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Relationship of Sleep Deprivation and General Weighted Average (GWA) of the Students

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Abstract

Human health and well-being, as well as learning and practice, as well as physical and mental well-being, all require sleep. This study uses a descriptive correlational research design. It investigates the relationships between variables while preventing the researchers from influencing or manipulating any of them. A correlation represents the strength and/or direction of a relationship between two (or more) variables. The direction of a correlation might be positive or negative. In this study, the researchers use a survey research approach, in which they created a survey or questionnaire and distribute it to the respondents. A descriptive research aims to accurately and systematically characterize a population, circumstance, or phenomenon. It can answer what, where, when, and how questions, but not why. The goal of this research is to see if there is a link between sleep deprivation and GWA in third-year Bachelor of Physical Education students in Academic Year 2021-2022. It especially examines the following issues: (1) the respondents' sleeping hours profile, (2) how self-sleep deprivation affects General Weighted Average (GWA), (3) the level of students' GWA, and (4) the substantial association between sleep deprivation and students' GWA. As a result, the concept of physiological needs in Abraham Maslow's Hierarchy of Needs Theory, which states that there are biological requirements for human survival, such as air, food, drink, shelter, clothing, warmth, sex, and sleep, and that if these needs are not met, the human body cannot function optimally, was rejected because, according to the findings of this study, there is no significant relationship between sleep deprivation and GWA of the human body.

***Keywords: Correlational Study, General Weighted Average,* Relationship, Sleep Deprivation, Philippines**

Introduction

Sleep is essential to human health and well-being, as well as learning and practice, as well as physical and mental well-being. Individual learning ability, academic performance, and neural-behavioral functioning are all affected by sleep deprivation (Jalali et al., 2020). A person's ability to operate properly depends on getting enough sleep each night. Adults require eight hours of sleep on average (Okano et al., 2019). Sleep is also regarded to play an important and unique role in memory consolidation.

The general consensus is that synaptic connections that were active during awake periods are strengthened during sleep, allowing for memory consolidation, while inactive synaptic connections are diminished. Furthermore, sleep is necessary for memory consolidation (remembering what we have learned), which is vital for academic success (Okano et al., 2019). Sleep deprivation happens when a person is unable to receive adequate sleep, according to the (American Thoracic Society, 2019). The amount of sleep required to feel refreshed and to perform properly varies with age. According to some scientists, sleep allows our bodies to repair itself, therefore not getting enough of it might be hazardous to our health.

Furthermore, real societal worries about the prevalence of inadequate sleep, particularly among students, have accompanied these theoretical breakthroughs (Twenge et al., 2017). Many studies have shown that total sleep deprivation has negative impacts on learning and retrieval of information, proving the relevance of sleep for memory functions (Newbury et al., 2021). Various sleep difficulties affect college students, which can be caused by a variety of circumstances. These circumstances may reduce the amount of time they spend purely on academics, requiring them to stay up late to complete their schoolwork, preventing them from achieving academic achievement. According to one study, 70.6 percent of college students get less than eight hours of sleep per night, and more than 60% had poor sleep quality (Kim, 2019). Many students, particularly respondents and researchers, have witnessed and experienced this phenomena throughout this pandemic. This study aims to emphasize the relevance of appropriate sleep and academic performance in order to assist respondents in achieving their intended goals and academic successes. As a result, sleep deprivation has an impact on academic performance, including late submission of requirements, inability to perform well in class, loss of interest in schoolwork, and the development of unfavorable physical conditions (fatigue, headache, drowsiness, dry eyes), among others.

The stated daytime sleep deprivation symptoms also speak to this situation. Feeling sleepy during the day, especially when doing quiet activities, changes in mood such as irritability, depression, forgetfulness and difficulty learning new concepts, inability to concentrate or focus on a task, and weight gain are all signs and symptoms of sleep deprivation, according to the (American Thoracic Society, 2019). Furthermore, when they try to coordinate their natural delayed schedule with the demands of normal societal schedules such as school and office hours, teenagers and young adults may experience sleep loss and excessive daytime sleepiness (Alfonsi et al., 2020). Similarly, a person's performance at work or school, capacity to operate day to day, quality of life, and health can all be affected by a lack of sufficient sleep (Davis, 2020). Insufficient sleep, according to (Guadiana & Okashima, 2021), has a deleterious impact on the neurological system, resulting in poor brain performance. Previous research has shown that insufficient sleep, increased short-term sleep frequency, and sleeping late and waking up early have an impact on learning capacity, academic performance, and

neurobehavioral processes (Owens & Weiss, 2017). As a result of the cognitive impairment caused by sleep deprivation, academic performance is frequently affected. Reduced nightly sleep or disturbed sleep patterns have also been linked to severe tiredness and scholastic failure (Jalali et al., 2020).

