Answers to Odd-Numbered "Practice Using Statistical Software (IBM SPSS)" Questions: Student Version

Chapter 1

1. There are 1,400 cases in the dataset.
3. a. The value that is recorded for the variable "Marital status of respondent" [MARSTAT] is "1".
   b. The attribute that is associated with the value "1" is "Married." The person is married.
5. a. The value that is recorded for the variable "Total household income - 2012" [INCMHSD] is "9".
   b. The attribute that is associated with the value "9" is "$50,000 to $59,999." The combined income of all of the people in that person's household in 2012 was $50,000 to $59,999.
7. a. The variable VBR_10 captures whether or not people voted in the last federal election.
   b. The variable has the following attributes: "Yes," "No," "Valid skip," "Don't know," "Refusal," and "Not stated." The value "1" is associated with the attribute "Yes," the value "2" is associated with the attribute "No," the value "6" is associated with the attribute "Valid skip," the value "7" is associated with the attribute "Don't know," the value "8" is associated with the attribute "Refusal," and the value "9" is associated with the attribute "Not stated."
   c. The attributes/values that are designated as missing are "Valid skip" (6), "Don't know" (7), "Refusal" (8), and "Not stated" (9).
   d. It is a dichotomous variable.
9. a. The variable WHW_120C captures the number of hours that people work at their jobs each week.
   b. The values on this variable represent quantities.
   c. The attributes/values that are designated as missing are "Valid skip" (999.6), "Don't know" (999.7), "Refusal" (999.8), and "Not stated" (999.9).
   d. It is a ratio-level variable.

Chapter 2

1. **Frequencies**

Statistics

SEX Sex of respondent

N	Valid	1400
	Missing	0

SEX Sex of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	625	44.6	44.6	44.6
	2 Female	775	55.4	55.4	100.0
	Total	1400	100.0	100.0	

a. Overall, 625 men answered the survey; 44.6 per cent of survey respondents are men.
b. Overall, 775 women answered the survey; 55.4 per cent of survey respondents are women.

3. **Frequencies**

Statistics

SVR_10 Canadian shared values - Human rights

N	Valid	1363
	Missing	37

SVR_10 Canadian shared values - Human rights

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 To a great extent	752	53.7	55.2	55.2
	2 To a moderate extent	522	37.3	38.3	93.5
	3 To a small extent	68	4.9	5.0	98.5
	4 Not at all	21	1.5	1.5	100.0
	Total	1363	97.4	100.0	
Missing	7 Don't know	32	2.3		
	8 Refusal	5	.4		
	Total	37	2.6		
Total		1400	100.0		

a. Among the people who gave a valid answer to the question, 55.2 per cent say that Canadians share the value of human rights to a great extent.
b. Among the people who gave a valid answer to the question, 38.3 per cent say that Canadians share the value of human rights to a moderate extent.
c. Among the people who gave a valid answer to the question, 93.5 per cent say that Canadians share the value of human rights to either a great or a moderate extent.

5. **Frequencies**

Statistics

PRD_10 Pride - Being Canadian

N	Valid	1298
	Missing	102

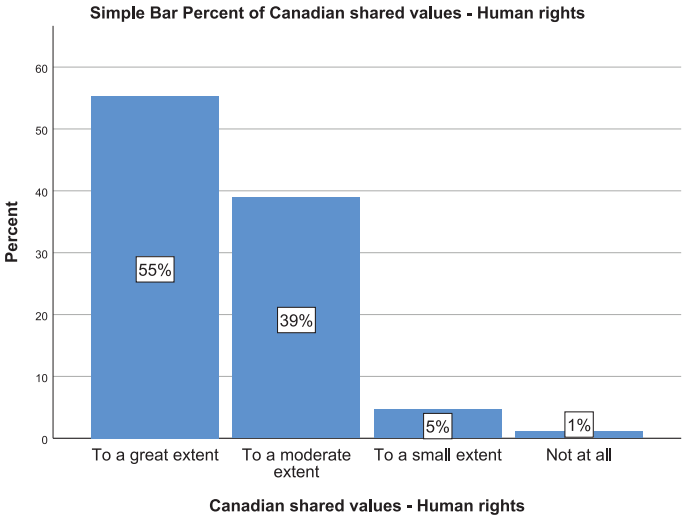
PRD_10 Pride - Being Canadian

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very proud	817	58.4	62.9	62.9
	2 Proud	356	25.4	27.4	90.4
	3 Somewhat proud	93	6.6	7.2	97.5
	4 Not very proud	22	1.6	1.7	99.2
	5 Not proud at all	10	.7	.8	100.0
	Total	1298	92.7	100.0	
Missing	6 No opinion	23	1.6		
	7 Not a Canadian citizen	77	5.5		
	97 Don't know	1	.1		
	98 Refusal	1	.1		
	Total	102	7.3		
Total		1400	100.0		

a. Among the people who gave a valid answer to the question, 62.9 per cent say that they are very proud to be Canadian.

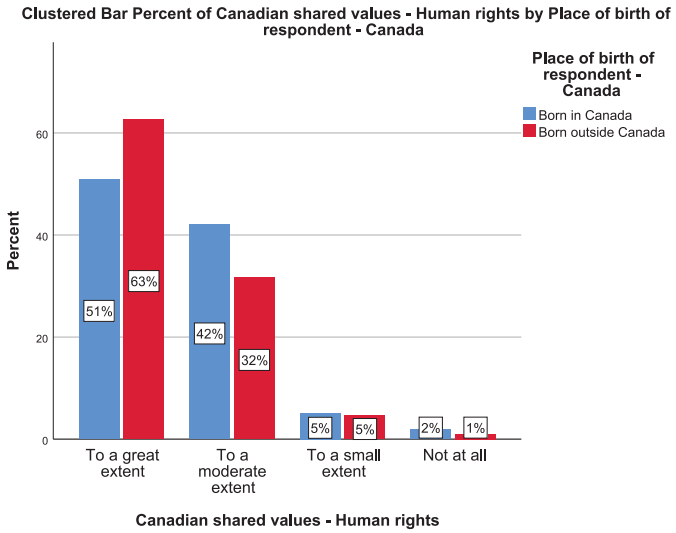
b. The percentage from question 4(a) is different than the percentage from question 5(a) because a different denominator is used to calculate it. In question 4(a) people who had "No opinion" and who are "Not a Canadian citizen" are included in the denominator used to calculate the percentage, whereas in question 5(a) people with these two attributes are excluded from the denominator used to calculate the percentage.

7. a. **GGraph**



b. This bar graph displays the information more effectively than the pie graph from question 6 because the bar graph makes it easy to see that the percentage of people who gave each answer gets smaller as you move from the highest category to the lowest category.

9. a. **GGraph**



b. This graph shows that people born outside Canada are more likely than people born in Canada to say that Canadians share the value of human rights to a great extent. In contrast, people born in Canada are more likely than people born outside Canada to say that Canadians share the value of human rights to a moderate or a small extent.

Chapter 3

1. **Frequencies**

Statistics

LIVARR06 Living arrangement of respondent's household (6 categories)

N	Valid	1400
	Missing	0

LIVARR06 Living arrangement of respondent's household (6 categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 Spouse only	399	28.5	28.5	28.5
	3 Spouse and single/non-single child(ren)	371	26.5	26.5	55.0
	1 Alone	311	22.2	22.2	77.2
	5 Living with one or two parents	191	13.6	13.6	90.9
	4 Single/non-single child(ren) only	71	5.1	5.1	95.9
	6 Other living arrangement	57	4.1	4.1	100.0
	Total	1400	100.0	100.0	

The mode is "Spouse only." This shows that the largest number of people report living with only their spouse.

3. **Frequencies**

Statistics

INCM Annual personal income of the respondent - 2012

N	Valid	1034
	Missing	366

INCM Annual personal income of the respondent - 2012

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 No income	100	7.1	9.7	9.7
	2 Less than $ 5,000	35	2.5	3.4	13.1
	3 $ 5,000 to $ 9,999	43	3.1	4.2	17.2
	4 $ 10,000 to $ 14,999	59	4.2	5.7	22.9
	5 $ 15,000 to $ 19,999	70	5.0	6.8	29.7
	6 $ 20,000 to $29,999	130	9.3	12.6	42.3
	7 $ 30,000 to $ 39,999	125	8.9	12.1	54.4
	8 $ 40,000 to $ 49,999	105	7.5	10.2	64.5
	9 $ 50,000 to $ 59,999	101	7.2	9.8	74.3
	10 $ 60,000 to $ 79,999	114	8.1	11.0	85.3
	11 $ 80,000 to $ 99,999	68	4.9	6.6	91.9
	12 $ 100,000 or more	84	6.0	8.1	100.0
	Total	1034	73.9	100.0	
Missing	97 Don't know	224	16.0		
	98 Refusal	107	7.6		
	99 Not stated	35	2.5		
	Total	366	26.1		
Total		1400	100.0		

The mode is "$20,000 to $29,999." This shows that it is most common for people to report having an annual income of $20,000 to $29,999.

The median is "$30,000 to $39,999." This shows that half of people report an annual income of $30,000 to $39,999 or less, and half of people report an annual income of $30,000 to $39,999 or more. (Or, half of people report an annual income of $39,999 or less and half of people report an annual income of $30,000 or more.)

5. **Frequencies**

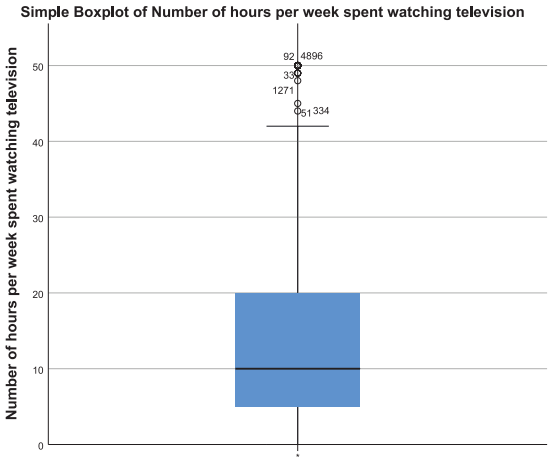
Statistics

INCM Annual personal income of the respondent - 2012

N	Valid	1034
	Missing	366
Percentiles	25	5.00
	50	7.00
	75	10.00

The interquartile range of this variable is from "$15,000 to $19,999" (the attribute associated with the value "5") to "$60,000 to $79,999" (the attribute associated with the value "10"). This shows that the middle 50 per cent of people have an annual income between $15,000 and $79,999. In other words, the 50 per cent of people in the middle of the income distribution have annual incomes between $15,000 and $79,999.

