The SAS System

The MI Procedure

Model Information	
Data Set	FOCUS.WIDE_DEMO
Method	MCMC
Multiple Imputation Chain	Single Chain
Initial Estimates for MCMC	EM Posterior Mode
Start	Starting Value
Prior	Jeffreys
Number of Imputations	0
Number of Burn-in Iterations	200
Number of Iterations	100
Seed for random number generator	246311001

Missing Data Patterns

Group	*randstat*	*ln_sumsymarv1*	*ln_sumsymarv2*	*ln_sumsymarv3*	*avgbother0*	*avgbother3*	*avgbother6*	*Freq*	*Percent*
1	X	X	X	X	X	X	X	62	81.58
2	X	X	X	.	X	X	.	3	3.95
3	X	X	.	X	X	.	X	9	11.84
4	X	X	.	.	X	.	.	2	2.63

Missing Data Patterns

Group Means

Group	*randstat*	*ln_sumsymarv1*	*ln_sumsymarv2*	*ln_sumsymarv3*	*avgbother0*	*avgbother3*	*avgbother6*
1	0.516129	1.978589	1.454392	1.360134	2.674724	2.205755	2.166859
2	0.666667	2.184644	1.560710	.	3.058333	2.500000	.
3	0.555556	1.939280	.	1.129197	2.722310	.	1.667725
4	0.500000	2.393746	.	.	2.474748	.	.

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded (GLM method)

The GLM Procedure

Class Level Information		
Class	*Levels*	*Values*
randstat	2	0 1

Number of Observations Read	76
Number of Observations Used	62

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
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The GLM Procedure
Repeated Measures Analysis of Variance

Repeated Measures Level Information

Dependent Variable	*ln_sumsymarv1*	*ln_sumsymarv2*	*ln_sumsymarv3*	*avgbother0*	*avgbother3*	*avgbother6*
Level of measure	1	1	1	2	2	2
Level of time	1	2	3	1	2	3

MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no measure Effect
H = Type III SSCP Matrix for measure
E = Error SSCP Matrix

S=1 M=-0.5 N=29

Statistic	*Value*	*F Value*	*Num DF*	*Den DF*	*Pr > F*
Wilks' Lambda	0.32480192	124.73	1	60	<.0001
Pillai's Trace	0.67519808	124.73	1	60	<.0001
Hotelling-Lawley Trace	2.07879953	124.73	1	60	<.0001
Roy's Greatest Root	2.07879953	124.73	1	60	<.0001

*MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no measure*randstat Effect*
*H = Type III SSCP Matrix for measure*randstat*
E = Error SSCP Matrix

S=1 M=-0.5 N=29

Statistic	*Value*	*F Value*	*Num DF*	*Den DF*	*Pr > F*
Wilks' Lambda	0.99984673	0.01	1	60	0.9239
Pillai's Trace	0.00015327	0.01	1	60	0.9239
Hotelling-Lawley Trace	0.00015330	0.01	1	60	0.9239
Roy's Greatest Root	0.00015330	0.01	1	60	0.9239

MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no time Effect
H = Type III SSCP Matrix for time
E = Error SSCP Matrix

S=1 M=0 N=28.5

Statistic	*Value*	*F Value*	*Num DF*	*Den DF*	*Pr > F*
Wilks' Lambda	0.59295244	20.25	2	59	<.0001
Pillai's Trace	0.40704756	20.25	2	59	<.0001
Hotelling-Lawley Trace	0.68647589	20.25	2	59	<.0001
Roy's Greatest Root	0.68647589	20.25	2	59	<.0001

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
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The GLM Procedure
Repeated Measures Analysis of Variance

*MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no time*randstat Effect*
*H = Type III SSCP Matrix for time*randstat*
E = Error SSCP Matrix

S=1 M=0 N=28.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.93400366	2.08	2	59	0.1334
Pillai's Trace	0.06599634	2.08	2	59	0.1334
Hotelling-Lawley Trace	0.07065962	2.08	2	59	0.1334
Roy's Greatest Root	0.07065962	2.08	2	59	0.1334

*MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no measure*time Effect*
*H = Type III SSCP Matrix for measure*time*
E = Error SSCP Matrix

S=1 M=0 N=28.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.98151021	0.56	2	59	0.5766
Pillai's Trace	0.01848979	0.56	2	59	0.5766
Hotelling-Lawley Trace	0.01883810	0.56	2	59	0.5766
Roy's Greatest Root	0.01883810	0.56	2	59	0.5766

