

# CHAPTER 2— ANSWERS TO EXERCISES

1.

a. Race is a nominal variable. Class is an ordinal variable, since the categories can be ordered. Trauma is an interval variable.

b. Frequency Table for Race

Race	Frequency (f)
White	17
Nonwhite	13
Total (N)	30

c. White:  $17/30 = .57\%$ ; Nonwhite:  $13/30 = .43$

2.

Frequency and Percentage Distribution Table for Class

Class	Frequency (f)	Percentage (%)
Lower	3	10
Working	15	50
Middle	11	36.7
Upper	1	3.3
Total (N)	30	100

a. The smallest perceived class group is the upper class, composing only 3.3% of the survey.

b. Together, the working and middle class compose 86.7% of the survey.

3.

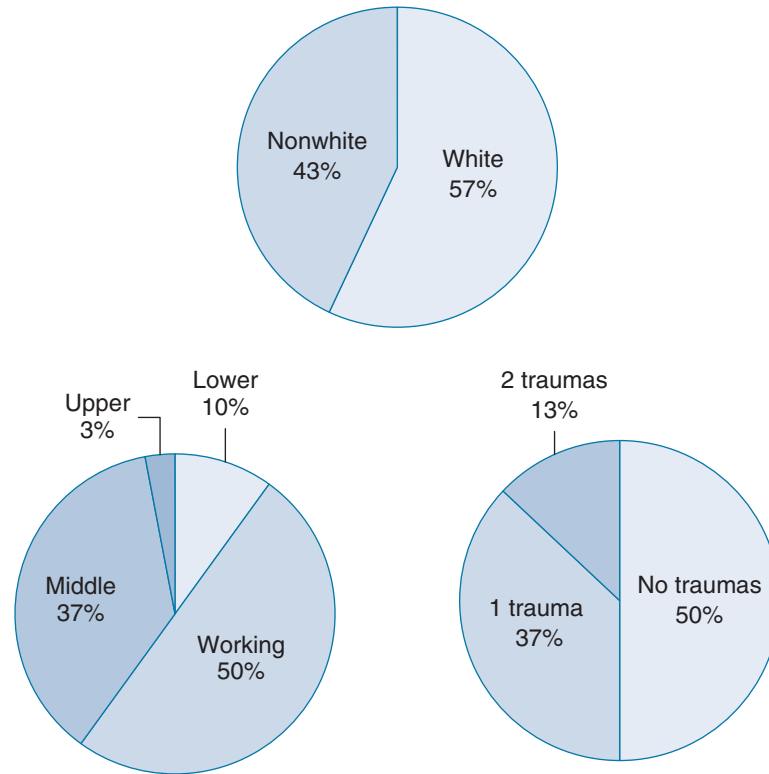
Number of Traumas	Frequency (f)
0	15
1	11
2	4
Total (N)	30

a. Trauma is an interval or ratio-level variable, since it has a real zero point and a meaningful numeric scale.

b. People in this survey are more likely to have experienced no traumas last year (50% of the group).

c. The proportion who experienced one or more traumas is calculated by first adding 36.7% and 13.3% = 50%. Then, divide that number by 100 to obtain the proportion, 0.50, or half the group.

4. We use pie charts to visually present these data.



5. Support does vary by political party. The majority of strong Democrats (58.1%) and Independents (66%) agree/strongly agree with the statement. The group with the lowest percentage of agreement is Strong Republicans at 49%. The percentage disagreeing with the statement is highest among Strong Republicans (36.7%) compared with 12.3% of Strong Democrats and 11.3% of Independents.

6.

a.

E-mail Hours per Week	Frequency	Cumulative Frequency	Percentage (%)	Cumulative Percentage (C%)
0	19	19	19	19
1	20	39	20	39
2	13	52	13	52
3	5	57	5	57
4	2	59	2	59
5	6	65	6	65
6	5	70	5	70

E-mail Hours per Week	Frequency	Cumulative Frequency	Percentage (%)	Cumulative Percentage (C%)
7	2	72	2	72
8	3	75	3	75
9	1	76	1	76
10 or more	23	99	23	99
Total	99		99%	

