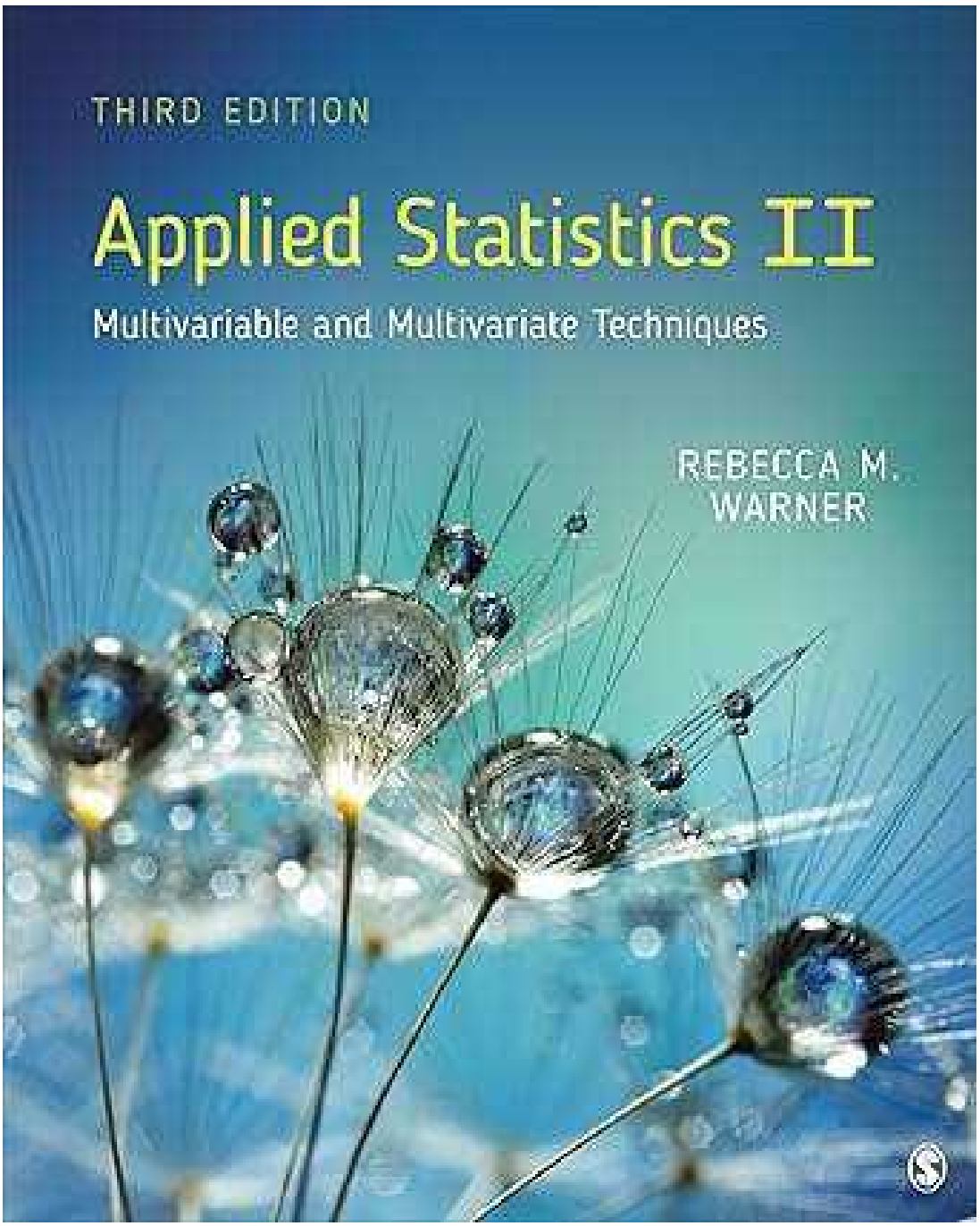
TEST BANK

Applied Statistics II

Multivariable and Multivariate Techniques

Rebecca M. Warner

3rd Edition



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Chapter 1: The New Statistics

