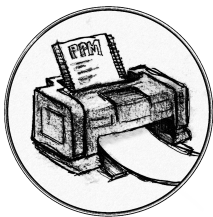


# Initial Analyses: Bivariate Correlations

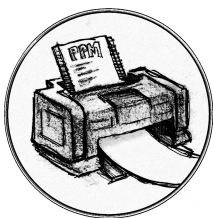
Before doing any *reportable* analyses (what you'll write about in your results section), you'll want to explore your data, appraising what's in it and identifying any relationships it might be hiding (what "*they* might be hiding" if we're sticklers with the "data is plural" grammar). Uncovering these relationships will help provide creativity in devising research questions and guide the creation of final statistical models.



Look at the bottom: Data View Variable View

When you open a database, there are two views: “Data View” and “Variable View”. The latter is pictured here. It’s a list of every variable in the database, and the qualities of those variables (e.g., scale or categorical, how categorical variables are coded, how many numbers after the decimal in a scale variable, etc.).

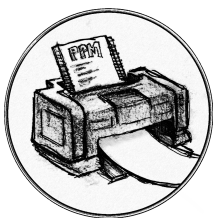
	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	ID	Numeric	2	0		None	None	8	Right	Scale	Input
2	Year_of_Birth	Numeric	4	0		None	None	14	Right	Scale	Input
3	Age	Numeric	2	0		None	None	8	Right	Scale	Input
4	Height_inch...	Numeric	4	1		None	None	17	Right	Scale	Input
5	Weight_Lbs	Numeric	5	1		None	None	14	Right	Scale	Input
6	BMI	Numeric	4	1		None	None	11	Right	Scale	Input
7	SBP	Numeric	3	0		None	None	8	Right	Scale	Input
8	DBP	Numeric	2	0		None	None	8	Right	Scale	Input
9	Blood_Gluc...	Numeric	3	0		None	None	15	Right	Scale	Input
10	Total_Chole...	Numeric	3	0		None	None	18	Right	Scale	Input
11	HDL	Numeric	2	0		None	None	8	Right	Scale	Input
12	LDL	Numeric	3	0		None	None	8	Right	Scale	Input
13	Triglyceride...	Numeric	3	0		None	None	31	Right	Scale	Input
14	Triglyceride...	Numeric	3	0		None	None	20	Right	Scale	Input
15	Triglyceride...	Numeric	1	0		{0, Under 5...	None	27	Right	Nominal	Input
16	TC_HDL_Ratio	Numeric	3	1		None	None	16	Right	Scale	Input
17	BF_percent...	Numeric	4	1		None	None	18	Right	Scale	Input
18	Total_Body...	Numeric	4	1		None	None	20	Right	Scale	Input
19	Phase_Angl...	Numeric	3	1		None	None	17	Right	Scale	Input
20	BCM_BIAS	Numeric	4	1		None	None	12	Right	Scale	Input
21	Skinfold_Ch...	Numeric	2	0		None	None	16	Right	Scale	Input
22	Skinfold thi...	Numeric	2	0		None	None	16	Right	Scale	Input



# The types of data in SPSS are nominal, ordinal, and “scale”

You have to assign all of these identities yourself. If a variable has continuous values (e.g., age), select “Scale” in the “Measure” column. If it’s categorical (e.g., sex), select “Nominal”. If men are coded as 0 and women are coded as 1, enter those identities in the “Values” columns.

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	ID	Numeric	2	0		None	None	8	Right	Scale	Input
2	Year_of_Birth	Numeric	4	0		None	None	14	Right	Scale	Input
3	Age	Numeric	2	0		None	None	8	Right	Scale	Input
4	Height_inch...	Numeric	4	1		None	None	17	Right	Scale	Input
5	Weight_Lbs	Numeric	5	1		None	None	14	Right	Scale	Input
6	BMI	Numeric	4	1		None	None	11	Right	Scale	Input
7	SBP	Numeric	3	0		None	None	8	Right	Scale	Input
8	DBP	Numeric	2	0		None	None	8	Right	Scale	Input
9	Blood_Gluc...	Numeric	3	0		None	None	15	Right	Scale	Input
10	Total_Chole...	Numeric	3	0		None	None	18	Right	Scale	Input
11	HDL	Numeric	2	0		None	None	8	Right	Scale	Input
12	LDL	Numeric	3	0		None	None	8	Right	Scale	Input
13	Triglyceride...	Numeric	3	0		None	None	31	Right	Scale	Input
14	Triglyceride...	Numeric	3	0		None	None	20	Right	Scale	Input
15	Triglyceride...	Numeric	1	0		{0, Under 5...	None	27	Right	Nominal	Input
16	TC_HDL_Ratio	Numeric	3	1		None	None	16	Right	Scale	Input
17	BF_percent...	Numeric	4	1		None	None	18	Right	Scale	Input
18	Total_Body...	Numeric	4	1		None	None	20	Right	Scale	Input
19	Phase_Angl...	Numeric	3	1		None	None	17	Right	Scale	Input
20	BCM_BIAS	Numeric	4	1		None	None	12	Right	Scale	Input
21	Skinfold_Ch...	Numeric	2	0		None	None	16	Right	Scale	Input
22	Skinfold thi...	Numeric	2	0		None	None	16	Right	Scale	Input

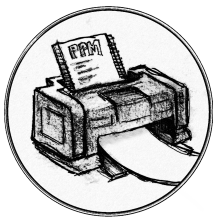


This is the Data View:

The Data View shows the actual values of each variable in the database.

