Research Article

Effect of Sleep Deprivation on Academic Performance Among Wellness Students at Universiti Malaysia Kelantan

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ABSTRACT

Many factors contribute to sleep deprivation including assignment responsibilities, tutorials, quizzes, and tests. University students are more prone to experience sleep deprivation. As a result, understanding the effects of sleep deprivation on academic performance is critical. This study aims to identify the effect of sleep deprivation on mental health, physical health, and social life that significantly impact students' academic performance. This study was conducted using a quantitative research approach to determine the effect of sleep deprivation on academic performance among UMK, Kampus Kota 3rd Year Wellness, and FHPK students. A total of 118 respondents have participated in this study. Based on data analysis and findings, sleep deprivation is the highest mean value followed by mental health, physical health and, lastly, social life.

Keywords: Sleep Deprivation, Academic Performance, Mental Health, Physical Health & Social Life.

INTRODUCTION

Sleep deprivation can be defined based on the duration of sleep and the total time a person uses to sleep. Nowadays, sleep deprivation is the most common issue among university students in Malaysia. This issue also happened in many international countries such as China, Taiwan, Hong Kong, Thailand, India, and Pakistan (Aznan, S.R, 2020). Recently, a high tendency of sleep deprivation has been seen among about 1017 undergraduate students in Malaysia. There were nearly evenly balanced percentages of females (51.0%) and males (49.0%), and the frequency of sleep deprivation was 58.1% (Low, W.Y 2021). Sleep deprivation is essential in every person's daily activity. Sleep lets individuals become more conscious of their

surroundings and allows them to use their thoughts to the most incredible ability. Unfortunately, sleep deprivation can affect their behaviour and thinking functions in several aspects. The sleeping matter among university students is often irregular in both duration and timing, with suffering from significant sleep deficiency 1-5. According to university students' statements, they have a worse value of sleep, contradictory sleep timetables, and sleep deprivation than the standard population.

According to Yusuf Patrick et al. (2016), sleep deprivation is common among university students who live in an environment that encourages less sleep due to academic stress. According to the same report, architecture students obtain an average of 5.7 hours of sleep per night and suffer sleepless evenings due to late-night academic work. Although the causes and effects of sleep deprivation on academic performance are not discussed in this study, the results indicate the causes and consequences of sleep deprivation on academic performance. This study investigates how sleep deprivation affects academic performance among Wellness students in Year 3 at Universiti Malaysia Kelantan, Kampus Kota. There are three objectives of this research:

1. To investigate the level of sleep deprivation in physical health and academic performance among Wellness students in year 3.
2. To investigate sleep deprivation in mental health and academic performance among Wellness students in year 3.
3. To investigate the level of sleep deprivation in social life and academic performance among Wellness students in year 3.

Significance of the study

This study would help researchers to better understand sleep deprivation among university students. The researcher tries to discover the effect of sleeping deprivation on academic performance among Wellness students, Year 3 in Universiti Malaysia Kelantan, Kampus Kota. Therefore, in the future university students can refer to this study to learn about the effects of sleeping deprivation, they can then manage their time and sleep quality. This study also provides university students with knowledge about the significant sleeping impacts deprivation on physical, mental, mental health, and social life. The benefit of this study is that students can lower their risk for serious mental health problems, like stress and depression, think more clearly and do better in academics. Another benefit of this study is that Kementerian Pendidikan Tinggi (KPT), Counseling Unit and Hal Ehwal Pelajar Akademik Universiti Malaysia Kelantan (HEPA UMK) can reduce the percentage of students who have mental health, physical health and each other caused by sleep deprivation. Parents will also feel happy when seeing their child is healthy and has no sleep deprivation problems. The result of this study can also give awareness about sleep deprivation.