- b.  $.575$  ( $57/99$ ) spent 3 hours or less on e-mail per week.
- c. This group includes  $5 + 2 + 3 + 1 + 23 = 34$  respondents. The proportion is  $34/99$  or  $.343$ .
- d. This is an interval-ratio variable. The appropriate graphic presentation would be either a histogram or a line graph.
7. The group with the largest increase in voting rates is blacks, from 53% in 1996 to 66.2% in 2012. Blacks are the only group that did not experience a decline in voting rates for the years presented. Hispanic voting rates exceeded the voting rates for Asians in 2000 and remained higher than Asians through 2012. Hispanics and Asians have the lowest voting rates for all groups. As noted in the exercise, in the 2012 presidential election, blacks had the highest voting rates for all groups, followed by non-Hispanic whites, Hispanics, and Asians. White voting rates declined by 2% from 2008 to 2012. The highest voting rate for whites was in 2004 (67.2%), in 2008 for Hispanics (49.9%) and for Asians (47.6%).
8. From 1970 to 2013, European immigrants had the highest increase in the percentage who completed at least high school ( $95 - 48 = 47\%$ ). During the same time period, immigrants from the Caribbean had the second highest increase ( $72 - 36 = 36\%$ ).  
 Since 1970 at least 50% of immigrants from Other Central/South America countries, Asia, and Africa had achieved at least a high school education. In 2013, at least 66% of immigrants from five out of the six reported regions achieved a high school education. Throughout all the years reported in the table, immigrants from Mexico have the lowest percentage of high school completion.
9. If we identify younger Americans as those in the 18 to 24 and 25 to 44 age-groups and older Americans in the 45–64, 65–74, and 75 and over categories—the data indicate that as age increases, so does the percentage voting in a Presidential election. The group with the highest percentage of voting is the 65- to 74-year olds, with 73.5% voting. The percentage drops for the 75 and over age-group, but is still higher than the reported percentages for the age-groups: 18–24, 25–44, and 45–64.
10. *Please note:* The data are as reported by the Bureau of Justice Statistics. The percentages do not add up to 100%.

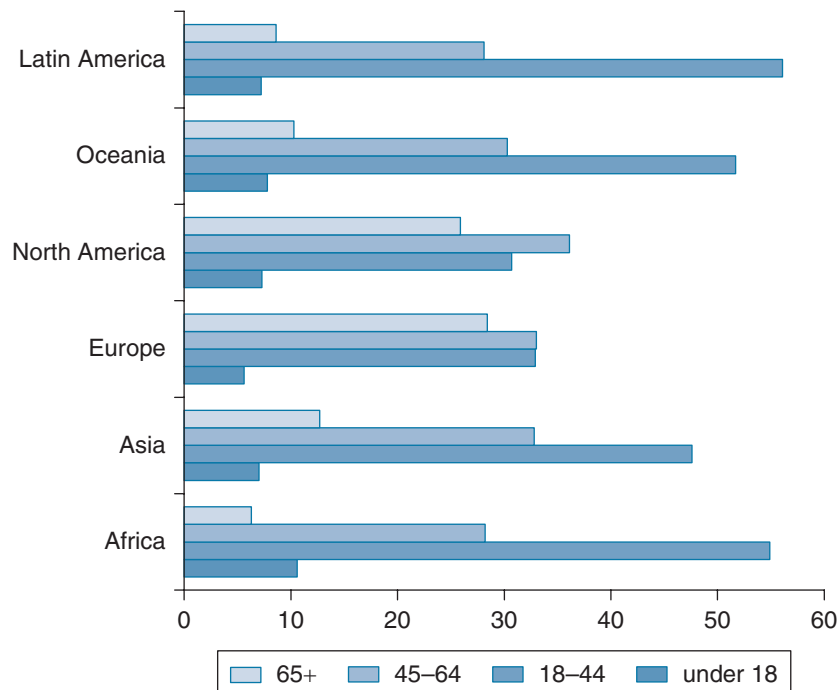
	All Males (%)	Cumulative Percentage (C%)	All Females (%)	Cumulative Percentage (C%)
18–19	1	1	.6	.6
20–24	11.4	12.4	10	10.6
25–29	15.4	27.8	17.5	28.1
30–34	16.5	44.3	18.6	46.7
35–39	14.2	58.5	14.7	61.4

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(Continued)

	All Males (%)	Cumulative Percentage (C%)	All Females (%)	Cumulative Percentage (C%)
40–44	12.2	70.7	12.8	74.2
45–49	10.4	81.1	10.9	85.1
50–54	8.5	89.6	7.7	92.8
55–59	5.2	94.8	3.9	96.7
60–64	2.7	97.5	1.8	98.5
65+	2.3	99.8	1.2	99.7

11. Overall, the highest percentage of smokers are in the 12th-grade category; the lowest are students in the 8th grade. The highest percentage of daily smokers for all grades is between 1996 and 1997 with percentages declining through 2014. (There are no data for 8th and 10th graders pre-1990.) Since 2012, the percentage of students smoking daily was at 10% or below.
12. For all racial and Hispanic groups presented in the bar graph, the percentage of uninsured individuals decreased from 2013 to 2014. Hispanics have the highest percentage of uninsured, followed by blacks, Asians, and whites. According to these data, in 2014, more than a 1/3 of Hispanics did not have health insurance. The group with the largest decline is non-Hispanic blacks ( $24.7 - 17.6 = 7.1\%$ ); the smallest reduction is among non-Hispanic whites ( $14.5 - 11.5 = 3.0\%$ ).
13.
  - a. For Africa, Asia, Oceania, and Latin America, the largest age-group is 18 to 44 years. For Europe and North America, the age composition is slightly older; individuals aged 45 to 64 years are the largest age-group for both.
  - b. We display the data in a vertical bar graph. We selected a bar graph because country of origin (the basis of the percentage calculation) is nominal.



