**Chapter 10: Independent Samples *t* Test**

1. You should use an independent samples *t* test when \_\_\_\_\_\_\_\_\_\_\_.

\*A. you wish to compare the difference between two unrelated sample means

B. you wish to compare the difference between two related sample means

C. you wish to compare one sample mean to a population mean

D. you wish to estimate a population mean

Learning Objective: 10-1: Explain when to use an independent samples *t* test.

Cognitive Domain: Knowledge

Answer Location: Independent Samples *t*

2. The independent samples *t* test can be thought of as the ratio of the observed difference between two sample means divided by an estimate of sampling error.

\*True

False

Learning Objective: 10-2: Explain the logic of the independent samples *t* test.

Cognitive Domain: Knowledge

Answer Location: Conceptual Formula for the Independent Samples *t*

3. A therapist would like to know if therapy for anxiety can be treated as effectively through teleconferencing as it can through traditional face-to-face therapy or whether one type of therapy would be more effective. After 3 months of therapy, samples of 35 clients from each of the two groups completed the Generalized Anxiety Disorder 7-Item Scale. Responses range from 0 to 21, with higher scores indicating higher anxiety (Spitzer, Kroenke, Williams, & Lowe, 2006). The Teleconferencing group of *n*1 = 35 clients had a mean of *M*1 = 6.35 and a standard deviation of *SD*1 = 1.75. The Traditional face-to-face therapy group of *n*2 = 35 clients had a mean of *M*2 = 6.15 and a standard deviation *SD*2 = 1.81. Identify the null hypothesis to test whether the mean anxiety scores differed between the two unrelated groups.

A. µ1 ≤ µ2

B. µ1 ≥ µ2

C. µ1 ≠ µ2

\*D. µ1 = µ2

Learning Objective: 10-3: Write null and research hypotheses using symbols and words for both one- and two-tailed tests.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

4. For the above study, identify the research hypothesis to test whether the mean anxiety scores differed between the two unrelated groups.

A. µ1 ≤ µ2

B. µ1 ≥ µ2

\*C. µ1 ≠ µ2

D. µ1 = µ2

Learning Objective: 10-3: Write null and research hypotheses using symbols and words for both one- and two-tailed tests.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

5. For the above study, identify the *df* and critical region when testing using α = .05 in two-tails.

A. *df* = 34, *t* ≤ 1.6909 and *t* ≥ 1.6909

\*B. *df* = 68, *t* ≤ 1.9955 and *t* ≥ 1.9955

C. *df* = 69, *t* ≤ 1.9949 and *t* ≥ 1.9949

D. *df* = 70, *t* ≤ 1.6669 and *t* ≥ 1.6669

Learning Objective: 10-4: Compute degrees of freedom and define a critical region for both one- and two-tailed tests.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

6. For the above study, compute the pooled variance, *SDp2*.

A. 1.78

B. 1.81

\*C. 3.17

D. 3.26

Learning Objective: 10-5: Compute an independent samples *t* using a calculator and SPSS.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

7. For the above study, compute the standard error of the mean, *SEMi*.

A. 0.300

\*B. 0.426

C. 0.432

D. 0.140

Learning Objective: 10-5: Compute an independent samples *t* using a calculator and SPSS.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

8. For the above study, compute *t* obtained value for the independent samples *t* test.

A. +0.67

B. +0.03

\*C. +0.47

D. +1.43

Learning Objective: 10-5: Compute an independent samples *t* using a calculator and SPSS.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

9. For the above study, should you reject the null hypothesis?

A. Yes, because the *t* obtained value is inside the critical region.

\*B. No, because the *t* obtained value is not in the critical region.

C. Yes, because the *t* obtained value is not in the critical region.

D. No, because the *t* obtained value is inside the critical region.

Learning Objective: 10-5: Compute an independent samples *t* using a calculator and SPSS.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

10. For the above study, compute and interpret the effect side (*d*).

A. *d* = 1.43, large effect

B. *d* = 0.11, small effect

C. *d* = 0.67, large effect

\*D. *d* = 0.06, small effect

Learning Objective: 10-5: Compute an independent samples *t* using a calculator and SPSS.

Cognitive Domain: Application

Answer Location: Two-Tailed Independent *t* Test Example

11. What conclusion can you make about the difference between the two types of therapies?

A. The results suggest that people in teleconferencing therapy had lower mean anxiety scores than people in traditional face-to-face therapy.

B. The results suggest that people in teleconferencing therapy had higher mean anxiety scores than people in traditional face-to-face therapy.

\*C. The results suggest that people in teleconferencing therapy had similar mean anxiety scores to people in traditional face-to-face therapy.

Learning Objective: 10-7: Summarize the results of the analysis using American Psychological Association (APA) style.

Cognitive Domain: Comprehension

Answer Location: Two-Tailed Independent *t* Test Example