The screenshot shows the IBM SPSS Statistics Data Editor interface. The title bar reads 'Firefighters.sav [DataSet1] - IBM SPSS Statistics Data Editor'. The main window displays a data grid for the variable 'Triglycerides\_exact' with 107 cases. The grid has 13 columns: ID, Year\_of\_Birth, Age, Height\_inches, Weight\_Lbs, BMI, SBP, DBP, Blood\_Glucose, Total\_Cholesterol, and HDL. The data is presented in a table format with rows numbered 1 through 20. The status bar at the bottom indicates 'Data View' is selected, 'Variable View' is also available, and 'IBM SPSS Statistics Processor is ready'.

	ID	Year_of_Birth	Age	Height_inches	Weight_Lbs	BMI	SBP	DBP	Blood_Glucose	Total_Cholesterol	HDL
1	1	1986	21	70.0	176.0	25.5	118	78	97	156	22
2	2	1970	36	77.0	214.0	25.2	120	90	72	150	60
3	3	1984	22	71.0	144.0	20.1	118	96	92	99	22
4	4	1972	35	70.5	173.0	22.1	120	77	94	235	28
5	5	1971	35	71.0	213.0	29.6	119	76	97	99	16
6	6	1981	26	70.0	196.0	28.1	118	88	117	141	22
7	7	1971	36	71.0	171.0	24.1	118	82	102	123	30
8	8	1964	43	70.0	169.0	34.0	122	88	113	239	26
9	9	1981	26	70.0	186.0	26.5	132	86	117	170	18
10	10	1978	28	69.5	172.5	25.2	136	90	95	131	24
11	11	1980	26	72.0	162.0	21.9	120	55	78	110	26
12	12	1983	24	72.0	190.0	25.7	122	80	95	106	27
13	13	1968	38	74.0	235.0	30.3	122	80	90	117	30
14	14	1981	25	72.0	189.0	25.7	126	78	96	183	23
15	15	1962	45	69.0	183.0	27.1	117	70	81	215	43
16	16	1954	53	68.0	228.0	35.0	132	82	120	218	43
17	17	1987	20	73.0	178.0	23.7	120	76	93	142	35
18	18	1950	69	57.0	178.0	25.0	118	74	101	138	17
19	19	1972	34	69.5	164.0	23.9	118	80	91	217	40
20	20	1987	20	72.0	191.0	26.3	118	78	89	117	14



Every database will need a *lot* of tidying before you can run your first analysis. Here's a second database:

“Variable View”.

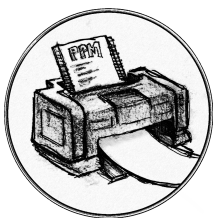
All identities in the “Values” column must be created; all labels in the “Measure” column must be assigned.

1. Student\_Information\_at\_Pacific.sav [DataSet1] - IBM SPSS Statistics Data Editor

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Subject_number	Numeric	8	0	Subject number	None	None	15	Right	Ordinal	Input
2	Year_of_survey_completion	Numeric	8	0	Calendar year the survey ...	{1, 2015}...	None	23	Right	Ordinal	Input
3	Age	Numeric	8	0	Years of age	None	None	8	Right	Scale	Input
4	Gender	Numeric	6	0	Gender	{0, Male}...	None	11	Right	Nominal	Input
5	Race	Numeric	40	0	Which of the following bes...	{0, Caucasian}...	None	9	Right	Nominal	Input
6	Relationshipstatus	Numeric	17	0	Relationship status: Single...	{0, Single}...	None	17	Right	Nominal	Input
7	Marital_Status	Numeric	8	0	Marital status: Y/N	{0, Not married}...	None	15	Right	Nominal	Input
8	On_campus	Numeric	3	0	Do you live on campus? Y/N	{0, No}...	None	12	Right	Nominal	Input
9	Apartments	Numeric	3	0	Do you live in apartments ...	{0, No}...	None	12	Right	Nominal	Input
10	Commute	Numeric	3	0	Do you commute? Y/N	{0, No}...	None	12	Right	Nominal	Input
11	Miles_of_commute	Numeric	8	1	Exact milage of commute ...	None	None	19	Right	Unknown	Input
12	Distance_of_commute_categorical	Numeric	16	0	If yes to commuting, how f...	{0, Don't commute}...	None	29	Right	Ordinal	Input
13	Have_a_parking_pass	Numeric	8	0	Do you have a parking pas...	{0, No Parking Pass}...	None	19	Right	Nominal	Input
14	Live_with_parents	Numeric	3	0	Do you live with your pare...	{0, No}...	None	18	Right	Nominal	Input
15	Type_of_transportation	Numeric	40	0	What kind of transportatio...	{0, Car}...	None	21	Right	Nominal	Input
16	Year_school	Numeric	9	0	What year in school are you?	{0, Freshman}...	None	14	Right	Ordinal	Input
17	Declare_major	Numeric	3	0	Have you declared a major...	{0, No}...	None	17	Right	Nominal	Input
18	Major	Numeric	17	0	What is your major?	{1, Biology}...	None	7	Right	Nominal	Input
19	GPA	Numeric	12	2	What is your cumulative G...	None	None	12	Right	Scale	Input
20	GPA_Binary_3point0	Numeric	8	0	Is your GPA above or belo...	{0, Below 3.0}...	None	20	Right	Nominal	Input
21	Common_grade	Numeric	2	0	What grades do you mostl...	{0, F}...	None	16	Right	Ordinal	Input
22	Units	Numeric	11	0	How many units are you ta...	None	None	11	Right	Scale	Input
23	Courseload	Numeric	15	0	This course load is normal?	{0, Less than usual}...	None	15	Right	Ordinal	Input

