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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	

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smudged instead of
erased

Part B

(41 marks)

1. Identify the following variables in your study.

(3 marks)

Independent

usage of electronic device 30 minutes prior to bed time / sleep or not.

Dependent

Sleep quality, sleep hours and cognitive functions throughout the day.

Controlled

days of the week to record sleep data (wed, thursday, Friday).

2. The study you have conducted uses experimental design.

(a) Outline why it is considered experimental research.

(2 marks)

There is a control group and a changed / experimental group. Although both groups consist of the same individual at different points in time, one set would

be exposed to no changes ^{and} have their data recorded,

whilst another would be exposed to the independent variable in order to find

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

a effect between
the dependent
and independent
variable.

A different set of a control group, not the same participants exposed to the independent variable.

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

(2 marks)

To clearly see a change in sleep quality, hours and cognitive functions when one group is exposed to

device limitation prior to sleep as opposed to following their ~~a~~ normal sleep schedule.

Some participants exposed to the change / independent variable are able to easily figure out the true purpose of the study, meaning results might be biased if they are aware of the change.

to see a correlation

between sleep and device usage.

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

30 minutes

(6 marks)

It can be seen that limitation of device usage prior to sleep overall increases sleep quality, hours and cognitive functions in adolescents. Individuals have improved cognitive functions and sleep quality as well as sleep more (how if they were to reduce device usage prior to their bedtime as opposed to following their normal sleep schedule. Overall, throughout the 3 days of the investigation being conducted, participants on average had an increase on all the factors on the second week when limiting device usage. This is supported by the concept that sleep is interrupted by the presence of artificial lights, such as from our devices, TVs, phones etc. This is as the human body has an internal night and day timing process called the circadian rhythm. This process allows the brain to assess whether it is night or day through the presence or absence of light, and thus sends signals to the body to act accordingly to the time, such as being energetic or sleeping. The existence of artificial light, not the sun, disrupts this cycle and the internal body timer, making the body keep itself more awake and disrupts the sleep schedule it has set as the brain signals this artificial light as being day rather than devices used at night, thus keeping the body awake and working for more, disrupting the process of melatonin production which aids in sleep and feeling drowsiness.

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)

The data was subjective ~~but~~ which meant unique to the individual but quantitative making it easier to organise statistically in graphs and tables in order to be analysed and find possible trends as well as see the subjective data visually & numeric.

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

Conducted a survey or interview with participants is a way of collecting qualitative data. Questions can relate to how they sleep and overall talking about their state as a result of changes in their sleep schedule. The survey can include open questions which gives an even more in depth results to be further analysed which touch on factors quantitative.

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

Measures don't allow to be seen or are unique to the individual

It gives insight on actual information specific to the individual rather than raw data that overlook some important information, such as one's feelings or state that cannot be measured aside from scales by the person itself.

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

Reliability: Using a specific layout of the self assessment report means it can be utilised by other experimenters and replicated, individuals (same participants) are more likely

Validity: The subjective quantitative measure is utilised to measure what the purpose of the experiment is. Participants utilise it to record their sleep hours, quality and cognitive functions, fitting to the aim of the experiment.

to bring in similar results if the experiment was conducted

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)

Randomised sampling would be most appropriate to get
a representative sample of all students in Australia, as
results only towards year 12 ATAR psychology students
may not represent other students who don't share similar

initial characteristics such as age, living status etc. Random
sampling is more representative and has an even chance of anyone being

(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)

selected rather
than to have a
biased sample

A standardised procedure allows for other researchers
or to-be-conducted experiments to utilise the same
procedure in order to bring out similar results if
followed accurately, and allows people to inspect how the
experiment was ~~conducted~~ conducted

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

utilising what was learnt by similar previous experiments
in order to properly address such variables in the
current experiment that already conducted investigations
have overlooked but figured had a change in
the results and could have been controlled.

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

(6 marks)

One: deception and ~~participant~~ consent :

Providing consent forms outlining an individual's right to withdraw at any moment and provide context for their voluntary participation, or a caregiver/parent if below eighteen would address participation concerns. Including an overview of the experiment, its purpose and what to expect by participating disallows deception to exist.

Two: Confidentiality: individuals' data are not ~~the~~ specific or uniquely linked to them, disallowing participants having harm done to them by feeling embarrassed, scared or anxious of having their results tied to them. Rather, participants are addressed by codes and numbers to avoid the spread of their information such as names, ages etc.