According to several research, there are several factors that contribute to students' sleep deficiency. According to the (National Sleep Foundation, 2019), 95% of Americans use a computer, video game, or mobile phone within an hour of going to bed at least a few nights a week. Overthinking at night is mostly due to the brain analyzing what has occurred throughout the day for each individual. Because people are consuming more information and their days are now so packed, no one has time to analyze their thoughts during the day (Fletcher, 2019). According to the (National Sleep Foundation, 2019), stress can have a variety of effects on a person's life, including a detrimental impact on sleep quality. According to (Buddy, 2019), drinking alcohol can disrupt sleep and create sleep disorders. Alcohol use can influence the pattern and length of sleep stages, as well as overall sleep time and the time it takes to fall asleep. Naturally, insomnia is a common cause of sleep deprivation among some students. Insomnia is a sleep problem that affects millions of people around the world on a regular basis. Insomniacs have a tough time falling asleep and staying asleep. The consequences can be disastrous (Crosta, 2017). The relationship between sleep and depressive disease is complex, according to the (National Sleep Foundation, 2019): depression can induce sleep problems, and sleep problems can cause or contribute to depressive disorders.

In contrast, according to the findings of a prior study, 27 out of 40 pupils, or 67.5 percent, said they were fatigued throughout the school day when they were sleep deprived. Despite this, most students can perform well in recitation even when they are sleep deprived (Afable et al., 2019). According to (Arzadon et al., 2021), despite the degradation of sleep health, a sleep deprived individual can nevertheless get good results as a result of the hours spent studying and/or fulfilling tasks all night.

In comparison, sleep deprivation may have no effect on a student's General Weighted Average (GWA) if it is relatively temporary. According to (Arzadon et al., 2021), the amount of sleep hours has no effect on the students' General Weighted Average (GWA). No significant differences in cognitive assessments were identified in (Patrick et al., 2017)'s study, implying that one night of sleep deprivation has negligible influence on a student's cognitive capacity. This study determines the relationship of sleep deprivation and General Weighted Average (GWA) of the students. Specifically, it answers the following questions: What is the profile of the respondents in terms of: Number of Sleeping hours, In what extent of self-sleep deprivation affects General Weighted Average? What is the level of General Weighted Average (GWA) of the students? Is there a significant relationship between sleep deprivation and General Weighted Average (GWA) of the students? With problem assumed in this study, problem number 1, 2 and 3 were hypothesis-free. On the basis of Problem 4, the null hypothesis were tested at alpha 0.05 level of significance.

H_{o1}. There is no significant relationship between sleep deprivation and General Weighted Average (GWA) of the students.

Conceptual Framework

This research is based on American psychologist Abraham Maslow's Hierarchy of Needs paradigm (See Appendix A). Maslow's Hierarchy of Needs is a psychological health theory that attempts to forecast human requirements (Nasif, 2020). Maslow's hierarchy of needs is a psychological motivational theory that consists of a five-tier

model of human wants, which is sometimes shown as hierarchical tiers within a pyramid. Individuals must attend to lower-level demands before they can attend to higher-level requirements (McLeod, 2018). Higher needs in the hierarchy occur when people feel they have properly satisfied the prior need, according to this idea (Hopper, 2020). Physiological, safety, love and belonging, esteem and self-actualization are the demands from the bottom of the hierarchy up (McLeod, 2018).

Physical survival is our most basic need, and it is the driving force behind our actions. The next level up is what motivates us when that level is completed, and so on. Physiological needs - these are biological necessities for human survival, such as air, food, drink, shelter, clothes, warmth, sex, and sleep, according to the original five-stage hierarchy of needs model. The human body cannot function optimally if these demands are not met. Physiological requirements, according to Maslow, are the most important of human wants (McLeod, 2018). If a person is missing multiple requirements, they are most likely prioritize meeting their physiological needs. When someone is exceedingly hungry, it is difficult to concentrate on anything else. Another example of a physiological need is the requirement for sufficient sleep (Hopper, 2020).

