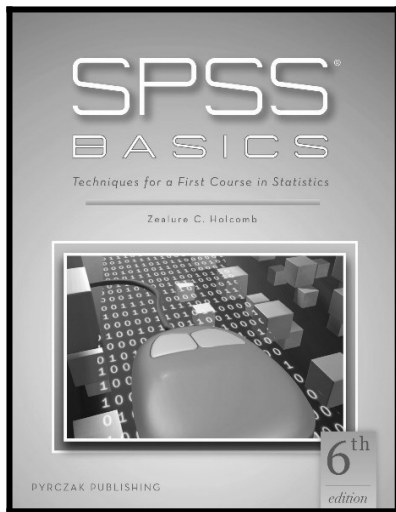


Answer Key

SPSS[®] Basics

Techniques for a First Course in Statistics

Sixth Edition



Zealure C. Holcomb

Susan Jarmuz-Smith
Contributing Editor



Pyrczak Publishing

P.O. Box 250430 ❖ Glendale, CA 91225

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Notes

Chapter 1: Levels of Measurement in SPSS Statistics

1. How to analyze the data. 2. The purposes of the research *and* the characteristics of the data (i.e., the level of measurement). 3. Choice d: Ratio. 4. Choice a: Nominal. 5. Choice c: Scale. 6. Choice c: Scale. 7. Choice a: Nominal. 8. Choice b: Ordinal. 9. Choice c: Scale. 10. Categorical. 11. Variable.

Chapter 2: Entering and Saving a Set of Scores (Scale Variable)

Attitude Toward Math

	Math
1	2.00
2	10.00
3	6.00
4	.00
5	6.00
6	4.00
7	3.00
8	4.00
9	5.00
10	1.00
11	1.00
12	5.00
13	7.00
14	1.00
15	1.00
16	3.00
17	4.00
18	4.00
19	6.00
20	1.00

Height in Inches

	Height
1	62.00
2	52.00
3	72.00
4	70.00
5	67.00
6	66.00
7	63.00
8	70.00
9	50.00
10	62.00
11	60.00
12	49.00
13	74.00
14	70.00
15	66.00
16	67.00
17	66.00
18	71.00
19	64.00
20	69.00

Chapter 3: Frequency Distribution

1a. Unformatted SPSS frequency distribution:

Statistics

Attitude Toward Math

N	Valid	20
	Missing	0

Attitude Toward Math

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	5.0	5.0	5.0
	1.00	5	25.0	25.0	30.0
	2.00	1	5.0	5.0	35.0
	3.00	2	10.0	10.0	45.0
	4.00	4	20.0	20.0	65.0
	5.00	2	10.0	10.0	75.0
	6.00	3	15.0	15.0	90.0
	7.00	1	5.0	5.0	95.0
	10.00	1	5.0	5.0	100.0
	Total	20	100.0	100.0	

Note that in the SPSS output above, scores of 8 and 9 have been omitted because they have frequencies of zero. Consistent with standard statistical reporting, these two scores are included in the formatted frequency distribution below.

1b. Formatted frequency distribution:

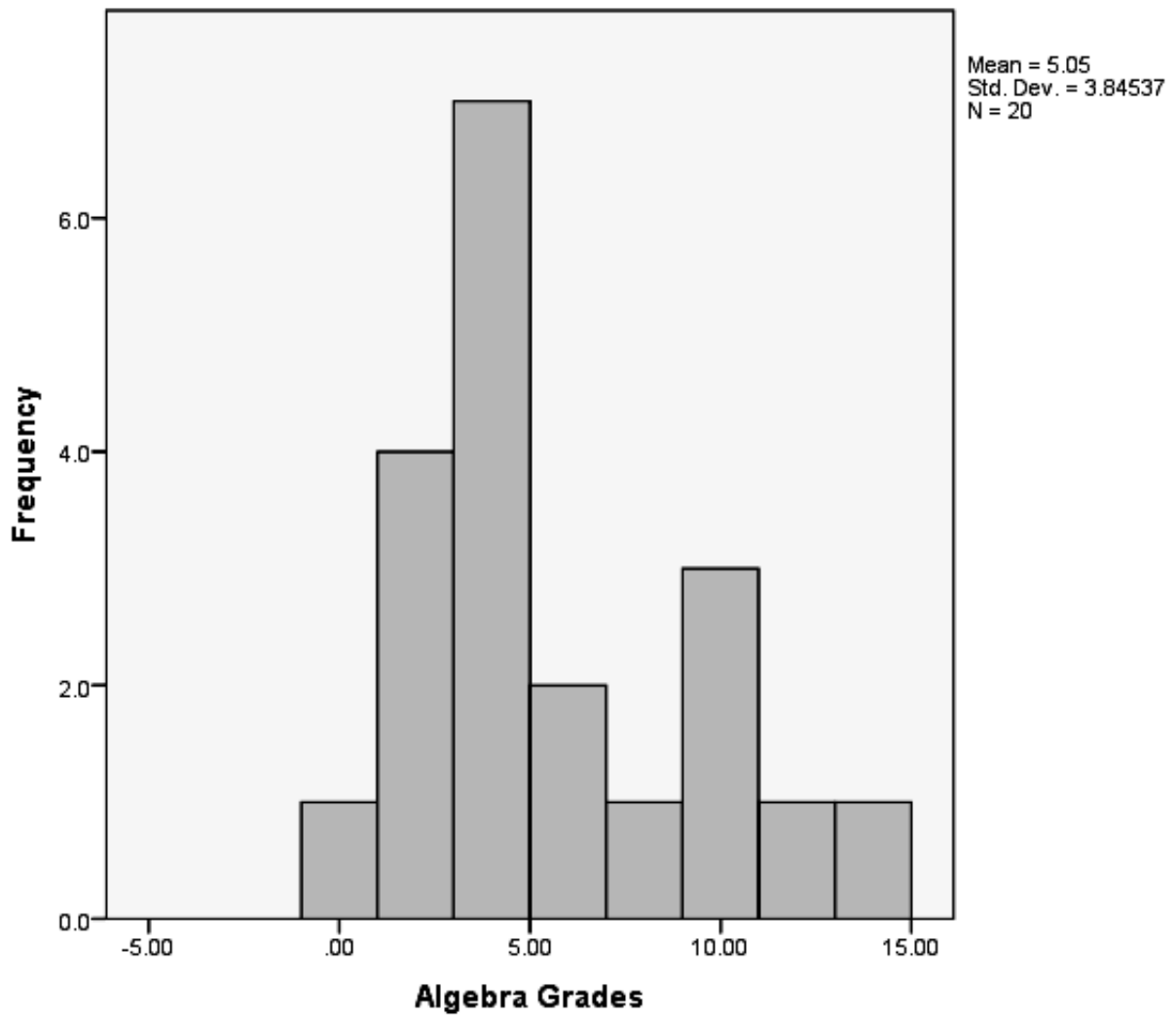
Table #			
<i>Formatted Frequency Distribution of Attitude Toward Math Scores</i>			
Score (X)	f	%	Cumulative %
10	1	5.0	100.0
9	0	0.0	95.0
8	0	0.0	95.0
7	1	5.0	95.0
6	3	15.0	90.0
5	2	10.0	75.0
4	4	20.0	65.0
3	2	10.0	45.0
2	1	5.0	35.0
1	5	25.0	30.0
0	1	5.0	5.0