7. **GGraph**



a. The twenty-fifth percentile is 5 hours, the fiftieth percentile is 10 hours, and the seventy-fifth percentile is 20 hours.

b. The interquartile range is from 5 to 20 hours. Excluding outliers, the range is from 0 to 42 hours.

9. **Frequencies**

Statistics

		INCM Annual personal income of the respondent - 2012	INCM_RECODED Annual personal income of the respondent - 2012 (recoded)
N	Valid	1034	1034
	Missing	366	366

Frequency Table

INCM Annual personal income of the respondent - 2012

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 No income	100	7.1	9.7	9.7
	2 Less than $ 5,000	35	2.5	3.4	13.1
	3 $ 5,000 to $ 9,999	43	3.1	4.2	17.2
	4 $ 10,000 to $ 14,999	59	4.2	5.7	22.9
	5 $ 15,000 to $ 19,999	70	5.0	6.8	29.7
	6 $ 20,000 to $29,999	130	9.3	12.6	42.3
	7 $ 30,000 to $ 39,999	125	8.9	12.1	54.4
	8 $ 40,000 to $ 49,999	105	7.5	10.2	64.5
	9 $ 50,000 to $ 59,999	101	7.2	9.8	74.3
	10 $ 60,000 to $ 79,999	114	8.1	11.0	85.3
	11 $ 80,000 to $ 99,999	68	4.9	6.6	91.9
	12 $ 100,000 or more	84	6.0	8.1	100.0
	Total	1034	73.9	100.0	
Missing	97 Don't know	224	16.0		
	98 Refusal	107	7.6		
	99 Not stated	35	2.5		
	Total	366	26.1		
Total		1400	100.0		

INCM_RECODED Annual personal income of the respondent - 2012 (recoded)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 People with no income	100	7.1	9.7	9.7
	2.00 People with an income from $1 to $19,999	207	14.8	20.0	29.7
	3.00 People with an income from $20,000 to $39,999	255	18.2	24.7	54.4
	4.00 People with an income from $40,000 to $59,999	206	14.7	19.9	74.3
	5.00 People with an income from $60,000 to $79,999	114	8.1	11.0	85.3
	6.00 People with an income of $80,000 or more	152	10.9	14.7	100.0
	Total	1034	73.9	100.0	
Missing	9.00 People with a 'Missing' answer	366	26.1		
Total		1400	100.0		

The new, recoded variable shows that 9.7 per cent of people have no annual personal income. About one in five people (20.0 per cent) have an annual income between $1 and $19,999. A slightly higher percentage of people—24.7 per cent—have an annual income between $20,000 and $39,999. Another 19.9 per cent of people have an annual income from $40,000 to $59,999, and the remaining 25.7 per cent have higher annual incomes. When the variable is recoded this way, it shows that the most common annual personal income is $20,000 to $39,999; this is also the median annual personal income.

Chapter 4

1. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
WKWEHRC Number of paid hours worked per week - All jobs	907	64.8%	493	35.2%	1400	100.0%

Report

WKWEHRC Number of paid hours worked per week - All jobs

Mean	N	Std. Deviation
37.923	907	14.5598

The mean is 37.92. This shows that, on average, people work at their jobs for 37.92 paid hours per week (when people who do not work for pay are excluded). The standard deviation is 14.56. Since the standard deviation is relatively small compared to the mean, it shows that the distribution of the "Number of paid hours worked per week" variable isn't widely spread out.

3. **Frequencies**

Statistics

WKWEHRC Number of paid hours worked per week - All jobs

N	Valid	907
	Missing	493
Mean		37.923
Median		40.000
Skewness		-.121
Std. Error of Skewness		.081
Kurtosis		.603
Std. Error of Kurtosis		.162

a. The median is 40.00. This shows that half of people work 40 paid hours or more at their jobs per week, and half of people work 40 paid hours or fewer at their jobs per week. The median is slightly higher than the mean, but not by much.
b. The kurtosis is 0.60. This shows that the distribution of the "Number of paid hours worked per week" variable is moderately leptokurtic. In other words, it's slightly more peaked than a normal distribution.
c. The skew is −0.12. This shows that the distribution of the "Number of paid hours worked per week" variable is very slightly left-skewed compared to a normal distribution. In other words, it has a tail that extends very slightly to the left because some people work a very low number of paid hours at their jobs each week. But since the skew is between −0.5 and +0.5, the distribution of this variable is considered approximately normal in terms of its skew.

5. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
SCF_100C Number of close friends	1384	98.9%	16	1.1%	1400	100.0%

Report

SCF_100C Number of close friends

Mean	N	Std. Deviation
6.46	1384	8.645

The mean is 6.46. This shows that, on average, people have 6.46 close friends. The standard deviation is 8.65. Since the standard deviation is substantially larger than the mean, it shows that the "Number of close friends" variable has a wide spread.

7. **Frequencies**

Statistics

SCF_100C Number of close friends

N	Valid	1384
	Missing	16
Mean		6.46
Median		5.00
Mode		5
Std. Deviation		8.645
Skewness		9.786
Std. Error of Skewness		.066
Kurtosis		186.733
Std. Error of Kurtosis		.131
Range		200

a. The mean is 6.46. The median and the mode are both 5.00. The mean shows that, on average, people have 6.46 close friends. The median shows that half of people have 5 close friends or more, and half of people have 5 close friends or fewer. The mode shows that it is most common for people to have 5 close friends.
b. The standard deviation is 8.65 and the range is 200. Both of these statistics show that the "Number of close friends" variable is widely dispersed.
c. The kurtosis is 186.73. This shows that the distribution of the "Number of close friends" variable is highly leptokurtic; in other words, the distribution is very peaked compared to a normal distribution.
d. The skew is 9.79. It shows that the distribution of the "Number of close friends" variable is highly right-skewed compared to a normal distribution. In other words, the distribution has a tail that extends far to the right because some people report very high numbers of close friends.

Chapter 5

1. a. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
WGHT_PER Person weight	1400	100.0%	0	0.0%	1400	100.0%

Report

WGHT_PER Person weight

Mean	N	Std. Deviation
1063.159253	1400	1023.399236

b. <No output>

c. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
STD_WGHT Standardized person weight	1400	100.0%	0	0.0%	1400	100.0%

Report

STD_WGHT Standardized person weight

Mean	N	Std. Deviation
1.0000	1400	.96260

2. a. **Frequencies**

Statistics

SEX Sex of respondent

N	Valid	1400
	Missing	0

SEX Sex of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	625	44.6	44.6	44.6
	2 Female	775	55.4	55.4	100.0
	Total	1400	100.0	100.0	

b. **Frequencies**

Statistics

SEX Sex of respondent

N	Valid	1488423
	Missing	0

SEX Sex of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	716500	48.1	48.1	48.1
	2 Female	771923	51.9	51.9	100.0
	Total	1488423	100.0	100.0	

c. **Frequencies**

Statistics

SEX Sex of respondent

N	Valid	1400
	Missing	0

SEX Sex of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	674	48.1	48.1	48.1
	2 Female	726	51.9	51.9	100.0
	Total	1400	100.0	100.0	

d. The frequency distributions in (a) and (c) have the same total number of cases, which is the same as the number of cases in the dataset, whereas the frequency distribution in (b) has roughly 1.5 million cases. The frequency distributions in (b) and (c) have the same percentages of men and women, whereas the frequency distribution in (a) has different percentages of men and women.

Chapter 6

1. **Explore**

Case Processing Summary

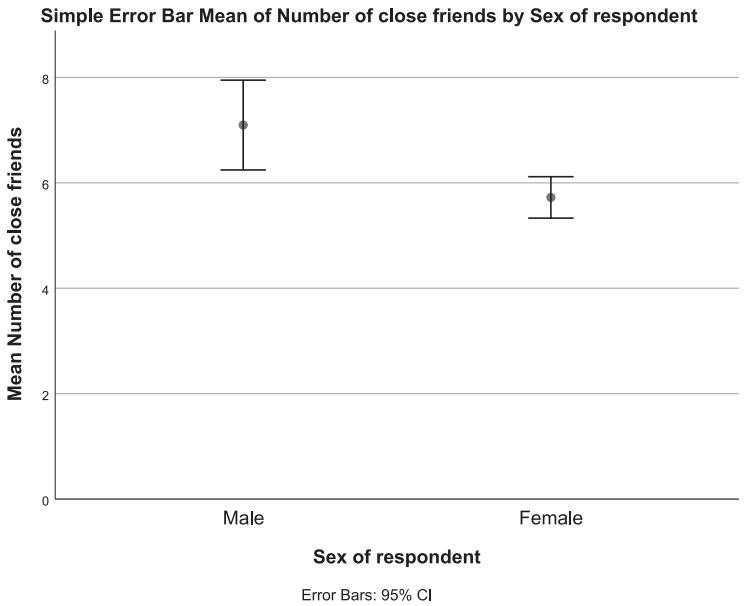
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SCF_100C Number of close friends	1392	99.4%	8	0.6%	1400	100.0%

Descriptives

			Statistic	Std. Error
SCF_100C Number of close friends	Mean		6.38	.234
	95% Confidence Interval for Mean	Lower Bound	5.93	
		Upper Bound	6.84	
	5% Trimmed Mean		5.43	
	Median		5.00	
	Variance		76.014	
	Std. Deviation		8.719	
	Minimum		0	
	Maximum		200	
	Range		200	
	Interquartile Range		5	
	Skewness		11.948	.066
	Kurtosis		243.402	.131

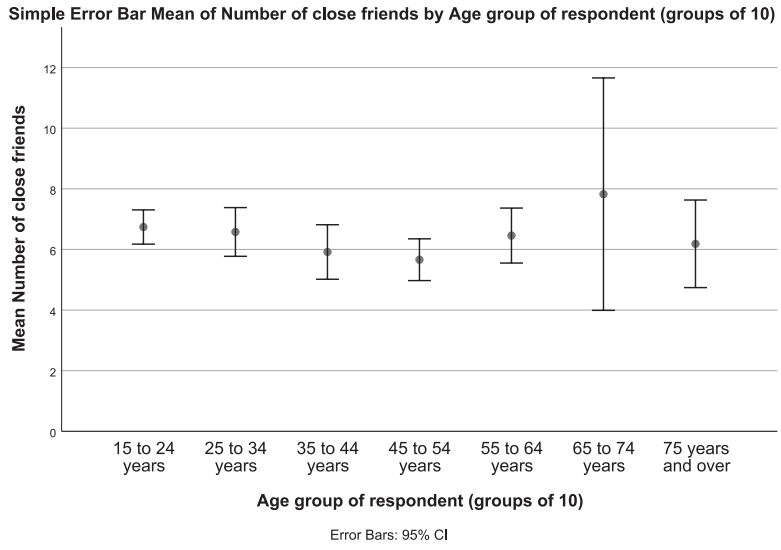
a. The mean is 6.38. In the sample, on average, people have 6.38 close friends.
b. The 95 per cent confidence interval for the mean is 5.93 to 6.84. In the population, the average number of close friends is likely between 5.93 and 6.84.

