

(RESEARCH PROPOSAL SAMPLE ONLY)

The Impact of Sleep Duration and Quality on Mood in University Students

Length of title should be strictly 12 words or less. This is according to APA 6th Edition

Formatting Guidelines.

Include here-

Your Name:

Unit Name and Code: **PSY 1022**

Due Date: **Friday 5th October, 3:00pm**

Allocated Consultation Stream:

Word Count: **2000 words MAX**

**This is a strict overall limit. Proposals that are over 2000 will incur a penalty of 5%.**

**The word count includes everything except the Title, Title page, and the Reference List.**

**In-text references DO COUNT toward the word limit.**

## Abstract

This study will examine whether sleep duration and sleep quality have an impact on mood, in university students. Longer sleep is hypothesised to result in more positive mood. Participants will be 100 first year Psychology students from Monash University. Participants will be students who self-report average sleep times of either  $<7$  hours per night (short sleepers) or  $\geq 9$  hours per night (long sleepers). Participants will complete the Positive and Negative Affect Schedule (PANAS). These tests will be given, after a night of either short sleep or long sleep. It is predicted that sleep duration and quality have direct effects on the mood of college students' academic function. Long sleepers ( $\geq 9$  hours per night) will be more alert, and have a more positive mood than short sleepers ( $<7$  hours per night). Longer sleepers will have a higher quality of functioning, and longer sleep is deemed essential for optimum performance, safety and wellbeing.

Abstract must be a single paragraph, flushed left and between 150-200 words. This word limit should be strictly adhered to. If you are over the limit, you get a zero.

Abstract should include a summary of each of the main sections of the proposal.

- States the main background, aim/hypothesis of the proposed study
- Mentions the proposed participants and an overview of what they would be asked to do (e.g., any measures you would request them to complete)
- Includes the practical or theoretical implications of the study assuming that the hypothesis is supported

(Introduction) – This section does not need an explicit title, it is assumed to be the introduction as it occurs at the beginning of the paper.

Human beings generally respond to having a good sleep with feelings of replenishment and rejuvenation, benefiting mood, the immune system, memory consolidation and cognitive function (Oginska & Pokorski, 2016). Sleep deprivation has been associated with poor cognitive function (Franzen, Siegle, & Buysse, 2018), road accidents (Rajaratnam et al., 2011), and mood disorders (Meerlo, Mistlberger, Jacobs, Heller, & McGinty, 2009; Lund, Reider, Whiting, & Prichard, 2010).

Many university students experience changes to sleep duration, defined as the amount of time spent sleeping (Grandner et al., 2010). This is due to lifestyle choices, work and study obligations with possible adverse health and academic consequences (Lund et al., 2010).

**NOTE: Introductory paragraph(s) gives a broad overview of the topic with a rationale for the importance of researching the topic (in this case, what are the negative impacts of inadequate sleep?)**

It is essential to include the topic of sleep deprivation when investigating sleep habits' effect on academic performance since sleep deprivation affects cognitive and motor processes as well as emotional stability (Pilcher & Huffcutt, 2016). Pilcher and Huffcutt (2016) performed a meta-analysis on existing studies dealing with sleep deprivation and its effects upon various daytime functions. They found that partial sleep deprivation is linked with decreased cognitive functioning, while long-term sleep deprivation is associated with mood disorders.

**NOTE: succinctly review key papers (i.e., evidence of synthesis of past research; around five references). You would follow a paragraph like this with a more in depth discussion of the**

specific original articles which have been published in this area. You may then go on to discuss individual articles which have examined more ‘real life’ sleep deprivation, or long term sleep deprivation.

Whilst previous research has provided important insights, few studies have effectively investigated habitual short and long sleep before analysing the changes in sleepiness and mood. Moreover, criticism has also been directed at the methodologies used in sleep studies. For example, studies conducted within strict laboratory controlled environments, such as those by Williamson and Feyer (2010) have been limited by their sample size and artificial testing environment.

NOTE: Identify gaps and/or limitations in previous research identified (i.e., evidence of critical evaluation). Here you can refer back to specific studies which you discussed earlier, and identify points which they have missed that you intend to address.

This study aims to generalise the findings of previous work to real world settings by measuring the impact of sleep patterns on mood as it naturally occurs, in a relatively large sample size of a healthy adult population of university students. It is hypothesized habitual long sleepers ( $\geq 9$  hours of sleep) will report significantly higher positive affect and significantly lower negative affect as measured on the PANAS in comparison to a habitual short sleepers ( $< 7$  hours of sleep).

NOTE: This section should conclude with an aim that follows logically from the previous argument formed throughout the Introduction (written in future tense)

- Hypothesis operationalized and directional (written in future tense)
- While there is no strict word limit for this section it is suggested that you aim for around 800 words.

Disclaimer: This sample introduction only provides small snippets of the type of info required for your proposal. The Intro you submit for your Proposal should be longer (approx. 800).

