7.11 Correlational Analysis: Co-Variables, Correlation Coefficients and Scattergrams: 10-minute Pack

AQA 7182 · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer the short questions in full sentences where required. The final 8-mark question must be answered in full sentences. Time guidance: 10 minutes.

1 In the context of correlational analysis in psychology, define the term 'co-variable' and give one example of a pair of co-variables that might be studied in health psychology.

(Total for Question 1 is 2 marks)

2 List and briefly explain four limitations of correlational analysis, each linked to why it weakens causal claims.

(Total for Question 2 is 4 marks)

3 Describe clearly whether each of the following pairs of co-variables is likely to show a positive correlation, a negative correlation, or zero correlation in everyday contexts: (i) number of hours spent revising and exam score, (ii) number of cigarettes smoked per day and lung capacity, (iii) number of fingers on a hand and level of stress.

(Total for Question 3 is 3 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 7.11 Correlational Analysis: Co-Variables, Correlation Coefficients and Scattergrams: 10-minute Pack

Question 1

defines co-variable as a measurable variable that can vary and be measured in a correlation study, not manipulated oe **B1**

gives an appropriate example, e.g. hours of exercise per week and resting heart rate, or stress level and sleep duration oe **B1**

Answer: A co-variable is a measurable variable that can vary and be measured in a correlational study rather than being manipulated. Example: hours of exercise per week and resting heart rate.

Question 2

identifies the directionality problem and explains it weakens causal claims because correlation cannot show which variable came first oe **B1**

identifies the third-variable problem and explains it weakens causal claims because an unmeasured factor may cause both correlated variables oe **B1**

identifies measurement or reliability issues and explains that poor measurement can hide or create spurious correlations, reducing confidence in causal interpretation oe **B1**

identifies that correlations cannot detect non-linear relationships if a linear coefficient is used, and explains this could lead to incorrect conclusions about absence of a relationship oe **B1**

Answer: Limitations: (1) Directionality problem: correlations cannot show which variable causes the other, so causal claims are weakened. (2) Third-variable problem: an unmeasured factor may cause both variables, so the observed association is not causal. Additional limitations include measurement reliability issues which can obscure true effects, and linear correlation measures missing non-linear relationships.

Question 3

(i) positive correlation, more revision associated with higher exam score, oe **B1**

(ii) negative correlation, more cigarettes associated with lower lung capacity, oe **B1**

(iii) zero correlation, number of fingers normally does not vary with stress level, or no systematic relationship oe **B1**

Answer: (i) Positive correlation. (ii) Negative correlation. (iii) Zero correlation.

© Revision Library | revisionlibrary.co.uk