Furthermore, psychologists (Ryff & Singer, 2017) who drew on Maslow's theories in establishing their theory of eudaimonic well-being, affirmed and strengthened the model and theory stated above. Eudaimonic well-being, according to Ryff and Singer, refers to a sense of purpose and meaning, which is related to Maslow's concept of self-actualization (Ryff, 2017).

(Maslow's, 1962) hierarchy of needs theory has had a significant impact on classroom management and teaching.(Maslow, 1970) takes a comprehensive perspective to education and learning, rather than restricting behavior to a response to the environment. Maslow considers an individual's entire physical, emotional, social, and intellectual traits, as well as how these affect learning. Students must first meet their basic physiological needs before their cognitive needs may be addressed. A fatigued and hungry student, for example, will find it difficult to concentrate on their studies. To progress and reach their greatest potential, students must feel emotionally and physically comfortable and accepted in the classroom.

When a suitable amount of sleep is not maintained, sleep deprivation occurs. When it comes to college students, sleep deprivation is fairly common. "Up to 60% of all college students suffer from poor sleep quality," according to research (Schlarb et al., 2017). Sleep deprivation can have a significant impact on a person's physiological health, psychological health, and cognitive function over time. As a result, it was strongly linked to poor academic achievement (Seoane et al., 2020). Loss of interest, prone to errors, and lack of attention are some of the impacts of sleep deprivation that students may encounter. Participants who have not gotten enough sleep are less inclined or unable to repeat the tasks they have done the night before.

As a result, the goal of this study is to look at the correlational relationship between sleep deprivation and academic performance in order to help students live an optimal and sufficient life in terms of themselves, their academics, their families, and their future work and career in general. This research is strengthened and is developed their physical, mental, and emotional health, as well as their ability to manage time in order to achieve their goals and live a happy and fulfilling life.

The study's conceptual framework is depicted in Figure 1. The Independent variables are the respondents' profiles in terms of number of sleeping hours, which are divided into three categories: 5-6 hours per day, 3-4 hours per day, and 1-2 hours per day. The effects of sleep deprivation on physical and cognitive functioning are connected by an arrow line down to another independent variable, which explains that these effects are

decided by the amount of sleeping hours spent by the respondents. Sleep deprivation has a direct impact on how we think and feel. While the short-term effects are more obvious, persistent sleep deprivation can increase the risk of physical and mental health problems in the long run (Suni, 2021).

An arrow line is drawn from these independent variables to the right side box, the dependent variable, which is the respondents' General Weighted Average (GWA) or overall academic achievement determines from the seven courses during the first semester. In general, the chart explains that the number of sleeping hours spent by respondents may alter their General Weighted Average due to the consequences of sleep deprivation (GWA). Students' physical and cognitive health, as well as their academic performance, are affected by poor nighttime sleep quality and the resulting daytime lethargy (Maheshwari & Shaukat, 2019).

