Chapter 1: Why Statistics?

Test Bank

# Multiple Choice

1. Which term refers to a statistical outcome indicating that the data from the individuals measured indicate that an effect or relationship exists?

A. practically significant

B. scientifically significant

C. statistically significant

D. statistically relevant

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Statistics in the Media

Difficulty Level: Easy–Medium

2. \_\_\_\_\_\_ are the type of statistics that help us summarize the data.

A. Inferential statistics

B. Research reports

C. Histograms

D. Descriptive statistics

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Statistics in Research

Difficulty Level: Medium

3. \_\_\_\_\_\_ is the average score for a set of data.

A. Mean

B. Median

C. Mode

D. Sum

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Statistics in Research

Difficulty Level: Medium

4. \_\_\_\_\_\_ are the type of statistics that help researchers test their hypotheses.

A. Inferential statistics

B. Research reports

C. Histograms

D. Descriptive statistics

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Statistics in Research

Difficulty Level: Medium

5. \_\_\_\_\_\_ asks how often a response or score occurs within a data set.

A. Variability

B. Frequency

C. Regularity

D. Occurrence

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension

Answer Location: Statistics in Research

Difficulty Level: Easy–Medium

6. \_\_\_\_\_\_ refers to the spread of scores in a distribution.

A. Variability

B. Frequency

C. Regularity

D. Variables

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension

Answer Location: Statistics in Research

Difficulty Level: Medium

7. \_\_\_\_\_\_ are attributes that can vary across individuals.

A. Variability

B. Frequency

C. Regularity

D. Variables

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension

Answer Location: The Purpose of Research in Psychology

Difficulty Level: Medium

8. Which research method will help us determine if something causes a behavior?

A. correlational study

B. experiment

C. quasi-experiment

D. mixed methods

Ans: B

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Different Research Designs

Difficulty Level: Medium

9. \_\_\_\_\_\_ is a type of research design that examines the relationships between different measures of behavior.

A. Correlational study

B. Experiment

C. Quasi-experiment

D. Mixed methods

Ans: A

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Different Research Designs

Difficulty Level: Medium

10. Which is a type of research design that involves the comparison of behavior observed in different situations, but where subjects are not randomly assigned to the different situations?

A. correlational study

B. experiment

C. quasi-experiment

D. mixed methods

Ans: C

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Different Research Designs

Difficulty Level: Medium

11. The goal of a(n) \_\_\_\_\_\_ is to examine how a situation of interest changes a behavior.

A. research study

B. experiment

C. descriptive statistic

D. inferential statistic

Ans: B

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Experiments

Difficulty Level: Medium

12. Which term describes the behavior of interest in a research study that is observed in the study?

A. variability

B. dependent variable

C. independent variable

D. confidence interval

Ans: B

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Experiments

Difficulty Level: Medium

13. \_\_\_\_\_\_ and \_\_\_\_\_\_ typically employ the same types of statistics to analyze data.

A. Experiments, quasi-experiments

B. Correlation studies, quasi-experiments

C. Experiments, correlation studies

D. Observations, quasi-experiments

Ans: A

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Experiments

Difficulty Level: Medium

14. In a(n) \_\_\_\_\_\_, different groups of people experience the different conditions being compared.

A. between-groups variable

B. within-groups variable

C. between-subjects variable

D. within-subjects variable

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Medium

15. A researcher may choose to compare situations as a(n) \_\_\_\_\_\_ that allows one to compare behavior in different conditions for the same person.

A. between-groups variable

B. within-groups variable

C. between-subjects variable

D. within-subjects variable

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Medium

16. \_\_\_\_\_\_ cannot tell you which type of relationship exists with the level of certainty that an experiment can, but it can tell you if the behaviors you’re observing change together in some way.

A. Correlational study

B. Experiment

C. Quasi-experiment

D. Mixed methods

Ans: A

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

17. A relationship between variables characterized by an increase in one variable that occurs with an increase in the other variable is called a(n) \_\_\_\_\_\_.

A. negative relationship

B. variability relationship

C. noncorrelated relationship

D. positive relationship

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium

18. A relationship between measures characterized by an increase in one measure that occurs with a decrease in the other measure is called a \_\_\_\_\_\_.

A. negative relationship

B. variability relationship

C. noncorrelated relationship

D. positive relationship

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium

19. A finding of a(n) \_\_\_\_\_\_ indicates that the two dependent variables consistently change together but in different directions.

A. negative relationship

B. variability relationship

C. non-correlated relationship

D. positive relationship

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium

20. A finding of a \_\_\_\_\_\_ indicates that the two dependent variables consistently change together in the same direction.