*MANOVA Test Criteria and Exact F Statistics for the Hypothesis of no measure*time*randstat Effect*
*H = Type III SSCP Matrix for measure*time*randstat*
E = Error SSCP Matrix

S=1 M=0 N=28.5

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.97655787	0.71	2	59	0.4967
Pillai's Trace	0.02344213	0.71	2	59	0.4967
Hotelling-Lawley Trace	0.02400485	0.71	2	59	0.4967
Roy's Greatest Root	0.02400485	0.71	2	59	0.4967

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded (GLM method)

The GLM Procedure
Repeated Measures Analysis of Variance
Tests of Hypotheses for Between Subjects Effects

Source	*DF*	*Type III SS*	*Mean Square*	*F Value*	*Pr > F*
randstat	1	5.21967105	5.21967105	3.19	0.0790
Error	60	98.07775986	1.63462933		

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded (GLM method)

The GLM Procedure
Repeated Measures Analysis of Variance
Univariate Tests of Hypotheses for Within Subject Effects

Source	DF	Type III SS	Mean Square	F Value	Pr > F
measure	1	52.48346680	52.48346680	124.73	<.0001
measure*randstat	1	0.00387026	0.00387026	0.01	0.9239
Error(measure)	60	25.24700723	0.42078345		

						Adj Pr > F	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	G - G	H-F-L
time	2	22.99539492	11.49769746	17.05	<.0001	<.0001	<.0001
time*randstat	2	2.35734250	1.17867125	1.75	0.1786	0.1798	0.1786
Error(time)	120	80.94469067	0.67453909				

Greenhouse-Geisser Epsilon	0.9694
Huynh-Feldt-Lecoutre Epsilon	1.0013

						Adj Pr > F	
Source	DF	Type III SS	Mean Square	F Value	Pr > F	G - G	H-F-L
measure*time	2	0.19919902	0.09959951	0.56	0.5717	0.5710	0.5717
measure*time*randstat	2	0.23923242	0.11961621	0.67	0.5113	0.5107	0.5113
Error(measure*time)	120	21.27735095	0.17731126				

Greenhouse-Geisser Epsilon	0.9960
Huynh-Feldt-Lecoutre Epsilon	1.0302

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded

The Mixed Procedure

Model Information	
Data Set	FOCUS.DMV_DEMO
Dependent Variable	arv_sym_both
Covariance Structure	Unstructured @ Unstructured
Subject Effect	subject
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information

Class	*Levels*	*Values*
measure	2	1 2
randstat	2	0 1
time	3	1 2 3
subject	62	3 5 13 18 25 28 29 32 51 52 53 59 76 88 94 104 111 112 116 120 130 135 136 138 148 151 156 159 163 166 174 178 180 182 185 189 197 198 202 204 205 206 210 221 222 232 239 245 252 258 259 261 265 267 276 277 283 286 287 297 304 305

Dimensions	
Covariance Parameters	9
Columns in X	36
Columns in Z	0
Subjects	62
Max Obs per Subject	6

Number of Observations	
Number of Observations Read	372
Number of Observations Used	372
Number of Observations Not Used	0

Iteration History

Iteration	*Evaluations*	*-2 Res Log Like*	*Criterion*
0	1	894.50986962	
1	4	787.83312547	4.60236805
2	1	761.28547630	0.42040007

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded

The Mixed Procedure

Iteration History

Iteration	*Evaluations*	*-2 Res Log Like*	*Criterion*
3	1	734.25174483	0.29857939
4	1	720.58102364	0.17456381
5	1	714.04596314	0.07125787
6	1	711.79722593	0.01450048
7	1	711.38612517	0.00079261
8	1	711.36566302	0.00000286
9	1	711.36559170	0.00000000

Convergence criteria met.

