

**\*31 Lec: wellness, income (omit), stress, neg life events, family support.**

CORR wel str neg fam /STAT.

	Mean	Std. Deviation	N
wel	28.82692	5.012616	52
str	20.15385	2.652299	52
neg	19.98077	2.667821	52
fam	19.88462	2.853645	52

$SS_y = \dots$

$SS_F = 415.308$

	wel	str	neg
str	-.386		
	.005		
neg	-.389	.532	
	.004	.000	
fam	-.047	.679	.438
	.743	.000	.001

REGRESS /DEP = wel /ENTER str neg fam /SAVE PRED(prdw.snf) RESI(resw.snf).

Model	R	R Square
1	.547	.299

$\frac{383.679}{1281.442} = .299$   
 $\sqrt{.299} = .547$

$1 - R^2 = .701$   
 $\sqrt{1 - R^2} = .837$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	383.679	3	127.893	6.838	.001
	Residual	897.763	48	18.703		
	Total	1281.442	51			

$SS_y$   
 $SS_{y-\hat{y}}$   
 $SS_{y-\hat{y}}$

$H_0: \rho_{w, str, neg, fam}^2 = 0$

$P(F \geq 6.838 | H_0 \text{ true}) = .001$

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	44.741	5.389		8.302	.000
	str	-.991	.333	-.524	-2.977	.005
	neg	-.569	.270	-.303	-2.106	.040
	fam	.776	.291	.442	2.664	.010

	Mean	Std. Deviation	N
Predicted Value	28.82692	2.742831	52
Residual	.000000	4.195616	52

$SS_{\hat{y}} = (52-1)2.742831^2 = 383.679$

$SS_{y-\hat{y}}$

$\sum (y - \hat{y}) = 0$

VARI LABEL prdw.snf ' ' resw.snf ' '.  
 LIST /CASES = FROM 1 TO 2.

$$\hat{y} = 44.741 - .9915 \frac{1}{20} - .569 \frac{1}{20} + .776 \frac{1}{20} F$$

	o	inc	str	neg	fam	wel	prdw.snf	resw.snf
1.000	50.000	20.000	20.000	20.000	26.000	29.05787	-3.05787	
2.000	47.000	20.000	20.000	20.000	25.000	29.05787	-4.05787	

CORR wel str neg fam prdw.snf resw.snf.

	wel	str	neg	fam	prdw.snf
prdw.snf	.547				
resw.snf	.837	.000	.000	.000	.000



REGRESS /STAT = DEFAULT ZPP CHANGE /DEP = wel /ENTER str neg /ENTER fam.

Model	R	R Square	Change Statistics				Sig. F Change
			R Square Change	F Change	df1	df2	
1	.442	.196	.196	5.965	2	49	.005
2	.547	.299	.104	7.099	1	48	.010

$H_0: \beta_{WF.SN} = 0$   
 $>, <, \neq ?$   
 Rej  $H_0$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	250.904	2	125.452	5.965	.005
	Residual	1030.539	49	21.031		
	Total	1281.442	51			
2	Regression	383.679	3	127.893	6.838	.001
	Residual	897.763	48	18.703		
	Total	1281.442	51			

$SS_{WF.SN} = 383.679 - 250.904 = 132.775$   
 $r^2_{WF.SN} = .1036$   
 $r_{WF.SN} = .322$

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Correlations		
		B	Std. Error	Beta				Zero-order	Partial	Part
1	(Constant)	47.941	5.571			8.605	.000			
	str	-.472	.286	-.250		-1.649	.106	-.386	-.229	-.211
	neg	-.481	.284	-.256		-1.691	.097	-.389	-.235	-.217
2	(Constant)	44.741	5.389			8.302	.000			
	str	-.991	.333	-.524		-2.977	.005	-.386	-.395	-.360
	neg	-.569	.270	-.303		-2.106	.040	-.389	-.291	-.254
	fam	.776	.291	.442		2.664	.010	-.047	.359	.322

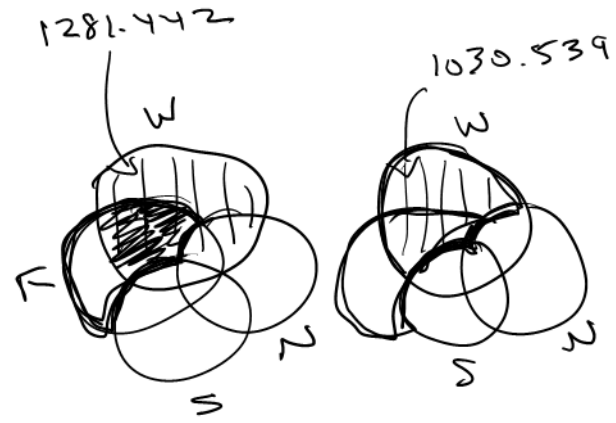
$$\sqrt{\frac{18.703}{(1-.469)415.308}}$$

$t = \frac{.776}{.291} = \sqrt{F}$   
 $H_0: \beta_{WF.SN} = 0$   
 $>, <, \neq ?$

REGRESS /DEP = fam /ENTER str neg /SAVE RESI(resf.sn).

