Discovering Statistics Using IBM SPSS Statistics 5th edition Field Test Bank

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Chapter 2: The SPINE of statistics

1. Children can learn a second language faster before the age of 7'. Is this statement:

a. A one-tailed hypothesis
b. A non-scientific statement
c. A two-tailed hypothesis
d. A null hypothesis
Ans: A

2. If my experimental hypothesis were 'Eating cheese before bed affects the number of nightmares you have', what would the null hypothesis be?

a. Eating cheese is linearly related to the number of nightmares you have.
b. Eating cheese before bed gives you more nightmares.
c. The number of nightmares you have is not affected by eating cheese before bed.
d. Eating cheese before bed gives you fewer nightmares.
Ans: C

3. If my null hypothesis is 'Dutch people do not differ from English people in height', what is my alternative hypothesis?

a. Dutch people differ in height from English people.
b. English people are taller than Dutch people.
c. Dutch people are taller than English people
d. All of the statements are plausible alternative hypotheses.
Ans: D

4. Which of the following is true about a 95% confidence interval of the mean:

a. 95 out of 100 confidence intervals will contain the population mean.
b. 95 out of 100 sample means will fall within the limits of the confidence interval.
c. 95% of population means will fall within the limits of the confidence interval.
d. There is a 0.05 probability that the population mean falls within the limits of the confidence interval.
Ans: A

5. What does a significant test statistic tell us?

a. There is an important effect.
b. That the test statistic is larger than we would expect if there were no effect in the population.
c. The hull hypothesis is false.
d. All of the above.
Ans: B

6. Of what is *p* the probability?

a. *p* is the probability of observing a test statistic at least as big as the one we have if there were no effect in the population (i.e., the null hypothesis were true).

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b. *p* is the probability that the results are due to chance, the probability that the null hypothesis (H_0) is true.
c. *p* is the probability that the results are not due to chance, the probability that the null hypothesis (H_0) is false.
d. *p* is the probability that the results would be replicated if the experiment was conducted a second time.
Ans: A

7. A Type I error occurs when:

a. The data we have typed into SPSS is different from the data collected.
b. We conclude that there is an effect in the population when in fact there is not.
c. We conclude that there is not an effect in the population when in fact there is.
d. We conclude that the test statistic is significant when in fact it is not.
Ans: B

8. A Type II error occurs when :

a. We conclude that there is not an effect in the population when in fact there is.
b. We conclude that there is an effect in the population when in fact there is not.
c. We conclude that the test statistic is significant when in fact it is not.
d. The data we have typed into SPSS is different from the data collected.
Ans: A

9. If we calculated an effect size and found it was $r = .21$ which expression would best describe the size of effect?

a. large
b. small
c. small to medium
d. medium to large
Ans: C

10. What is the null hypothesis for the following question: Is there a relationship between heart rate and the number of cups of coffee drunk within the last 4 hours?

a. There will be no relationship between heart rate and the number of cups of coffee drunk within the last 4 hours.
b. People who drink more coffee will have significantly higher heart rates.
c. People who drink more cups of coffee will have significantly lower heart rates.
d. There will be a significant relationship between the number of cups of coffee drunk within the last 4 hours and heart rate.
Ans: A

11. What is the alternative hypothesis for the following question: Does eating salmon make your skin glow?

a. Eating salmon does not predict the glow of skin.
b. People who eat salmon will have a similar complexion to those who do not.
c. People who eat salmon will have a more glowing complexion compared to those who don't.

d. There will be no difference in the appearance of the skin of people who eat salmon compared to those who don't.
Ans: C

12. 'Children can learn a second language differently before the age of 7 than after.' Is this statement:

a. A non-scientific statement
b. A two-tailed hypothesis
c. A one-tailed hypothesis
d. A null hypothesis
Ans: B

13. What are variables?

a. Variables estimate the centre of the distribution.
b. Variables estimate the relationship between two parameters.
c. Variables are measured constructs that vary across entities in the sample.
d. Variables are estimated from the data and are (usually) constants believed to represent some fundamental truth about the relations in the model.
Ans: C

14. What are parameters?

a. Parameters are estimated from the data and are (usually) constructs believed to represent some fundamental truth about the relations between variables in the model.
b. Parameters are measured constructs that vary across entities in the sample.
c. A parameter tells us about how well the mean represents the sample data.
d. All of the options describe parameters.
Ans: A

15. Assume a researcher found that the correlation between a test she had developed and exam performance was .5 in a study of 25 students. She had previously been informed that correlations under .30 are considered unacceptable. The 95% confidence interval was [0.131, 0.747].

