

Regression of Systolic Blood Pressure on Age, Weight & Cholesterol

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1 * bp.sas;
2 options ls=120 ps=75 nocenter nodate;
3 title 'Regression of Systolic Blood Pressure on Age, Weight & Cholesterol';
4 * BP = systolic blood pressure;
5 * ID = identifying label (A-Z);
6 * AGE = age in years;
7 * WGT = weight in pounds;
8 * CHOL = cholesterol level;
9
10 data SYSTOLIC; input ID $ AGE WGT CHOL BP @@;
11     label BP='Systolic Blood Pressure' AGE='Age'
12         WGT='Weight' CHOL='Cholesterol Level';
13 cards;
14 A  44  190  254  124      N  34  156  314  120
15 B  35  216  240  110      O  37  151  243  115
16 C  41  178  279  114      P  63  168  341  140
17 D  31  149  284  100      Q  28  185  245  118
18 E  61  182  315  159      R  40  225  302  115
19 F  61  185  350  130      S  51  247  302  148
20 G  44  161  298  130      T  33  146  306  120
21 H  58  175  384  121      U  47  205  317  135
22 I  52  144  310  120      V  37  210  333  128
23 J  52  130  337  122      W  46  222  297  121
24 K  52  162  367  130      X  48  232  362  141
25 L  40  175  273  120      Y  56  235  357  153
26 M  49  155  273  130      Z  57  229  343  147
27 e1  40  160  210  .      e2  50  200  300  .
28 proc print;
29 proc corr; var BP AGE WGT CHOL;
30 proc rsquare; model BP=AGE WGT CHOL/adjrsq rmse cp;
31 proc plot; plot BP*(AGE WGT CHOL)=ID;
32 proc reg; model BP=AGE WGT CHOL/vif;
33 proc reg; model BP=AGE WGT/vif r cli clm;
34     output out=OUT1 r=RESID p=PRED;
35     label RESID='Reduced Model Residuals'
36           PRED='Reduced Model Predicted Values';
37 proc rank normal=blom; var RESID; ranks QNORM;
38 proc plot; plot RESID*(PRED AGE WGT CHOL)=ID/vref=0;
39     plot RESID*QNORM=ID;
40     label QNORM='Normal Quantiles';

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Regression of Systolic Blood Pressure on Age, Weight & Cholestrol

OBS	ID	AGE	WGT	CHOL	BP
1	A	44	190	254	124
2	B	35	216	240	110
3	C	41	178	279	114
4	D	31	149	284	100
5	E	61	182	315	159
6	F	61	185	350	130
7	G	44	161	298	130
8	H	58	175	384	121
9	I	52	144	310	120
10	J	52	130	337	122
11	K	52	162	367	130
12	L	40	175	273	120
13	M	49	155	273	130
14	N	34	156	314	120
15	O	37	151	243	115
16	P	63	168	341	140
17	Q	28	185	245	118
18	R	40	225	302	115
19	S	51	247	302	148
20	T	33	146	306	120
21	U	47	205	317	135
22	V	37	210	333	128
23	W	46	222	297	121
24	X	48	232	362	141
25	Y	56	235	357	153
26	Z	57	229	343	147
27	e1	40	160	210	.
28	e2	50	200	300	.

Correlation Analysis

4 'VAR' Variables: BP AGE WGT CHOL

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
BP	26	127.346154	13.945443	3311.000000	100.000000	159.000000	Systolic Blood Pressure
AGE	26	46.038462	10.001923	1197.000000	28.000000	63.000000	Age
WGT	26	185.115385	33.190754	4813.000000	130.000000	247.000000	Weight
CHOL	26	308.692308	40.086675	8026.000000	240.000000	384.000000	Cholesterol Level

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 26

	BP	AGE	WGT	CHOL
BP Systolic Blood Pressure	1.00000 0.0	0.70451 0.0001	0.44687 0.0221	0.49699 0.0098
AGE Age	0.70451 0.0001	1.00000 0.0	0.14193 0.4892	0.66636 0.0002
WGT Weight	0.44687 0.0221	0.14193 0.4892	1.00000 0.0	0.13165 0.5215
CHOL Cholesterol Level	0.49699 0.0098	0.66636 0.0002	0.13165 0.5215	1.00000 0.0

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N = 26 Regression Models for Dependent Variable: BP

Number in Model	R-square	Adjusted R-square	C(p)	Root MSE	Variables in Model
1	0.49633657	0.47535059	7.12204	10.101059	AGE
1	0.24699944	0.21562442	21.53883	12.350779	CHOL
1	0.19969340	0.16634730	24.27408	12.732829	WGT
2	0.61913736	0.58601887	2.02165	8.972689	AGE WGT
2	0.49770009	0.45402184	9.04320	10.304335	AGE CHOL
2	0.39506469	0.34246162	14.97763	11.308184	WGT CHOL
3	0.61951173	0.56762697	4.00000	9.169837	AGE WGT CHOL