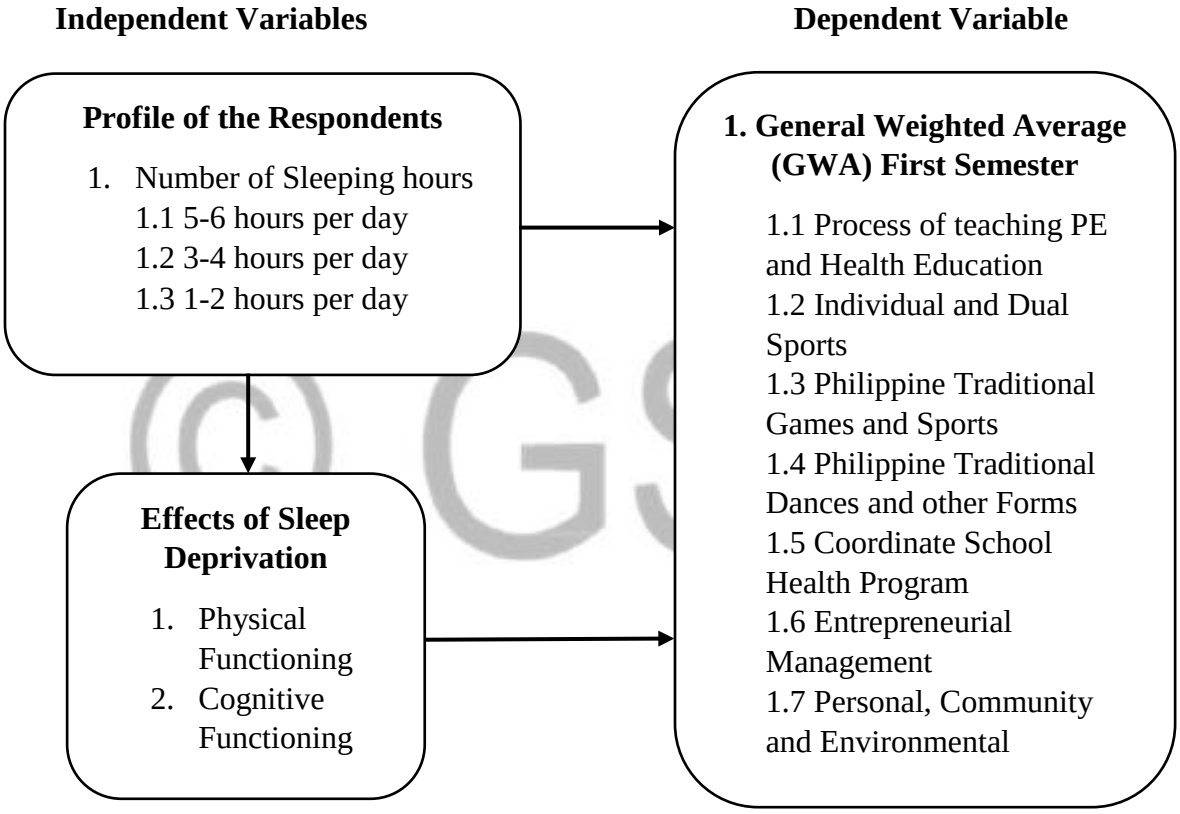

Figure 1. The Schematic Diagram of the study showing the interplay between the Relationship of Independent and Dependent Variables.

Research Design

A descriptive correlational research design is used in this study. It looks into the connections between variables without allowing the researchers to influence or manipulate any of them. The intensity and/or direction of the relationship between two (or more) variables is represented by a correlation. A correlation might have either a positive or negative direction (Scribbr, 2021). The researchers are employed a survey research approach in this study, in which they are developed a survey or questionnaire and disseminated them to the respondents. Descriptive study seeks to characterize a population, circumstance, or phenomena properly and systematically. It can answer the questions of what, where, when, and how, but not why. A descriptive research plan can study one or more variables using a range of research methods (Scribbr, 2019).

Respondents of the Study and Sampling Procedure

The study's participants are third-year Bachelor of Physical Education students from the College of Teacher Education's sections A and B who are officially enrolled in the Academic Year 2020-2021. Because every respondent has an equal chance of participating in the survey, convenience sampling is utilized in this study. As a result, the respondents are chosen without any specific selection criteria. Because every member of the population is a target respondent of the study, the population is treated as a relatively homogeneous group.

Research Instrument

A systematic questionnaire with two sections are used in this investigation. The first portion included the respondents' profile, which is included the General Weighted Average (GWA) and normal sleep hours. The researcher's modified self-response Sleep Quality Scale is used in the second portion (SQS). (Yi, et al,. 2006) and it is developed. It is the most widely used self-report scale for determining sleep quality. Daytime sleep deficiency symptoms, restoration after sleep, challenges initiating and maintaining sleep, trouble waking, and sleep satisfaction are all assessed using the SQS. There are 20 things in this study.

Validity and Reliability of Instrument

The self-made survey test questionnaire was pretest by ten students who are not participants in the study before to its final administration. The researchers used Cronbach's Alpha to see if the survey questions are measuring the same item before validating the findings. The reliability coefficient was 0.85, indicating that the survey results are reliable and accepted.

Statistical Treatment of Data/Data Organization

The data is examined using the aims and problems outline in the first chapter. The effects of sleep deprivation on the respondent's academic performance are described using descriptive statistics such as percentage, mean frequency distribution, and standard deviation.

For problem number (1), the profile of the respondents in number of sleeping hours. The following formula were used: Frequency and Percentage.

For problem number (2), the extent of self-sleep deprivation affects General Weighted Average. The following formula were used: Mean and Standard Deviation.

For problem number (3), the level of General Weighted Average (GWA) of the students. The following formula were used: Mean and Standard Deviation.

For problem number (4), the significant relationship between sleep deprivation and General Weighted Average (GWA) of the respondents. The formula used was: Pearson Correlation.

Result and Discussion

This chapter presents, analyzes and interprets the data collected. The findings are presented according to the sequence of the problems stated in the Chapter 1.

Problem 1: What is the profile of the respondents in terms of number of sleeping hours?

Table 1.