LITERATURE REVIEW

Mental Health

The three components of mental health are stress, depression, and anxiety. Mental health refers to a person's capacity to adapt to everyday obstacles, work successfully and productively, and contribute to their community (Silvana, Andreas, Marianne, Julian, and Norman, 2015). However, the biological events that occur when an organism undergoes a challenge, as well as the attempt to restore homeostatic levels, have been investigated by researchers (Barton, 1997). One of the most crucial variables affecting students' academic performance is stress (Salam et al., 2014). Depression is one of the most common mental disorders and a leading cause of disability and lower life satisfaction among the elderly (Skoog, 2011). Depression is defined by core symptoms of emotional reactivity, inverted vegetative symptoms such as increased hunger or weight gain, hypersomnia, leaden paralysis, and a long-term pattern of severe rejection sensitivity (Berman et al., 1998). One of the most significant elements of psychoanalytic is anxiety. It has a significant impact on both the development of personality and the dynamics of personality functioning.

Physical Health

It is a "genetic exercise" to maintain physical health. A person's ability (physical preparation) has undergone suitable alterations to the external environment and changing conditions of living activities throughout their life in the process of morphological and functional adaptation (physical development) (Leberdinsky et al., 2017). Insomnia, circadian rhythm and obstructive sleep apnea are three components of physical health. Sleep deprivation is thought to be influenced by three variables. Insomnia has been shown to have a significant impact on sleep deprivation. This statement holds regardless of one's level of health. One of the essential components in sleep regulation is the circadian rhythm, an endogenous rhythm that regulates a wide range of physiological functions. According to Kim & Duffy (2018), to be maintained synchronized with external clock time, the circadian system of the average adult must be reset approximately 10 minutes earlier each day, and if it is not, the circadian system may become out of sync with external clock time. Obstructive sleep apnea (OSA) leads to oxygen desaturation, sympathetic activity, and recurrent arousals due to the upper airway repeatedly collapsing during sleep. According to several studies, OSA is correlated with a high frequency of illness and death and hypertension, cardiovascular disease, insulin resistance, diabetes mellitus, and neurocognitive impairment. (Geoffroy, Micoulad Franch, et al., 2019).

Social Life

Social life is part of a person's time spent interacting in enjoyable activities with others. Sleep deprivation causes problems in everyday life, such as strained relationships, poor academic performance, and changes in behaviour. Inadequate sleep diminishes attentiveness and energy levels during the day, making it more difficult for students to adapt to academic and extracurricular schedules. According to the study, sleep deprivation is common among university students who live in a culture that encourages less sleep due to the pressures of

academic tasks and social activities. (Patrick. Y, 2017). This section will explore the research from the theoretical models presented previously. When people do not have enough sleep, they get viral loneliness and social rejection, spreading like a virus. According to a study, sleep-deprived people, according to studies, feel lonelier and unwilling to interact with others, avoiding human interaction in the same manner that people with social anxiety do. According to research, students who are sleep deprived are more likely to fall asleep in class or skip lessons (CHEN, W., 2019). Sleep deprivation can also lead to changes in behaviour. According to a study available in the journal Nature Communications, sleep-deprived individuals felt lonelier and not as much of friendly with others. Well-rested persons who witnessed sleep-deprived people thought they were more lonely and less socially attractive.

Sleep Deprivation

Academic performance is influenced by sleep. Previous research has linked shorter sleep duration and worse sleep quality to lower GPA. Novel sleep measurements have been developed. The possibility of a student staying awake or asleep simultaneously each day is measured by sleep consistency. Students who sleep more consistently perform better academically. Better results are related to morning circadian preferences and earlier classes (Shelley, 2020). One of the most commonly used measures in sleep research is sleeping quality. There are a variety of verified sleep quality questionnaires available, with the Pittsburg Sleep Quality Index being one of the most popular. Multiple studies have shown an association between poor sleep quality and decreased academic performance among almost all subsets of students. The researchers stated in their research that the consequences of sleeping deprivation poor academic performance among students. Sleep qualities influence learning and consequent academic performance. The students with the option of sacrificing some sleep time to enable them to meet up with these academic activities. The result of this study is in keeping with the findings of other studies, which noted that their students were sleep-deprived and that poor sleep durations significantly affected the academic performance of students (Esom. E, 2021).

