**Chapter 7: Single-Sample *t* Test**

1. The single-sample *t* test should be used when comparing a sample mean to a population mean and when \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A. the population standard deviation is known

\*B. the population standard deviation is not known

C. the effect size is very small

D. the effect size is very large

Learning Objective: 7-1: Explain when a single-sample *t* should be used rather than a *z* for a sample mean.

Cognitive Domain: Knowledge

Answer Location: Single-Sample *t* Test

2. When using the *z* for a sample mean you can compute the standard error of the mean, but when using a *t* for a sample mean, you must estimate the standard error of the mean.

\*True

False

Learning Objective: 7-2: Explain why the *z* for a sample mean is superior to the single-sample *t* test but rarely used.

Cognitive Domain: Knowledge

Answer Location: Conceptual Information

3. Compute the degrees of freedom (*df*) for a single-sample *t* test if the sample size is *N* = 50.

A.51

B. 50

\*C. 49

D. 48

Learning Objective: 7-4: Compute the degrees of freedom and define the critical region for one- and two-tailed single-sample *t* tests.

Cognitive Domain: Application

Answer Location: Step 3: Use Sample Size to Compute Degrees of Freedom and Define the Critical Regions

4. Locate the *t* critical value for a sample of *N* = 50, with alpha set at α = .05 in the right tail.

A. 1.96

B. 1.65

C. 1.6753

\*D. 1.6766

Learning Objective: 7-4: Compute the degrees of freedom and define the critical region for one- and two-tailed single-sample *t* tests.

Cognitive Domain: Application

Answer Location: Step 3: Use Sample Size to Compute Degrees of Freedom and Define the Critical Regions

5. A *z* test and a *t* test will have different critical regions because \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A. *z* critical values differ based on the sample standard deviation

B. *z* critical values differ based on the sample size

\*C. *t* critical values differ based on the sample size

D. *t* critical values differ based on the sample standard deviation

Learning Objective: 7-5: Explain why a *z* for a sample mean test and a single-sample *t* test have different critical regions.

Cognitive Domain: Knowledge

Answer Location: Conceptual Information

6. The results of a single-sample *t* test are reported as *t*(44) = −3.35, *p* < .001, *d* = −0.50. If alpha is set at .05 in the left tail, what is the correct decision to make regarding the null hypothesis?

\*A. reject the null

B. fail to reject the null

Learning Objective: 7-7: Determine whether or not you should reject the null hypothesis.

Cognitive Domain: Application

Answer Location: Step 4: Compute the Test Statistic (Single-Sample *t* Test)

7. The results of a single-sample *t* test are reported as *t*(44) = −3.35, *p* < .001, *d* = −0.50. Describe the effect size for this study.

A. small

B. small to medium

\*C. medium

D. medium to large

E. Large

Learning Objective: 7-8: Compute and interpret an effect size (*d*).

Cognitive Domain: Application

Answer Location: Step 5: Compute an Effect Size and Describe It

8. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of about 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. What is the null hypothesis for this study?

A. µ > 3.8

B. µ > 3.2

C. µ = 3.8

\*D. µ = 3.2

Learning Objective: 7-6: Compute a single-sample *t* by hand and using SPSS.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example

9. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of about 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. What is the research hypothesis for this study?

A. µ > 3.2

\*B. µ > 3.8

C. µ = 3.2

D. µ = 3.8

Learning Objective: 7-6: Compute a single-sample *t* by hand and using SPSS.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example

10. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of about 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. What are the degrees of freedom for this study?

A. 38

\*B. 39

C. 40

D. 41

Learning Objective: 7-6: Compute a single-sample *t* by hand and using SPSS.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example

11. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of about 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. Set alpha at α= .05, and find the *t* critical value needed for this study.

A. 1.6829

B. 1.6860

C. 2.4258

\*D. 1.6849

Learning Objective: 7-6: Compute a single-sample *t* by hand and using SPSS.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example

12. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of about 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. Compute the *t* test statistic for this study.

\*A. 3.11

B. 0.49

C. 2.62

D. 3.73

Learning Objective: 7-6: Compute a single-sample *t* by hand and using SPSS.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example

13. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. Compute the effect size (*d*)for this study.

A. 3.11

\*B. 0.49

C. 2.62

D. 3.73

Learning Objective: 7-8: Compute and interpret an effect size (*d*).

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* test Example

14. A random sample of 40 parents completed a questionnaire about gun safety laws in the United States. Responses ranged from 1 to 5, with 5 indicating more agreement that gun safety laws should be more strict. The general public had a mean of 3.2. The sample of 40 parents had a mean of 3.8 and a standard deviation of 1.22. You plan to test whether the mean for the sample of parents is higher than 3.8. What decision should you make about the null hypothesis for this study?

\*A. reject the null hypothesis

B. fail to reject the null hypothesis

Learning Objective: 7-7: Determine whether or not you should reject the null hypothesis.

Cognitive Domain: Application

Answer Location: One-Tailed Single-Sample *t* Test Example