3. **GGraph**



The round dots for men and women show the mean number of close friends for men and women in the sample, as reported in the statistics from question 2: 7.10 and 5.72, respectively. The whiskers below and above each dot show the distance between the lower bound and the upper bound of the 95 per cent confidence interval for the mean for men and women, as reported in the statistics from question 2. So, for men, the whiskers extend from 6.24 to 7.95, and for women the whiskers extend from 5.33 to 6.12.

5. **GGraph**



The round dots for each age group show the mean number of close friends for people in each age group in the sample, as reported in the statistics from question 4. For example, the lowest average number of close friends is among people aged 45 to 54 (5.66), and the highest average number of close friends is among people aged 65 to 74 (7.82). The whiskers below and above each dot show the distance between the lower bound and the upper bound of the 95 per cent confidence interval for the mean for each age group, as reported in the statistics from question 4. So, for people aged 15 to 24, the whiskers extend from 6.17 to 7.30, whereas for people aged 65 to 74, the whiskers extend from 4.00 to 11.65.

7. **Frequencies**

Statistics

VCG_300_RECODED Volunteer work - 12 months (recoded)

N	Valid	1395
	Missing	5

VCG_300_RECODED Volunteer work - 12 months (recoded)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	880	62.8	63.1	63.1
	1.00	515	36.8	36.9	100.0
	Total	1395	99.6	100.0	
Missing	System	5	.4		
Total		1400	100.0		

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
VCG_300_RECODED Volunteer work - 12 months (recoded)	1395	99.6%	5	0.4%	1400	100.0%

Report

VCG_300_RECODED Volunteer work - 12 months (recoded)

Mean	N	Std. Deviation
.3690	1395	.48272

Overall, 36.9 per cent of people volunteered in the past 12 months. The mean of the recoded variable is 0.369. When 36.9 per cent is converted into a proportion (by dividing it by 100), the result is 0.369, which corresponds to the mean of the recoded variable.

9. **Explore**

SEX Sex of respondent

Case Processing Summary

	SEX Sex of respondent	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
VCG_300_RECODED Volunteer work - 12 months (recoded)	1 Male	669	99.3%	5	0.7%	674	100.0%
	2 Female	725	99.9%	1	0.1%	726	100.0%

Descriptives

	SEX Sex of respondent			Statistic	Std. Error
VCG_300_RECODED Volunteer work - 12 months (recoded)	1 Male	Mean		.3759	.01873
		95% Confidence Interval for Mean	Lower Bound	.3391	
			Upper Bound	.4127	
		5% Trimmed Mean		.3621	
		Median		.0000	
		Variance		.235	
		Std. Deviation		.48472	
		Minimum		.00	
		Maximum		1.00	
		Range		1.00	
		Interquartile Range		1.00	
		Skewness		.514	.094
		Kurtosis		-1.741	.189
	2 Female	Mean		.3627	.01787
		95% Confidence Interval for Mean	Lower Bound	.3276	
			Upper Bound	.3978	
		5% Trimmed Mean		.3475	
		Median		.0000	
		Variance		.231	
		Std. Deviation		.48112	
		Minimum		.00	
		Maximum		1.00	
		Range		1.00	
		Interquartile Range		1.00	
		Skewness		.572	.091
		Kurtosis		-1.677	.181

a. The mean shows that the proportion of men in the sample who volunteered in the past 12 months is 0.3759, or 37.59 per cent. Similarly, the proportion of women in the sample who volunteered in the past 12 months is 0.3627, or 36.27 per cent.

b. The 95 per cent confidence interval for the mean shows that the proportion of men in the population who volunteered in the past 12 months is likely to be between 0.3391 and 0.4127 (or 33.91 and 41.27 per cent). Similarly, the 95 per cent confidence interval for the mean shows that the proportion of women in the population who volunteered in the past 12 months is likely to be between 0.3276 and 0.3978 (or 32.76 and 39.78 per cent). Since these 95 confidence intervals overlap, we cannot be confident that, in the population, there is any difference in the percentage of men and the percentage of women who volunteered in the past 12 months.

Chapter 7

1. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
SCF_100C Number of close friends * SEX Sex of respondent	1392	99.4%	8	0.6%	1400	100.0%

Report

SCF_100C Number of close friends

SEX Sex of respondent	Mean	N	Std. Deviation
1 Male	7.10	669	11.223
2 Female	5.72	722	5.379
Total	6.38	1392	8.719

a. In the sample, the difference between the mean number of close friends for men and for women is 1.38 close friends.

b. Cohen's d is 0.16. Since Cohen's d is between 0.1 and 0.3, the effect size is small to medium. (In other words, the relationship between people's sex/gender and their number of close friends is weak to moderate.)

3. a. The output from all three procedures display the mean, the number of cases, and the standard deviation for each group. The output from the Explore procedure and the Independent Samples T-Test procedure both display the standard error of the mean for each group.

b. The output from the Explore procedure displays additional statistics about the distribution of the variable within each group, and includes the median, the variance, the minimum, the maximum, the range, the interquartile range, the skew, and the kurtosis.

The output from the Means procedure is the only one to show the mean, the standard deviation, and the number of cases for the sample overall (not divided by group).

The output from the Independent Samples T-Test procedure shows the t-statistic, the degrees of freedom, and the significance test associated with those results (for both versions of the t-test). It also shows the difference between the means, the standard error of the difference, and the 95 per cent confidence interval for the difference between means.

c. Yes, the answers to the two questions correspond. In question 2(c) in this chapter, the t-test results show that there is likely a difference between the two group means in the population. In question 2(b) in Chapter 6, the 95 per cent confidence intervals for the mean do not overlap, suggesting that there is likely a difference between the two group means in the population.

5. **T-Test**

Group Statistics

	PCT_10 Trust people in general	N	Mean	Std. Deviation	Std. Error Mean
SCF_100C Number of close friends	1 Most people can be trusted	746	7.23	10.568	.387
	2 You cannot be too careful in dealing with people	611	5.33	5.621	.227

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SCF_100C Number of close friends	Equal variances assumed	13.287	.000	4.010	1356	.000	1.902	.474	.972	2.833
	Equal variances not assumed			4.239	1177.141	.000	1.902	.449	1.022	2.783

a. A non-directional research hypothesis for this relationship is this: "In the population, there is a relationship between people's general orientation toward trusting people and their number of close friends." (An alternative non-directional hypothesis is this: "In the population, those who think that most people can be trusted have a different number of close friends, on average, than those who think you cannot be too careful in dealing with people.")

b. The null hypothesis associated with this research hypothesis is this: "In the population, there is no relationship between people's general orientation toward trusting people and their number of close friends." (An alternative null hypothesis is this: "In the population, those who think that most people can be trusted have the same number of close friends, on average, as those who think you cannot be too careful in dealing with people.")

c. The t-statistic of 4.24 has a p-value that is less than 0.05 so the null hypothesis is rejected. In the population, there is likely a relationship between people's general orientation toward trusting people and their number of close friends.

7. **T-Test**

Group Statistics

	DH1GED Education - Highest degree (4 categories)	N	Mean	Std. Deviation	Std. Error Mean
SCF_100C Number of close friends	>= 3	838	6.83	10.008	.346
	< 3	549	5.68	6.074	.259

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SCF_100C Number of close friends	Equal variances assumed	4.941	.026	2.423	1385	.016	1.153	.476	.219	2.087
	Equal variances not assumed			2.669	1377.997	.008	1.153	.432	.305	2.001

a. A non-directional research hypothesis for this relationship is this: "In the population, there is a relationship between having a post-secondary education (or not) and the number of close friends that people have." (An alternative non-directional hypothesis is this: "In the population, people with a post-secondary education have a different number of close friends, on average, than people who do not have a post-secondary education.")

b. The null hypothesis associated with this research hypothesis is this: "In the population, there is no relationship between having a post-secondary education (or not) and the number of close friends that people have." (An alternative null hypothesis is this: "In the population, people with a post-secondary education have the same number of close friends, on average, as people who do not have a post-secondary education.")

c. The t-statistic of 2.67 has a p-value that is less than 0.05, so the null hypothesis is rejected. In the population, there is likely a relationship between having a post-secondary education (or not) and the number of close friends that people have.

Chapter 8

1. **Oneway**

Descriptives

SCF_100C Number of close friends

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Less than High School	221	6.13	6.751	.454	5.24	7.03	0	50
2 Graduated from High School	328	5.37	5.560	.307	4.77	5.98	0	50
3 Post-secondary diploma	482	6.14	5.696	.259	5.63	6.65	0	50
4 University degree	356	7.77	13.810	.732	6.33	9.21	0	200
Total	1387	6.38	8.683	.233	5.92	6.83	0	200

ANOVA

SCF_100C Number of close friends

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1066.573	3	355.524	4.753	.003
Within Groups	103458.220	1383	74.807		
Total	104524.793	1386			

a. In the sample, the group with the lowest average number of close friends are people with only a high school education (5.37 close friends, on average). People with less than a high school education have an average number of close friends that is 0.76 higher, and people with a post-secondary diploma have an average number of close friends that is 0.77 higher. People with a university degree have 2.40 more close friends, on average, than people with only a high school education.

b. For people with the three lowest levels of education (less than high school, high school only, and post-secondary diploma), the 95 per cent confidence intervals for the mean number of close friends all overlap. As a result, we cannot be confident that, in the population, the average number of close friends among people with each of these three levels of education is different. However, among people with a university degree, the lower bound of the 95 per cent confidence interval for the mean is higher than the upper bound of the 95 per cent confidence interval for the mean for people with only a high school education. Thus, it is likely that, in the population, people with a university degree have more close friends, on average, than people with only a high school education.