List of respondents in terms of number of sleeping hours

N = 35

Mean Range	Frequency	Percent
5-6 hours per day	29	82.9
3-4 hours per day	5	14.3

1-2 hours per day	1	2.9
Total	35	100

The distribution of the respondents' profiles by number of sleeping hours is shown in Table 1. The majority of respondents slept 5-6 hours per day, according to the findings. Due to the fact that class hours vary, college students frequently struggle to get enough sleep each night. Because their class schedules are divided into the morning, afternoon, and evening, the majority of students will be sleep deprived. A study by (Muro et al. 2020) backs this up. According to him, university students experience sleep irregularity, quantity, and quality issues, which can negatively impact their academic performance. Sleep deprivation is frequent among university students, according to (Yusuf et al. 2017), and has been linked to poor academic performance and physical dysfunction.

Problem 2: In what extent of self-sleep deprivation affects General Weighted Average (GWA)?

Table 2.

The extent of self-sleep deprivation affects General Weighted Average (GWA)

N = 35

Self-Sleep Deprivation		Frequency	Percentage
Often	**[3.26 – 4.00]**	**13**	**37.1**
Sometimes	**[2.51 – 3.25]**	**18**	**51.4**
Seldom	**[1.76 – 2.50]**	**4**	**11.4**
Never	**[1.00 – 1.75]**	**-**	**-**
TOTAL		**35**	**100**

Item No.	Indicators	Mean	Standard Deviation	Verbal Description
1	I go to sleep early	2. 26	0. 56	Seldom
2	I am satisfied with my numbers of Sleep hours.	3. 26	0. 89	Often
3	I feel energetic after sleep.	3. 00	0. 73	Sometimes
4	I feel refreshed after sleep.	3. 14	0. 77	Often
5	I feel ready for work after sleep.	3. 00	0. 69	Sometimes
6	Poor sleep makes my eyes dry.	3. 37	0. 97	Often
7	Poor sleep interferes my study.	3. 31	0. 83	Often
8	Poor sleep makes me feel fall asleep Easily when I do schoolwork at home	3. 43	0. 85	Often
9	Poor sleep gives me headache	3. 29	0. 89	Often
10	Poor sleep makes my body feel tired or fatigue.	3. 54	0. 66	Often
11	With poor sleep, I am not able to Submit task on time.	2. 66	0. 94	Sometimes
12	Poor sleep makes me feel irritable and stress-out during the day.	3.31	0. 76	Often
13	Poor sleep makes me feel slow with critical thinking, problem solving and Being creative.	3. 17	0. 79	Sometimes
14.	Poor sleep makes me feel sleepy when making task at school.	3. 40	0. 77	Often
15.	With poor sleep, I do careless mistakes	2. 74	0. 95	Sometimes
16.	Poor sleep makes me hard to think.	3. 06	0. 91	Sometimes
17	Poor sleep makes it hard for me to concentrate in doing schoolwork.	3. 26	0. 82	Often
18	Poor sleep makes it difficult for me	3. 00	0. 84	Sometimes

	in remembering things.			
19	Poor sleep makes me lose interest to work.	3. 06	0. 84	Sometimes
20.	Poor sleep makes me lazy.	3. 43	0. 81	Often
	OVERALL MEAN AND SD	**3.13**	**0. 81**	**Sometimes**

Legend:

Often – 3. 26 - 4. 00 Seldom – 1. 76 – 2. 50

Sometimes – 2. 51 - 3. 25 Never – 1. 00 – 1. 75

The impact of self-sleep deprivation on the General Weighted Average is seen in Table 2. It demonstrates that 18 (51.4%) of respondents have occasionally experienced the following impacts, whereas just 4 (11.4%) have never experienced these consequences. This indicates that they are at the level where they are experiencing physical and cognitive problems as a result of sleep deprivation. Insufficient sleep, according to (Guadiana & Okashima, 2021), has a deleterious impact on the neurological system, resulting in poor brain performance. Previous research has shown that insufficient sleep, increased short-term sleep frequency, and sleeping late and waking up early influence learning capacity, academic performance, and neurobehavioral processes (Owens & Weiss, 2017).

