The Relationship of Sleep Hours on the Academic Performance and Classroom Participation of Senior High School Students

Ghian Louie B. Garcia*, Airus Benedict Recio, Hannah Gabirelle Escueta, Marithe Ilagan, Zyra Danica Morales, Nenalyn Torres
Nazareth School of National University Philippines, Sampaloc, Manila, Philippines
*Corresponding Author: ghianlbarriong@gmail.com

ABSTRACT
The transition from online classes to blended learning has resulted in a common occurrence of sleep deprivation among Senior High School (SHS) students. This study aims to investigate the potential relationship between students' sleeping hours and their academic performance and classroom participation at NU-Nazareth. The researchers opted for a descriptive-correlational research design, using a multi-stage sampling technique to select participants for the study. The study was conducted at NU-Nazareth School during the academic year 2022-2023. The data collected revealed that, on average, students had only 6 hours of sleep. Surprisingly, the study’s findings indicated no significant relationship between sleep hours and academic performance, nor between sleep hours and classroom participation. Therefore, based on the data, it can be concluded that a student’s academic performance and classroom engagement are not significantly influenced by their sleep duration. The results suggest that factors other than sleep play a more substantial role in influencing students’ academic performance and participation levels. These factors could include motivation, interest in the subject matter, teaching methods, classroom environment, and individual learning styles, which may have a greater impact on how students perform and participate in class. Further exploration of these factors could provide valuable insights into enhancing students’ overall learning experiences.

Keywords: sleeping hour; academic performance; classroom participation; senior high school students; correlation

1. INTRODUCTION

With the transition of classroom setup from online to blended learning setup that has two days online class and three days face-to-face class, there is a shift of schedule in terms of sleep that has an effect on the academic performance of students. Senior high school students faced numerous academic responsibilities, including assignments, projects, and exam preparations. However, one significant factor that can affect students' ability to manage their time efficiently is their sleep hours. Sleep is an essential aspect of overall well-being and has a profound impact on cognitive functions, including concentration, memory, and problem-solving skills (Fonseca & Kasri, 2020).

Most students experienced sleep deprivation due to lack of sleep that leads to tiredness of students and mood disorders. It was shown that 88% of students were sleep deprived, and they often slept for less than 6 hours a day (Toyong, 2020). They experienced suffering from memory loss, low attention span, and a variety of physical problems. The recommended hours of sleep for students aged 13 to 18 is a minimum of 8 to 10 hours per 24 hours (National Heart, Lung, and Blood Institute, 2022; Centers for Disease Control and Prevention, 2019). However due to the transition of classes from online to face-to-face, students having difficulty to manage their time in doing their academic works with the limited time, and they...
experienced short sleeping hours. Also, with the short sleeping hours they experienced, they experienced to have low general weighted average (GWA).

There is a lot of study that discusses sleeping habits and sleeping hours on academic performance. Moreover, lack of sleep became frequent when students transitioned to blended learning setup and students were having difficulty balancing their schedule on academic performance and their sleep. However, there is a lack of literature that investigates the relationship between sleeping hours, academic performance, and classroom participation among senior high school students on a blended learning setup in Manila, Philippines. Although there are studies that have explored the relationship between sleep habits and academic performance among adolescents, most of them were conducted in other countries. Additionally, there are studies that have investigated the impact of study habits and independence on academic performance among high school students, but there is a lack of research that specifically examines the relationship between sleep hours, academic performance, and classroom participation among senior high school students in Manila, Philippines. By investigating the relationship, the study seeks to identify the students' sleeping hours and how it relates to the academic performance and classroom participation.

Statement of the Problem

This study aims to investigate the relationship between sleep hours on academic performance and classroom participation of SHS students for the academic year 2022-2023. Specifically, it intends to answer the research questions (1) What are the average sleeping hours of SHS students on a blended learning setup?; (2) Is there a significant relationship between SHS students' sleeping hours and academic performance?; (3) Is there a relationship between sleep hours and classroom participation of SHS students?