A. negative relationship

B. variability relationship

C. noncorrelated relationship

D. positive relationship

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium

21. Just because a relationship is found between the two variables does not mean that a change in one variable \_\_\_\_\_\_ in the other variable.

A. creates a skew

B. diminishes effect

C. creates a deletrious effect

D. causes a change

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium

22. \_\_\_\_\_\_ is how well the study tests what you want it to test.

A. Reliability

B. Validity

C. Dependability

D. Veracity

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

23. One of the biggest differences between experiments and correlational studies involves \_\_\_\_\_\_.

A. reliability

B. validity

C. dependability

D. veracity

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

24. \_\_\_\_\_\_ refers to the degree to which a study provides causal information about behavior.

A. External validity

B. Internal validity

C. Construct validity

D. External veracity

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Moderate

25. An experiment that is designed to focus exclusively on the independent variable as the cause of a change in the dependent variable will have higher \_\_\_\_\_\_ because it controls other factors to rule out other possible explanations of a change in the dependent variable across the conditions.

A. external validity

B. internal validity

C. construct validity

D. external veracity

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

26. \_\_\_\_\_\_ refers to the degree to which a study provides information about behavior that exists outside of the study.

A. External validity

B. Internal validity

C. Construct validity

D. External veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

27. A study with higher \_\_\_\_\_\_ will examine behaviors that exist in the everyday lives of the individuals being studied.

A. external validity

B. internal validity

C. construct validity

D. external veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

28. The more artificial the situation set up in a research study, the lower the \_\_\_\_\_\_ because the behaviors observed might also be artificial.

A. external validity

B. internal validity

C. construct validity

D. external veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

29. In some cases, correlational studies that have lower \_\_\_\_\_\_ may have higher \_\_\_\_\_\_.

A. internal validity, external veracity

B. internal validity, external validity

C. external validity, internal validity

D. external veracity, internal validity

Ans: B

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Validity

Difficulty Level: Medium

30. \_\_\_\_\_\_ relates to whether or not you have chosen a good way to measure the behavior.

A. External validity

B. Internal validity

C. Construct validity

D. External veracity

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

31. \_\_\_\_\_\_ is typically considered for surveys and questionnaires that are designed to measure a behavior through self-reports.

A. External validity

B. Internal validity

C. Construct validity

D. External veracity

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

32. If the items on a survey do a good job measuring the behavior you are interested in, then the survey has good \_\_\_\_\_\_.

A. external validity

B. internal validity

C. construct validity

D. external veracity

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Validity

Difficulty Level: Medium

33. \_\_\_\_\_\_ refers to the consistency of a measure of behavior.

A. Reliability

B. Validity

C. Dependability

D. Veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

34. If the measure of behavior provides the same values each time it is measured under the same or similar circumstances, then it is referring to a measure’s \_\_\_\_\_\_.

A. reliability

B. validity

C. dependability

D. veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

35. Issues of \_\_\_\_\_\_ can arise when multiple researchers are measuring or observing behaviors.

A. reliability

B. validity

C. dependability

D. veracity

Ans: A

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

36. If each researcher measures the behavior in different ways, the measures will be inconsistent and will not accurately reflect the behavior of interest. This is referred to as \_\_\_\_\_\_.

A. test–retest reliability

B. internal consistency

C. interrater reliability

D. related reliability

Ans: C

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Reliability

Difficulty Level: Medium

37. When there are multiple observers, it is important to check the \_\_\_\_\_\_ of the measurements to ensure they are consistent.

A. test–retest reliability

B. internal consistency

C. interrater reliability

D. related reliability

Ans: C

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Reliability

Difficulty Level: Medium

38. If the circumstances are the same, then a measure with good \_\_\_\_\_\_ will provide a similar score each time it is used to measure a behavior from the same individual.

A. test–retest reliability

B. internal consistency

C. interrater reliability

D. related reliability

Ans: A

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Reliability

Difficulty Level: Medium

39. \_\_\_\_\_\_ describes a measure of the degree to which different observers measure behaviors in similar ways.

A. Test–retest reliability

B. Internal consistency

C. Interrater reliability

D. related reliability

Ans. C

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

40. A survey with good \_\_\_\_\_\_ will yield consistent scores across items that address the same behavior of interest.

A. test–retest reliability

B. internal consistency

C. interrater reliability

D. related reliability

Ans: B

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

41. \_\_\_\_\_\_ is a form of reliability that tests relationships between scores on different items of a survey.

A. Test–retest reliability

B. Internal consistency

C. Interrater reliability

D. Related reliability

Ans: B

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Reliability

Difficulty Level: Medium

42. The \_\_\_\_\_\_ are the attributes that can differ across individuals, which can be measured from individuals, but can also be controlled by the researcher.