Research Framework

Independent Variable   Dependent Variable

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┌─────────────────┐
│ Physical Health │ ─────────────┐
└─────────────────┘              │
                                 ↘
┌─────────────────┐         ┌──────────────┐
│ Mental Health   │ ──────→ │ Sleep        │
└─────────────────┘         │ Deprivation  │
                                 ↗         └──────────────┘
┌─────────────────┐              │
│ Social Life     │ ─────────────┘
└─────────────────┘
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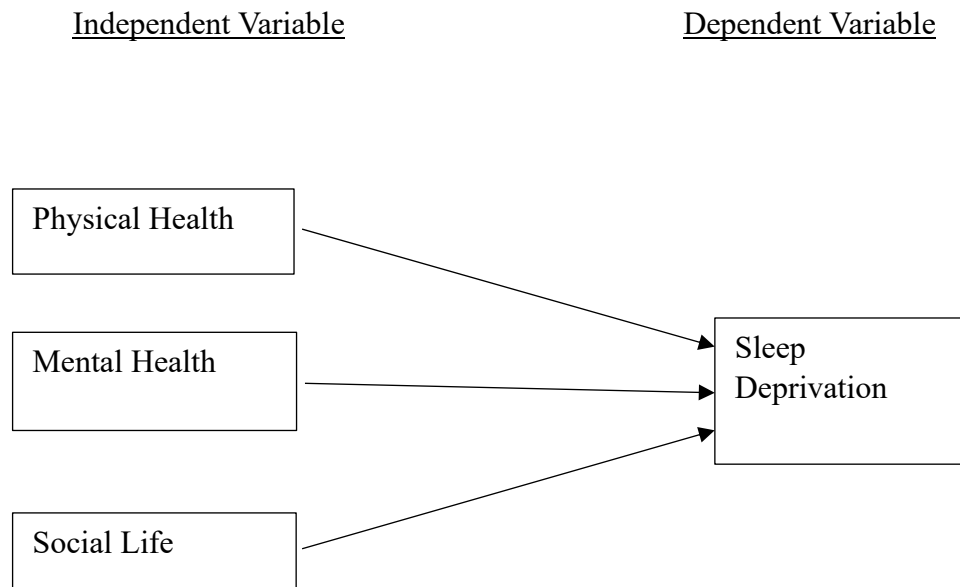
Figure 1: Research Framework

Figure 1 shows the dependent variable (DV) and independent variable (IV) of this research. The independent variables are the effects of sleeping deprivation on academic performance among Wellness students, Year 3, Universiti Malaysia Kelantan, Kampus Kota. Additionally, the dependent variable (DV) is the factor that influences academic performance, which is sleeping deprivation. Three independent variables (IV) were identified in this study: physical health, mental health, and social life.

METHODOLOGY

Research Design

This study used a quantitative method via statistics through large-scale survey research to collect information by distributing questionnaires through Google Form. The questionnaires were designed in bilingual languages, Malay and English, to make it easier for respondents to respond. The questionnaires use a five-point Likert scale.

Data Collection

In this research study, primary and secondary data are suitable approaches for gathering the data. Primary data focused on the questionnaires. These questionnaires were distributed to the

third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The researcher explained this questionnaire through social media such as WhatsApp to let respondents clearly understand the question after agreeing to answer the questionnaire. The respondents were given an online questionnaire over WhatsApp that needed them to fill out a Google Form. The online questionnaires were prepared for 118 third-year wellness students at Universiti Malaysia Kelantan, Kampus Kota. The questionnaires were provided to respondents for a set amount of time to complete, and data was collected once all respondents had finished them.

Sampling

The sampling method used in this study was non-probability sampling method. The convenience sampling method was used to select the respondents. The convenience sampling technique refers to selecting people who are easily accessible and eager to participate in the survey. Samples of volunteer subjects should be placed here. It's employed in various fields where specimen representativeness is not a significant concern (Kish, 2005). This sampling technique is easy to do and does not use any costs required for our research. In achieving a reliable and valid sample for this study, the researchers used the equation from Krejcie & Morgan (1970) to determine the sample size.

Data Analysis

Three types of data analyses were used in this study, namely frequency analysis, descriptive analysis, Pearson Correlation Efficient and reliability analysis (Cronbach Alpha). The collected data were analysed using Statistical Package for the Social Sciences (SPSS) to show the relationships between the dependent and independent variables as a set of statistical processes approximated by regression analysis.