## SPSS SOLUTIONS

1.
  - a. The valid number of responses is 990.
  - b. 22.3% reported being in excellent health; 7.0% in poor health.
  - c. HEALTH is an ordinal measure. The best way to graphically present it would be in a bar graph.

health CONDITION OF HEALTH

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 EXCELLENT	221	14.7	22.3	22.3
	2 GOOD	477	31.8	48.2	70.5
	3 FAIR	223	14.9	22.5	93.0
	4 POOR	69	4.6	7.0	100.0
	Total	990	66.0	100.0	
Missing	0 IAP	509	33.9		
	8 DK	1	.1		
	Total	510	34.0		
Total		1500	100.0		

2.
  - a.

immjobs IMMIGRANTS TAKE JOBS AWAY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 AGREE STRONGLY	37	2.5	7.4	7.4
	2 AGREE	154	10.3	30.8	38.2
	3 NEITHER AGREE NOR DISAGREE	101	6.7	20.2	58.4
	4 DISAGREE	175	11.7	35.0	93.4
	5 DISAGREE STRONGLY	33	2.2	6.6	100.0
	Total	500	33.3	100.0	
Missing	0 IAP	986	65.7		
	8 CANT CHOOSE	11	.7		
	9 NA	3	.2		
	Total	1000	66.7		
Total		1500	100.0		

**IMMCULT IMMIGRANTS UNDERMINE AMERICAN CULTURE**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Agree Strongly	18	1.2	3.7	3.7
	2 Agree	75	5.0	15.5	19.2
	3 Neither Agree nor Disagree	111	7.4	22.9	42.1
	4 Disagree	238	15.9	49.1	91.1
	5	43	2.9	8.9	100.0
	Total	485	32.3	100.0	
Missing	0 IAP	986	65.7		
	8 Don't know	27	1.8		
	9 No answer	2	.1		
	Total	1015	67.7		
Total		1500	100.0		

**IMMEDUC LEGAL IMMIGRANTS SHOULD HAVE SAME EDUCATION AS AMERICANS**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Agree Strongly	100	6.7	19.8	19.8
	2 Agree	341	22.7	67.4	87.2
	3 Neither Agree nor Disagree	33	2.2	6.5	93.7
	4 Disagree	24	1.6	4.7	98.4
	5	8	.5	1.6	100.0
	Total	506	33.7	100.0	
Missing	0 IAP	986	65.7		
	8 Don't know	6	.4		
	9 No answer	2	.1		
	Total	994	66.3		
Total		1500	100.0		

- b. Each variable is an ordinal measurement. The higher value (5) indicates strong disagreement with the statement (though the label does not appear in our screenshots). Overall, respondents express positive attitudes toward immigrants. Most believe that immigrants should have the same education as Americans ( $19.8 + 67.4 = 87.2\%$  agree or strongly agree to the statement), disagree that immigrants undermine American culture ( $49.1 + 8.9 = 58\%$  disagree or strongly disagree), and disagree that immigrants take away jobs ( $35 + 6.6 = 41.6\%$  disagree or strongly disagree).

3.

**goodlife STANDARD OF LIVING OF R WILL IMPROVE**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 STRONGLY AGREE	121	8.1	12.1	12.1
	2 AGREE	440	29.3	44.0	56.0
	3 NEITHER	174	11.6	17.4	73.4
	4 DISAGREE	223	14.9	22.3	95.7
	5 STRONGLY DISAGREE	43	2.9	4.3	100.0
	Total	1001	66.7	100.0	
Missing	0 IAP	496	33.1		
	8 CANT CHOOSE	3	.2		
	Total	499	33.3		
Total		1500	100.0		

- a. GOODLIFE is an ordinal measure (a 5-point scale).
  - b. GOODLIFE may vary by respondent's age, social class, employment status, education, and one's overall happiness with life. You may want to explore the relationship between GOODLIFE and these variables on your own using the GSS data sets.
  - c. This is an ordinal measure and should be presented as a bar graph.
4. Students are encouraged to determine on their own how to recode the variable. Students should consider how the years of education indicates attainment of a specific degree, for example: 12 years = high school graduate or 16 years = college graduate.
- 5.
- a. Nominal, as a pie chart or bar graph.
  - b. Interval measure, as a histogram or line chart.
  - c. Ordinal measure, as a bar graph.
  - d. Interval measure, as a histogram or line chart.