Can you be confident that the true correlation is at least 0.30?

a. Yes you can, because the correlation coefficient is .5 (which is above .30) and falls within the boundaries of the confidence interval.
b. No you cannot, because the lower boundary of the confidence interval is .131, which is less than .30, and so the true correlation could be less than .30.
c. Yes you can, because the upper boundary of the confidence interval is above .30 we can be 95% confident that the true correlation will be above .30
d. No you cannot, because the sample size was too small.
Ans: B

16. Under a null hypothesis, a sample value yields a p-value of .015. Which of the following statements is true?

a. This finding is statistically significant at the .01 level of significance.
b. This finding is not statistically significant.
c. This finding is statistically significant at the .001 level of significance.

d. This finding is statistically significant at the .05 level of significance.
Ans: D

17. In general, as the sample size (N) increases:

a. The confidence interval is unaffected.
The confidence interval becomes less accurate.
c. The confidence interval gets narrower.
d. The confidence interval gets wider.
Ans: C

18. What is the standard error?

a. The standard error is the standard deviation of sample means.
b. The standard error is a measure of how representative a sample parameter is likely to be of the population parameter.
c. The standard error is computed from known sample statistics, and it provides an unbiased estimate of the standard deviation of the statistic.
d. All of the options describe the standard error.
Ans: D

19. Why is the standard error important?

a. It gives you a measure of how well your sample parameter represents the population value.
b. It is unaffected by outliers.
c. It is unaffected by the distribution of scores.
d. It tells us the precise value of the variance within the population.
Ans: A

20. What is the relationship between sample size and the standard error of the mean?

a. The standard error decreases as the sample size increases.
b. The standard error decreases as the sample size decreases.
c. The standard error is unaffected by the sample size.
d. The standard error increases as the sample size increases.
Ans: A

21. What symbol is used to represent the standard error of the mean?

a. $s_{\bar{X}}$

b. $SE_{\bar{X}}$

c. $\sigma_{\bar{X}}$

d. $\mu_{\bar{X}}$

Ans: C

21. Which of the following statements is true?

a. The standard deviation is calculated only from sample attributes.
b. The standard error is a measure of central tendency.
c. All of the above.
d. The standard error is calculated solely from sample attributes.
Ans: D

22. There are basically two types of statistics – descriptive and inferential. Which of the following sentences are true about descriptive statistics?

a. All of the above.
b. Descriptive statistics describe the data.
c. Descriptive statistics enable you to make decisions about your data, for example, is one group mean significantly different from the population mean?
d. Descriptive statistics enable you to draw inferences about your data, for example does one variable predict another variable?
Ans: B

23. The 99% confidence interval usually is:

a. Narrower than the 95% confidence interval.
b. Wider than the 95% confidence interval.
c. The same as the 95% confidence interval.
d. A less precise estimate of the effect in the population than the 95% confidence interval.
Ans: A

24. A 95% confidence interval is:

a. The range of values of the statistic which we can be 5% confident contains a significant effect in the population.
b. The range of values of the statistic which probably contains the true value of the statistic in the population.
c. The range of values of the statistic that we can be 95% confident contains a significant effect in the population.
d. The range of values of the statistic which we can by 95% certain does not contain the true population effect.
Ans: B

25. Confidence intervals:

a. Can be used instead of conventional statistics based on point estimates.
b. Are not frequently used in research articles because they can mislead the reader.
c. Are constructed using subjective evaluations of confidence.
d. None of these options are correct.
Ans: A

26. Which of the following statements is true?

a. Confidence intervals are known as point estimates.
b. Confidence intervals tell us about the range of possible values of a statistic within the sample.

c. If the confidence interval for the difference between two means does include zero then the difference between the means is statistically significant.
d. Confidence intervals are not biased by non-normally distributed data.
Ans: C

27. A 95% confidence interval for the difference between two population means is found to be (−0.08, 0.15). Which of the following statements is true?

a. We can be 95% confident that the true difference between the population means falls between −0.08 and 0.15.
b. The probability is 0.95 that a significant difference between the population means lies between −0.08 and 0.15.
c. The probability is 0.05 that the true difference between the population means is between −0.08 and 0.15
d. The two populations cannot have the same means.
Ans: A

28. Of what is the standard error a measure?

a. The variability of scores in the population.
b. The 'flatness' of the distribution of sample scores.
c. The variability of sample estimates of a parameter.
d. The variability in scores in the sample.
Ans: C

