

Q1: Does having children at home has association with smoking habits ?
Chi-Square test.

Crosstabs

[DataSet1] /Users/amitkumar/Desktop/MSc Business Analytics/MS5105 Statstics/Files/surve.sav

Case Processing Summary

	Valid		Cases		Total	
	N	Percent	N	Percent	N	Percent
child * smoker	435	99.1%	4	0.9%	439	100.0%

child * smoker Crosstabulation

		smoker		Total
		YES	NO	
child	YES	Count	24	160
		% within child	13.0%	87.0%
		% within smoker	28.2%	45.7%
		% of Total	5.5%	36.8%
	NO	Count	61	190
		% within child	24.3%	75.7%
		% within smoker	71.8%	54.3%
		% of Total	14.0%	43.7%
Total		Count	85	350
		% within child	19.5%	80.5%
		% within smoker	100.0%	100.0%
		% of Total	19.5%	80.5%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.561 ^a	1	.003		
Continuity Correction ^b	7.860	1	.005		
Likelihood Ratio	8.871	1	.003		
Fisher's Exact Test				.003	.002
Linear-by-Linear Association	8.541	1	.003		
N of Valid Cases	435				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 35.95.

b. Computed only for a 2x2 table

Symmetric Measures

	Value	Approximate Significance
Nominal by Nominal	Phi	-.140
	Cramer's V	.140
N of Valid Cases	435	

Q2: Can Total Optimism, Total Self-esteem and Total Perceived Stress predict Total Life Satisfaction?
Multiple regression.

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Total life satisfaction	22.36	6.781	430
Total Optimism	22.13	4.448	430
Total Self esteem	33.57	5.348	430
Total perceived stress	26.73	5.859	430

Correlations

		Total life satisfaction	Total Optimism	Total Self esteem
Pearson Correlation	Total life satisfaction	1.000	.487	.492
	Total Optimism	.487	1.000	.575
	Total Self esteem	.492	.575	1.000
	Total perceived stress	-.493	-.470	-.575
Sig. (1-tailed)	Total life satisfaction	.	<.001	<.001
	Total Optimism	.000	.	.000
	Total Self esteem	.000	.000	.
	Total perceived stress	.000	.000	.000
N	Total life satisfaction	430	430	430
	Total Optimism	430	430	430
	Total Self esteem	430	430	430
	Total perceived stress	430	430	430

Correlations

		Total perceived stress
Pearson Correlation	Total life satisfaction	-.493
	Total Optimism	-.470
	Total Self esteem	-.575
	Total perceived stress	1.000
Sig. (1-tailed)	Total life satisfaction	<.001
	Total Optimism	.000
	Total Self esteem	.000
	Total perceived stress	.
N	Total life satisfaction	430
	Total Optimism	430
	Total Self esteem	430
	Total perceived stress	430

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Total perceived stress, Total Optimism, Total Self esteem ^b	.	Enter

a. Dependent Variable: Total life satisfaction

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.590 ^a	.348	.344	5.493	.348	75.955

Model Summary^b

Change Statistics			
Model	df1	df2	Sig. F Change
1	3	426	<.001

a. Predictors: (Constant), Total perceived stress, Total Optimism, Total Self esteem

b. Dependent Variable: Total life satisfaction

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6874.702	3	2291.567	75.955	<.001 ^b
	Residual	12852.426	426	30.170		
	Total	19727.128	429			

a. Dependent Variable: Total life satisfaction

b. Predictors: (Constant), Total perceived stress, Total Optimism, Total Self esteem

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	13.541	3.299		4.104
	Total Optimism	.383	.074	.251	5.137
	Total Self esteem	.251	.067	.198	3.757
	Total perceived stress	-.302	.057	-.261	-5.344

Coefficients^a

Model		Sig.	95.0% Confidence Interval for B		Correlations Zero-order
			Lower Bound	Upper Bound	
1	(Constant)	<.001	7.056	20.025	
	Total Optimism	<.001	.236	.529	.487
	Total Self esteem	<.001	.120	.382	.492
	Total perceived stress	<.001	-.413	-.191	-.493