3. **Post Hoc Tests**

Multiple Comparisons

Dependent Variable: SCF_100C Number of close friends

LSD

(I) DH1GED Education - Highest degree (4 categories)	(J) DH1GED Education - Highest degree (4 categories)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1 Less than High School	2 Graduated from High School	.763	.753	.311	-.71	2.24
	3 Post-secondary diploma	-.002	.702	.997	-1.38	1.38
	4 University degree	-1.639*	.741	.027	-3.09	-.19
2 Graduated from High School	1 Less than High School	-.763	.753	.311	-2.24	.71
	3 Post-secondary diploma	-.766	.619	.216	-1.98	.45
	4 University degree	-2.402*	.662	.000	-3.70	-1.10
3 Post-secondary diploma	1 Less than High School	.002	.702	.997	-1.38	1.38
	2 Graduated from High School	.766	.619	.216	-.45	1.98
	4 University degree	-1.637*	.604	.007	-2.82	-.45
4 University degree	1 Less than High School	1.639*	.741	.027	.19	3.09
	2 Graduated from High School	2.402*	.662	.000	1.10	3.70
	3 Post-secondary diploma	1.637*	.604	.007	.45	2.82

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

a. The post-hoc tests show that the average number of close friends among people with a university degree is significantly different than the average number of close friends among people with lower levels of education. The p-values of all of the significance tests that include the university degree group are less than 0.05, whereas the others are greater than 0.05.

b. No, the answers to the two questions do not correspond exactly. In (a) the post-hoc tests show that, in the population, the average number of close

friends among people with a university degree is likely different than the average number of close friends among people with all three lower levels of education. In question 1(b), the 95 per cent confidence intervals for the mean suggest that, in the population, people with a university degree have more close friends, on average, than people with only a high school diploma, but they do not suggest that people with a university degree have more close friends, on average, than people with less than a high school education or people with a post-secondary diploma.

5. **Oneway**

Descriptives

WKWEHRC Number of paid hours worked per week - All jobs

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Less than High School	83	30.349	18.2844	2.0080	26.355	34.344	1.0	75.0
2 Graduated from High School	226	38.861	14.5314	.9672	36.955	40.767	2.0	75.0
3 Post-secondary diploma	367	40.321	12.1250	.6329	39.077	41.566	2.0	75.0
4 University degree	287	39.345	14.8447	.8763	37.620	41.070	1.0	75.0
Total	963	38.829	14.3682	.4631	37.920	39.738	1.0	75.0

ANOVA

WKWEHRC Number of paid hours worked per week - All jobs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6855.677	3	2285.226	11.422	.000
Within Groups	191663.376	958	200.066		
Total	198519.053	961			

a. In the overall sample, people spend an average of 38.83 hours per week doing paid work. In the overall population, the average number of hours that people spend doing paid work each week is likely between 37.92 and 39.74.

b. In the sample, people with less than a high school education spend an average of 30.35 hours per week doing paid work. People with only a high school education spend an average of 38.86 hours per week doing paid work—8.51 hours more than the average of people with less than a high school education. People with a post-secondary diploma spend an average of 40.32 hours per week doing paid work, compared to 39.35 hours among people with a university degree; there is only a small difference (0.97 hours) between these two averages in the sample.

c. For the three highest educational groups—high school only, post-secondary diploma, and university degree—the 95 per cent confidence intervals for the mean number of hours spent doing paid work overlap. Thus, in the population, people with these three levels of education

could, on average, spend the same number of hours doing paid work. But the upper bound of the 95 per cent confidence interval for the mean number of hours spent doing paid work for people with less than a high school education is lower than the lower bound of the 95 per cent confidence interval for the three other educational groups. Thus, it is likely that, in the population, people with less than a high school education spend less time doing paid work each week, on average, than people with higher levels of education.

7. **Post Hoc Tests**

Multiple Comparisons

Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

LSD

(I) DH1GED Education - Highest degree (4 categories)	(J) DH1GED Education - Highest degree (4 categories)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1 Less than High School	2 Graduated from High School	-8.5118*	1.8164	.000	-12.076	-4.947
	3 Post-secondary diploma	-9.9718*	1.7199	.000	-13.347	-6.597
	4 University degree	-8.9958*	1.7635	.000	-12.457	-5.535
2 Graduated from High School	1 Less than High School	8.5118*	1.8164	.000	4.947	12.076
	3 Post-secondary diploma	-1.4599	1.1964	.223	-3.808	.888
	4 University degree	-.4839	1.2584	.701	-2.953	1.986
3 Post-secondary diploma	1 Less than High School	9.9718*	1.7199	.000	6.597	13.347
	2 Graduated from High School	1.4599	1.1964	.223	-.888	3.808
	4 University degree	.9760	1.1146	.381	-1.211	3.163
4 University degree	1 Less than High School	8.9958*	1.7635	.000	5.535	12.457
	2 Graduated from High School	.4839	1.2584	.701	-1.986	2.953
	3 Post-secondary diploma	-.9760	1.1146	.381	-3.163	1.211

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

a. The post-hoc tests show that the average number of hours spent doing paid work each week among people with less than a high school education is significantly different than the average number of hours spent doing paid work each week in the other three educational groups. The p-values of all of the significance tests that include the less than high school group are less than 0.05, whereas the others are greater than 0.05.

b. Yes, the answers to the two questions correspond. In (a), the post-hoc tests show that in the population, people in the less than high school group likely spend a different number of hours doing paid work each week, on average, than people in the other three educational groups. In question 5(c), the 95 per cent confidence intervals for the mean suggest that, in the population, people with less than a high school education are likely to spend less time doing paid work each week, on average, than people with higher levels of education.

Chapter 9

1. **Crosstabs**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VCG_340 Donated money or goods - 12 months * SEX Sex of respondent	1388	99.1%	12.000	0.9%	1400.000	100.0%

VCG_340 Donated money or goods - 12 months * SEX Sex of respondent Crosstabulation

			SEX Sex of respondent		
			1 Male	2 Female	Total
VCG_340 Donated money or goods - 12 months	1 Yes	Count	501	542	1043
		Expected Count	500.5	542.5	1043.0
		% within SEX Sex of respondent	75.2%	75.1%	75.1%
	2 No	Count	165	180	345
		Expected Count	165.5	179.5	345.0
		% within SEX Sex of respondent	24.8%	24.9%	24.9%
Total		Count	666	722	1388
		Expected Count	666.0	722.0	1388.0
		% within SEX Sex of respondent	100.0%	100.0%	100.0%

In the sample, 75.2 per cent of men donated money or goods in the past 12 months, compared to 75.1 per cent of women, a difference of only 0.1 percentage points.

3. **Crosstabs**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VCG_340 Donated money or goods - 12 months * SEX Sex of respondent	1388	99.1%	12.000	0.9%	1400.000	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.005[a]	1	.946		
Continuity Correction[b]	.000	1	.996		
Likelihood Ratio	.005	1	.946		
Fisher's Exact Test				.951	.498
Linear-by-Linear Association	.005	1	.946		
N of Valid Cases	1388				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 165.54.

b. Computed only for a 2x2 table

a. A non-directional research hypothesis for this relationship is this: "In the population, people's sex/gender is related to whether or not they donated money or goods in the past 12 months."

b. The null hypothesis associated with this research hypothesis is this: "There is no relationship in the population between people's sex/gender and whether or not they donated money or goods in the past 12 months."

c. The chi-square statistic of 0.01 has a p-value that is greater than 0.05, so we fail to reject the null hypothesis. In the population, there is likely no relationship between people's sex/gender and whether or not they donated money or goods in the past 12 months.

5. **Crosstabs**

VISMIN Visible minority status of the respondent. = 1 Visible minority

Case Processing Summary[a]

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VCG_340 Donated money or goods - 12 months * SEX Sex of respondent	225	98.6%	3.080	1.4%	228.080	100.0%

a. VISMIN Visible minority status of the respondent. = 1 Visible minority

VCG_340 Donated money or goods - 12 months * SEX Sex of respondent Crosstabulation[a]

% within SEX Sex of respondent

		SEX Sex of respondent		
		1 Male	2 Female	Total
VCG_340 Donated money or goods - 12 months	1 Yes	75.6%	65.1%	70.7%
	2 No	24.4%	34.9%	29.3%
Total		100.0%	100.0%	100.0%

a. VISMIN Visible minority status of the respondent. = 1 Visible minority

VISMIN Visible minority status of the respondent. = 2 Not a visible minority

Case Processing Summary[a]

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VCG_340 Donated money or goods - 12 months * SEX Sex of respondent	1131	99.3%	7.822	0.7%	1138.822	100.0%

a. VISMIN Visible minority status of the respondent. = 2 Not a visible minority

VCG_340 Donated money or goods - 12 months * SEX Sex of respondent Crosstabulation[a]

% within SEX Sex of respondent

		SEX Sex of respondent		
		1 Male	2 Female	Total
VCG_340 Donated money or goods - 12 months	1 Yes	74.4%	76.6%	75.6%
	2 No	25.6%	23.4%	24.4%
Total		100.0%	100.0%	100.0%

a. VISMIN Visible minority status of the respondent. = 2 Not a visible minority

a. The relationship between sex/gender and making a donation changes substantially when visible minority status is taken into account. Among people in the sample who are visible minorities, 75.6 per cent of men donated money or goods in the past 12 months, compared to 65.1 per cent of women, for a

difference of 10.5 percentage points. Among people in the sample who are not visible minorities, 74.4 per cent of men donated goods or services in the past 12 months, compared to 76.6 per cent of women, for a difference of 2.2 percentage points. Among people who are visible minorities, men are more likely to donate money or goods, whereas among people who are not visible minorities, women are more likely to donate money or goods.

b. In the zero-order relationship shown in question 1, there is only a 0.1 percentage point difference between men and women. The two partial relationships are both stronger than the zero-order relationship: 10.5 and 2.2. So, this is an example of suppression: the relationship between sex/gender and donating money or goods in the past 12 months is being suppressed and only appears when visible minority status is taken into account.

7. **Crosstabs**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VBR_25 Federal election - Vote in next election * REP_05 Interest in politics	1331	95.1%	69.000	4.9%	1400.000	100.0%

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	.634	.033	14.747	.000
N of Valid Cases		1331			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

The gamma of 0.634 shows that the error in predicting how likely people are to vote in the next federal election can be reduced by 63.4 per cent if we know how interested they are in politics.

9. **Crosstabs**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VCG_340 Donated money or goods - 12 months * SEX Sex of respondent	1388	99.1%	12.000	0.9%	1400.000	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.002	.946
	Cramer's V	.002	.946
N of Valid Cases		1388	

Cramér's V is 0.002. Since Cramér's V is very close to 0.0, the effect size is almost zero. (In other words, there is no substantial relationship between people's sex/gender and whether or not they donated money or goods in the past 12 months.)