Data View Variable View

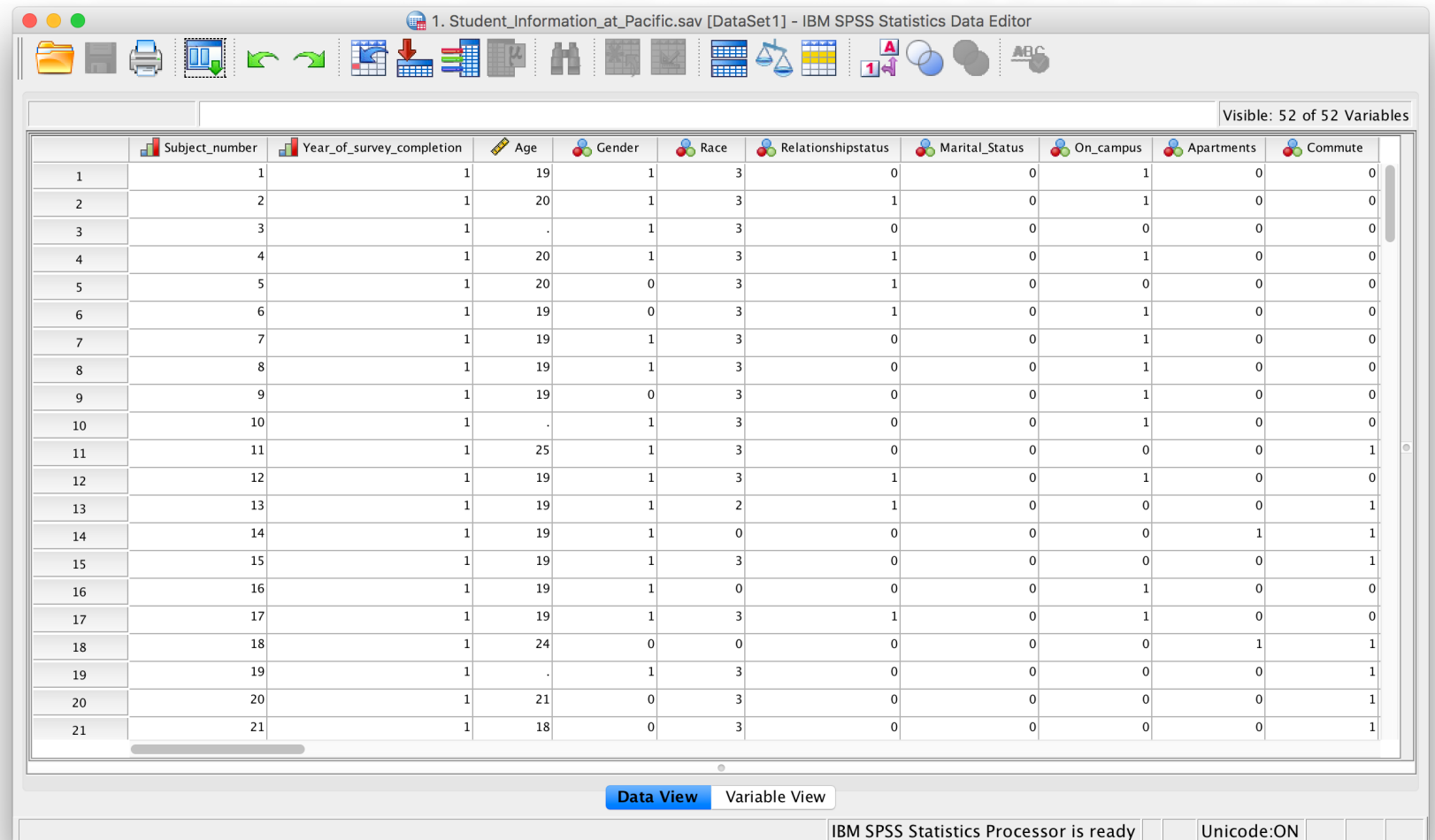
IBM SPSS Statistics Processor is ready Unicode:ON



Every database will need a *lot* of tidying before you can run your first analysis. Here's a second database:

“Data View”.

This is the meat of your database (the actual data), but you can't do anything with it until the “Variable View” is complete.



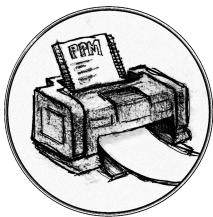
1. Student\_Information\_at\_Pacific.sav [DataSet1] - IBM SPSS Statistics Data Editor