A. variability

B. frequency

C. regularity

D. variables

Ans: D

Learning Objective: 1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension

Answer Location: The Purpose of Research in Psychology

Difficulty Level: Medium

43. \_\_\_\_\_\_ does not imply causation.

A. Variation

B. Correlation

C. Coefficient

D. Collaboration

Ans: B

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Easy–Medium

44. This is the difference between a positive relationship and a negative relationship between \_\_\_\_\_\_.

A. direction

B. variable

C. subjects

D. measures

Ans: D

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

45. There are \_\_\_\_\_\_ types of relationships that can be found in a correlational study.

A. 1

B. 3

C. 4

D. 5

Ans: B

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-4: What are the methods we use to collect data?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

46. The more a researcher controls for additional factors that can cause the observed behaviors to change, the more \_\_\_\_\_\_ the behaviors may be due to the control of those other factors.

A. realistic

B. rehearsed

C. artificial

D. exact

Ans: C

Learning Objective: 1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium

47. You see a survey in a magazine about the quality of your relationship with your significant other. The items on the survey ask questions about your favorite color, favorite food, and favorite type of music. This is a problem of \_\_\_\_\_\_.

A. validity

B. reliability

C. construct

D. consistency

Ans: A

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

48. \_\_\_\_\_\_ are used to determine the likelihood of obtaining our data when a hypothesis about the data is true.

A. Correlation analysis

B. Inferential statistics

C. Descriptive statistics

D. Coefficients

Ans: C

Learning Objective: 1-2: How do descriptive and inferential statistics differ?|1-3: Why are there so many different kinds of statistical tests?

Cognitive Domain: Comprehension

Answer Location: Chapter Summary

Difficulty Level: Medium

49. Knowing how statistics can be used can help you identify cases where they are being presented in a(n) \_\_\_\_\_\_ way to make an argument.

A. invalid

B. inconsistent

C. skewed

D. biased

Ans: D

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?|1-3: Why are there so many different kinds of statistical tests?

Cognitive Domain: Knowledge

Answer Location: Statistics in the Media

Difficulty Level: Easy–Medium

50. \_\_\_\_\_\_ are useful tools for organizing and understanding data.

A. Quasi-experimental designs

B. Research methods

C. Design tools

D. Statistics

Ans: D

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Knowledge

Answer Location: Statistics in the Media

Difficulty Level: Medium

# Tru/False

1. A dependent variable is the behavior of interest in a research study that is observed in the study.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Easy

2. Not research study has at least one dependent variable.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Easy–Medium

3. In a between-groups variable, different groups of people experience the different conditions being compared.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Medium

4. A within-subjects variable refers to changing situations within a single group of subjects in a research study such that each subject experiences of all the different situations being compared.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Medium

5. A coefficiency study examines relationships between measured dependent variables.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

6. A negative relationship refers to a relationship between variables characterized by an increase in one variable that occurs with an increase in the other variable.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

7. A positive relationship refers to a relationship between measures characterized by an increase in one measure that occurs with a decrease in the other measure.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

8. A finding of a positive relationship indicates that the two dependent variables consistently change together in the same direction.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

9. A finding of a negative relationship indicates that the two dependent variables consistently change together, but in different directions.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

10. Unless an experiment has been conducted, you must consider the possibility that the relationship is consistently a causal one.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

11. The way you measure your dependent variables in a correlational study does not affect the statistics you use to look for relationships. Therefore, develop inferences and complete the report.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Correlational Studies

Difficulty Level: Medium

12. Correlational studies experiments tend to have higher internal validity than correlational studies because they provide better tests of causal relationships.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium

13. In some cases, correlational studies that have lower internal validity may have higher external validity.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium

14. If each researcher measures the behavior in different ways, the measures will be consistent and will accurately reflect the behavior of interest.

Ans: F

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium

15. Inter-rater reliability: A measure of the degree to which different observers measure behaviors in similar ways.

Ans: T

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium

# Short Answer

## 1. What is the purpose of using statistics when we analyze data?

Ans: Statistics help us summarize a set of data and test hypotheses about behavior. They are important tools in understanding data from research studies where we learn new knowledge about behavior.