Coefficients^a

Model		Correlations		Collinearity Statistics	
		Partial	Part	Tolerance	VIF
1	(Constant)				
	Total Optimism	.242	.201	.641	1.561
	Total Self esteem	.179	.147	.551	1.816
	Total perceived stress	-.251	-.209	.641	1.561

a. Dependent Variable: Total life satisfaction

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions		Total Self esteem
					Total Optimism	Total Self esteem	
1	1	3.907	1.000	.00	.00	.00	.00
	2	.074	7.277	.00	.08	.03	
	3	.014	16.540	.02	.89	.39	
	4	.005	29.271	.98	.03	.58	

Collinearity Diagnostics^a

Model	Dimension	Variance ...	
		Total perceived stress	
1	1	.00	
	2	.25	
	3	.05	
	4	.70	

a. Dependent Variable: Total life satisfaction

Casewise Diagnostics^a

Case Number	Std. Residual	Total life satisfaction	Predicted Value	Residual
41	-3.354	5	23.42	-18.421

a. Dependent Variable: Total life satisfaction

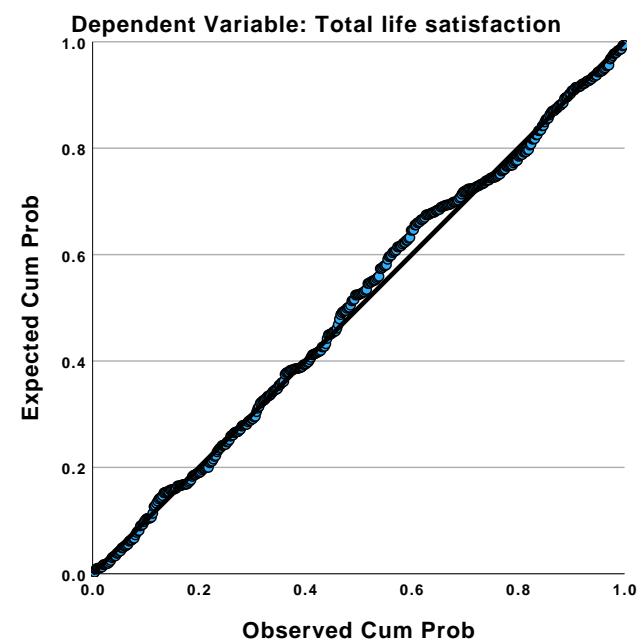
Residuals Statistics^a

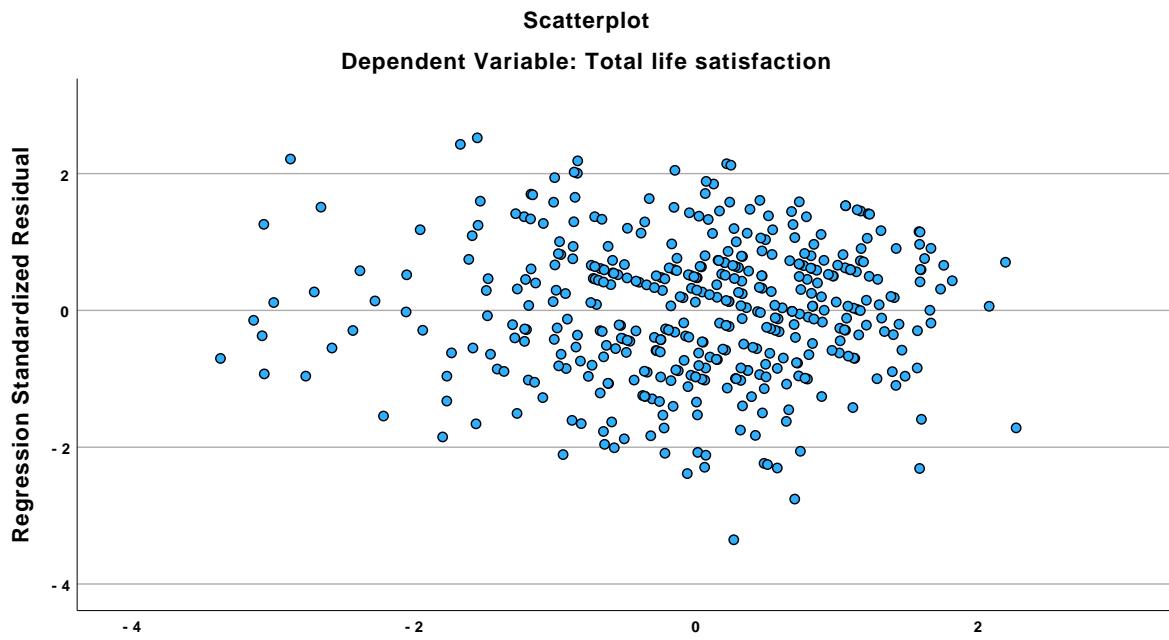
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	8.86	31.43	22.36	4.003	430
Std. Predicted Value	-3.373	2.267	.000	1.000	430
Standard Error of Predicted Value	.271	1.072	.507	.153	430
Adjusted Predicted Value	9.00	31.62	22.36	4.002	430
Residual	-18.421	13.855	.000	5.473	430
Std. Residual	-3.354	2.523	.000	.996	430
Stud. Residual	-3.374	2.535	.000	1.001	430
Deleted Residual	-18.644	13.998	-.001	5.529	430
Stud. Deleted Residual	-3.416	2.552	.000	1.004	430
Mahal. Distance	.043	15.349	2.993	2.576	430
Cook's Distance	.000	.036	.003	.004	430
Centered Leverage Value	.000	.036	.007	.006	430