## Method

The participants will be 100 undergraduate psychology students (50 women) from Monash University. Participants will be recruited from the first year psychology research participation pool and must be 18 years of age or older. All procedures will be approved by the Monash University Human Research Ethics Committee.

### **Participants** subsection included which outlines:

- o who the proposed participants are including any demographic information which is important for your study (e.g., sample size, age, gender);
- o where the participants will be recruited from (e.g., Monash University or elsewhere); and
- o the sampling method used (e.g., convenience sampling)
- o ethics statement made

## Design

The independent variable, sleep duration, will consist of two levels: habitual short-sleepers who sleep less than seven hours and habitual long-sleepers who sleep nine or more hours. Mood will be the dependent variable. This will be a quasi-experimental, independent measures design. Participants who self-report habitual sleep length between seven and nine hours will be excluded from the study.

### **Design** subsection included which describes (in operationalized form):

- what the dependent and independent variables are (or predictor and outcome variables for a correlational study);
- if groups will be compared, also states the levels of the independent variable and whether the design is between-subjects (i.e., independent-measures) or within-subjects (i.e., repeated-measures)

## Materials

Mood will be assessed comparing average affect scores for 50 participants classified as habitual long sleepers and 50 participants classified habitual long sleepers as measured on the Positive and Negative Affect Schedule (PANAS), an interval scale which has been shown to reliably measure positive and negative affect independently (Watson et al., 2008). Two subtests will measure Ten positive affects and 10 negative affects rated by participants from 1= very slightly or not at all to 5 = extremely. Scores for each sub-test range from 10-50 with higher positive scores on subtest 1 reflecting greater positive affect and higher negative scores on subtest 2 reflecting higher negative affect.

**Materials** subsection included which describes how you will measure your variables. Note that we do not include a measure of sleep length as this is simply asked, participants are not completing a specific scale. e.g., any tests used and how they will be scored

## Procedure

Potential participants will first be asked to report their habitual sleep times on weekdays and weekends. The average sleep time will be calculated from the self-reported data, with a weighting of 5/7 to the weekday times and 2/7 to the weekend times, in order to reflect average total sleep length. Participants with an average sleep time of less than seven hours will be categorised as short sleepers and those with an average sleep time of nine hours or more will be categorised as long sleepers. Participants not falling with in these ranges will not continue in the study. All participants will complete the PANAS one hour after waking on a week day, following a characteristic night of sleep duration. Participants will be instructed to refrain from caffeine consumption before the tests. Participation will be voluntary and participants will be free to withdraw at any time.

**Procedure** subsection included which displays awareness of ethical issues, and details:

- whether participants will be naïve with regards to the study's purpose;
- (if relevant) how participants will be assigned to different conditions; and
- what exactly participants will be requested to do (i.e., provides sufficient detail for someone else to replicate the study)

While there is no strict limit to the Methods section, a suggested length is approximately 450 words

## **Expected Outcomes and Implications**

If the hypothesis is supported, then the relationship between short sleep and increased negative mood may be mediated by the impact of insufficient sleep on the ability to inhibit negative affect. The prefrontal cortex has been shown to be highly sensitive to sleep loss (Finelli, Baumann, Borbely & Achermann, 2010). As the prefrontal cortex is involved in the inhibitory control (Aron, Robbins & Poldrack, 2014), sleep loss may affect the ability to inhibit negative emotions. Functional magnetic resonance imaging data has supported this idea. Yoo, Gujar, Hu, Jolesz & Walker (2017) have shown that sleep deprivation results in a decrease in the inhibition of amygdala activity. As the amygdala activity is associated with negative emotionality (Davidson, 2012), a decrease in prefrontal inhibition of the amygdala may underlie the increased negative emotionality in habitual short sleepers. Conversely, increased sleep in habitual long sleepers may act as a buffer against negative emotionality through a potential increase in prefrontal inhibition of amygdala activation.

If the hypothesis is not supported, then a lack of relationship between sleep and emotionality in the current study may be related to compensation of the brain to chronic partial sleep loss. Sleep loss has been associated with compensatory activity in the parietal cortex (Drummond, Brown, Salamat & Gillin, 2014). Thus, though acute sleep loss may produce an increase in emotionality, chronic partial sleep loss in those with habitual short sleep may result in no overt emotional changes due to this neural compensation.

The proposed study has some potential design limitations. Sleep duration in this study will not be manipulated and no random assignment will be used. Thus, it is possible that short and long sleepers may differ in their sleep need. Additionally, the results will be restricted to undergraduate university students only, which may not be representative of the general public. Future research should manipulate sleep conditions and examine a more varied participant sample in order to establish causality between sleep deprivation and neurobehavioral deficits overtime. Nevertheless, these results may suggest mental health benefits of longer sleep.

Furthermore, educating university students on the impact of sleep loss on their mood may have a positive impact on their ability to manage academic demands more effectively.

**Expected Outcomes and Implications section:** Summarises what the expected results are if the hypothesis is supported. With reference to previous literature the two possible study outcomes (i.e. hypothesis supported/hypothesis not supported) should be interpreted with regard to both theoretical and methodological explanations; key limitations should be raised and future research recommended. This section should close with a statement about the broader implications of the study.