$N = 20$

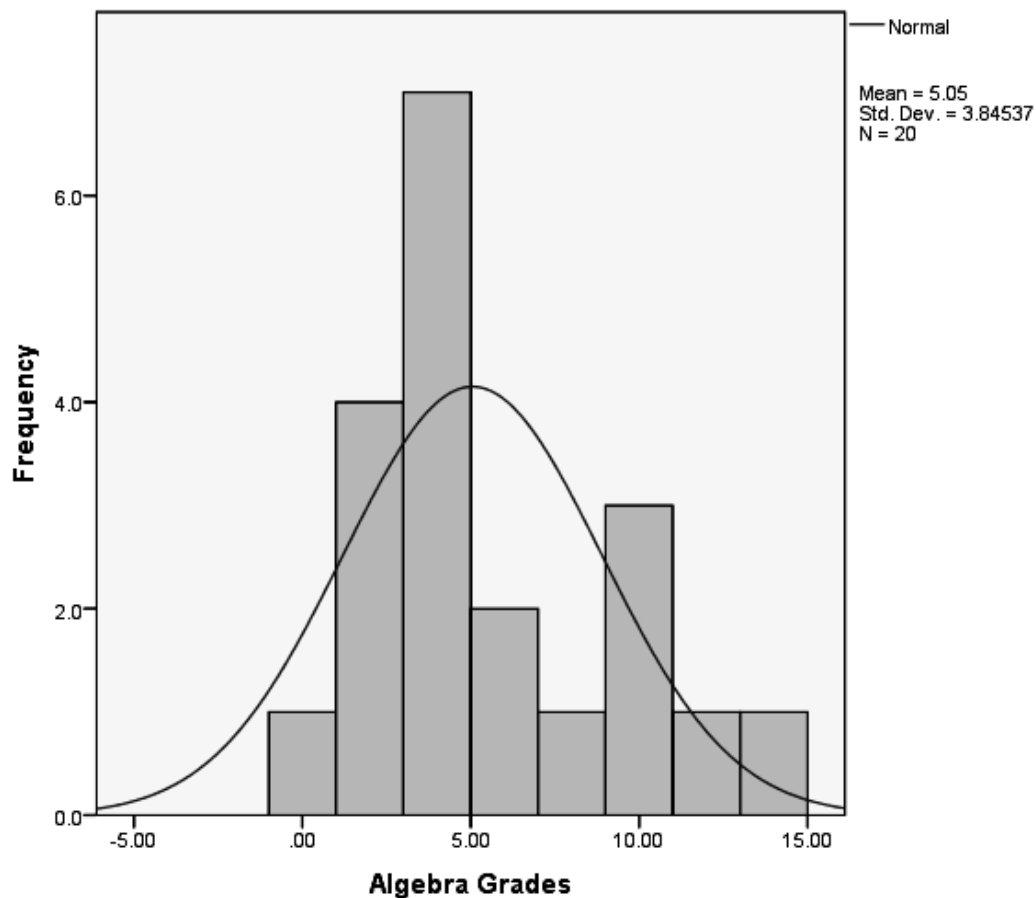
100.0

Chapter 4: Histogram

Unformatted SPSS histogram *without* the normal curve superimposed:



Unformatted SPSS histogram *with* the normal curve superimposed:



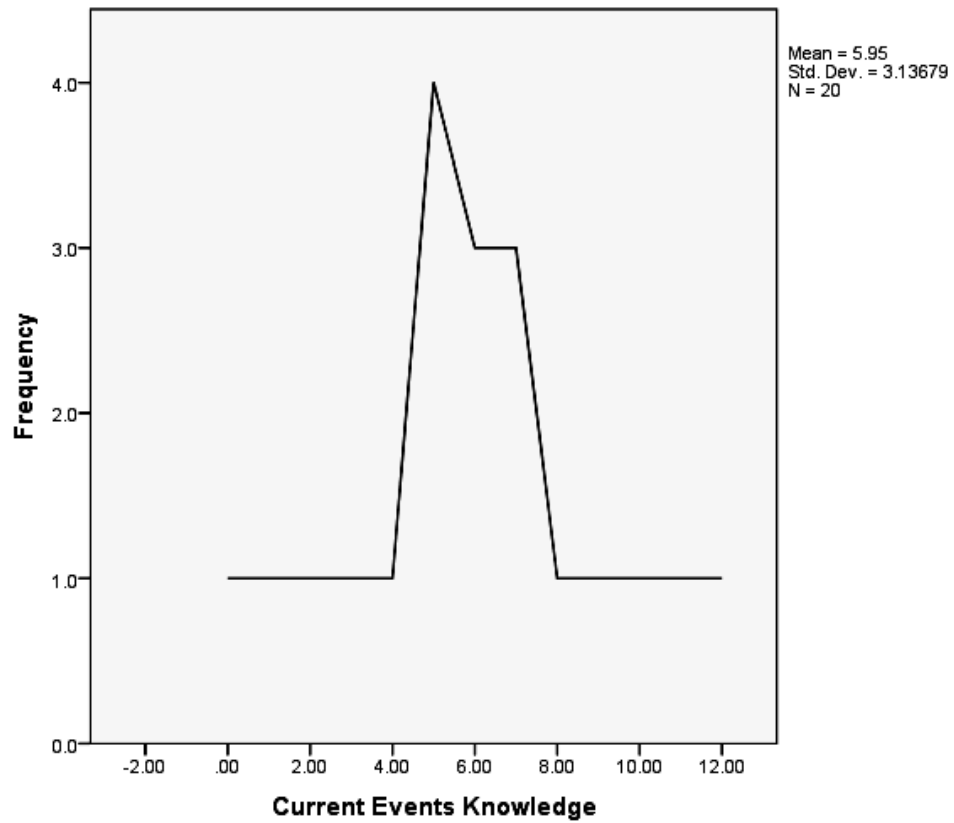
If you asked students to format the histogram per APA style, they should have given it a figure number and caption such as