Covariance Parameter Estimates

Cov Parm	*Subject*	*Estimate*
measure UN(1,1)	subject	0.1814
UN(2,1)	subject	0.1370
UN(2,2)	subject	0.4001
time UN(1,1)	subject	1.0000
UN(2,1)	subject	0.5348
UN(2,2)	subject	2.5408
UN(3,1)	subject	0.6796
UN(3,2)	subject	1.3957
UN(3,3)	subject	2.8340

Fit Statistics

-2 Res Log Likelihood	711.4
AIC (Smaller is Better)	727.4
AICC (Smaller is Better)	727.8
BIC (Smaller is Better)	744.4

Null Model Likelihood Ratio Test

DF	*Chi-Square*	*Pr > ChiSq*
7	183.14	<.0001

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
Cases with missing data excluded

The Mixed Procedure

Type 3 Tests of Fixed Effects

Effect	*Num DF*	*Den DF*	*F Value*	*Pr > F*
randstat	1	60	3.16	0.0806
measure	1	60	88.31	<.0001
*measure*randstat*	1	60	0.01	0.9360
time	2	120	22.05	<.0001
*randstat*time*	2	120	2.26	0.1087
*measure*time*	2	120	0.52	0.5932
*measure*randsta*time*	2	120	0.64	0.5311

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
All cases

The Mixed Procedure

Model Information	
Data Set	FOCUS.DMV_DEMO
Dependent Variable	arv_sym_both
Covariance Structure	Unstructured @ Unstructured
Subject Effect	subject
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information

Class	*Levels*	*Values*
measure	2	1 2
randstat	2	0 1
time	3	1 2 3
subject	76	3 5 7 8 13 18 25 28 29 31 32 40 43 46 51 52 53 59 76 77 80 82 88 94 99 104 111 112 116 120 130 135 136 138 148 151 156 159 163 166 172 174 178 180 182 185 189 197 198 202 204 205 206 210 217 221 222 232 239 245 247 252 258 259 261 265 267 276 277 283 286 287 290 297 304 305

Dimensions	
Covariance Parameters	9
Columns in X	36
Columns in Z	0
Subjects	76
Max Obs per Subject	6

Number of Observations	
Number of Observations Read	456
Number of Observations Used	424
Number of Observations Not Used	32

Iteration History

Iteration	*Evaluations*	*-2 Res Log Like*	*Criterion*
0	1	994.53774906	
1	4	888.25158647	18.12833995
2	1	854.16553106	0.51349822

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
All cases

The Mixed Procedure

Iteration History

Iteration	*Evaluations*	*-2 Res Log Like*	*Criterion*
3	1	821.93955832	0.41261979
4	1	804.90576077	0.27641672
5	1	796.49786249	0.12911457
6	1	793.41044643	0.03060349
7	1	792.77667042	0.00214062
8	1	792.73677122	0.00001269
9	1	792.73654477	0.00000000

Convergence criteria met.

Covariance Parameter Estimates

Cov Parm	*Subject*	*Estimate*
measure UN(1,1)	subject	0.1746
UN(2,1)	subject	0.1232
UN(2,2)	subject	0.3655
time UN(1,1)	subject	1.0000
UN(2,1)	subject	0.5274
UN(2,2)	subject	2.5726
UN(3,1)	subject	0.6286
UN(3,2)	subject	1.3460
UN(3,3)	subject	2.8404

Fit Statistics

-2 Res Log Likelihood	792.7
AIC (Smaller is Better)	808.7
AICC (Smaller is Better)	809.1
BIC (Smaller is Better)	827.4

