

General Linear Model

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 _USD_Multivariate Stats\Computer Examples\Chapter7 MANCOVA Ex\Ch7 Manova Manceva Ex
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Between-Subjects Factors

	Value Label	N
gender	1 male	1847
	2 female	107
marital	1.00 single	115
	2.00 married	1646
status	3.00 previou sly	193
	married	

Multivariate Tests^a

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	
Intercept	Pillai's Trace	.312	442.371 ^a	2,000	1947,0	.000	.312
	Wilks' Lambda	.688	442.371 ^a	2,000	1947,0	.000	.312
	Hotelling's Trace	.454	442.371 ^a	2,000	1947,0	.000	.312
gender	Roy's Largest Root	.454	442.371 ^a	2,000	1947,0	.000	.312
	Pillai's Trace	.000	.177 ^a	2,000	1947,0	.838	.000
	Wilks' Lambda	1.000	.177 ^a	2,000	1947,0	.838	.000
Hotelling's Trace	Hotelling's Trace	.000	.177 ^a	2,000	1947,0	.838	.000
	Roy's Largest Root	.000	.177 ^a	2,000	1947,0	.838	.000
	Pillai's Trace	.006	3.063	4,000	3896,0	.016	.003
marital	Wilks' Lambda	.994	3.062 ^a	4,000	3894,0	.016	.003
	Hotelling's Trace	.006	3.060	4,000	3892,0	.016	.003
	Roy's Largest Root	.004	3.965 ^b	2,000	1948,0	.019	.004
gender * marital	Pillai's Trace	.004	1.995	4,000	3896,0	.093	.002
	Wilks' Lambda	.996	1.995 ^a	4,000	3894,0	.092	.002
	Hotelling's Trace	.004	1.996	4,000	3892,0	.092	.002
Roy's Largest Root	.004	3.867 ^b	2,000	1948,0	.021	.004	

- a. Exact statistic
- b. The statistic is an upper bound on F that yields a lower bound on the significance level.
- c. Design: Intercept+gender+marital+gender * marital

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	number of health probs	42.073 ^a	5	8.415	2.027	.072	.005
	cesd	7775.681 ^b	5	1555.14	13.403	.000	.033
Intercept	number of health probs	2361.762	1	2361.76	568.875	.000	.226
	cesd	62219.7	1	62219.7	536.229	.000	.216
gender	number of health probs	.023	1	.023	.006	.940	.000
	cesd	40.528	1	40.528	.349	.555	.000
marital	number of health probs	27.926	2	13.963	3.363	.035	.003
	cesd	745.013	2	372.506	3.210	.041	.003
gender * marital	number of health probs	1.109	2	.554	.134	.875	.000
	cesd	856.151	2	428.076	3.689	.025	.004
Error	number of health probs	8087.393	1948	4.152			
	cesd	226030	1948	116.032			
Total	number of health probs	26143.0	1954				
	cesd	538072	1954				
Corrected Total	number of health probs	8129.465	1953				
	cesd	233806	1953				

a. R Squared = .005 (Adjusted R Squared = .003)

b. R Squared = .033 (Adjusted R Squared = .031)

Post Hoc Tests

marital status

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) marital status	(J) marital status	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
number of health probs	single	married	-.491*	.1965	.034	-.952	-.030
		previously married	-.753*	.2400	.005	-1.316	-.190
	married	single	.491*	.1965	.034	.030	.952
		previously married	-.262	.1550	.210	-.625	.102
	previously married	single	.753*	.2400	.005	.190	1.316
		married	.262	.1550	.210	-.102	.625
cesd	single	married	3.5033*	1.03897	.002	1.0664	5.9403
		previously married	-2.1059	1.26893	.221	-5.0821	.8704
	married	previously married	-3.5033*	1.03897	.002	-5.9403	-1.0664
previously married	single	2.1059	1.26893	.221	-.8704	5.0821	
	married	5.6092*	.81957	.000	3.6869	7.5315	

Based on observed means.

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

Homogeneous Subsets

number of health probs

Tukey HSD^{a,b}

	N	Subset	
		1	2
marital status	115	2.548	
single	1646		3.039
married	193		3.301
previously married			
Sig.		1.000	.391

Means for groups in homogeneous subsets are displayed.