Significance of the Study

This study aims to explore the correlation between sleep duration, academic performance, and classroom engagement within a blended learning environment. By examining these relationships, potential recommendations for optimizing schedules can be identified. The study is particularly relevant for senior high school students who face demanding academic workloads.

Furthermore, this research offers valuable insights for parents, empowering them to establish appropriate sleep schedules and understand the crucial role sleep plays in enhancing their children's academic performance and classroom participation during blended learning. Parents will become aware of the risks associated with inadequate sleep, which can negatively impact their children's academic achievements.

In addition to benefiting parents and students, this study holds significance for educators. It equips teachers with essential information to make informed decisions regarding teaching strategies and school schedules that accommodate students' blended learning and sleep patterns effectively.

From an academic standpoint, this study adds to the existing literature on the relationship between sleep duration and the academic performance of senior high school students in a blended learning setup. For future researchers, this work can serve as a valuable reference, fostering further investigations in this domain.

Scope and Delimitations

This study will investigate the relationship of sleep hours on the academic performance and classroom participation of senior high school students in Nazareth School of National University (NU-Nazareth). It will specifically assess their average sleep duration and how this is related with their
academic performance, which is measurable by their grades, and their classroom participation which is their performance inside the classroom. The research will be conducted within the school year 2022-2023.

The study will be limited to quantitative data on hours they spent sleeping, and their academic performance that is measured by GWA during blended learning setup that will be used by survey questionnaire. The study will focus on the sleep hours, and it will not involve any activities that students used before they sleep, factors affecting poor sleep hours among senior high school students, their sleep environment, and the strategies they use to improve their sleep quality and its effectiveness. It will only focus on the SHS students in NU-Nazareth. It will not include students from other grade levels, or other universities. Also, the study will only consider the academic performance of the senior high school students as measured by their grades of General Weighted Average (GWA). Other factors that may affect their academic performance, such as socio-economic status, school environment, IQ level, and study habits and behavior will not be examined in this study. Additionally, this study focuses on the classroom participation that students used to engage during classroom discussion. It will only be considered as participation in recitation, group activities, exam, quizzes, written works, and other classroom activities discussion.

2. LITERATURE REVIEW

Related Studies

1. Sleep Hours of Students

   The optimal sleep duration for students is typically advised to be around 7 to 9 hours per night. During the sleep cycle, the brain transitions between periods of wakefulness and unconsciousness, leading to the natural drifting in and out of consciousness during sleep. For the brain to function properly, uninterrupted sleep is essential. A student’s sleep quality can be improved by maintaining consistent sleep and wake up times, which helps establish healthy sleeping patterns (Broderick, 2021).

   Unfortunately, many adolescents, particularly those aged 13 to 18 years, do not get enough sleep, with some sleeping for less than 8 hours per night. It is recommended that teenagers should aim for 8 to 10 hours of sleep, but a significant percentage of them fail to meet this requirement. Studies have shown that the average time high school students fall asleep is around 2:30 a.m., with many getting less than 6 hours of sleep on average, mostly due to various activities like social media, video games, and homework (Amenabar, 2023; Creswell et al., 2023).

   The consequences of insufficient sleep among students are substantial. It can lead to alterations in mood, increased risk of illnesses, and may contribute to anxiety and depression (Jansen, 2020). Research reveals that a significant number of college students also suffer from sleep deprivation, with over 70% reporting getting less than eight hours of sleep per night and experiencing tiredness or sleepiness frequently (Emerson, 2022; Harvard Summer School, 2021).

   Among high school students, a vast majority, as much as 88%, sleep for less than six hours, leading to sleep deprivation and its associated problems, such as drowsiness during classes and napping during free periods (Toyong, 2020). Similarly, around 71% of students sleep for less than eight hours per night in college, resulting in negative effects on attention spans, emotions, and memory consolidation (Kim, 2019).

   However, it is essential to note that one study found no significant relationship between sleep quality and learning achievement in junior high school students, as cognitive factors like motivation, IQ level, and study habits also play crucial roles in academic performance (Putra et al., 2023).