Figure X. Histogram of algebra grades on a scale from 0 to 13 for 20 students.

The distribution in the histogram is clearly skewed (not approximately normally shaped) because the bars on the left extreme do not reflect nearly as many scores as do the bars on the right extreme. You may want to point out to students that such a distribution is said to be skewed to the right (i.e., has a positive skew).

Chapter 5: Frequency Polygon

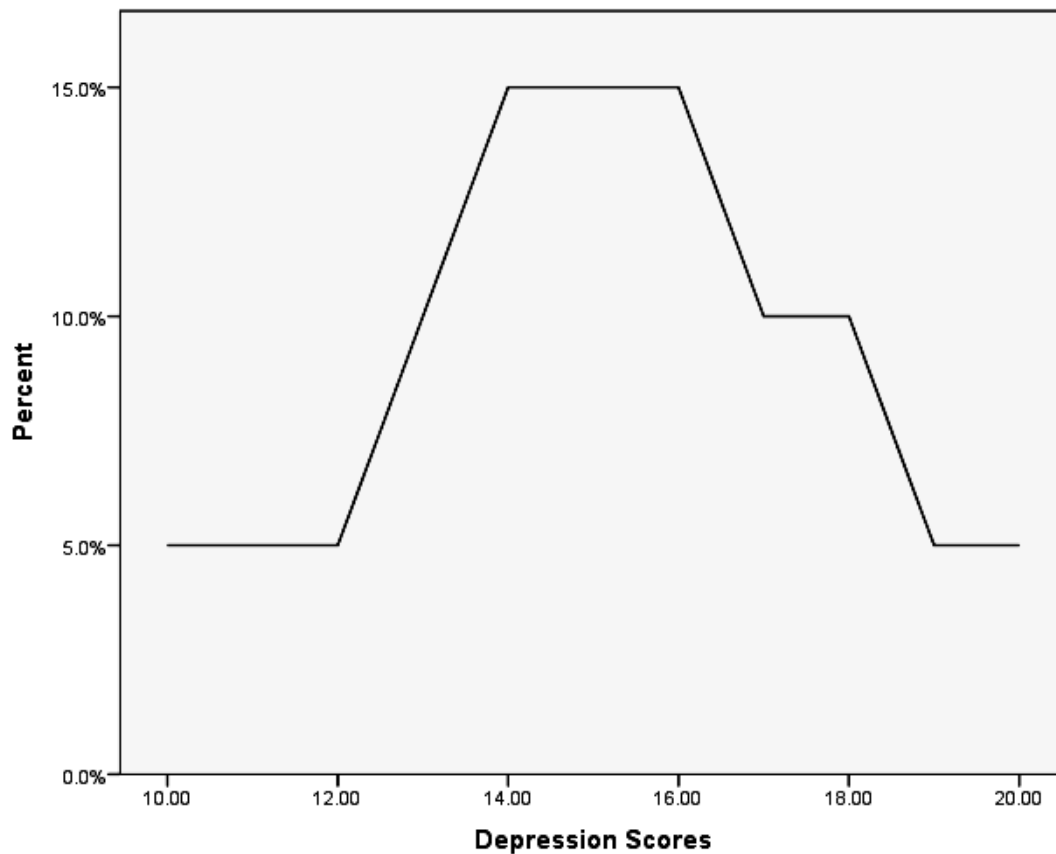
1. Unformatted SPSS frequency polygon:



If you asked students to format the frequency polygon per APA style, they should have given it a figure number and caption such as

Figure X. Frequency polygon for current events knowledge for 20 students.

2. Unformatted SPSS polygon showing percentages:



If you asked students to format the polygon showing percentages per APA style, they should have given it a figure number and caption such as

Figure X. Frequency polygon for depression scores for 20 clients.

Chapter 6: Mean, Median, and Mode: One Group, Two Scale Variables

Notes to instructors:

- a.** In light of Information Box 6.4 on page 63 in the textbook, students' answers should be reported to two decimal places.
- b.** In addition to the means and medians in Figure 6.7 on page 59 in the textbook, you may want to discuss some of the other statistics shown in the output, such as the ranges, the interquartile ranges, and so on. Note that the standard deviation is discussed in Chapter 7 in the textbook.

The SPSS output and the answers for Chapter 6 are shown on the three pages that follow.

This figure shows the two sets of scores after they have been entered into “Data View”:

Internet Hours and Attitude.sav [DataSet4] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help

Visible: 2 of 2 Variables

	Hours	Internet	var	var	var	var	var	var
1	22.00	10.00						
2	1.00	7.00						
3	.00	3.00						
4	3.00	4.00						
5	1.00	3.00						
6	2.00	5.00						
7	3.00	6.00						
8	4.00	7.00						
9	5.00	6.00						
10	1.00	1.00						
11	4.00	7.00						
12	3.00	5.00						
13	1.00	3.00						
14	.00	4.00						
15	2.00	6.00						
16	3.00	5.00						
17	.00	7.00						
18	33.00	6.00						
19	2.00	4.00						
20	25.00	9.00						

Data View Variable View

IBM SPSS Statistics Processor is ready

This table shows the portion of the SPSS output for the two variables:

Descriptives				Statistic	Std. Error
Hours Using Internet	Mean			5.7500	2.08109
	95% Confidence Interval for Mean	Lower Bound	1.3942		
		Upper Bound	10.1058		
	5% Trimmed Mean		4.5556		
	Median		2.5000		
	Variance		86.618		
	Std. Deviation		9.30690		
	Minimum		.00		
	Maximum		33.00		
	Range		33.00		
	Interquartile Range		3.00		
	Skewness		2.206	.512	
	Kurtosis		3.823	.992	
Attitude Toward Internet Use	Mean		5.4000	.48341	
	95% Confidence Interval for Mean	Lower Bound	4.3882		
		Upper Bound	6.4118		
	5% Trimmed Mean		5.3889		
	Median		5.5000		
	Variance		4.674		
	Std. Deviation		2.16187		
	Minimum		1.00		
	Maximum		10.00		
	Range		9.00		
	Interquartile Range		3.00		
	Skewness		.151	.512	
	Kurtosis		.193	.992	

4a. The mean equals 5.75.

4b. The median equals 2.50.

4c. Students' answers should be either "median" *or* "median and mean." Note that "mean" is not an appropriate answer because the distribution is skewed by three very high scores (22, 33, and 25) with no extremely low scores to balance them out.

4d. Wording may vary. Sample answer if only the median is being reported:

The distribution of number of hours college students used the Internet for course-related information is highly skewed, with 3 of the 20 students reporting that they used the Internet for more than 20 hours in the week. The median number of hours was more than 2 hours ($mdn = 2.50$). Thus, the typical student reported using the Internet for 2 to 3 hours.