Based on Type III Sum of Squares

The error term is Mean Square(Error) = 4.152.

- a. Uses Harmonic Mean Sample Size = 207.117.
- b. Alpha = .05.

Tukey HSD^{a,b}

cesd

	N	Subset	
		1	2
marital status	1646	11.7183	
married	115		15.2217
single	193		17.3275
previously married			
Sig.		1.000	.115

Means for groups in homogeneous subsets are displayed.

Based on Type III Sum of Squares

The error term is Mean Square(Error) = 116.032.

- a. Uses Harmonic Mean Sample Size = 207.117.
- b. Alpha = .05.

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Between-Subjects Factors

	Value Label	N
gender	1 male	1847
	2 female	107
marital	1.00 single	115
status	2.00 married	1646
	3.00 previou sly married	193

Multivariate Tests^c

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	
Intercept	Pillai's Trace	.163	190.050 ^a	2.000	1946.0	.000	.163
	Wilks' Lambda	.837	190.050 ^a	2.000	1946.0	.000	.163
	Hotelling's Trace	.195	190.050 ^a	2.000	1946.0	.000	.163
age	Roy's Largest Root	.195	190.050 ^a	2.000	1946.0	.000	.163
	Pillai's Trace	.107	117.052 ^a	2.000	1946.0	.000	.107
	Wilks' Lambda	.893	117.052 ^a	2.000	1946.0	.000	.107
gender	Hotelling's Trace	.120	117.052 ^a	2.000	1946.0	.000	.107
	Roy's Largest Root	.120	117.052 ^a	2.000	1946.0	.000	.107
	Pillai's Trace	.001	.801 ^a	2.000	1946.0	.449	.001
marital	Wilks' Lambda	.999	.801 ^a	2.000	1946.0	.449	.001
	Hotelling's Trace	.001	.801 ^a	2.000	1946.0	.449	.001
	Roy's Largest Root	.001	.801 ^a	2.000	1946.0	.449	.001
gender * marital	Pillai's Trace	.005	2.403	4.000	3894.0	.048	.002
	Wilks' Lambda	.995	2.404 ^a	4.000	3892.0	.048	.002
	Hotelling's Trace	.005	2.405	4.000	3890.0	.048	.002
gender * marital	Roy's Largest Root	.005	4.594 ^b	2.000	1947.0	.010	.005
	Pillai's Trace	.002	1.129	4.000	3894.0	.341	.001
	Wilks' Lambda	.998	1.129 ^a	4.000	3892.0	.341	.001
gender * marital	Hotelling's Trace	.002	1.129	4.000	3890.0	.341	.001
	Hotelling's Trace	.002	1.129	4.000	3890.0	.341	.001
	Roy's Largest Root	.002	2.148 ^b	2.000	1947.0	.117	.002

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept+age+gender+marital+gender * marital

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	number of health probs	423.547 ^a	6	70.591	17.836	.000	.052
	cesd	15402.1 ^b	6	2567.01	22.884	.000	.066
Intercept	number of health probs	83.457	1	83.457	21.087	.000	.011
	cesd	42464.3	1	42464.3	378.556	.000	.163
age	number of health probs	381.475	1	381.475	96.385	.000	.047
	cesd	7626.389	1	7626.39	67.987	.000	.034
gender	number of health probs	4.804	1	4.804	1.214	.271	.001
	cesd	7.781	1	7.781	.069	.792	.000
marital	number of health probs	8.826	2	4.413	1.115	.328	.001
	cesd	1004.652	2	502.326	4.478	.011	.005
gender * marital	number of health probs	4.576	2	2.288	.578	.561	.001
	cesd	465.136	2	232.568	2.073	.126	.002
Error	number of health probs	7705.918	1947	3.958			
	cesd	218404	1947	112.175			
Total	number of health probs	26143.0	1954				
	cesd	538072	1954				
Corrected Total	number of health probs	8129.465	1953				
	cesd	233806	1953				

a. R Squared = .052 (Adjusted R Squared = .049)

b. R Squared = .066 (Adjusted R Squared = .063)