FINDINGS

Demographic Analysis

The questionnaires were distributed to 3rd Year Wellness students of Universiti Malaysia Kelantan, Kampus Kota. A total of 118 questionnaires were distributed to the respondents. The questionnaires begin with demographic details of the targeted respondents, such as age, gender, marital status, race, religion, duration of sleeping, and how often the respondents feel sleep-deprived were collected for research purposes. The sociodemographic characteristics of the respondents are shown in Table 1 below.

Table 1: Demographic Analysis of respondents

No	Sociodemographic Characteristics	Frequency (n)	Percentage (%)
1	Age	118	100
	18-21 years old	22	18.6
	22-25 years old	96	81.4
2	Gender	118	100
	Female	101	85.6
	Male	17	14.4
3	Marital status	118	100
	Single	110	93.2
	Married	8	6.8
4	Race	118	100
	Malay	Malay	85.6
	Chinese	7	5.9
	Indian	6	5.1
	Others	4	3.4
5	Religion	118	100
	Islam	101	85.6
	Buddha	9	7.6
	Hindu	5	4.2
	Others	3	2.5
6	Duration of Sleeping	118	100
	1-3 hours	27	22.9
	4-6 hours	33	28.0
	7-9 hours	53	44.9
	10 hours & above	5	4.2
7	How often do you sleep-deprived?	118	100
	Never		
	Seldom	3	2.5
	Occasionally	26	22.0
	Frequently	44	37.3
	Almost always	37	31.4
		8	6.8

Table 1 shows the demographic analysis of respondents. The research focuses on 3rd Year Wellness students of Universiti Malaysia Kelantan, Kampus Kota and the majority of respondents are 22-25 years old (81.4%), female (85.6%), single (93.2%), Malay (85.6%), Islam (85.6%), 7-9 hours of sleeping (44.9%) and occasionally feel sleep-deprived (37.3%).

Descriptive Analysis

Table 2: Descriptive Analysis

Variable	N	Mean	Standard Deviation
Sleep Deprivation	118	35.07	3.563
Mental Health	118	33.75	3.124
Physical Health	118	29.80	4.388
Social Life	118	29.47	4.895

Table 2 shows the mean for the dependent variable, sleep deprivation, and independent variables, mental health, physical health, and social life, selected from respondents. Sleep deprivation is the highest mean and standard value which is (35.07) (3.563), followed by mental health (33.75, 3.124), physical health (29.80, 4.388), and lastly, social life (29.47, 4.895).

Reliability Analysis

The internal consistency or reliability among a few items, measurements or ratings is measured using Cronbach's Alpha. It is an appreciable instrument to guess the reliability of responses from the questionnaires and show the instrument's constancy. Cronbach's Alpha values diverge from a null character to one where a more significant value gives signs that the element measured in corresponding proportions. In contrast, Cronbach's alpha values, which are close to zero, indicate the elements are not evaluating the corresponding ratios.

Table 3: Descriptive Analysis

Variable	N	Number of Items	Cronbach's Alpha
Sleep Deprivation	118	8	0.858
Mental Health	118	8	0.828
Physical Health	118	8	0.859
Social Life	118	8	0.883

Table 3 shows the result of the reliability coefficient alpha based on the dependent variable and each independent variable. The dependent variable, sleep deprivation, has a Cronbach's Alpha value of 0.858. The first independent variable, Mental Health, with eight questions, shows

Cronbach's Alpha value of 0.828. The second independent variable, physical health, which contains eight questions, shows Cronbach's Alpha value of 0.859, reliable and reasonable. The third independent variable, social life, with eight questions in the questionnaire, has Cronbach's Alpha value of 0.883, which has good internal consistency. The results of all variables have a high correlation, and according to (Douglas & Thomas, 2016), the current practice indicates that a more significant reliability coefficient is preferred.