a. Dependent Variable: Total life satisfaction

Charts

Normal P-P Plot of Regression Standardized Residual





Q3: Is there a significant difference in total life satisfaction based having children at home or not?

T-Test

Independent Samples T-Test. Group Statistics

	child	N	Mean	Std. Deviation	Std. Error Mean
Total life satisfaction	YES	184	23.00	6.641	.490
	NO	251	21.91	6.848	.432

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	
Total life satisfaction	Equal variances assumed	.055	.815	1.664	
	Equal variances not assumed			1.672	

Independent Samples Test

		t-test for Equality of Means		
		df	Significance	
			One-Sided p	Two-Sided p
Total life satisfaction	Equal variances assumed	433	.048	.097
	Equal variances not assumed	401.112	.048	.095

Independent Samples Test

		t-test for Equality of Means		
		Mean Difference	Std. Error Difference	95% Confidence ...
				Lower
Total life satisfaction	Equal variances assumed	1.092	.656	-.198
	Equal variances not assumed	1.092	.653	-.192

Independent Samples Test

		t-test for Equality of ...	95% Confidence Interval of the ...	Upper
Total life satisfaction	Equal variances assumed	2.381		
	Equal variances not assumed	2.376		

Independent Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Total life satisfaction	Cohen's d	6.761	.161	-.029	.352
	Hedges' correction	6.773	.161	-.029	.351
	Glass's delta	6.848	.159	-.031	.350

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 (i.e., the second) group.

Oneway Q4: Does Total life satisfaction differ based on the level of education?
One-Way ANOVA
Descriptives

Total life satisfaction

	N	Mean	Std. Deviation	Std. Error	95% Confidence ...
					Lower Bound
did not complete high school	54	22.74	7.471	1.017	20.70
completed high school	85	22.21	6.514	.707	20.81
some additional training	118	21.15	6.727	.619	19.93
completed undergrad uni	123	23.72	6.645	.599	22.54
completed postgrad uni	56	21.91	6.479	.866	20.18
Total	436	22.38	6.770	.324	21.74

Descriptives

Total life satisfaction

	95% Confidence Interval for ...		
	Upper Bound	Minimum	Maximum
did not complete high school	24.78	8	35
completed high school	23.62	5	35
some additional training	22.38	5	35
completed undergrad uni	24.91	5	35
completed postgrad uni	23.65	5	35
Total	23.02	5	35

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2
Total life satisfaction	Based on Mean	.424	4	431
	Based on Median	.329	4	431
	Based on Median and with adjusted df	.329	4	420.837
	Based on trimmed mean	.394	4	431