Test Bank

Multiple Choice

1. A variable that is statistically controlled in an analysis is a(n) _____.
a. an independent variable
b. a dependent variable
c. a covariate
d. a manipulated variable
Ans: C
Cognitive Domain: Knowledge
Answer Location: 1.1: Required Background
Difficulty Level: Easy

2. In past years, many investigators have failed to report _____.
a. the effect size
b. the sample sizes
c. descriptive statistics
d. obtained *p* values
Ans: A
Cognitive Domain: Knowledge
Answer Location: 1.2: What is the “New Statistics”?
Difficulty Level: Easy

3. A primary concern of investigators has been, and often still is, obtaining a *p* value of _____.
a. .10
b. .05
c. .01
d. .000
Ans: B
Cognitive Domain: Knowledge
Answer Location: 1.2: What Is the “New Statistics”?
Difficulty Level: Easy

4. A major change advocated by New Statistics is _____.
a. reduced emphasis on effect size
b. focus on the results of single studies
c. not reporting confidence intervals
d. understanding the limitations of significance tests
Ans: D

Cognitive Domain: Knowledge
Answer Location: 1.2: What is the “New Statistics”?
Difficulty Level: Easy

5. A primary change proposed by advocates of New Statistics involves summarizing effect sizes from a number of studies using _____.
a. Bayesian statistics
b. meta-analysis
c. multivariate analysis
d. descriptive statistics
Ans: B
Cognitive Domain: Knowledge
Answer Location: 1.2: What Is the “New Statistics”?
Difficulty Level: Easy

6. An emphasis of New Statistics is _____.
a. using increasingly precise *p* values
b. developing new methods of statistical analysis
c. reducing emphasis on confidence interval interpretation
d. adopting a more critical perspective when considering significance
Ans: D
Cognitive Domain: Knowledge
Answer Location: 1.2: What Is the “New Statistics”?
Difficulty Level: Easy

7. Which of the following types of information is provided to investigators by NHST?
a. whether the hypothesis of the study has been proven
b. the probability that the research hypothesis is true
c. the probability of obtaining results about the H_0 based on one sample
d. the exact probability of obtaining the same results on replication
Ans: C
Cognitive Domain: Analysis
Answer Location: 1.3: Common Misinterpretations of *p* Values
Difficulty Level: Hard

8. When reading an article that reports the results of multiple statistical tests, readers should remember that multiple tests _____.
a. provide inaccurate information about the risks of Type I errors
b. provide inaccurate information about the risks of Type II errors
c. enhance understanding of cause and effect relationships
d. provide reliable information about the size and importance of effects
Ans: A
Cognitive Domain: Application
Answer Location: 1.3: Common Misinterpretations of *p* Values
Difficulty Level: Medium

9. An advocate of New Statistics would object to a research report that included a statement like the _____.
a. results of our study are consistent with a recent meta-analysis
b. significant results should be interpreted cautiously due to the large sample size
c. results of our study approached statistical significance
d. results of our study provide support for our initial hypothesis
Ans: C
Cognitive Domain: Application
Answer Location: 1.3: Common Misinterpretations of *p* Values
Difficulty Level: Medium

10. If a statistical analysis yields $p = .03$, a research report can include a statement like _____.
a. the results of our study are likely to be replicated
b. the evidence is consistent with the hypothesis of our study
c. there is a 97% chance that the null hypothesis of our study is false
d. the results of our study cannot be explained by chance
Ans: B
Cognitive Domain: Application
Answer Location: 1.3: Common Misinterpretations of *p* Values
Difficulty Level: Medium

11. An advocate of New Statistics would support a *p* value reported as _____.
a. $p = .0000$
b. $p < .01$
c. $p < .05$
d. $p = .025$
Ans: D
Cognitive Domain: Knowledge
Answer Location: 1.4: Problems with NHST Logic
Difficulty Level: Easy

12. A problem with NHST logic is that it _____.
a. eliminates the need to think in terms of double negatives
b. encourages investigators to describe study results in terms of uncertainty
c. cannot tell investigators what they want to know
d. is used consistently and correctly in the majority of studies
Ans: C
Cognitive Domain: Comprehension
Answer Location: 1.4: Problems with NHST Logic
Difficulty Level: Medium