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Comprehension

Answer Location: Chapter Summary

Difficulty Level: Medium

2. What are the three types of relationships that can be found in a correlational study?

Ans: A finding of no relationship indicates that the two dependent variables do not consistently change together. A finding of a positive relationship indicates that the two dependent variables consistently change together in the same direction (both go up together and both go down together). A finding of a negative relationship indicates that the two dependent variables consistently change together but in different directions.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Analysis, Comprehension

Answer Location: Correlational Studies

Difficulty Level: Medium–Hard

3. What are some differences between experiments and correlational studies?

Ans: One of the biggest differences between experiments and correlational studies involves validity. This consists of internal, external, and construct validity.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Analysis, Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

4. Briefly explain how issues in reliability arise?

Ans: Issues of reliability can arise when multiple researchers are measuring or observing behaviors. If individuals are being observed for specific behaviors by different researchers, it is possible that each researcher is recording or measuring the behaviors in a different way.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Analysis, Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

5. What is a benefit of test–retest reliability?

Ans: If the circumstances are the same, then a measure with good test–retest reliability will provide a similar score each time it is used to measure a behavior from the same individual.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Analysis, Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

6. What are the benefits of internal consistency?

Ans: A survey with good internal consistency will yield consistent scores across items that address the same behavior of interest. In other words, there should be a relationship between the different items about the same behavior.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

7. How do statistics can help a researcher determine how reliable a measure is?

Ans: Internal consistency and consistency across different observers/raters of behavior can be determined using statistics that examine the relationships between scores on different items or from different raters.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Issues in Research: Validity and Reliability

Difficulty Level: Medium–Hard

8. Briefly explain how experiments and quasi-experiments typically employ the same types of statistics to analyze data.

Ans: This is because both of these designs focus on comparing behavior across conditions.

Learning Objective: 1-3: Why are there so many different kinds of statistical tests?|1-4: What are the methods we use to collect data?

Cognitive Domain: Comprehension

Answer Location: Experiments

Difficulty Level: Medium–Hard

9. What is the goal of an experiment?

Ans: The goal of an experiment is to examine how a situation of interest (e.g., the outcome of a behavior: reward or punishment) changes a behavior.

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Easy–Medium

10. What are some differences between quasi-experimental and experimental designs?

Ans: One the main differences between them is that the conditions being compared can occur within-subjects in experiments, but not in quasi-experiments where they can only occur between-subjects.

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Knowledge

Answer Location: Experiments

Difficulty Level: Medium

# Essay

1. Define and explain the differences between inferential and descriptive statistics.

Ans: Descriptive statistics help us summarize a set of data. They include graphs and tables of the data, calculated values that represent typical scores, and values that represent the difference between the scores.

Inferential statistics help us test hypotheses made about the data. They use the descriptive statistics to determine the likelihood of obtaining our data when a hypothesis about the data is true.

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Analysis

Answer Location: Chapter Summary

Difficulty Level: Medium–Hard

2. Explain why it is that there are so many types of statistical tests. Provide an example.

Ans: There are many different ways to observe behavior, so different statistics have been developed to help researchers understand the different kinds of observations that they have used. In addition, different statistics are helpful for different types of research designs. For example, experiments and correlational studies rely on different types of inferential statistics to answer the different kinds of research questions asked in each of these designs.

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Analysis

Answer Location: Chapter Summary

Difficulty Level: Medium–Hard

3. Explain how statistics are a tool.

Ans: Statistics provide the tools one needs to better understand the data. Statistics can help one summarize the scores (e.g., On average, how satisfied are your customers?), examine how different the scores are from participant to participant (e.g., What is the range of scores in the data set?), display the average scores in organized graphs and tables, and test predictions one may have about average scores in different groups of participants or from the same participants at different times. One can even use statistics to examine relationships between different sets of data (e.g., Are customers with more information about your company more satisfied with your company’s products?).

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Comprehension, Analysis

Answer Location: Statistics as a Tool

Difficulty Level: Medium

4. Describe how statistics are used in the media and provide an example.

Ans: Most media sources will use statistics to present information about something they are reporting on or to try to argue a particular point of view. There is the textbook example of a recent article in the *New York Times* online stated that from 2003 to 2013, heart attack rates have dropped by 38%. Let’s consider what this means. Does this mean that you, as an individual, now have a 38% lower chance of having a heart attack than you did in 2003? No, that is not the right conclusion to make from this statistic. The main reason this is incorrect is that this statistic is based on the rates of heart attacks across a large number of individuals and individual differences can influence these values.

Learning Objective: 1-1: Why do we use statistics to analyze data?

Cognitive Domain: Knowledge, Comprehension

Answer Location: Statistics in the Media

Difficulty Level: Medium–Hard

5. Describe the mean or averages scores of data, and explain what we can and cannot know from this,

Ans: The mean is a descriptive statistic known as the frequency. The frequency is simply how often something occurred in a set of data. These descriptive statistics (the mean and frequency) help us better understand what the data can tell us. There will be variability in the scores not only from person to person but also from study to study. Therefore, this is not the point at which we make inferences or develop hypotheses.

Learning Objective: 1-1: Why do we use statistics to analyze data?|1-2: How do descriptive and inferential statistics differ?

Cognitive Domain: Comprehension, Knowledge

Answer Location: Statistics in Research

Difficulty Level: Medium