Tests of Homogeneity of Variances

		Sig.
Total life satisfaction	Based on Mean	.792
	Based on Median	.859
	Based on Median and with adjusted df	.859
	Based on trimmed mean	.813

ANOVA

Total life satisfaction

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	421.589	4	105.397	2.328	.056
Within Groups	19512.968	431	45.274		
Total	19934.557	435			

ANOVA Effect Sizes^{a,b}

		Point Estimate	95% Confidence Interval	
			Lower	Upper
Total life satisfaction	Eta-squared	.021	.000	.047
	Epsilon-squared	.012	-.009	.038
	Omega-squared Fixed-effect	.012	-.009	.038
	Omega-squared Random-effect	.003	-.002	.010

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Robust Tests of Equality of Means

Total life satisfaction

	Statistic ^a	df1	df2	Sig.
Welch	2.332	4	177.612	.058
Brown-Forsythe	2.287	4	336.835	.060

a. Asymptotically F distributed.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) educat recoded	(J) educat recoded	Mean Difference (I-J)	Std. Error	Sig.
did not complete high school	completed high school	.529	1.171	.991
	some additional training	1.588	1.105	.604
	completed undergrad uni	-.983	1.098	.899
	completed postgrad uni	.830	1.283	.967
completed high school	did not complete high school	-.529	1.171	.991
	some additional training	1.059	.957	.803
	completed undergrad uni	-1.512	.949	.503
	completed postgrad uni	.301	1.158	.999
some additional training	did not complete high school	-1.588	1.105	.604
	completed high school	-1.059	.957	.803
	completed undergrad uni	-2.571*	.867	.026
	completed postgrad uni	-.758	1.092	.958
completed undergrad uni	did not complete high school	.983	1.098	.899
	completed high school	1.512	.949	.503
	some additional training	2.571*	.867	.026
	completed postgrad uni	1.813	1.085	.453

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) educat recoded	(J) educat recoded	95% Confidence Interval	
		Lower Bound	Upper Bound
did not complete high school	completed high school	-2.68	3.74
	some additional training	-1.44	4.62
	completed undergrad uni	-3.99	2.03
	completed postgrad uni	-2.69	4.35
completed high school	did not complete high school	-3.74	2.68
	some additional training	-1.56	3.68
	completed undergrad uni	-4.11	1.09
	completed postgrad uni	-2.87	3.47
some additional training	did not complete high school	-4.62	1.44
	completed high school	-3.68	1.56
	completed undergrad uni	-4.95	-.20
	completed postgrad uni	-3.75	2.23
completed undergrad uni	did not complete high school	-2.03	3.99
	completed high school	-1.09	4.11
	some additional training	.20	4.95
	completed postgrad uni	-1.16	4.78

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) educat recoded	(J) educat recoded	Mean Difference (I-J)	Std. Error	Sig.
completed postgrad uni	did not complete high school	-.830	1.283	.967
	completed high school	-.301	1.158	.999
	some additional training	.758	1.092	.958
	completed undergrad uni	-1.813	1.085	.453

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) educat recoded	(J) educat recoded	95% Confidence Interval	
		Lower Bound	Upper Bound
completed postgrad uni	did not complete high school	-4.35	2.69
	completed high school	-3.47	2.87
	some additional training	-2.23	3.75
	completed undergrad uni	-4.78	1.16