13. An important assumption underlying the use of an independent samples *t* test or one-way ANOVA is that _____.
a. the grouping variables are normally distributed in the population

b. the variances of the groups on the dependent variable are equal
c. all participants respondents responded to both the pretest and the posttest
d. all scores in each group lie within one standard deviation of the mean
Ans: B
Cognitive Domain: Comprehension
Answer Location: 1.5.1: Violations of Assumptions
Difficulty Level: Medium

14. An important assumption underlying the use of Pearson *r* is that _____.
a. the relationship between the two variables is linear
b. the variances of the *X* and *Y* scores are equal
c. all participants respondents responded to both the pretest and the posttest
d. all scores in each variable lie within one standard deviation of the variable mean
Ans: A
Cognitive Domain: Comprehension
Answer Location: 1.5.1: Violations of Assumptions
Difficulty Level: Medium

15. A frequent violation of the rules for using NHST is _____.
a. performing only one significance test
b. selecting random samples from the population of interest
c. selecting the statistical test after data collection
d. selecting the criterion *p* value before analyzing the data
Ans: C
Cognitive Domain: Analysis
Answer Location: 1.5.2: Violations of Rules for Use of NHST
Difficulty Level: Hard

16. If scores on an attitude scale can range from 0 to 60 with most scores lying between 20 and 45, scores of 7 and 57 could be _____.
a. likelihood errors
b. probability errors
c. extraneous variables
d. outliers
Ans: D
Cognitive Domain: Analysis
Answer Location: 1.5.2: Violations of Rules for Use of NHST
Difficulty Level: Hard

17. Another term describing the process of testing the reproducibility of research results by repeating studies in different settings with different participants is _____.
a. replication.
b. generalization
c. normalization
d. refutation
Ans: A

Cognitive Domain: Knowledge
Answer Location: 1.6: The Replication Crisis
Difficulty Level: Easy

18. A proponent of New Statistics would be most likely to encourage _____.
a. multiple statistical tests
b. disregarding studies with nonsignificant results
c. replacing α = .05 with α = .005
d. using $p < .10$ as the criterion for future studies
Ans: C
Cognitive Domain: Application
Answer Location: 1.7.2: Replace α = .05 with α = .005
Difficulty Level: Medium

19. A proponent of New Statistics would be most likely to encourage _____.
a. multiple statistical tests
b. reporting effect size
c. disregarding studies with nonsignificant results
d. using $p < .10$ as the criterion for future studies
Ans: B
Cognitive Domain: Application
Answer Location: 1.7.3: Less Emphasis on NHST
Difficulty Level: Medium

20. The purpose of confidence intervals is to _____.
a. combine the results of multiple statistical tests
b. reduce the amount of measurement error in study variables
c. overcome the negative aspects of nonsignificant results
d. estimate a population value using sample data
Ans: D
Cognitive Domain: Application
Answer Location: 1.8: Review of Confidence Intervals
Difficulty Level: Medium

21. The confidence limits for a 95% confidence interval are determined using the _____.
a. *Z* score for the top 95% of the distribution
b. *Z* score for the bottom 5% of the distribution
c. *Z* scores for the lower 2.5% and the upper 2.5% of the distribution
d. *Z* scores for the lower 0.5% and the upper 0.5% of the distribution
Ans: C
Cognitive Domain: Application
Answer Location: 1.8.1: Review: Setting Up CIs
Difficulty Level: Medium

22. The formula for determining the lower limit for a 95% confidence interval around the mean in a standard normal distribution is _____.
a. lower limit = M + (+1.96) * SE_{Mean}
b. lower limit = M + (-1.96) * SE_{Mean}
c. lower limit = M + (+2.58) * SE_{Mean}
d. lower limit = M + (-2.58) * SE_{Mean}
Ans: B
Cognitive Domain: Application
Answer Location: 1.8.1: Review: Setting Up CIs
Difficulty Level: Medium