Visible: 52 of 52 Variables

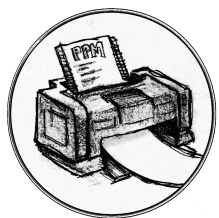
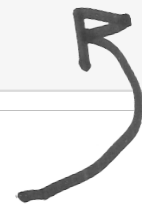
	Subject_number	Year_of_survey_completion	Age	Gender	Race	Relationshipstatus	Marital_Status	On_campus	Apartments	Commute
1	1	1	19	1	3	0	0	1	0	0
2	2	1	20	1	3	1	0	1	0	0
3	3	1	.	1	3	0	0	0	0	0
4	4	1	20	1	3	1	0	1	0	0
5	5	1	20	0	3	1	0	0	0	0
6	6	1	19	0	3	1	0	1	0	0
7	7	1	19	1	3	0	0	1	0	0
8	8	1	19	1	3	0	0	1	0	0
9	9	1	19	0	3	0	0	1	0	0
10	10	1	.	1	3	0	0	1	0	0
11	11	1	25	1	3	0	0	0	0	1
12	12	1	19	1	3	1	0	1	0	0
13	13	1	19	1	2	1	0	0	0	1
14	14	1	19	1	0	0	0	0	1	1
15	15	1	19	1	3	0	0	0	0	1
16	16	1	19	1	0	0	0	1	0	0
17	17	1	19	1	3	1	0	1	0	0
18	18	1	24	0	0	0	0	0	1	1
19	19	1	.	1	3	0	0	0	0	1
20	20	1	21	0	3	0	0	0	0	1
21	21	1	18	0	3	0	0	0	0	1