Model	R	R Square
1	.685	.469

$R^2_{F,SN}$

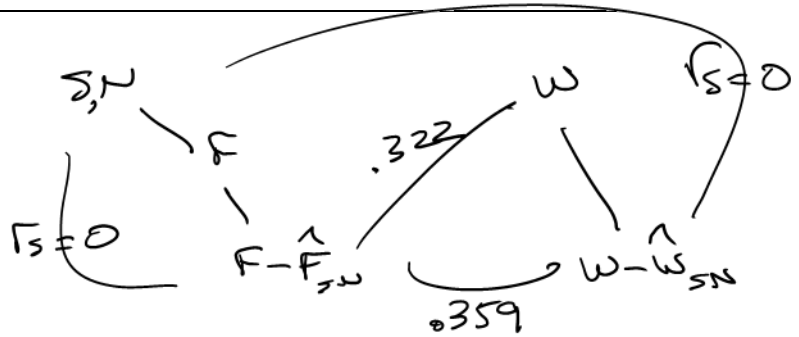


REGRESS /DEP = wel /ENTER str neg /SAVE RESI(resw.sn).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	250.904	2	125.452	5.965	.005
	Residual	1030.539	49	21.031		
	Total	1281.442	51			

VARI LABEL resf.sn ' ' resw.sn ' '.  
CORR resf.sn resw.sn wel str neg.

	resf.sn	resw.sn
resw.sn	.359	
wel	.322	
str	.000	.000
neg	.000	.000



DATA LIST FREE / o inc str neg fam wel.

BEGIN DATA

```

1 50 20 20 20 26 2 47 20 20 20 25 3 62 19 21 17 29 4 48 19 16 19 33
5 39 19 18 19 36 6 59 18 18 19 34 7 61 17 15 22 38 8 41 20 17 19 28
9 59 18 23 22 31 10 47 17 17 14 22 11 48 19 21 19 29 12 58 22 20 19 29
13 37 23 22 23 20 14 56 21 20 23 28 15 35 22 24 26 29 16 59 24 19 25 30
17 51 21 19 18 28 18 51 19 19 19 37 19 41 22 22 22 28 20 47 20 23 17 28
21 40 24 23 23 34 22 47 17 21 18 27 23 47 24 22 19 21 24 52 18 16 17 29
25 51 23 24 25 22 26 39 21 23 21 24 27 57 24 23 22 23 28 43 16 20 16 33
29 50 20 25 21 15 30 26 24 18 22 27 31 43 15 18 12 32 32 56 20 20 15 28
33 49 24 24 23 23 34 70 17 18 19 30 35 43 20 14 18 23 36 46 16 15 18 32
37 50 19 21 22 36 38 55 21 19 23 32 39 50 20 19 18 29 40 51 20 22 17 23
41 50 25 20 23 29 42 33 24 20 22 28 43 67 14 16 16 32 44 40 19 20 20 37
45 48 20 21 22 30 46 55 19 23 19 35 47 58 19 19 17 21 48 59 17 16 19 38
49 32 20 19 20 32 50 53 21 20 22 31 51 36 25 24 22 29 52 24 22 22 21 26

```

END DATA.

\*31 Lec: Automated procedures, add Income.

CORR wel inc str neg fam.

	wel	inc	str	neg
inc	.142			
	.315			
str	-.386	-.380		
	.005	.005		
neg	-.389	-.200	.532	
	.004	.155	.000	
fam	-.047	-.180	.679	.438
	.743	.201	.000	.001

order in dataset

REGRESS /VARI = inc TO wel /DEP = wel FORWARD.

Model	Variables Entered	Variables Removed	Method
1	neg	.	Forward (Criterion: Probability-of-F-to-enter <= .050) <u>PIN</u>

Model	R	R Square
1	.389	.151

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.720	1	193.720	8.905	.004
	Residual	1087.722	50	21.754		
	Total	1281.442	51			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43.424	4.934		8.801	.000
	<u>neg</u>	-.731	.245	-.389	-2.984	.004

Model		Beta In	t	Sig.	Partial Correlation
1	inc	.067	.500	.619	.071
	str	-.250	-1.649	.106	-.229
	fam	.153	1.055	.297	.149

p > .05

$$\hat{Y} = b_0 + b_1 X$$

REGRESS /VARI = inc TO wel /DEP = wel /BACKWARD.

Model	Variables Entered	Variables Removed	Method
1	fam, inc, neg, str	.	Enter
2	.	inc	Backward (criterion: Probability of F-to-remove >= .100).

