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PSYCHOLOGY ATAR – YEAR 12 2024

Unit 4

Task 7: Sleep Validation

Syllabus points

- Applications of psychology to health
- Ethical guidelines and practices for psychological research
- Formulating research
- Methodology
- Data collection
- Drawing conclusions
- Evaluation of research

Conditions

Reading time: 5 minutes

Working time: 40 minutes

Task Weighting

- 7%

Structure of this paper

Section	Number of questions available	Number of questions to be attempted	Suggested working time (minutes)	Marks	Score
Section One: Short Answer	5	5	40	41	
Total				41	

Part B

(41 marks)

1. Identify the following variables in your study.

(3 marks)

Independent

Whether the participants did or did not use technology 30mins prior to bed

Dependent

The quality and duration of sleep, as well as cognitive function throughout the day

Controlled

The age range of participants (17-18 year olds)

2. The study you have conducted uses experimental design.

- (a) Outline why it is considered experimental research.

(2 marks)

It is considered experimental research because it involves ~~the~~ manipulating variables. For example, the participants first follow a normal schedule and then are exposed to the independent variable, so the results can be compared.

- (b) (i) Identify one feature of experimental research that is missing from this study. (1 mark)

Control group

- (ii) Explain why experimental research should have this feature.

(2 marks)

Experimental research should have a control group that is not exposed to the independent variable at all during the study, so the results from the experimental group can be compared.

3. Formulate an evidence-based conclusion that explains your findings using psychological theories and concepts.

(6 marks)

It can be concluded that individuals who restrict technology usage 30 minutes prior to bed will have an improved sleep quality, duration, as well as better cognitive function performance. Based on the results of the study, when individuals restricted their mobile phone use they had ^{statistically} higher sleep quality across all 3 categories (duration, quality & cognitive function) as opposed to following their normal bedtime schedule. Further analysis found that on the final day of the experiment (Friday) the cognitive function peaked, which tells us that for significant effects to be noticed, it will take a couple of days. This is supported by He et Al (2020) study which took place for 4 weeks and showed a significant positive impact on sleep quality when restricting technology use. It is assumed that technology use before bed can disrupt the body's circadian rhythm due to the emission of blue light. This study supports the theory by ^{providing} ~~showing~~ evidence that using technology such as mobile phones 30 min prior to bed has a negative impact on sleep quality, duration and cognitive function.

4. The data was collected using a subjective quantitative measure.

- (a) With reference to your study, outline a strength of this method of data collection. (2 marks)

A strength is that it provides experimenters with numerical data which can have averages, medians and correlation coefficients extracted from which can give a deeper analysis of the data.

- (b) Suggest how qualitative data could be collected in a future study. (4 marks)

Qualitative data could be collected by asking participants to sit a test that assess their vision or attentions (cognitive function) such as a virtual driving test that gives a final score. It can also be collected by using a device that tracks the number of hours they sleep each night.

- (c) Explain how qualitative data addresses a limitation of quantitative data. (2 marks)

Qualitative data can provide a reasoning for results, while quantitative data cannot.

- (d) Assess the reliability and validity of the subjective quantitative measure you created. (4 marks)

Reliability: It has a low reliability because it only collected data over a 6 day period, so it's difficult to tell if there is consistency with the results.

Validity: It has a low validity because participants are able to give false information or exaggerate their responses, due to it being subjective.

5. Imagine we were going to run this study again but with the feature identified in 2 (b) (i) and a larger sample with the target population being high school students in Western Australia.

- (a) Assess which sampling technique would be most appropriate to get a representative sample of all students in Western Australia. (3 marks)

Snowball sampling which is when a participant is asked to recruit their friends or peers into the experiment. By doing so, participants can inform friends from different schools about the experiment and encourage them to take part in it.

- (b) You have already written a standardised procedure in a report that could be used in the future study. Explain the purpose of having these in the study. (3 marks)

The purpose of a procedure is so it can be easily replicated and followed by other experimenters who are investigating the same effect. It can also be used to analyse the validity of the experiment by ensuring it's measuring what it's intending to measure.

- (c) Suggest how you would minimise the effects of extraneous and confounding variables other than having a standardised procedure. (3 marks)

It can be minimised by conducting the experiment in a laboratory setting so extraneous variables can be controlled and not impact the experiment.

(d) Explain how you would address two ethical considerations.

(6 marks)

One: Informed consent can be addressed by giving all participants an information and consent sheet prior to the experiment. By doing so, the participants are fully aware of the purpose and details of the experiment before choosing to partake in it. The study cannot commence until all consent sheets are returned signed by the participants if they are 18 or by a legal guardian.

Two:

Privacy can be addressed by ensuring names aren't linked to the participants' results/data. Alternatively, they can be addressed by a number, to ensure they remain anonymous for the duration of the study.