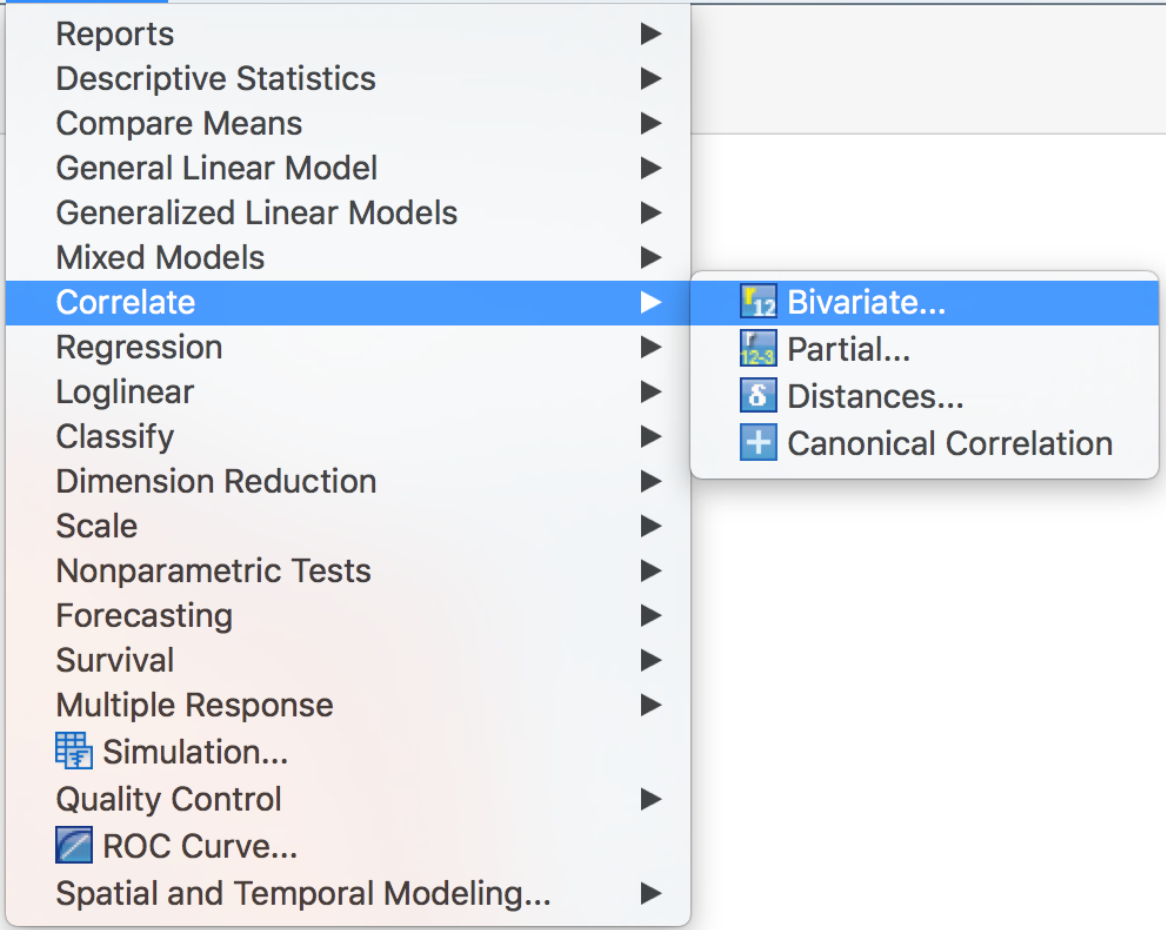
Data View Variable View

IBM SPSS Statistics Processor is ready Unicode:ON

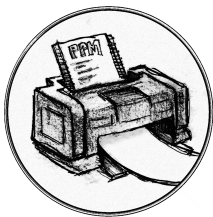


Run your analyses using this menu bar



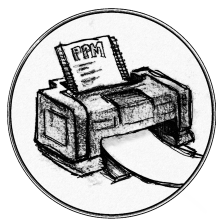
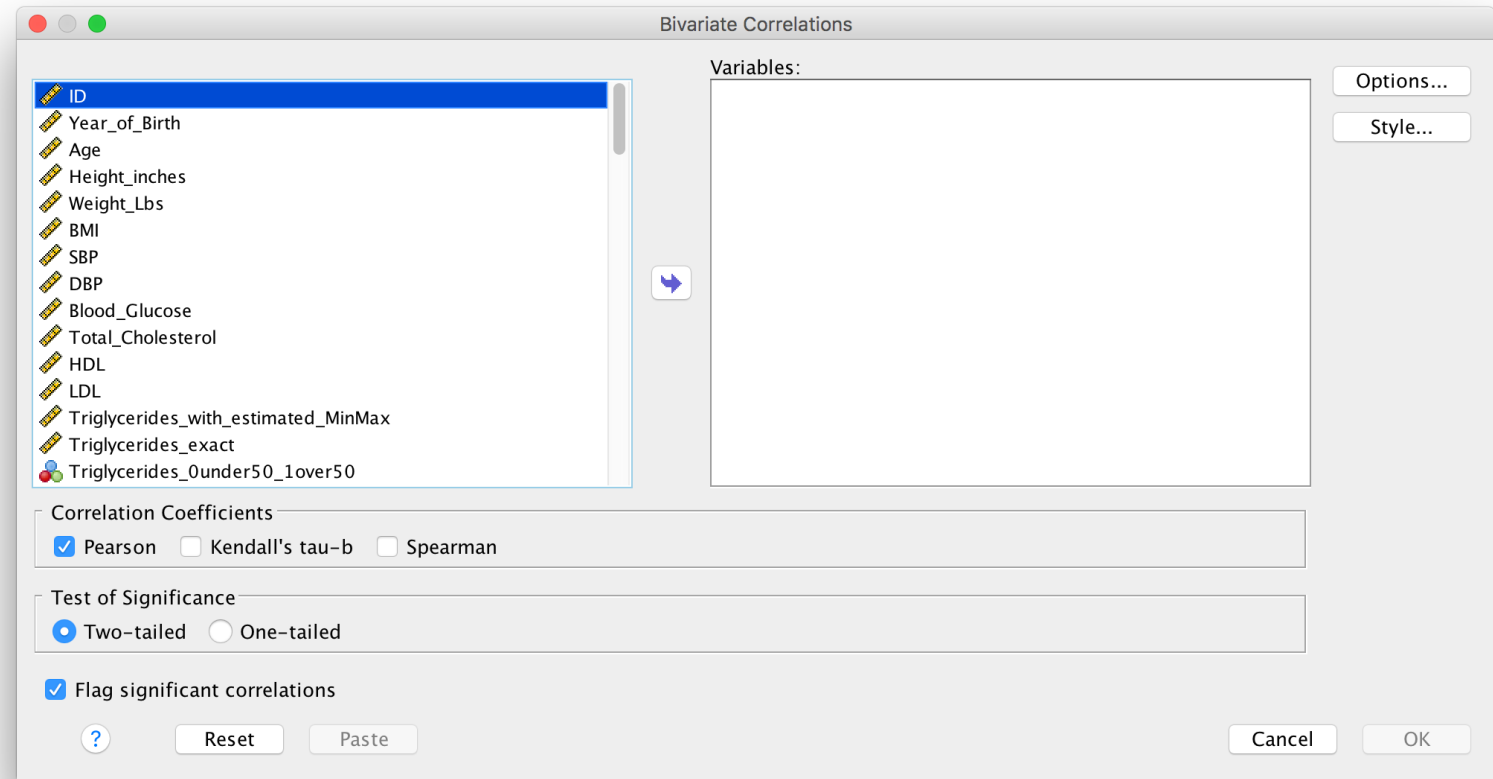


A good first analysis to run (to identify possible relationships between your variables) is a simple correlation table.