Chapter 10

1. Correlations

Correlations

		RFE_10C Number of relatives respondent feels close to	SCF_100C Number of close friends
RFE_10C Number of relatives respondent feels close to	Pearson Correlation	1	.189**
	Sig. (2-tailed)		.000
	N	1380	1375
SCF_100C Number of close friends	Pearson Correlation	.189**	1
	Sig. (2-tailed)	.000	
	N	1375	1392

**. Correlation is significant at the 0.01 level (2-tailed).

a. The Pearson's correlation coefficient for the relationship between these two variables is 0.19. Since the Pearson's correlation coefficient is less than 0.3, the relationship between the number of relatives people feel close to and their number of close friends is weak.

b. The direction of the relationship is positive. In the context of these two variables, this indicates that people who feel close to more relatives tend to have more close friends. Conversely, people who feel close to fewer relatives tend to have fewer close friends.

3. Nonparametric Correlations

Correlations

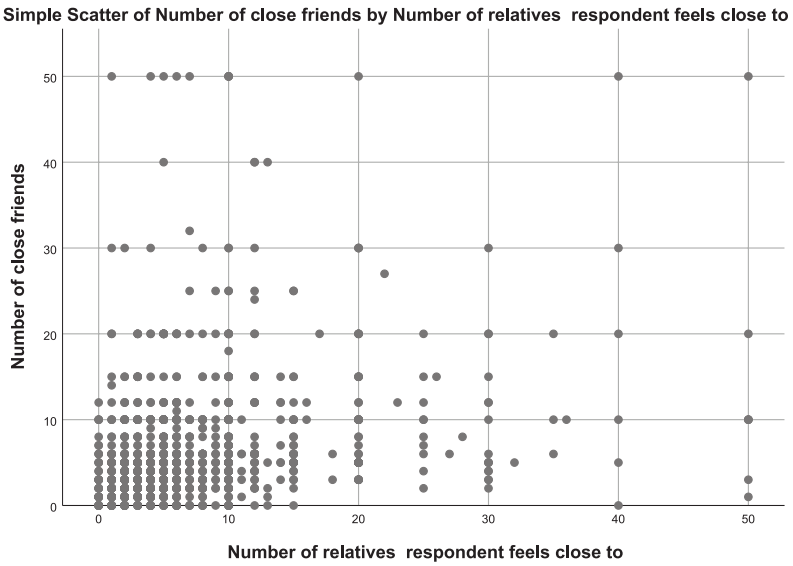
			RFE_10C Number of relatives respondent feels close to	SCF_100C Number of close friends
Spearman's rho	RFE_10C Number of relatives respondent feels close to	Correlation Coefficient	1.000	.387**
		Sig. (2-tailed)	.	.000
		N	1363	1359
	SCF_100C Number of close friends	Correlation Coefficient	.387**	1.000
		Sig. (2-tailed)	.000	.
		N	1359	1377

**. Correlation is significant at the 0.01 level (2-tailed).

a. The Spearman's correlation coefficient for the relationship between these two variables is 0.39. Since the Spearman's correlation coefficient is between 0.3 and 0.5, the rank-order relationship between the number of relatives people feel close to and their number of close friends is weak to moderate.

b. The direction of the rank-order relationship is positive. In the context of these two variables, this indicates that people who ranked higher in terms of the number of relatives they feel close to tend to be ranked higher in terms of their number of close friends. Conversely, people who ranked lower in terms of the number of relatives they feel close to tend to be ranked lower in terms of their number of close friends.

5. a. **GGraph**



b. The scatterplot shows that many people have low values on both variables; that is, they have relatively few relatives that they feel close to and relatively few close friends. But it's hard to discern the overall pattern of the relationship between the two variables since there are many overlapping cases.

7. **Correlations**

SEX Sex of respondent = 1 Male

Correlations[a]

		RFE_10C Number of relatives respondent feels close to	SCF_100C Number of close friends
RFE_10C Number of relatives respondent feels close to	Pearson Correlation	1	.126**
	Sig. (2-tailed)		.001
	N	662	661
SCF_100C Number of close friends	Pearson Correlation	.126**	1
	Sig. (2-tailed)	.001	
	N	661	669

**. Correlation is significant at the 0.01 level (2-tailed).

a. SEX Sex of respondent = 1 Male

SEX Sex of respondent = 2 Female

Correlations[a]

		RFE_10C Number of relatives respondent feels close to	SCF_100C Number of close friends
RFE_10C Number of relatives respondent feels close to	Pearson Correlation	1	.371**
	Sig. (2-tailed)		.000
	N	718	715
SCF_100C Number of close friends	Pearson Correlation	.371**	1
	Sig. (2-tailed)	.000	
	N	715	722

**. Correlation is significant at the 0.01 level (2-tailed).

a. SEX Sex of respondent = 2 Female

a. When sex/gender is taken into account, the relationship between the number of relatives people feel close to and the number of close friends they have becomes weaker among men and stronger among women. Among men, the correlation between the number of relatives people feel close to and their number of close friends is 0.13. Among women, the correlation between the same two variables is 0.37.

b. The zero-order correlation in question 1 is 0.19. The partial correlation among men (0.13) is smaller than the zero-order correlation, and the partial correlation among women (0.37) is larger than the zero-order correlation. So, this is an example of specification. The relationship between the number of relatives people feel close to and the number of close friends they have is weaker among men and stronger among women.

Chapter 11

1. a–b. <No output>

   c. **Frequencies**

Statistics

		GRP_10C Number of groups - 12 months	GRP_10C_RECODED Number of groups - 12 months (recoded)
N	Valid	929	1398
	Missing	471	2

Frequency Table

GRP_10C Number of groups - 12 months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	397	28.4	42.7	42.7
	2	234	16.7	25.2	67.9
	3	120	8.6	12.9	80.8
	4	77	5.5	8.3	89.2
	5	38	2.7	4.1	93.2

	6	23	1.7	2.5	95.8
	7	10	.7	1.1	96.9
	8	8	.6	.8	97.7
	9 9 groups or more	21	1.5	2.3	100.0
	Total	929	66.4	100.0	
Missing	96 Valid skip	469	33.5		
	97 Don't know	1	.0		
	98 Refusal	1	.1		
	Total	471	33.6		
Total		1400	100.0		

GRP_10C_RECODED Number of groups - 12 months (recoded)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	469	33.5	33.6	33.6
	1.00	397	28.4	28.4	62.0
	2.00	234	16.7	16.7	78.7
	3.00	120	8.6	8.6	87.3
	4.00	77	5.5	5.5	92.8
	5.00	38	2.7	2.7	95.5
	6.00	23	1.7	1.7	97.2
	7.00	10	.7	.7	97.9
	8.00	8	.6	.6	98.5
	9.00	21	1.5	1.5	100.0
	Total	1398	99.9	100.0	
Missing	97.00	1	.0		
	98.00	1	.1		
	Total	2	.1		
Total		1400	100.0		

3. **Regression**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.854	.301		16.125	.000	4.263	5.444
	GRP_10C_RECODED Number of groups - 12 months (recoded)	.975	.125	.206	7.830	.000	.731	1.219

a. Dependent Variable: SCF_100C Number of close friends

The 95 per cent confidence interval for the slope coefficient shows that, in the population, for each additional group that people participated in during the past 12 months, the regression line capturing the relationship with the number of close friends is predicted to rise between 0.73 and 1.22. In other words, the general pattern of the relationship between the variables suggests that participating in one additional group during the past year is associated with an increase in the number of close friends that is between 0.73 and 1.22.

The 95 per cent confidence interval for the constant coefficient shows that, in the population, the regression line capturing the relationship between the number of groups people participated in during the past 12 months and the number of close friends is predicted to cross the vertical axis between 4.26 and 5.44. In other words, the general pattern of the relationship between the variables suggests that participating in no groups in the past year is associated with having a number of close friends that is between 4.26 and 5.44.

5. **Regression**

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SCP_110 Number of new people met - Past month[b]	.	Enter

a. Dependent Variable: SCF_100C Number of close friends

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.126[a]	.016	.015	8.726

a. Predictors: (Constant), SCP_110 Number of new people met - Past month

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1652.693	1	1652.693	21.704	.000[b]
	Residual	102854.748	1351	76.147		
	Total	104507.441	1352			

a. Dependent Variable: SCF_100C Number of close friends

b. Predictors: (Constant), SCP_110 Number of new people met - Past month

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.867	.263		22.300	.000
	SCP_110 Number of new people met - Past month	.157	.034	.126	4.659	.000

a. Dependent Variable: SCF_100C Number of close friends

a. The constant coefficient shows that those who met no new people in the past month are predicted to have 5.87 close friends. The slope coefficient shows that each additional new person met in the past month is associated with having an additional 0.16 close friends; in other words, meeting

approximately six new people in the past month is associated with having one additional close friend.

b. The t-statistic of 4.66 has a p-value that is less than 0.05, so there is likely a relationship in the population between the number of new people met in the past month and the number of close friends that people have.

7. **Regression**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	5.867	.263		22.300	.000	5.351	6.383
	SCP_110 Number of new people met - Past month	.157	.034	.126	4.659	.000	.091	.223

a. Dependent Variable: SCF_100C Number of close friends

The 95 per cent confidence interval for the slope coefficient shows that, in the population, for each additional new person met in the past month, the regression line capturing the relationship with the number of close friends is predicted to rise between 0.09 and 0.22. In other words, the general pattern of the relationship between the variables suggests that meeting an additional new person in the past month is associated with an increase in the number of close friends that is between 0.09 and 0.22.

The 95 per cent confidence interval for the constant coefficient shows that, in the population, the regression line capturing the relationship between the number of new people met in the past month and the number of close friends is predicted to cross the vertical axis between 5.35 and 6.38. In other words, the general pattern of the relationship between the variables suggests that meeting no new people in the past month is associated with having a number of close friends that is between 5.35 and 6.38.

9. **Regression**

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SCP_110_CENTRED Number of new people met - Past month (centred)[b]	.	Enter

a. Dependent Variable: SCF_100C Number of close friends

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.126[a]	.016	.015	8.726

a. Predictors: (Constant), SCP_110_CENTRED Number of new people met - Past month (centred)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1652.693	1	1652.693	21.704	.000[b]
	Residual	102854.748	1351	76.147		
	Total	104507.441	1352			

a. Dependent Variable: SCF_100C Number of close friends

b. Predictors: (Constant), SCP_110_CENTRED Number of new people met - Past month (centred)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6.337	.238		26.672	.000
	SCP_110_CENTRED Number of new people met - Past month (centred)	.157	.034	.126	4.659	.000

a. Dependent Variable: SCF_100C Number of close friends

a. The "Model Summary" and the "ANOVA" table are identical to the regression produced in question 5. As well, the independent variable rows of the "Coefficients" table are identical (the rows for SCP_110 and SCP_110_CENTRED). The only part of the output that is different is the constant row of the "Coefficients" table.

b. The constant coefficient shows that those who met three new people in the past month are predicted to have 6.34 close friends. Meeting one additional new person in the past month is associated with a 0.16 increase in people's number of close friends; similarly, meeting one less new person in the past month is associated with a 0.16 decrease in people's number of close friends.