Pearson Correlation Analysis

Table 4: Descriptive Analysis of Respondents

Correlation					
		Sleep Deprivation	Mental Health	Physical Health	Social Life
Sleep Deprivation	Pearson Correlation	1	0.828	0.836	0.838
	Sig. (2-tailed)		.000	.000	.000
	N	118	118	118	118v
Mental Health	Pearson Correlation	.828	1	.850	.780
	Sig. (2-tailed)	.000		.000	.000
	N	118	118	118	118
Physical Health	Pearson Correlation	.836	.850	1	.798
	Sig. (2-tailed)	.000	.000		.000
	N	118	118	118	118
Social Life	Pearson Correlation	.838	.780	.798	1
	Sig. (2-tailed)	.000	.000	.000	
	N	118	118	118	118

**. Correlation is significant at the 0.01 level (2- tailed).

DISCUSSIONS AND RECOMMENDATIONS

There is a significant relationship between mental health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The Pearson Correlation test result shows a significant relationship between mental health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings showed a strong correlation coefficient of 0.828, while the p-value is 0.000. According to the result of the questionnaires, most of the respondents stated feel nervous when delivering the class presentation. It is proven that factors that can lead to lower academic achievement, mental health concerns, and a negative impact on healthcare system performance are hypothesized to influence the association between sleep deprivation and academic performance (Correa, Mayor & Lasalvia et al.,2018). Students can easily have mental health problems because they have a lot of things to do as a student. This unhealthy attitude will negatively affect the student's health and academic performance. This eventually results in the students having poor sleep quality and insufficient sleep, which is linked to depression among university students. They are more vulnerable to sleeping disorders, negatively influencing their academic performance. Sleep deprivation and poor sleep quality are becoming more common among university students. (Li et al., 2020). There is a significant relationship that mental health causes effects on students due to lack of sleep deprivation.

The results show a significant relationship between physical health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings show a strong correlation coefficient of 0.836, while the p-value is 0.000. This means that sleep deprivation at a higher level can affect students' physical health. Those characteristics may impact a university student's feelings, immune system functioning, and substance usage, among other things (Harmilton, 2016). According to the respondent in the questionnaires, a sign respondent stated was a lack of sleep. The composition of sleep tends to vary depending on the time of day and the sleep period (Laura, K., 2017). Despite that, sleep deprivation was indicated by the majority of respondents to cause headaches. This been proven from the previous study that sleep is a crucial component of a human's health as well as a well-being state, as it is a necessity for learning, practising, and maintaining physical and mental health (Jajali, R., Khazaei, H., & Paveh et al., 2020). Insomnia symptoms include an inability to get asleep, stay asleep, wake up early, or sleep in a characteristic affecting manner at any given time, without any chronicity or daytime impairment requirements (Bathgat, 2018).

There is a significant relationship between social life and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The Pearson Correlation test result shows a significant relationship between social life and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings show a strong correlation coefficient of 0.838, while the p-value is 0.000. This means sleep deprivation is inversely proportional to the number of hours of sleep a person gets, and it can have a significant negative influence on one's general health and quality of life (Rose & Samanan, 2017). Most students are lacking in sleep, impairing their ability to regulate behaviour and emotion, increasing the likelihood of anxiety, depression, impulsivity, and a diminished ability

to respond effectively to social pressures (Sadeh et al., 2017). This is proven by a statement when we are being sleep-deprived, and we are more prone to overreact to situations that would typically not bother us. As a result, there may be more tension and less satisfying relationships (Jennifer L.M, 2018).

The first recommendation is to distribute the questionnaire physically or face to face to collect the data. This is much easier because the researcher can persuade the respondents to give their time to answer the questionnaires provided. The second recommendation is that the questions asked must use language or questions that are easier to understand. This is because the researcher had examined a small number of respondents who did not understand the questions and chose not to answer the questions. The following recommendation is to reduce the number of respondents for the target population. The researcher takes a long time to find respondents because of the relatively large number. The target population must be changed from FHPK third-year students to SAW or SAH either SAP, which is smaller than the total number of the third-year students.

CONCLUSION

The research is about the effects of sleeping deprivation on academic performance among the third year of Wellness students in Universiti Malaysia Kelantan, Kampus Kota. Mental health, physical health, and social life are the independent variable. These variables influenced the dependent variable, which was sleep deprivation. There is a significant relationship between the three independent variables and the independent variable. The recapitulation of the findings showed the strongest correlation would be the social life, followed by the physical health, and the lowest correlation will be the mental health (0.838>0.836>0.828). It also shows the p-value of three independent variables is 0.000. A few research articles in this part make the result more reliable and stronger. All the hypotheses, which are H1, H2, and H3 stated, are accepted.

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