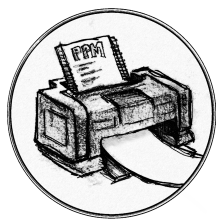
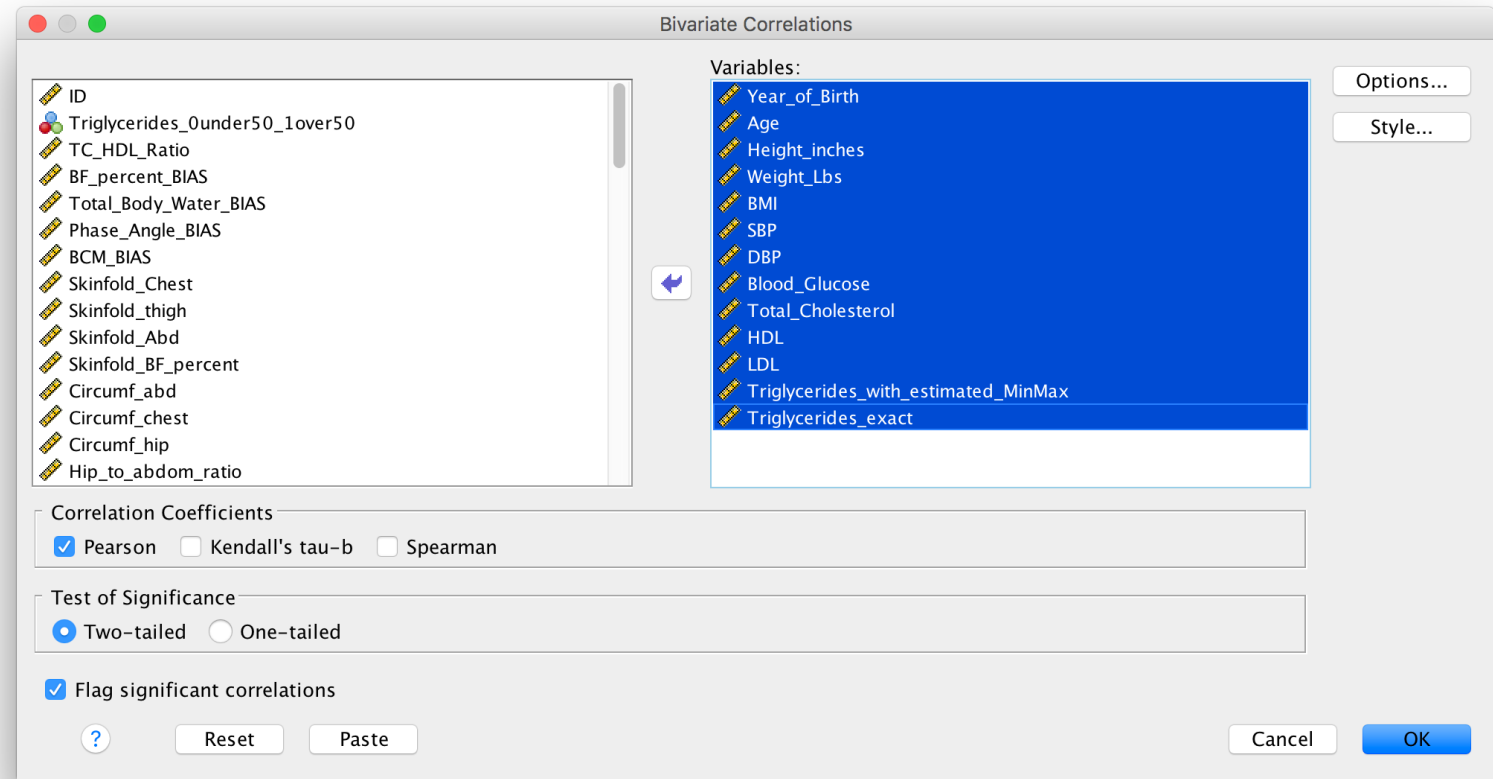


Every variable in the entire database will appear in the left column.



Move every variable of interest into the right column. No pointless data (e.g., subject ID); just values that matter. Scale and nominal both. Every variable you care about.

Then click OK.



SPSS will create a giant output table.

Output2 [Document2] - IBM SPSS Statistics Viewer

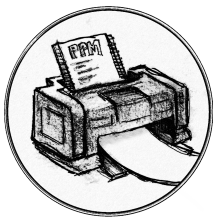
Correlations

[DataSet1] /Users/cjensen1/Desktop/RESEARCH/Databases/\_Firefighters/Firefighters.sav

Correlations

		Year_of_Birth	Age	Height_inches	Weight_Lbs	BMI	SBP	DBP	Blood_Glucose
Year_of_Birth	Pearson Correlation	1	-.073	-.152	-.256	-.126	-.287	-.002	-.043
	Sig. (2-tailed)		.676	.382	.138	.471	.094	.992	.807
	N	35	35	35	35	35	35	35	35
Age	Pearson Correlation	-.073	1	-.452**	.427*	.524**	-.104	.094	.008
	Sig. (2-tailed)	.676		.006	.011	.001	.553	.590	.961
	N	35	35	35	35	35	35	35	35
Height_inches	Pearson Correlation	-.152	-.452**	1	.274	-.072	.060	.080	-.205
	Sig. (2-tailed)	.382	.006		.111	.680	.732	.646	.237
	N	35	35	35	35	35	35	35	35
Weight_Lbs	Pearson Correlation	-.256	.427*	.274	1	.724**	.157	.137	-.060
	Sig. (2-tailed)	.138	.011	.111		.000	.368	.432	.734
	N	35	35	35	35	35	35	35	35
BMI	Pearson Correlation	-.126	.524**	-.072	.724**	1	.151	.178	.180
	Sig. (2-tailed)	.471	.001	.680	.000		.386	.307	.300
	N	35	35	35	35	35	35	35	35
SBP	Pearson Correlation	-.287	-.104	.060	.157	.151	1	.165	.176
	Sig. (2-tailed)	.094	.553	.732	.368	.386		.343	.311
	N	35	35	35	35	35	35	35	35
DBP	Pearson Correlation	-.002	.094	.080	.137	.178	.165	1	.030
	Sig. (2-tailed)								
	N	35	35	35	35	35	35	35	35