Chapter 12

1.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SCP_110 Number of new people met - Past month, GRP_10C_RECODED Number of groups - 12 months (recoded)[b]	.	Enter

a. Dependent Variable: SCF_100C Number of close friends

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.228[a]	.052	.051	8.572

a. Predictors: (Constant), SCP_110 Number of new people met - Past month, GRP_10C_RECODED Number of groups - 12 months (recoded)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5427.128	2	2713.564	36.933	.000[b]
	Residual	99062.298	1348	73.472		
	Total	104489.426	1350			

a. Dependent Variable: SCF_100C Number of close friends

b. Predictors: (Constant), SCP_110 Number of new people met - Past month, GRP_10C_RECODED Number of groups - 12 months (recoded)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.584	.314		14.582	.000
	GRP_10C_RECODED Number of groups - 12 months (recoded)	.924	.129	.194	7.167	.000
	SCP_110 Number of new people met - Past month	.110	.034	.088	3.258	.001

a. Dependent Variable: SCF_100C Number of close friends

a. The constant coefficient shows that those who participated in no groups in the past 12 months, and who met no new people in the past month, are predicted to have 4.58 close friends.
b. The unstandardized slope coefficient of the "Number of groups" variable shows that each additional group that people participated in during the past 12 months is associated with a 0.92 increase in their number of close friends, controlling for the number of new people they met in the past month.

   The unstandardized slope coefficient of the "Number of new people met" variable shows that each additional new person met in the past month is associated with a 0.11 increase in the number of close friends that people have, controlling for the number of groups they participated in during the past 12 months.
c. The standardized slope coefficients show that the number of groups people participated in during the past 12 months has a stronger relationship with the dependent variable ("Number of close friends") than the number of new people they met in the past month.

3. **Frequencies**

Statistics

		SEX Sex of respondent	WOMEN Women
N	Valid	1400	1400
	Missing	0	0

Frequency Table

SEX Sex of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	674	48.1	48.1	48.1
	2 Female	726	51.9	51.9	100.0
	Total	1400	100.0	100.0	

WOMEN Women

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	674	48.1	48.1	48.1
	1.00	726	51.9	51.9	100.0
	Total	1400	100.0	100.0	

5. Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	WOMEN Women, GRP_10C_RECODED Number of groups - 12 months (recoded), SCP_110 Number of new people met - Past month[b]	.	Enter

a. Dependent Variable: SCF_100C Number of close friends

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.241[a]	.058	.056	8.546

a. Predictors: (Constant), WOMEN Women, GRP_10C_RECODED Number of groups - 12 months (recoded), SCP_110 Number of new people met - Past month

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6080.394	3	2026.798	27.748	.000[b]
	Residual	98409.032	1347	73.042		
	Total	104489.426	1350			

a. Dependent Variable: SCF_100C Number of close friends

b. Predictors: (Constant), WOMEN Women, GRP_10C_RECODED Number of groups - 12 months (recoded), SCP_110 Number of new people met - Past month

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.307	.396		13.405	.000
	GRP_10C_RECODED Number of groups - 12 months (recoded)	.928	.129	.195	7.219	.000
	SCP_110 Number of new people met - Past month	.108	.034	.086	3.205	.001
	WOMEN Women	-1.392	.465	-.079	-2.991	.003

a. Dependent Variable: SCF_100C Number of close friends

a. The constant coefficient shows that men who did not participate in any groups in the past 12 months, and who did not meet any new people in the past month, are predicted to have 5.31 close friends.

b. The unstandardized slope coefficient of the "Number of groups" variable shows that each additional group that people participated in during the past 12 months is associated with a 0.93 increase in their number of close friends, controlling for sex/gender and the number of new people they met in the past month.

   The unstandardized slope coefficient of the "Number of new people met" variable shows that each additional new person met in the past month is associated with a 0.11 increase in the number of close friends that people have, controlling for sex/gender and the number of groups they participated in during the past 12 months.

   The unstandardized slope coefficient of the "Women" dummy variable shows that women are predicted to have 1.39 fewer close friends than men, controlling for the number of new people they met in the past month and the number of groups they participated in during the past 12 months.

c. The standardized slope coefficients show that the number of groups people participated in during the past 12 months has a stronger relationship with the dependent variable ("Number of close friends") than sex/gender or the number of new people met in the past month.

7. **Regression**

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SINGLE Single, PREVIOUS_RELATIONSHIP Previous relationship[b]	.	Enter

a. Dependent Variable: SCF_100C Number of close friends

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.075[a]	.006	.004	8.700

a. Predictors: (Constant), SINGLE Single, PREVIOUS_RELATIONSHIP Previous relationship

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	599.329	2	299.665	3.959	.019[b]
	Residual	105123.741	1389	75.692		
	Total	105723.070	1391			

a. Dependent Variable: SCF_100C Number of close friends

b. Predictors: (Constant), SINGLE Single, PREVIOUS_RELATIONSHIP Previous relationship

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6.759	.297		22.795	.000
	PREVIOUS_RELATIONSHIP Previous relationship	-2.036	.727	-.077	-2.802	.005
	SINGLE Single	-.478	.547	-.024	-.875	.382

a. Dependent Variable: SCF_100C Number of close friends

a. The constant coefficient shows that people who are currently in a relationship (married or common-law) are predicted to have 6.76 close friends. (People who are currently in a relationship have a "0" value on the "Single" dummy variable and the "Previous relationship" dummy variable.)

b. The unstandardized slope coefficient of the "Previous relationship" dummy variable shows that people who were previously in a long-term relationship (widowed, separated, or divorced) are predicted to have 2.04 fewer close friends than people who are currently in a relationship (married or common-law).

   The unstandardized slope coefficient of the "Single" dummy variable shows that people who are single (never married) are predicted to have 0.48 fewer close friends than people who are currently in a relationship (married or common-law).

9. Means

Case Processing Summary

	Cases Included N	Included Percent	Excluded N	Excluded Percent	Total N	Total Percent
SCP_110 Number of new people met - Past month	1359	97.1%	41	2.9%	1400	100.0%
SCP_110_RESCALED Number of new people met - Past month (scaled to 10)	1359	97.1%	41	2.9%	1400	100.0%

Report

	SCP_110 Number of new people met - Past month	SCP_110_RESCALED Number of new people met - Past month (scaled to 10)
Mean	3.37	.3373
N	1359	1359
Std. Deviation	7.046	.70458

Chapter 13

1. a. **Frequencies**

Statistics

		AGEGR10 Age group of respondent (groups of 10)	AGE Age
N	Valid	1400	1400
	Missing	0	0

Frequency Table

AGEGR10 Age group of respondent (groups of 10)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 15 to 24 years	224	16.0	16.0	16.0
	2 25 to 34 years	204	14.5	14.5	30.6
	3 35 to 44 years	214	15.3	15.3	45.9
	4 45 to 54 years	268	19.1	19.1	65.0
	5 55 to 64 years	252	18.0	18.0	83.0
	6 65 to 74 years	126	9.0	9.0	92.0
	7 75 years and over	112	8.0	8.0	100.0
	Total	1400	100.0	100.0	

AGE Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19.50	224	16.0	16.0	16.0
	29.50	204	14.5	14.5	30.6
	39.50	214	15.3	15.3	45.9
	49.50	268	19.1	19.1	65.0
	59.50	252	18.0	18.0	83.0
	69.50	126	9.0	9.0	92.0
	79.50	112	8.0	8.0	100.0
	Total	1400	100.0	100.0	

b. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE Age	1400	100.0%	0	0.0%	1400	100.0%
AGE_CENTRED Age (centred)	1400	100.0%	0	0.0%	1400	100.0%

Report

	AGE Age	AGE_CENTRED Age (centred)
Mean	46.2577	1.2577
N	1400	1400
Std. Deviation	18.26147	18.26147

3. a-d. <No output>

e. **Frequencies**

Statistics

		DH1GED Education - Highest degree (4 categories)	LTHS Less than high school	HS High school only	DIPLOMA Post-secondary diploma	UNI University degree
N	Valid	1395	1395	1395	1395	1395
	Missing	5	5	5	5	5

Frequency Table

DH1GED Education - Highest degree (4 categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Less than High School	222	15.9	15.9	15.9
	2 Graduated from High School	330	23.6	23.7	39.6
	3 Post-secondary diploma	485	34.7	34.8	74.3
	4 University degree	358	25.6	25.7	100.0
	Total	1395	99.7	100.0	
Missing	9 Not stated	5	.3		
Total		1400	100.0		

LTHS Less than high school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1173	83.8	84.1	84.1
	1.00	222	15.9	15.9	100.0
	Total	1395	99.7	100.0	
Missing	System	5	.3		
Total		1400	100.0		

HS High school only

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1065	76.1	76.3	76.3
	1.00	330	23.6	23.7	100.0
	Total	1395	99.7	100.0	
Missing	System	5	.3		
Total		1400	100.0		

DIPLOMA Post-secondary diploma

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	910	65.0	65.2	65.2
	1.00	485	34.7	34.8	100.0
	Total	1395	99.7	100.0	
Missing	System	5	.3		
Total		1400	100.0		

UNI University degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1038	74.1	74.3	74.3
	1.00	358	25.6	25.7	100.0
	Total	1395	99.7	100.0	
Missing	System	5	.3		
Total		1400	100.0		

5. Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred)[b]	.	Enter
2	DIPLOMA Post-secondary diploma, LTHS Less than high school, PREVIOUS_RELATIONSHIP Previous relationship, SINGLE Single, UNI University degree[b]	.	Enter

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

b. All requested variables entered.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.279[a]	.078	.075	13.8516
2	.384[b]	.148	.140	13.3521

a. Predictors: (Constant), WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred)

b. Predictors: (Constant), WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred), DIPLOMA Post-secondary diploma, LTHS Less than high school, PREVIOUS_RELATIONSHIP Previous relationship, SINGLE Single, UNI University degree

c. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15118.554	3	5039.518	26.266	.000[b]
	Residual	179295.054	934	191.867		
	Total	194413.608	937			
2	Regression	28709.256	8	3588.657	20.130	.000[c]
	Residual	165704.352	929	178.277		
	Total	194413.608	937			