Statement given of expected findings (i.e., results) and how these relate to the hypothesis

- Addresses two key questions (Mitchell & Jolley, 2010):
  1. “What would be the implications for interpreting existing theory and research if your hypothesis is supported?”
  2. “What would be the implications if the results don’t support your hypothesis?” (p. 560)
- Mentions limitations of the study
- Suggests improvements or extensions of the study (i.e., future research directions)
- Discusses the practical (i.e., real-world) implications of the study

· While there is no strict limit to the Expected Outcomes and Implications section; a suggested length is approximately 550 words

## References

- Aron, A. R., Robbins, T. W., & Poldrack, R. A. (2014). Inhibition and the right inferior frontal cortex. *Trends in Cognitive Sciences*, *8*, 170–177.
- Davidson, R.J. (2012). Anxiety and affective style: role of prefrontal cortex and amygdala. *Biological Psychiatry*, *51*, 68–80.
- Drummond, S.P., Brown, G.G., Salamat, J.S., & Gillin, J.C. (2014). Increasing task difficulty facilitates the cerebral compensatory response to total sleep deprivation. *Sleep*, *27*, 445-51.
- Finelli, L.A., Baumann, H., Borbély, A.A., Achermann, P. (2010). Dual electroencephalogram markers of human sleep homeostasis: correlation between theta activity in waking and slow-wave activity in sleep. *Neuroscience*, *101*, 523–529.
- Franzen, P. L., Siegle, G. J., & Buysse, D. J. (2018). Relationships between affect, vigilance, and sleepiness following sleep deprivation. *Journal of Sleep Research*, *17*, 34-41. doi:10.1111/j.1365-2869.2008.00635.x
- Grandner, M.A., Patel, N.P., Gehrman, P.R., Perlis, M.L., Pack, A.I. (2010). Problems associated with short sleep: Bridging the gap between laboratory and epidemiological studies. *Sleep Medicine Reviews*, *14*, 239-247. doi:10.1016/j.smrv.2009.08.001
- Lund, H. G., Reider, B. D., Whiting, A. B., & Prichard, J. R. (2010). Sleep patterns and predictors of disturbed sleep in a large population of college students. *Journal of Adolescent Health*, *46*, 124-132. doi: 10.1016/j.jadohealth.2009.06.016.

- Meerlo, P., Mistlberger, R.E., Jacobs, B.L., Heller, C., & McGinty, D. (2009). New neurons in the adult brain: The role of sleep and consequences of sleep loss. *Seep Medicine Reviews*, *13*, 187-194. doi: 10.1016/j.smr.2008.07.004.
- Oginska, H., & Pokorski, J. (2016). Fatigue and mood correlates of sleep length in three age-social groups: School children, students and employees. *Chronobiology International*, *23*(6), 1317-1328. doi: 10.1080/07420520601089349
- Pilcher, J. J., & Huffcutt, A. I. (2016). Effects of sleep deprivation on performance: A meta-analysis. *Sleep*, *19*, 318-326.
- Rosen, I. M., Gimotty, P. A., Shea, J. A., & Bellini, L. M. (2016). Evolution of sleep quantity, sleep deprivation, mood disturbances, empathy and burnout among interns. *Academic Medicine*, *81*, 82-85.
- Rajaratnam, S.W., Barger, L.K., Lockley, S.W., Shea, S.A., Wang, W., Landrigan, C. P., O'Brien, C. S., Qadri, S., Sullivan, J. P., Cade, B. E., Epstein, L. J., White, D. P. & Czeisler, C.A. (2011). Sleep disorders, health, and safety in police officers. *JAMA*, *306*, 2567-2578.
- Watson, D., Clark, L.A., & Tellegen, A. (2008). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Personality and Social Psychology Bulletin*, *54*, 1063-1070. doi:10.1037//0022-3514.54.6.1063
- Williamson, A.M., & Feyer, A., (2010). Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication. *Occupational & Environmental Medicine*, *57*, 649-655.
- Yoo, S.S., Gujar, N., Hu, P., Jolesz, F.A., & Walker M.P. (2017). The human emotional brain without sleep--a prefrontal amygdala disconnect. *Current Biology*, *17*, 877-8

Reference Section: The structure, format, and in-text citations and references used in the proposal should abide by APA 6th style. While the number of references required in your proposal will depend on your choice of references and topic, you should aim to include a minimum of 6 new references (other than the starting reference provided). These should be empirical papers published in journals, rather than textbooks or reference books. Your reference list should only include references which you have explicitly referred to in your proposal (i.e., it should not be a bibliography).

All papers referred to in the proposal are included in the references section and vice versa

- References, in-text citations, and quotations adhere to APA 6th style
- The structure and formatting of the proposal abides by APA 6th style (e.g., headings, spacing, margins, page numbering)
  - Use doi (digital object identifier) wherever possible
- Appropriate acknowledgment of ideas, statements, and past research is

provided, in the form of in-text citations and quotations