IBM SPSS Statistics Processor is ready    Unicode:ON



### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP	Mean_Arteria l_BP	Pulse_Pressu re	Temperature	Oximetry	Hb	pH
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*	.046*	.338**	-.111**	-.361**	-.309**	.096
	Sig. (2-tailed)		.000	.000	.011	.040	.000	.000	.000	.000	.160
	N	2033	2017	1994	1994	2033	2033	1925	1971	1939	214
Pulse	Pearson Correlation	-.192**	1	-.005	.170**	.050*	-.140**	.170**	-.014	.044	-.045
	Sig. (2-tailed)	.000		.808	.000	.024	.000	.000	.537	.056	.510
	N	2017	2017	1991	1991	2017	2017	1921	1967	1923	212
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**	.876**	.810**	.007	-.036	.063**	.003
	Sig. (2-tailed)	.000	.808		.000	.000	.000	.749	.114	.006	.970
	N	1994	1991	1994	1994	1994	1994	1907	1949	1900	212
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1	.912**	.018	.006	.092**	.229**	.025
	Sig. (2-tailed)	.011	.000	.000		.000	.423	.793	.000	.000	.722
	N	1994	1991	1994	1994	1994	1994	1907	1949	1900	212
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**	1	.552**	.007	.055*	.143**	.009
	Sig. (2-tailed)	.040	.024	.000	.000		.000	.761	.014	.000	.892
	N	2033	2017	1994	1994	2033	2033	1925	1971	1939	214
Pulse_Pressure	Pearson Correlation	.338**	-.140**	.810**	.018	.552**	1	.005	-.092**	-.069**	-.017
	Sig. (2-tailed)	.000	.000	.000	.423	.000		.829	.000	.002	.809
	N	2033	2017	1994	1994	2033	2033	1925	1971	1939	214
Temperature	Pearson Correlation	-.111**	.170**	.007	.006	.007	.005	1	-.013	-.021	.007
	Sig. (2-tailed)	.000	.000	.749	.793	.761	.829		.559	.374	.007
	N	1925	1921	1907	1907	1925	1925	1925	1886	1835	207
Oximetry	Pearson Correlation	-.361**	-.014	-.036	.092**	.055*	-.092**	-.013	1	.007	.007
	Sig. (2-tailed)	.000	.537	.114	.000	.014	.000			.000	.000
	N	1971	1967	1949	1949	1971	1971	1971	1971	1971	1971



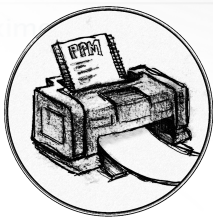
Here's a closer look at a correlation table



### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*
	Sig. (2-tailed)		.000	.000	.011
	N	2033	2017	1994	1994
Pulse	Pearson Correlation	-.192**	1	-.005	.170**
	Sig. (2-tailed)	.000		.808	.000
	N	2017	2017	1991	1991
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**
	Sig. (2-tailed)	.000	.808		.000
	N	1994	1991	1994	1994
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1
	Sig. (2-tailed)	.011	.000	.000	
	N	1994	1991	1994	1994
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**
	Sig. (2-tailed)	.040	.024	.000	.000
	N	2033	2017	1994	1994
Pulse_Pressure	Pearson Correlation	.338**	-.140**	.810**	.018
	Sig. (2-tailed)	.000	.000	.000	.423
	N	2033	2017	1994	1994
Temperature	Pearson Correlation	-.111**	.170**	.007	.006
	Sig. (2-tailed)	.000	.000	.749	.793
	N	1925	1921	1907	1907
Oxygen	Pearson Correlation	-.361**	-.014	-.036	.092**
	Sig. (2-tailed)	.000	.537	.114	.000
	N	1971	1967	1949	1949

Age is inversely related to pulse ( $r = -0.192$ ;  $p < 0.001$ ). In other words: as age increases, pulse decreases. In this sample. The p-value indicates confidence that this correlation reflects a relationship (*at least this strong*) in the larger population. Age is also positively correlated with systolic blood pressure ( $r = 0.282$ ;  $p < 0.001$ ). As age increases, so does systolic pressure. Systolic and diastolic pressure are also positively correlated ( $r = 0.601$ ;  $p < 0.001$ ). As one increases, so does the other... very strongly.

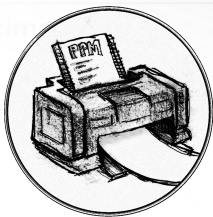


### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*
	Sig. (2-tailed)		.000	.000	.011
	N	2033	2017	1994	1994
Pulse	Pearson Correlation	-.192**	1	-.005	.170**
	Sig. (2-tailed)	.000		.808	.000
	N	2017	2017	1991	1991
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**
	Sig. (2-tailed)	.000	.808		.000
	N	1994	1991	1994	1994
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1
	Sig. (2-tailed)	.011	.000	.000	
	N	1994	1991	1994	1994
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**
	Sig. (2-tailed)	.040	.024	.000	.000
	N	2033	2017	1994	1994
Pulse_Pressure	Pearson Correlation	.338**	-.140**	.810**	.018
	Sig. (2-tailed)	.000	.000	.000	.423
	N	2033	2017	1994	1994
Temperature	Pearson Correlation	-.111**	.170**	.007	.006
	Sig. (2-tailed)	.000	.000	.749	.793
	N	1925	1921	1907	1907
Oxygen	Pearson Correlation	-.361**	-.014	-.036	.092**
	Sig. (2-tailed)	.000	.537	.114	.000
	N	1971	1967	1949	1949

Pulse is significantly (i.e.,  $p < 0.05$ ) related to diastolic pressure ( $p < 0.001$ ) but not systolic pressure ( $p = 0.808$ ).

The p-value means, if the null hypothesis is true (i.e., pulse and pressure have nothing to do with each other in the larger population), then there is less than a 0.1% chance you would have observed a correlation with systolic pressure of  $r = 0.288$  or stronger. And there is an 80.8% chance you would have observed a correlation with diastolic pressure of  $r = -0.005$  or something more extreme than that.

