



**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 participants used their device or not

Dependent

Quality and Quantity of sleep and cognitive functioning

Controlled

the ~~quest~~ self-assessment questionnaire (all got the same).

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 the  
~~independent~~ the independent variable is being manipulated.  
Meaning the independent variable is being changed in order  
to elicit a desired response.

- (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)

It should have this feature as it allows for the  
experiment to have a group to put the results up against.  
Meaning comparing the control group results to the  
experimental group who was exposed to the independent variable.  
Allowing for results to be comparable and find out if the  
independent variable has an effect.

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

(6 marks)

The results of the experiment showed that participants who restricted the use of devices 30 minutes before bed had higher results of sleep quality, quantity and cognitive functioning to those who used their devices 30 minutes before bed. Restricting device use allowed for participants to have better quality and quantity sleep which could be a sign that their sleep wake cycle was not interrupted. This is because they weren't on a device that elicits blue light or stimulates them, allowing for better production of Melatonin. Improved sleep wake cycle also meant that because of improved sleep their cognitive functioning improved throughout the day. A similar study from He et al (2021) showed that restricting the use of devices also provided the same results. And stated that improving/having a good sleep hygiene meaning not using devices had a positive effect on participants sleep and cognitive functions. As opposed to those who had a bad sleep hygiene (using device).

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)

Allows for the experimenter to get more in depth responses because participants are able to evaluate themselves.

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

Qualitative data could be collected by participants having one-on-one interviews, where the experimenter can ask them questions about their sleep and cognitive functioning. And explain how not using devices improved these things, and what was different about their sleep<sup>and</sup> cognitive functioning.

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

Qualitative data addresses the limitation of quantitative data not providing reasoning or in depth results from participants (only provides numbers) whilst qualitative does.

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

Reliability: Its reliable as it was standardised. Meaning everyone received the same <sup>questions</sup> questionnaire, which allows for the it to be used again.

Validity: It's somewhat valid as it assessed what it was supposed to assess however due to it being subjective there is room for error.

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)

Random allocation ~~HA~~ would be most appropriate because the experiment would be randomly selecting students from different schools not knowing what classes they took (ATAR + General) and not knowing the level of knowledge they have on the topic sleep.

(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 having these in the study is that it allows for the study to be replicated as it gives a ~~step~~ step-by-step process of the procedure which can ~~then~~ then improve the reliability of the experiment as it can be replicated again and again. Also prevents the effects of extraneous and confounding variables.

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

Making sure participants ~~who are~~ environment that they are sleeping in doesn't have the potential to impact the results (eg. noise, temp, whether they share a room or not etc). And also making sure participants ~~who~~ aren't being influenced by the experimenter to answer in a certain way, which could impact the results.

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

(6 marks)

One: Make sure participants have the right to  
~~withd~~ withdraw from the experiment (withdrawal right).  
State To address this would be to state in the informed  
consent that all participants have the right to withdraw  
from the experiment without any negative consequences.

Two: Make sure participants weren't coerced or bribed into  
participating (<sup>voluntary participation</sup> ~~volunteering~~). To address this would be to  
state in the informed consent that participants are doing  
this on their own free will and are not coerced or bribed  
by anyone to participate, other and that there are no  
consequences from saying no to participating.