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

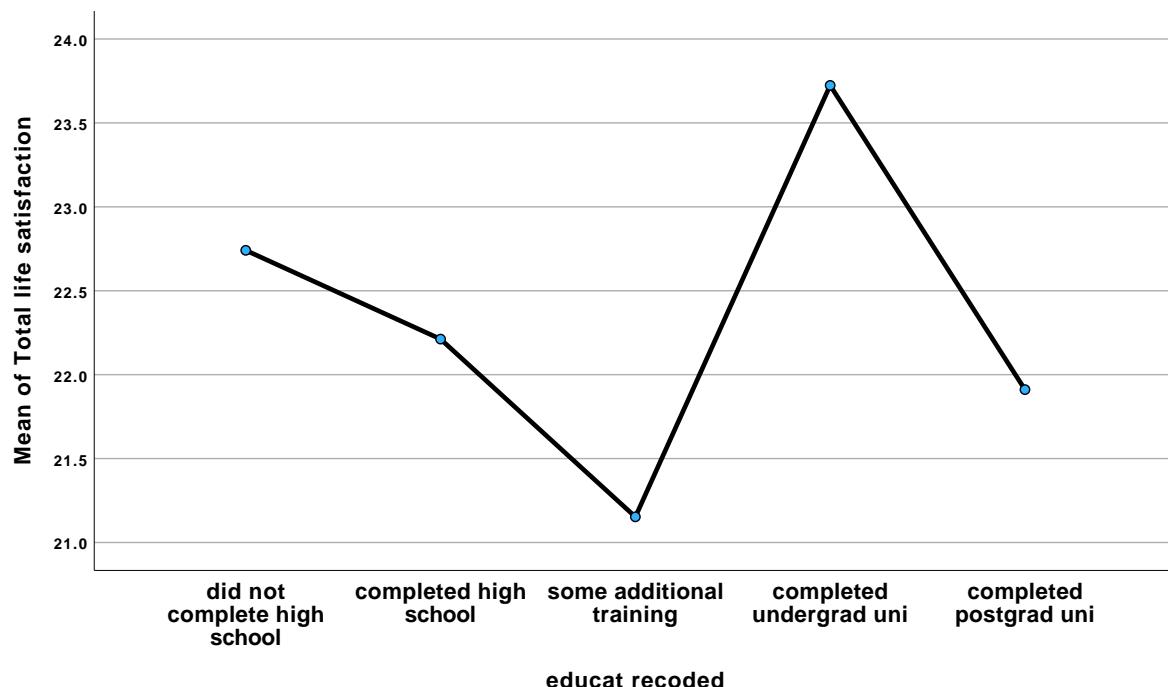
Total life satisfaction		
Tukey HSD ^{a,b}		
educat recoded	N	Subset for alpha = 0.05
some additional training	118	21.15
completed postgrad uni	56	21.91
completed high school	85	22.21
did not complete high school	54	22.74
completed undergrad uni	123	23.72
Sig.		.124

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 77.226.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Means Plots



Univariate Analysis of Variance

Q5: Does Total life satisfaction differ on the basis of the marital status and gender?
Two Way ANOVA

Between-Subjects Factors

		Value Label	N
sex	1	MALES	185
	2	FEMALES	251
marital status	1	SINGLE	104
	2	STEADY RELATIONSHIP	37
	3	LIVING WITH PARTNER	36
	4	MARRIED FIRST TIME	188
	5	REMARRIED	30
	6	SEPARATED	10
	7	DIVORCED	24
	8	WIDOWED	7

Descriptive Statistics

Dependent Variable: Total life satisfaction

sex	marital status	Mean	Std. Deviation	N
MALES	SINGLE	19.82	7.148	50
	STEADY RELATIONSHIP	20.15	5.097	13
	LIVING WITH PARTNER	21.63	5.377	19
	MARRIED FIRST TIME	22.76	6.331	84
	REMARRIED	25.17	6.013	12
	SEPARATED	17.67	8.021	3
	DIVORCED	19.50	6.557	4
	Total	21.67	6.525	185
FEMALES	SINGLE	21.83	6.167	54
	STEADY RELATIONSHIP	23.58	6.276	24
	LIVING WITH PARTNER	24.00	7.000	17
	MARRIED FIRST TIME	23.88	7.096	104
	REMARRIED	24.44	6.186	18
	SEPARATED	14.86	5.113	7
	DIVORCED	18.85	6.983	20
	WIDOWED	27.14	5.336	7
Total	Total	22.90	6.911	251
	SINGLE	20.87	6.700	104
	STEADY RELATIONSHIP	22.38	6.048	37
	LIVING WITH PARTNER	22.75	6.222	36
	MARRIED FIRST TIME	23.38	6.771	188
	REMARRIED	24.73	6.023	30
	SEPARATED	15.70	5.794	10
	DIVORCED	18.96	6.779	24
Total	WIDOWED	27.14	5.336	7
	Total	22.38	6.770	436

Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistic	df1	df2
Total life satisfaction	Based on Mean	.650	14	421
	Based on Median	.682	14	421
	Based on Median and with adjusted df	.682	14	406.232
	Based on trimmed mean	.628	14	421

Levene's Test of Equality of Error Variances^{a,b}

		Sig.
Total life satisfaction	Based on Mean	.822
	Based on Median	.792
	Based on Median and with adjusted df	.792
	Based on trimmed mean	.842

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

a. Dependent variable: Total life satisfaction

b. Design: Intercept + sex + marital + sex * marital

Tests of Between-Subjects Effects

Dependent Variable: Total life satisfaction

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1819.835 ^a	14	129.988	3.021	<.001
Intercept	71093.201	1	71093.201	1652.260	<.001
sex	18.739	1	18.739	.436	.510
marital	1222.930	7	174.704	4.060	<.001
sex * marital	140.090	6	23.348	.543	.776
Error	18114.722	421	43.028		
Total	238281.000	436			
Corrected Total	19934.557	435			

Tests of Between-Subjects Effects

Dependent Variable: Total life satisfaction

Source	Partial Eta Squared
Corrected Model	.091
Intercept	.797
sex	.001
marital	.063
sex * marital	.008
Error	
Total	
Corrected Total	

a. R Squared = .091 (Adjusted R Squared = .061)

Post Hoc Tests

marital status

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) marital status	(J) marital status	Mean Difference (I-J)	Std. Error	Sig.
SINGLE	STEADY RELATIONSHIP	-1.51	1.256	.930
	LIVING WITH PARTNER	-1.88	1.268	.815
	MARRIED FIRST TIME	-2.52*	.802	.038
	REMARRIED	-3.87	1.359	.087
	SEPARATED	5.17	2.172	.255
	DIVORCED	1.91	1.485	.905
	WIDOWED	-6.28	2.561	.220
STEADY RELATIONSHIP	SINGLE	1.51	1.256	.930
	LIVING WITH PARTNER	-.37	1.536	1.000
	MARRIED FIRST TIME	-1.00	1.180	.990
	REMARRIED	-2.35	1.612	.827
	SEPARATED	6.68	2.338	.084
	DIVORCED	3.42	1.719	.490
	WIDOWED	-4.76	2.704	.646
LIVING WITH PARTNER	SINGLE	1.88	1.268	.815
	STEADY RELATIONSHIP	.37	1.536	1.000
	MARRIED FIRST TIME	-.63	1.193	.999
	REMARRIED	-1.98	1.622	.925
	SEPARATED	7.05	2.345	.056
	DIVORCED	3.79	1.729	.358
	WIDOWED	-4.39	2.710	.737
MARRIED FIRST TIME	SINGLE	2.52*	.802	.038
	STEADY RELATIONSHIP	1.00	1.180	.990
	LIVING WITH PARTNER	.63	1.193	.999
	REMARRIED	-1.35	1.290	.967
	SEPARATED	7.68*	2.129	.008
	DIVORCED	4.42*	1.422	.041
	WIDOWED	-3.76	2.525	.813
REMARRIED	SINGLE	3.87	1.359	.087
	STEADY RELATIONSHIP	2.35	1.612	.827
	LIVING WITH PARTNER	1.98	1.622	.925
	MARRIED FIRST TIME	1.35	1.290	.967
	SEPARATED	9.03*	2.395	.005
	DIVORCED	5.78*	1.796	.030
	WIDOWED	-2.41	2.753	.988
SEPARATED	SINGLE	-5.17	2.172	.255
	STEADY RELATIONSHIP	-6.68	2.338	.084
	LIVING WITH PARTNER	-7.05	2.345	.056