23. The formula for determining the upper limit for a 95% confidence interval around the mean in a standard normal distribution is _____.
a. upper limit = M + (+1.96) * SE_{Mean}
b. upper limit = M + (–1.96) * SE_{Mean}
c. upper limit = M + (+2.58) * SE_{Mean}
d. upper limit = M + (–2.58) * SE_{Mean}
Ans: A
Cognitive Domain: Application
Answer Location: 1.8.1: Review: Setting Up CIs
Difficulty Level: Medium

24. The formula for calculating the standard error of a statistic involves the standard deviation of the group of participants in the study and the _____.
a. range of scores of participants
b. significance level used in the analysis
c. mean of the sample of participants
d. number of participants
Ans: D
Cognitive Domain: Knowledge
Answer Location: 1.8.1: Review: Setting Up CIs
Difficulty Level: Easy

25. The upper and lower ends of a confidence interval are referred to as the confidence _____.
a. limits
b. brackets
c. estimates
d. points
Ans: A
Cognitive Domain: Knowledge
Answer Location: 1.8.1: Review: Setting Up CIs
Difficulty Level: Easy

26. When interpreting confidence intervals reported in journal articles, readers should remember that as the _____.

a. standard deviation increases, increases, the width of a confidence interval increases b. level of confidence increases, the width of the confidence interval decreases
c. sample size increases, the width of the confidence interval increases
d. sample size increases, the size of the standard deviation increases
Ans: A
Cognitive Domain: Comprehension
Answer Location: 1.8.5: Why Report CIs Instead of, or in Addition To, Significance Tests
Difficulty Level: Medium

27. An advantage of reporting confidence intervals is that they _____.
a. are available in most widely used statistical packages
b. reinforce yes/no thinking
c. may be more stable than *p* values
d. are consistent across studies
Ans: C
Cognitive Domain: Comprehension
Answer Location: 1.8.5: Why Report CIs Instead of, or in Addition To, Significance Tests
Difficulty Level: Medium

28. If an investigator reports that the effect size for an analysis was estimated using Cramer's V, the statistical analysis was _____.
a. an independent samples *t* test
b. a one-way ANOVA
c. Pearson correlation
d. X^2
Ans: D
Cognitive Domain: Application
Answer Location: 1.9: Effect Size
Difficulty Level: Medium

29. The results of which of the following statistical analyses directly provide effect size estimates?
a. an independent samples *t* test
b. a one-way ANOVA
c. Pearson correlation
d. X^2
Ans: C
Cognitive Domain: Application
Answer Location: 1.9: Effect Size
Difficulty Level: Medium

30. If an investigator reports that the effect size for an analysis was estimated using Cohen's d, the statistical analysis was _____.
a. an independent samples *t* test
b. a one-way ANOVA
c. Pearson correlation

d. X^2
Ans: A
Cognitive Domain: Application
Answer Location: 1.9: Effect Size
Difficulty Level: Medium

31. If an investigator reports that the effect size for an analysis was estimated using η or η^2, the statistical analysis was _____.
a. an independent samples *t* test
b. a one-way ANOVA
c. Pearson correlation
d. X^2
Ans: B
Cognitive Domain: Application
Answer Location: 1.9: Effect Size
Difficulty Level: Medium

32. A characteristic of effect sizes is that they _____.
a. depend on sample size
b. have a potentially infinite range of values
c. emphasize the value of yes/no thinking
d. may be presented standardized units
Ans: D
Cognitive Domain: Knowledge
Answer Location: 1.9.1: Generalizations About Effect Sizes
Difficulty Level: Easy

33. Judgments about the practical importance of research results should be based on the _____.
a. reported *p* value
b. clarity of the study hypothesis
c. effect size
d. sample size
Ans: C
Cognitive Domain: Comprehension
Answer Location: 1.9.1: Generalizations About Effect Sizes
Difficulty Level: Medium

34. Test statistics are a function of the effect size in a study in combination with the _____.
a. sample size
b. difference between the groups means
c. sum of the two group means
d. pooled standard deviation
Ans: A
Cognitive Domain: Knowledge