Null Model Likelihood Ratio Test

DF	*Chi-Square*	*Pr > ChiSq*
7	201.80	<.0001

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
All cases

The Mixed Procedure

Solution for Fixed Effects

Effect	*measure*	*Randomization Status*	*time*	*Estimate*	*Standard Error*	*DF*	*t Value*	*Pr > |t|*
Intercept				1.9085	0.1659	74	11.50	<.0001
randstat		0		0.4268	0.2402	74	1.78	0.0797
randstat		1		0	.	.	.	.
measure	1			-0.7449	0.1487	74	-5.01	<.0001
measure	2			0	.	.	.	.
*measure*randstat*	1	0		-0.04982	0.2153	74	-0.23	0.8176
*measure*randstat*	1	1		0	.	.	.	.
*measure*randstat*	2	0		0	.	.	.	.
*measure*randstat*	2	1		0	.	.	.	.
time			1	0.7945	0.1587	132	5.01	<.0001
time			2	0.05902	0.1709	132	0.35	0.7305
time			3	0	.	.	.	.
*randstat*time*		0	1	-0.4537	0.2296	132	-1.98	0.0503
*randstat*time*		0	2	0.04446	0.2466	132	0.18	0.8572
*randstat*time*		0	3	0	.	.	.	.
*randstat*time*		1	1	0	.	.	.	.
*randstat*time*		1	2	0	.	.	.	.
*randstat*time*		1	3	0	.	.	.	.
*measure*time*	1		1	0.02092	0.1422	132	0.15	0.8833
*measure*time*	1		2	0.07085	0.1532	132	0.46	0.6445
*measure*time*	1		3	0	.	.	.	.
*measure*time*	2		1	0	.	.	.	.
*measure*time*	2		2	0	.	.	.	.
*measure*time*	2		3	0	.	.	.	.
*measure*randsta*time*	1	0	1	0.1062	0.2058	132	0.52	0.6066
*measure*randsta*time*	1	0	2	-0.08855	0.2211	132	-0.40	0.6894
*measure*randsta*time*	1	0	3	0	.	.	.	.
*measure*randsta*time*	1	1	1	0	.	.	.	.
*measure*randsta*time*	1	1	2	0	.	.	.	.
*measure*randsta*time*	1	1	3	0	.	.	.	.
*measure*randsta*time*	2	0	1	0	.	.	.	.
*measure*randsta*time*	2	0	2	0	.	.	.	.
*measure*randsta*time*	2	0	3	0	.	.	.	.
*measure*randsta*time*	2	1	1	0	.	.	.	.

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
All cases

The Mixed Procedure

Solution for Fixed Effects

Effect	measure	Randomization Status	time	Estimate	Standard Error	DF	t Value	Pr > |t|
measure*randsta*time	2	1	2	0	.	.	.	.
measure*randsta*time	2	1	3	0	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	F Value	Pr > F
randstat	1	74	5.23	0.0250
measure	1	74	105.48	<.0001
measure*randstat	1	74	0.09	0.7602
time	2	132	30.66	<.0001
randstat*time	2	132	3.87	0.0233
measure*time	2	132	0.27	0.7632
measure*randsta*time	2	132	0.44	0.6461

Simple Differences of measure*randsta*time Least Squares Means

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 1 time 1	0	1	0.02951	0.09598	132	0.31	0.7590

Simple Differences of measure*randsta*time Least Squares Means

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 1 time 2	0	1	0.3329	0.1635	132	2.04	0.0437

Simple Differences of measure*randsta*time Least Squares Means

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 1 time 3	0	1	0.3770	0.1660	132	2.27	0.0248

Simple Differences of measure*randsta*time Least Squares Means

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 2 time 1	0	1	-0.02691	0.1389	132	-0.19	0.8466

Focus: Doubly-Multivariate Analysis: ARV symptoms and bother
All cases

The Mixed Procedure

*Simple Differences of measure*randsta*time Least Squares Means*

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 2 time 2	0	1	0.4713	0.2365	132	1.99	0.0484

*Simple Differences of measure*randsta*time Least Squares Means*

Slice	Randomization Status	Randomization Status	Estimate	Standard Error	DF	t Value	Pr > |t|
measure 2 time 3	0	1	0.4268	0.2402	132	1.78	0.0779

Least Squares Means

Effect	measure	Randomization Status	time	Estimate	Standard Error	DF	t Value	Pr > |t|
*measure*randsta*time*	1	0	1	2.0085	0.06963	132	28.84	<.0001
*measure*randsta*time*	1	0	2	1.6264	0.1183	132	13.75	<.0001
*measure*randsta*time*	1	0	3	1.5406	0.1200	132	12.84	<.0001
*measure*randsta*time*	1	1	1	1.9790	0.06606	132	29.96	<.0001
*measure*randsta*time*	1	1	2	1.2935	0.1128	132	11.47	<.0001
*measure*randsta*time*	1	1	3	1.1636	0.1147	132	10.15	<.0001
*measure*randsta*time*	2	0	1	2.6761	0.1008	132	26.56	<.0001
*measure*randsta*time*	2	0	2	2.4388	0.1712	132	14.25	<.0001
*measure*randsta*time*	2	0	3	2.3353	0.1737	132	13.45	<.0001
*measure*randsta*time*	2	1	1	2.7030	0.09559	132	28.28	<.0001
*measure*randsta*time*	2	1	2	1.9675	0.1632	132	12.06	<.0001
*measure*randsta*time*	2	1	3	1.9085	0.1659	132	11.50	<.0001