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) marital status	(J) marital status	95% Confidence Interval	
		Lower Bound	Upper Bound
SINGLE	STEADY RELATIONSHIP	-5.34	2.31
	LIVING WITH PARTNER	-5.75	1.98
	MARRIED FIRST TIME	-4.96	-.08
	REMARRIED	-8.01	.27
	SEPARATED	-1.45	11.78
	DIVORCED	-2.62	6.43
	WIDOWED	-14.08	1.53
STEADY RELATIONSHIP	SINGLE	-2.31	5.34
	LIVING WITH PARTNER	-5.05	4.31
	MARRIED FIRST TIME	-4.60	2.59
	REMARRIED	-7.26	2.55
	SEPARATED	-.44	13.80
	DIVORCED	-1.82	8.66
	WIDOWED	-13.00	3.47
LIVING WITH PARTNER	SINGLE	-1.98	5.75
	STEADY RELATIONSHIP	-4.31	5.05
	MARRIED FIRST TIME	-4.27	3.00
	REMARRIED	-6.92	2.96
	SEPARATED	-.09	14.19
	DIVORCED	-1.47	9.06
	WIDOWED	-12.65	3.86
MARRIED FIRST TIME	SINGLE	.08	4.96
	STEADY RELATIONSHIP	-2.59	4.60
	LIVING WITH PARTNER	-3.00	4.27
	REMARRIED	-5.28	2.58
	SEPARATED	1.20	14.17
	DIVORCED	.09	8.76
	WIDOWED	-11.45	3.93
REMARRIED	SINGLE	-.27	8.01
	STEADY RELATIONSHIP	-2.55	7.26
	LIVING WITH PARTNER	-2.96	6.92
	MARRIED FIRST TIME	-2.58	5.28
	SEPARATED	1.74	16.33
	DIVORCED	.30	11.25
	WIDOWED	-10.80	5.98
SEPARATED	SINGLE	-11.78	1.45
	STEADY RELATIONSHIP	-13.80	.44
	LIVING WITH PARTNER	-14.19	.09

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) marital status	(J) marital status	Mean Difference (I-J)	Std. Error	Sig.
DIVORCED	MARRIED FIRST TIME	-7.68*	2.129	.008
	REMARRIED	-9.03*	2.395	.005
	DIVORCED	-3.26	2.469	.891
	WIDOWED	-11.44*	3.233	.010
	SINGLE	-1.91	1.485	.905
	STEADY RELATIONSHIP	-3.42	1.719	.490
	LIVING WITH PARTNER	-3.79	1.729	.358
WIDOWED	MARRIED FIRST TIME	-4.42*	1.422	.041
	REMARRIED	-5.78*	1.796	.030
	SEPARATED	3.26	2.469	.891
	DIVORCED	-8.18	2.818	.074
	SINGLE	6.28	2.561	.220
	STEADY RELATIONSHIP	4.76	2.704	.646
	LIVING WITH PARTNER	4.39	2.710	.737

Multiple Comparisons

Dependent Variable: Total life satisfaction

Tukey HSD

(I) marital status	(J) marital status	95% Confidence Interval	
		Lower Bound	Upper Bound
DIVORCED	MARRIED FIRST TIME	-14.17	-1.20
	REMARRIED	-16.33	-1.74
	DIVORCED	-10.78	4.26
	WIDOWED	-21.29	-1.60
	SINGLE	-6.43	2.62
	STEADY RELATIONSHIP	-8.66	1.82
	LIVING WITH PARTNER	-9.06	1.47
WIDOWED	MARRIED FIRST TIME	-8.76	-.09
	REMARRIED	-11.25	-.30
	SEPARATED	-4.26	10.78
	WIDOWED	-16.77	.40
	SINGLE	-1.53	14.08
	STEADY RELATIONSHIP	-3.47	13.00
	LIVING WITH PARTNER	-3.86	12.65

Based on observed means.

The error term is Mean Square(Error) = 43.028.

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

Homogeneous Subsets

Total life satisfaction

Tukey HSD^{a,b,c}

marital status	N	Subset		
		1	2	3
SEPARATED	10	15.70		
DIVORCED	24	18.96	18.96	
SINGLE	104	20.87	20.87	
STEADY RELATIONSHIP	37		22.38	22.38
LIVING WITH PARTNER	36		22.75	22.75
MARRIED FIRST TIME	188		23.38	23.38
REMARRIED	30		24.73	24.73
WIDOWED	7			27.14
Sig.		.186	.091	.278

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 43.028.

- a. Uses Harmonic Mean Sample Size = 20.640.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
- c. Alpha = .05.

Profile Plots

