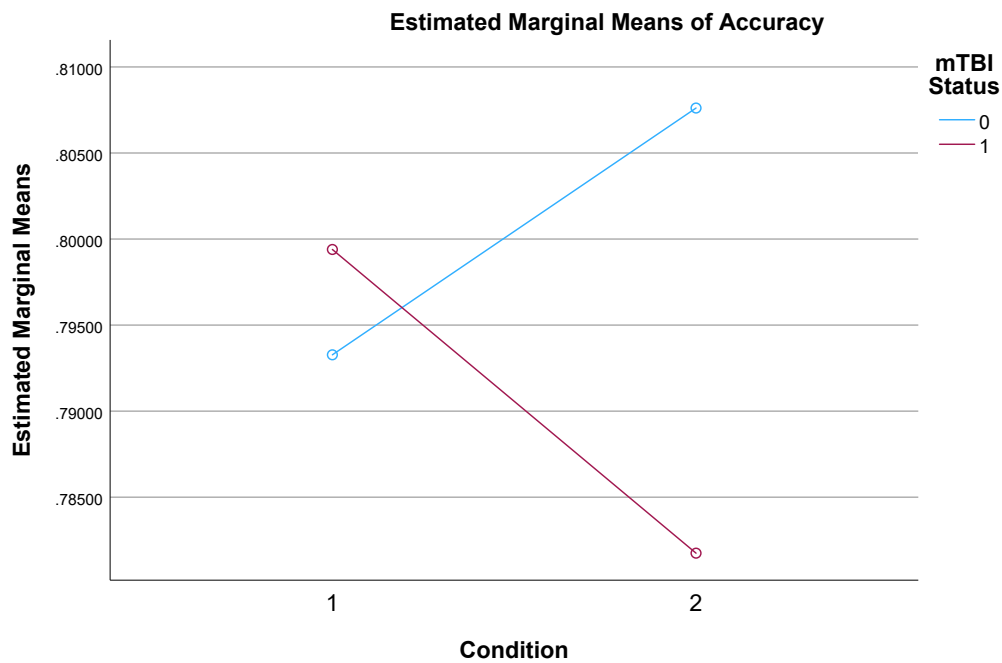
Profile Plots

RT



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

Accuracy



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