Furthermore, among all the impacts of sleep deprivation items, items 8 and 10 claim that poor sleep causes people to fall asleep easily when doing homework at home and that poor sleep causes their bodies to feel fatigued and tiredness, with the highest mean of 3. 43 and 3. 54 with a description of often. Following that are items 7 and 9, which claim that insufficient sleep interferes with their studies and causes headaches. While items 11 and 15 state that they were unable to complete tasks on time due to lack of sleep and made careless mistakes, resulting in the lowest mean of 2. 66 and 2.74. The data have an overall mean of 3.13 and a standard deviation (SD) of 0. 81, implying that they occasionally encountered the following symptoms. Overuse of gadgets, stress from several online modules, and insomnia are some of the underlying causes they experience these symptoms as a result of being deprived of sleep. According to the National Sleep Foundation (2019), 95% of Americans use a computer, video game, or mobile phone within an hour of going to bed at least a few nights a week. Stress, on the other hand, can have a variety of effects on a person's life, including a detrimental impact on sleep quality (Buddy, 2019). Insomnia is a sleep problem that affects millions of people around the world on a regular basis. Insomniacs have a tough time falling asleep and staying asleep. The consequences can be disastrous (Crosta, 2017). Based on the findings, insufficient sleep has numerous detrimental effects on their performance, particularly their intellect and bodily functioning. A person's capacity to function day to day, their quality of life, and their health can all be negatively affected by a lack of sufficient sleep (Davis, 2020).

Problem 3: What is the level of General Weighted Average (GWA) of the students?

Table 3.

Level of General Weighted Average (GWA) of the students

N = 35

General Weighted Average (GWA)		Frequency	Percentage
Excellent	**[1.0 – 1.5]**	**24**	**68.6**

Very Good	**[1.6 – 2.0]**	**11**	**31.4**
Good	**[2.1 – 2.5]**	**-**	**-**
Fair	**[2.6 – 3.0]**	**-**	**-**
Needs Improvement	**3.1 and below**	**-**	**-**
TOTAL		**35**	**100**

Over-all Mean = 1.49 SD = 0.25 ID = Excellent

The distribution of the students' General Weighted Average (GWA) is shown in Table 3. According to the findings, seven out of ten respondents have an exceptional level of General Weighted Average (GWA). Despite being sleep deprived, 3 out of 10 people maintain a very good level of General Weighted Average (GWA). The data has an overall weighted mean of 1.49 and a Standard Deviation (SD) of 0. As a result, the number 25 is viewed as great.

This shows that the students' General Weighted Average (GWA) is great even when they are sleep deprived, implying that sleep deprivation has no immediate effect on the students' GWA. This is supported by a study by (Arzadon et al. 2021), which found that despite sleep deprivation, it is still possible for a sleep deprived person to achieve good grades as a consequence of hours spent studying and/or completing requirements all night. With the use of a specialized study on student performance (Afable et al., 2020) and it is discovered that even when students are sleep deprived, they can do well in recitation.

Problem 4: Is there a significant relationship between sleep deprivation and General Weighted Average (GWA) of the students?

Table 4.

Relationship between sleep deprivation and General Weighted Average (GWA) of the students

N = 35

Correlations	**General Weighted Average (GWA)**	**Null Hypothesis**	**Interpretation**
SLEEP DEPRIVATION			There is no significant relationship between sleep deprivation and General Weighted Average (GWA) of the students.
Pearson Correlation	-.066	Accepted	
Sig. (2-tailed)	**.706**		
N	35		

The table 4 above shows the significant relationship between sleep deprivation and General Weighted Average (GWA) of the students.

As a result, the sleep deprivation (0.706) significant values with regard to the General Weighted Average (GWA) are more than 0.05. It implies that there is no substantial link between sleep deprivation and the students' GWA. The null hypothesis is therefore accepted.

It demonstrates that the respondents' sleep quality has no effect on their overall academic performance, but it does have an impact on their physical productivity: difficulty falling asleep, feeling weary and fatigued, having headaches, dry eyes, and so on. According to the findings of the study (Yason et al., 2021), the number of sleeping hours has no effect on the students' general weighted average (GWA).

Furthermore, short-term sleep deprivation has an impact not just on the intellect but also on the body. According to (Patrick et al., 2017), no significant variations in cognitive assessments are identified, implying that one night of sleep deprivation has little impact on a student's cognitive capacity.

Conclusion

Therefore, the concept of physiological needs in the Hierarchy of Needs Theory by Abraham Maslow which states that there are biological requirements for human survival, e.g. air, food, drink, shelter, clothing, warmth, sex and sleep in which if these needs are not satisfied, the human body cannot function optimally was rejected because based from the result of this study, there is no significant relationship between sleep deprivation and General Weighted Average (GWA) of the students.

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