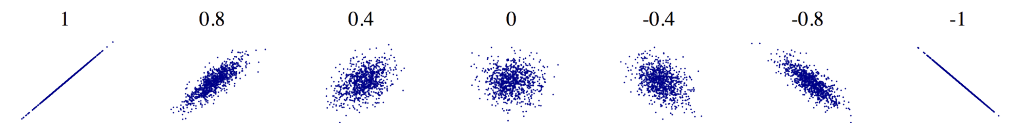




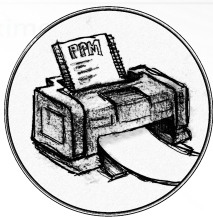
### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*
	Sig. (2-tailed)		.000	.000	.011
	N	2033	2017	1994	1994
Pulse	Pearson Correlation	-.192**	1	-.005	.170**
	Sig. (2-tailed)	.000		.808	.000
	N	2017	2017	1991	1991
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**
	Sig. (2-tailed)	.000	.808		.000
	N	1994	1991	1994	1994
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1
	Sig. (2-tailed)	.011	.000	.000	
	N	1994	1991	1994	1994
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**
	Sig. (2-tailed)	.040	.024	.000	.000
	N	2033	2017	1994	1994
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Temperature	Pearson Correlation	-.111**	.170**	.007	.006
	Sig. (2-tailed)	.000	.000	.749	.793
	N	1925	1921	1907	1907
Oxygen	Pearson Correlation	-.361**	-.014	-.036	.092**
	Sig. (2-tailed)	.000	.537	.114	.000
	N	1971	1967	1949	1949

When continuous variables are correlated with other continuous variables, the values provided are called Pearson correlation coefficients. Here's a visual representation of those values:



When continuous variables are correlated with binary values (e.g., sex of the subject), the values provided are called point-biserial correlations. The correlation is still listed in the table as a “Pearson Correlation”, but the value is a point-biserial correlation. When reporting it, you say  $r_{pb} = 0.xxx$  instead of  $r = 0.xxx$ .



### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*
	Sig. (2-tailed)		.000	.000	.011
	N	2033	2017	1994	1994
Pulse	Pearson Correlation	-.192**	1	-.005	.170**
	Sig. (2-tailed)	.000		.808	.000
	N	2017	2017	1991	1991
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**
	Sig. (2-tailed)	.000	.808		.000
	N	1994	1991	1994	1994
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1
	Sig. (2-tailed)	.011	.000	.000	
	N	1994	1991	1994	1994
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**
	Sig. (2-tailed)	.040	.024	.000	.000
	N	2033	2017	1994	1994
Pulse_Pressure	Pearson Correlation	.338**	-.140**	.810**	.018
	Sig. (2-tailed)	.000	.000	.000	.423
	N	2033	2017	1994	1994
Temperature	Pearson Correlation	-.111**	.170**	.007	.006
	Sig. (2-tailed)	.000	.000	.749	.793
	N	1925	1921	1907	1907
Oxygen	Pearson Correlation	-.361**	-.014	-.036	.092**
	Sig. (2-tailed)	.000	.537	.114	.000
	N	1971	1967	1949	1949
Cholesterol	Pearson Correlation	.309**	.044	.063**	.000
	Sig. (2-tailed)	.000	.309	.000	.000
	N	1971	1967	1949	1949

When examining the association between two dichotomous variables, the correlation is called Phi.

American and Greek pronunciation: fee.  
Pronunciation among English folk: fye.

When examining the association between two categorical variables that have more than two categories, Cramer's V is the appropriate statistic.

Pearson and point-biserial correlations are calculated in the bivariate table. Phi and Cramer's V are better calculated elsewhere.





### Correlations

		Age_years	Pulse	Systolic_BP	Diastolic_BP
Age_years	Pearson Correlation	1	-.192**	.282**	-.057*
	Sig. (2-tailed)		.000	.000	.011
	N	2033	2017	1994	1994
Pulse	Pearson Correlation	-.192**	1	-.005	.170**
	Sig. (2-tailed)	.000		.808	.000
	N	2017	2017	1991	1991
Systolic_BP	Pearson Correlation	.282**	-.005	1	.601**
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	N	1994	1991	1994	1994
Diastolic_BP	Pearson Correlation	-.057*	.170**	.601**	1
	Sig. (2-tailed)	.011	.000	.000	
	N	1994	1991	1994	1994
Mean_Arterial_BP	Pearson Correlation	.046*	.050*	.876**	.912**
	Sig. (2-tailed)	.040	.024	.000	.000
	N	2033	2017	1994	1994
Pulse_Pressure	Pearson Correlation	.338**	-.140**	.810**	.018
	Sig. (2-tailed)	.000	.000	.000	.423
	N	2033	2017	1994	1994
Temperature	Pearson Correlation	-.111**	.170**	.007	.006
	Sig. (2-tailed)	.000	.000	.749	.793
	N	1925	1921	1907	1907
Oxygen	Pearson Correlation	-.361**	-.014	-.036	.092**
	Sig. (2-tailed)	.000	.537	.114	.000
	N	1971	1967	1949	1949

The significant correlations can help guide creativity, as in: “I wonder why heart rate has an isolated relationship with diastolic pressure?” Ideas like that may merit further exploration.

Significant correlations are also helpful in guiding the creation of your final statistical models. If your research question is “What predicts systolic blood pressure?”, you would be wise to control for age, as its relationship with systolic pressure is significant.



It is unlikely that you'll use simple correlations as final models, so it is unlikely that you'll be reporting these values anywhere. But evaluating the relevant correlations that exist in your database (specifically, their directions and strengths) provides information that will enhance the breadth and precision of your analyses.