29. Which of the following best describes the relationship between sample size and significance testing?

a. In small samples only small effects will be deemed 'significant'.
b. Large effects tend to be significant only in small samples.
c. Large effects tend to be significant only in large samples.
d. In large samples even small effects can be deemed 'significant'.
Ans: D

Chapter 3: The IBM SPSS Statistics Environment

Multiple Choice

1. Which of the following could not be represented by columns in the SPSS data editor?
a. Levels of repeated measures variables
b. Items in a questionnaire
c. Levels of between-group variables
d. Total values for different questionnaires.
Ans: C

2. Ordinal level data are characterized by?
a. Data that can be meaningfully arranged by order of magnitude.
b. Equal intervals between each adjacent score.
c. A fixed zero.
d. None of the above.
Ans: A

3. Why do business analysts use SPSS rather than performing calculations by hand?
a. Quantitative data analysis is so complex today it is essential to use a stats package.
b. It reduces the chance of making errors in your calculations.
c. It equips you with a useful transferable skill.
d. All of the above.
Ans: D

4. In SPSS, what is the data view window?
a. A table summarizing the frequencies of data for one variable.
b. A spreadsheet into which data can be entered.
c. A dialog box that allows you to choose a statistical test.
d. A screen in which variables can be defined and labelled.
Ans: B

5. How is a variable name different from a variable label?
a. It is shorter and less detailed.
b. It is longer and more detailed.
c. It is abstract and unspecific
d. It refers to codes rather than variables.
Ans: D

6. What operation does the 'Recode into Different Variables' initiate?
a. Replaces missing data with some random scores.
b. Reverses the position of the independent and dependent variable on a graph.
c. Redistributes a range of values into a new set of categories and creates a new variable.
d. Represents the data in the form of a pie chart.
Ans: C

7. Your manager had asked you to identify the number of men responding in your annual staff survey. How would you generate this output?
a. Open the output viewer and click on Save As→Pie Chart

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b. Click on-Analyse→Descriptive Statistics→Frequencies
c. Click on-Graphs→Frequencies→Pearson
d. Open the variable viewer and recode the value labels.
Ans: B

8. When cross-tabulating two variables, it is conventional to?
a. Represent the independent variable in rows and the dependant variable in columns.
b. Assign both the dependent and independent variable to columns.
c. Represent the dependant variable in rows and the independent variable in columns.
d. Assign both the dependant and independent variables to rows.
Ans: A

9. A colleague in your research agency has phoned and asked you in which sub-dialog box the chi-square test can be found. Which do you recommend?
a. Frequencies-Percentages
b. Crosstabs-Statistics
c. Bivariate-Pearson
d. Sex-Female
Ans: B

10. To generate a correlation coefficient between two variables with ordinal data. Which set of instructions should give you SPSS?
a. Analyse→Crosstabs→Descriptive Statistics→Spearman→OK
b. Graphs→Frequencies →[select variables] →Spearman→OK
c. Analyse→Compare Means→ANOVA table→First layer→Spearman→OK
d. Analyse→Correlate→Bivariate →[select variables] →Spearman→OK
Ans: A

11. Which of the following is not a file extension for files saved in SPSS?
a. .sav
b. .spo
c. .sps
d. .doc
Ans: D

12. You have been asked to assess various atmospheric environments for a brand new fashion retail store. If you are therefore constructing a data file for a repeated-measure design with 190 subjects and three conditions (light and airy, warm and cosy, dark and intense), how many columns and rows will the file have?
a. Ten columns and four rows
b. Four columns and four rows
c. Ten columns and ten rows
d. Four columns and ten rows
Ans: D

13. Why might your experimental data file have 'missing data'?
a. Some of a participant's responses might be missing.
b. There has been a mistake in saving the SPSS data file.
c. A participant did not take part in the whole study.
d. None of the above.

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Ans: A

14. An analyst at your firm and you are discussing missing data. What might you suggest as an appropriate strategy for dealing with larger quantities of missing data?
a. Ignore them.
b. Go back to the participant and demand an answer.
c. Define missing values using the 'recode' function.
d. Start the study again, taking more care with data recording.
Ans: C

15. In your experiment (Q12) you also ask some qualitative questions to enrich the statistical data. What is the correct way to record non-numerical values in SPSS?
a. You can't, SPSS only uses numbers.
b. Define the variable as 'string'.
c. Recode all the values as numbers.
d. Define the variable as 'date'.
Ans: B

16. If you see in SPSS the number 8.51 E-02 reported, what is the actual value of this number?
a. 8.51×10^{2}
b. 85.1×10^{2}
c. 8.51×10^{-2}
d. 85.1×10^{-2}
Ans: C

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