POUT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.549	.301	.242	4.365194
2	.547	.299	.256	4.324742

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	385.861	4	96.465	5.062	.002
	Residual	895.581	47	19.055		
	Total	1281.442	51			
2	Regression	383.679	3	127.893	6.838	.001
	Residual	897.763	48	18.703		
	Total	1281.442	51			

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	46.471	7.465			6.225	.000
	inc	-.023	.069			-.045	-.338
	str	-1.031	.356			-.545	-2.895
	neg	-.570	.273			-.303	-2.091
	fam	.787	.296			.448	2.661
2	(Constant)	44.741	5.389			8.302	.000
	str	-.991	.333			-.524	-2.977
	neg	-.569	.270			-.303	-2.106
	fam	.776	.291			.442	2.664

Model		Beta In	t	Sig.	Partial Correlation
2	inc	-.045	-.338	.737	-.049

$$\hat{y} = b_0 + b_S S + b_N N + b_F F$$

REGRESS /VARI = inc TO wel /CRITERIA PIN (.11) /DEP = wel /FORWARD .

Model	Variables Entered	Variables Removed	Method
1	neg	.	Forward (Criterion: Probability-of-F-to-enter <= .110)
2	str	.	Forward (Criterion: Probability-of-F-to-enter <= .110)
3	fam	.	Forward (Criterion: Probability-of-F-to-enter <= .110)

Model	R	R Square
1	.389	.151
2	.442	.196
3	.547	.299

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.720	1	193.720	8.905	.004
	Residual	1087.722	50	21.754		
	Total	1281.442	51			
2	Regression	250.904	2	125.452	5.965	.005
	Residual	1030.539	49	21.031		
	Total	1281.442	51			
3	Regression	383.679	3	127.893	6.838	.001
	Residual	897.763	48	18.703		
	Total	1281.442	51			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43.424	4.934		8.801	.000
	neg	-.731	.245	-.389	-2.984	.004
2	(Constant)	47.941	5.571		8.605	.000
	neg	-.481	.284	-.256	-1.691	.097
	str	-.472	.286	-.250	-1.649	.106
3	(Constant)	44.741	5.389		8.302	.000
	neg	-.569	.270	-.303	-2.106	.040
	str	-.991	.333	-.524	-2.977	.005
	fam	.776	.291	.442	2.664	.010

Model		Beta In	t	Sig.	Partial Correlation
1	inc	.067	.500	.619	.071
	str	-.250	-1.649	.106	-.229
	fam	.153	1.055	.297	.149
2	inc	-.004	-.032	.975	-.005
	fam	.442	2.664	.010	.359
3	inc	-.045	-.338	.737	-.049

N+S+F+1

REGRESS /VARI = inc TO wel /CRITERIA PIN (.11) /DEP = wel /STEPWISE.

### Warnings

There are conflicting criteria on CRITERIA subcommand. Probability-of-F-to-remove (POUT) is less than or equal to Probability-of-F-to-enter (PIN). Using the STEPWISE method might result in the same variable being entered and then removed in a cycle that continues until the number of steps allowed for the equation is exceeded. POUT has been reset to 1.1\*PIN, or 1.0, whichever is smaller. The criteria are now PIN = .110, POUT = .121.

Model	Variables Entered	Variables Removed	Method
1	neg	.	Stepwise (Criteria: Probability-of-F-to-enter <= .110, Probability-of-F-to-remove >= .121).
2	str	.	Stepwise (Criteria: Probability-of-F-to-enter <= .110, Probability-of-F-to-remove >= .121).
3	fam	.	Stepwise (Criteria: Probability-of-F-to-enter <= .110, Probability-of-F-to-remove >= .121).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.389	.151	.134	4.664165
2	.442	.196	.163	4.586000
3	.547	.299	.256	4.324742

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.720	1	193.720	8.905	.004
	Residual	1087.722	50	21.754		
	Total	1281.442	51			
2	Regression	250.904	2	125.452	5.965	.005
	Residual	1030.539	49	21.031		
	Total	1281.442	51			
3	Regression	383.679	3	127.893	6.838	.001
	Residual	897.763	48	18.703		
	Total	1281.442	51			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43.424	4.934		8.801	.000
	neg	-.731	.245	-.389	-2.984	.004
2	(Constant)	47.941	5.571		8.605	.000
	neg	-.481	.284	-.256	-1.691	.097
	str	-.472	.286	-.250	-1.649	.106
3	(Constant)	44.741	5.389		8.302	.000
	neg	-.569	.270	-.303	-2.106	.040
	str	-.991	.333	-.524	-2.977	.005
	fam	.776	.291	.442	2.664	.010

? < .121

Model		Beta In	t	Sig.	Partial Correlation
1	inc	.067	.500	.619	.071
	str	-.250	-1.649	.106	-.229
	fam	.153	1.055	.297	.149
2	inc	-.004	-.032	.975	-.005
	fam	.442	2.664	.010	.359
3	inc	-.045	-.338	.737	-.049

CORR wel inc str neg fam.

	wel	inc	str	neg
inc	.142			
	.315			
str	-.386	-.380		
	.005	.005		
neg	-.389	-.200	.532	
	.004	.155	.000	
fam	-.047	-.180	.679	.438
	.743	.201	.000	.001