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

b. Predictors: (Constant), WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred)

c. Predictors: (Constant), WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred), DIPLOMA Post-secondary diploma, LTHS Less than high school, PREVIOUS_RELATIONSHIP Previous relationship, SINGLE Single, UNI University degree

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	42.370	.666		63.638	.000		
	AGE_CENTRED Age (centred)	.065	.031	.066	2.080	.038	.974	1.026
	IS_VISMIN Visible Minority	.064	1.164	.002	.055	.956	.992	1.008
	WOMEN Women	-7.532	.920	-.261	-8.185	.000	.971	1.030
2	(Constant)	44.952	1.076		41.762	.000		
	AGE_CENTRED Age (centred)	-.079	.037	-.081	-2.157	.031	.658	1.519
	IS_VISMIN Visible Minority	.316	1.153	.009	.274	.784	.939	1.065
	WOMEN Women	-8.388	.916	-.291	-9.155	.000	.910	1.099
	LTHS Less than high school	-8.954	1.762	-.174	-5.080	.000	.782	1.278
	DIPLOMA Post-secondary diploma	.390	1.148	.013	.339	.734	.612	1.634
	UNI University degree	-1.323	1.240	-.042	-1.068	.286	.593	1.687
	PREVIOUS_RELATIONSHIP Previous relationship	2.342	1.858	.040	1.261	.208	.900	1.112
	SINGLE Single	-6.680	1.201	-.208	-5.563	.000	.656	1.525

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance	Collinearity Statistics VIF	Collinearity Statistics Minimum Tolerance
1	LTHS Less than high school	-.195[b]	-6.250	.000	-.200	.973	1.027	.954
	DIPLOMA Post-secondary diploma	.088[b]	2.783	.005	.091	.981	1.020	.971
	UNI University degree	.009[b]	.267	.790	.009	.945	1.058	.945
	PREVIOUS_RELATIONSHIP Previous relationship	.054[b]	1.629	.104	.053	.911	1.098	.911
	SINGLE Single	-.237[b]	-6.412	.000	-.205	.692	1.446	.676

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

b. Predictors in the Model: (Constant), WOMEN Women, IS_VISMIN Visible Minority, AGE_CENTRED Age (centred)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	AGE_CENTRED Age (centred)	IS_VISMIN Visible Minority	WOMEN Women	LTHS Less than high school	DIPLOMA Post-secondary diploma	UNI University degree	PREVIOUS_RELATION-SHIP Previous relationship	SINGLE Single
1	1	2.056	1.000	.08	.05	.07	.08					
	2	.896	1.515	.02	.79	.19	.00					
	3	.762	1.643	.03	.16	.59	.18					
	4	.286	2.680	.87	.01	.15	.74					
2	1	3.229	1.000	.01	.01	.02	.03	.01	.01	.01	.01	.02
	2	1.444	1.495	.00	.14	.01	.01	.05	.01	.02	.13	.06
	3	1.148	1.677	.00	.00	.15	.01	.00	.09	.13	.07	.00
	4	.936	1.858	.00	.03	.00	.00	.50	.03	.01	.17	.00
	5	.743	2.084	.00	.08	.23	.05	.03	.13	.05	.21	.01

6	.635	2.255	.02	.14	.46	.03	.08	.00	.05	.29	.00
7	.422	2.766	.01	.07	.04	.57	.01	.01	.05	.10	.34
8	.337	3.094	.01	.48	.08	.21	.08	.11	.12	.02	.43
9	.104	5.566	.95	.03	.01	.10	.22	.62	.55	.00	.13

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	19.785	48.119	38.673	5.5339	938
Residual	-43.3595	46.1925	.0000	13.2950	938
Std. Predicted Value	-3.413	1.707	.000	1.000	938
Std. Residual	-3.247	3.460	.000	.996	938

a. Dependent Variable: WKWEHRC Number of paid hours worked per week - All jobs

a. The constant coefficient of the second model shows that 45-year-old men who are not visible minorities, who have only a high school education, and who are currently in a relationship are predicted to spend 44.95 hours doing paid work per week.
b. The unstandardized slope coefficient of the "Less than high school" dummy variable shows that people with less than a high school education are predicted to spend 8.95 fewer hours doing paid work per week than people with only a high school education, controlling for age, visible minority status, sex/gender, and relationship status.

   The unstandardized slope coefficient of the "Post-secondary diploma" dummy variable shows that people with a post-secondary diploma are predicted to spend 0.39 more hours doing paid work per week than people with only a high school education, controlling for age, visible minority status, sex/gender, and relationship status. But, since the p-value associated with this slope coefficient is greater than 0.05, we cannot be confident that, in the population, there is any difference between people with a post-secondary diploma and people with a only a high school education in terms of the number of hours they spend doing paid work each week.

   The unstandardized slope coefficient of the "University degree" dummy variable shows that people with a university degree are predicted to spend 1.32 fewer hours doing paid work per week than people with only a high school education, controlling for age, visible minority status, sex/gender, and relationship status. But since the p-value associated with this slope coefficient is greater than 0.05, we cannot be confident that, in the population, there is any difference between people with a university degree and people with only a high school education in terms of the number of hours they spend doing paid work each week.
c. The unstandardized slope coefficient of the "Previous relationship" dummy variable shows that people who were previously in a long-term relationship (widowed, separated, or divorced) are predicted to spend 2.34 more hours doing paid work per week than people who are currently in a relationship (married or common-law), controlling for age, visible minority status, sex/

gender, and highest level of education. But since the p-value associated with this slope coefficient is greater than 0.05, we cannot be confident that, in the population, there is any difference between people who are currently in a relationship and people who were previously in a long-term relationship in terms of the number of hours they spend doing paid work each week.

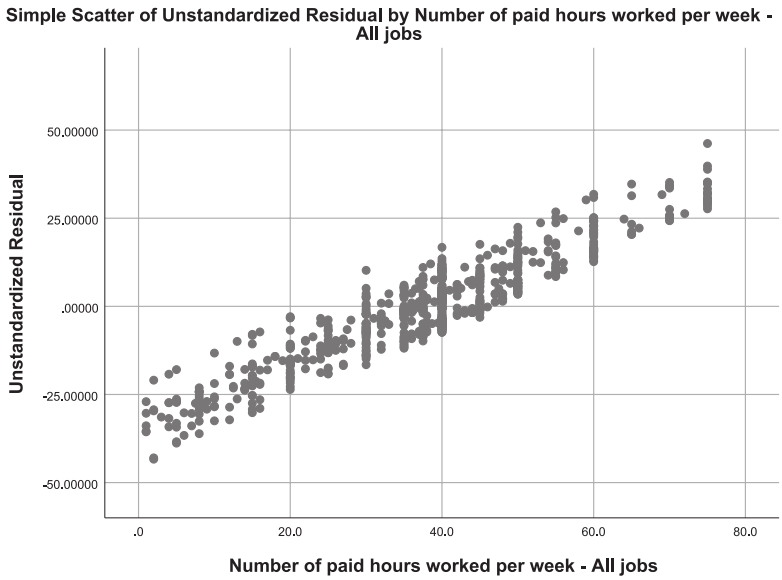
The unstandardized slope coefficient of the "Single" dummy variable shows that people who are single (never married) are predicted to spend 6.68 fewer hours doing paid work per week than people who are currently in a relationship (married or common-law), controlling for age, visible minority status, sex/gender, and highest level of education.

d. The standardized slope coefficients show that, among the independent variables used in regression, sex/gender has the strongest relationship with the number of hours spent doing paid work each week.

e. The R^2 shows that, overall, 14.8 per cent of the variation in the number of hours spent doing paid work each week can be explained by age, visible minority status, sex/gender, highest level of education, and marital status. The adjusted R^2 is slightly lower than the R^2, which suggests that not all of the independent variables in this model are good predictors of the dependent variable.

7. The tolerances and variance inflation factors indicate that there are no collinearity problems among the independent variables in this regression: all of the tolerances are above 0.1 and all of the variance inflation factors are below 10. The three variables with the lowest tolerances (and thus highest variance inflation factors) are the "University degree" dummy variable (0.59), the "Post-secondary diploma" dummy variable (0.61), and the "Single" dummy variable (0.66).

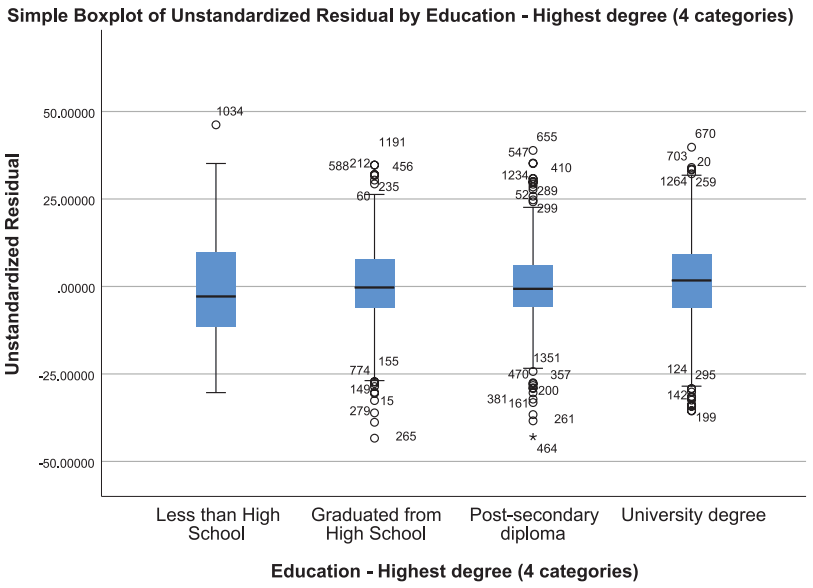
9. a **GGraph**



These results show that there is a relationship between the regression residuals and the dependent variable. Ideally, there should be no relationship between the regression residuals and the dependent variable. (The only remaining variation should be random.)

The model systematically over-predicts the number of paid hours worked for people working fewer than 40 hours per week, and systematically under-predicts the number of paid hours worked for people working more than 40 hours per week. This suggests that the model still needs improvement. Independent variables that help to explain why people work very low and very high numbers of hours each week should be added.

b. **GGraph**



These results show that there is no relationship between the regression residuals and people's highest level of education. The median of each box plot is near 0, the ideal value of a residual. The box plots also show that there is slightly more variation in the residuals—a wider interquartile range—for people who have less than a high school education than for people with higher levels of education.

Chapter 14

1. **Crosstabs**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
WOMEN Women * IS_VISMIN Visible Minority	1367	97.6%	33.000	2.4%	1400.000	100.0%

WOMEN Women * IS_VISMIN Visible Minority Crosstabulation

Count

		IS_VISMIN Visible Minority		
		.00	1.00	Total
WOMEN Women	.00	532	122	654
	1.00	607	106	713
Total		1139	228	1367

Frequencies

Statistics

VISMIN_WOMEN Visible minority women

N	Valid	1367
	Missing	33

VISMIN_WOMEN Visible minority women

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1261	90.1	92.3	92.3
	1.00	106	7.6	7.7	100.0
	Total	1367	97.6	100.0	
Missing	System	33	2.4		
Total		1400	100.0		

3. a. **Frequencies**

Statistics

		DH1GED Education - Highest degree (4 categories)	POSTSECONDARY Has a postsecondary education
N	Valid	1395	1395
	Missing	5	5

Frequency Table

DH1GED Education - Highest degree (4 categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Less than High School	222	15.9	15.9	15.9
	2 Graduated from High School	330	23.6	23.7	39.6
	3 Post-secondary diploma	485	34.7	34.8	74.3
	4 University degree	358	25.6	25.7	100.0
	Total	1395	99.7	100.0	
Missing	9 Not stated	5	.3		
Total		1400	100.0		

POSTSECONDARY Has a postsecondary education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	552	39.5	39.6	39.6
	1.00	843	60.2	60.4	100.0
	Total	1395	99.7	100.0	
Missing	System	5	.3		
Total		1400	100.0		

b. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE_POSTSEC Age x Postsecondary education	1395	99.7%	5	0.3%	1400	100.0%

Report

AGE_POSTSEC Age x Postsecondary education

Mean	N	Std. Deviation
.9175	1395	12.40899

5. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE_SQUARED Age (squared)	1400	100.0%	0	0.0%	1400	100.0%

Report

AGE_SQUARED Age (squared)

Mean	N	Std. Deviation
334.8250	1400	343.87567

7. a. <No output>

b. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
SCP_110_LOG2 Number of new people met - past month (log base 2)	629	44.9%	771	55.1%	1400	100.0%

Report

SCP_110_LOG2 Number of new people met - past month (log base 2)

Mean	N	Std. Deviation
2.2156	629	1.32991

Chapter 15

1. Frequencies

Statistics

		DISCRIM Victim of discrimination - 5 years	DISCRIM_ RECODED Experienced discrimination
N	Valid	1347	1347
	Missing	53	53

Frequency Table

DISCRIM Victim of discrimination - 5 years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	411	29.4	30.5	30.5
	2 No	936	66.8	69.5	100.0
	Total	1347	96.2	100.0	
Missing	7 Don't know	3	.2		
	8 Refusal	25	1.8		
	9 Not stated	25	1.8		
	Total	53	3.8		
Total		1400	100.0		

DISCRIM_RECODED Experienced discrimination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	936	66.8	69.5	69.5
	1.00	411	29.4	30.5	100.0
	Total	1347	96.2	100.0	
Missing	System	53	3.8		
Total		1400	100.0		

3. Logistic Regression

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Visible Minority	.730	.151	23.250	1	.000	2.074	1.542	2.791
	Constant	-.972	.067	208.885	1	.000	.378		

a. Variable(s) entered on step 1: Visible Minority.

The 95 per cent confidence interval for the odds ratio of the "Visible minority" dummy variable shows that, in the population, a regression capturing the

relationship between visible minority status and experiencing discrimination is likely to show that people who are visible minorities have between 54 per cent and 179 per cent higher odds of experiencing discrimination. In other words, the general pattern of the relationship between the variables suggests that being a visible minority is associated with odds of experiencing discrimination that are 54 per cent to 179 per cent higher than for people who are not visible minorities.

5. Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1338	95.6
	Missing Cases	62	4.4
	Total	1400	100.0
Unselected Cases		0	.0
Total		1400	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
.00	0
1.00	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted		
			DISCRIM_RECODED Experienced discrimination		Percentage Correct
	Observed		.00	1.00	
Step 0	DISCRIM_RECODED Experienced discrimination	.00	929	0	100.0
		1.00	402	0	.0
	Overall Percentage				69.8

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.838	.060	197.147	1	.000	.432

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Age	36.678	1	.000
		Visible Minority	23.864	1	.000
		Women	14.825	1	.000
	Overall Statistics		71.614	3	.000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	72.212	3	.000
	Block	72.212	3	.000
	Model	72.212	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1557.680[a]	.053	.075

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			DISCRIM_RECODED Experienced discrimination		
	Observed		.00	1.00	Percentage Correct
Step 1	DISCRIM_RECODED Experienced discrimination	.00	887	42	95.5
		1.00	376	25	6.3
	Overall Percentage				68.6

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	-.019	.003	31.321	1	.000	.981
	Visible Minority	.700	.155	20.347	1	.000	2.014
	Women	.509	.124	16.703	1	.000	1.663
	Constant	-.378	.182	4.331	1	.037	.685

a. Variable(s) entered on step 1: Age, Visible Minority, Women.

The odds ratio of the "Age" variable shows that each one-year increase in age is associated with 2 per cent lower odds of experiencing discrimination, controlling for visible minority status and sex/gender.

The odds ratio of the "Visible minority" dummy variable shows that people who are visible minorities are predicted to have 101 per cent higher odds of

experiencing discrimination than people who are not visible minorities, controlling for age and sex/gender.

The odds ratio of the "Women" dummy variable shows that women are predicted to have 66 per cent higher odds of experiencing discrimination than men, controlling for age and visible minority status.

7. a. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
DISCRIM_RECODED Experienced discrimination	1331	100.0%	0	0.0%	1331	100.0%

Report

DISCRIM_RECODED Experienced discrimination

Mean	N	Std. Deviation
.3019	1331	.45924

b. **Means**

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE Age	1331	100.0%	0	0.0%	1331	100.0%
IS_VISMIN Visible Minority	1331	100.0%	0	0.0%	1331	100.0%
WOMEN Women	1331	100.0%	0	0.0%	1331	100.0%

Report

	AGE Age	IS_VISMIN Visible Minority	WOMEN Women
Mean	46.1537	.1660	.5248
N	1331	1331	1331
Std. Deviation	18.29756	.37225	.49957

c. The standardized slope coefficient of the "Age" variable is −0.757.

The standardized slope coefficient of the "Visible minority" variable is 0.567.

The standardized slope coefficient of the "Women" variable is 0.554.

d. The standardized slope coefficients show that age has a stronger relationship with the dependent variable ("Experienced discrimination") than visible minority status or sex/gender.

9. **Logistic Regression**

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1281	91.5
	Missing Cases	119	8.5
	Total	1400	100.0
Unselected Cases		0	.0
Total		1400	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
.00	0
1.00	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted		
			DISCRIM_RECODED Experienced discrimination		
	Observed		.00	1.00	Percentage Correct
Step 0	DISCRIM_RECODED Experienced discrimination	.00	887	0	100.0
		1.00	385	0	.0
	Overall Percentage				69.7

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.834	.061	186.836	1	.000	.434

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Age	35.402	1	.000
		Visible Minority	23.418	1	.000
		Women	20.002	1	.000
	Overall Statistics		75.574	3	.000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	76.413	3	.000
	Block	76.413	3	.000
	Model	76.413	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1483.287[a]	.058	.083

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			DISCRIM_RECODED Experienced discrimination		
	Observed		.00	1.00	Percentage Correct
Step 1	DISCRIM_RECODED Experienced discrimination	.00	852	35	96.0
		1.00	360	25	6.6
	Overall Percentage				69.0

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	-.019	.004	30.171	1	.000	.981
	Visible Minority	.733	.162	20.596	1	.000	2.082
	Women	.604	.128	22.262	1	.000	1.829
	Constant	-.421	.187	5.097	1	.024	.656

a. Variable(s) entered on step 1: Age, Visible Minority, Women.

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.728	2	.013
	Block	8.728	2	.013
	Model	85.141	5	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1474.559[a]	.065	.092

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			DISCRIM_RECODED Experienced discrimination		
	Observed		.00	1.00	Percentage Correct
Step 1	DISCRIM_RECODED Experienced discrimination	.00	838	49	94.5
		1.00	335	50	12.9
	Overall Percentage				69.8

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	-.017	.004	22.044	1	.000	.983
	Visible Minority	.747	.183	16.639	1	.000	2.111
	Women	.619	.129	23.150	1	.000	1.857
	Christian	-.462	.155	8.850	1	.003	.630
	Other religion	-.382	.285	1.795	1	.180	.683
	Constant	-.185	.203	.837	1	.360	.831

a. Variable(s) entered on step 1: Christian, Other religion.

a. The odds ratio of the "Christian" dummy variable shows that people who are Christians are predicted to have 37 per cent lower odds of experiencing discrimination than people who have no religious affiliation, controlling for age, visible minority status, and sex/gender.

   The odds ratio of the "Other religion" dummy variable shows that people who are affiliated with another (non-Christian) religion have 32 per cent lower odds of experiencing discrimination than people who have no religious affiliation, controlling for age, visible minority status, and sex/gender But, since the p-value associated with this odds ratio is greater than 0.05, we cannot be confident that, in the population, there is any difference between people with no religious affiliation and people affiliated with another (non-Christian) religion in terms of their odds of experiencing discrimination.

b. The odds ratio of the "Age" variable does not change substantially once religious affiliation is controlled for (0.98 in both models).

   The odds ratio of the "Visible minority" dummy variable becomes slightly larger once religious affiliation is controlled for (changing from 2.08 to 2.11). When religious affiliation is not taken into account, people who are visible minorities are predicted to have 108 per cent higher odds of experiencing discrimination than people who are not visible minorities (controlling for age and sex/gender). Once religious affiliation is accounted for, people who are visible minorities are predicted to have 111 per cent higher odds of experiencing discrimination than people who are not visible minorities (also controlling for age and sex/gender).

   The odds ratio of the "Women" dummy variable also becomes slightly larger once religious affiliation is controlled for (changing from 1.83 to 1.86). When religious affiliation is not taken into account, women are predicted to have 83 per cent higher odds of experiencing discrimination than men (controlling for age and visible minority status). Once religious affiliation is accounted for, women are predicted to have 86 per cent higher odds of experiencing discrimination than men (also controlling for age and visible minority status).

c. The Nagelkerke R^2 of the second model is 0.09, whereas the Nagelkerke R^2 of the first model is 0.08. Since the difference between them is small, it suggests that accounting for religious affiliation does not substantially improve the fit of the logistic regression model.