   In conclusion, the recommended sleep duration for students is approximately 8 to 10 hours per night. However, numerous studies indicate that many students do not meet this guideline, often due to
external factors. Despite the existing research, there is still a lack of literature discussing the specific impact of academic workload before bedtime on the sleep duration of senior high school students.

2. The Relationship of Sleep Hours on the Academic Performance of Students

Many students face challenges in achieving the recommended amount of sleep due to factors like stress, irregular schedules, technology use, and social activities. Various studies have investigated the link between students' average sleep duration and their academic performance (Harvard Summer School, 2021). One study from Carnegie Mellon University (2023) revealed a negative relationship between sleep duration and academic performance, with each lost hour of sleep leading to a 0.07 decrease in the end-of-term GPA for students sleeping less than 6 hours. Additionally, a substantial 80% of college students in the United States reported getting only 6.5 hours of sleep on average, falling short of the recommended 8-to-10-hour duration (Breese, 2020).

Sleep-related challenges are prevalent among American college students, with 68% experiencing sleep disturbances related to academics and personal matters. A significant number of students (35%) stay awake until 3 a.m. at least once a week, and around 20% resort to "all-nighters" monthly, contributing to the high percentage of sleep-disturbed students (68%). Insomnia is also common, affecting 30% of females and 18% of males at least once in a 90-day period. Napping, often seen as a manifestation of insufficient sleep, is practiced by 30-35% of college students (Bullock, 2022).

Studies have shown that students with consistent sleep patterns tend to perform better academically (Hershner, 2020). Furthermore, research by McNamara (2020) and Okano et al. (2019) supports the relationship between sleep hours and academic performance, with lack of sleep being linked to poor attention, cognition, and memory consolidation—essential factors for academic success.

Teenagers' biological changes in their circadian clock make it difficult for them to sleep past 11 PM, resulting in an average sleep duration of 7-7.25 hours, which falls short of the 9-9.5 hours required for sufficient rest (Brooks, 2019). Other studies have explored the association between sleep duration and academic performance among adolescents, consistently finding that those with adequate sleep perform better academically (Johnson et al., 2019). Additionally, Rodriguez et al. (2018) discovered a negative relationship between sleep disruptions and academic achievement, with students experiencing sleep disruptions showing lower grades and reduced cognitive functioning. Segaren (2018) revealed that students sleeping for nine hours or more had significantly higher GPAs than those getting less than six hours. Similarly, college students with less than six hours of sleep per night are more likely to have lower GPAs and encounter academic difficulties compared to those getting seven to nine hours (Bouchrika, 2022; Edubirdie, 2022).

In conclusion, numerous studies demonstrate that students struggle to attain the recommended amount of sleep due to various factors, affecting their academic performance. The lack of sufficient sleep can lead to mood disorders, anxiety, and depression. Despite the prescribed sleep duration for adolescents being eight to ten hours, a significant percentage of middle and high school students fail to meet this requirement. The correlation between sleeping hours and academic performance has been consistently observed, and students who get adequate sleep tend to excel academically.

3. The Relationship of Sleep Hours on the Classroom Participation of Students

Insufficient sleep has been linked to notable cognitive performance deficits among students, compared to their well-rested counterparts (Hartley et al., 2022). Interestingly, sleep-deprived students reported higher levels of concentration and effort despite their lack of sleep and also overestimated their cognitive task performance compared to well-rested students. These findings suggest that college students may not fully grasp the negative impact of sleep deprivation on their cognitive abilities.

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Tuziak (2018) found that a significant proportion (79%) of students sleep for only 1 to 2 hours during the daytime. The study also revealed varying levels of communication ability among respondents, with 28.2% reporting the best communication ability, 36.4% having moderate communication ability, 30.0% experiencing scarce communication ability with close friends and relatives, 3.6% possessing bad communication ability limited to interactions with parents, and 1.8% having the worst communication ability and avoiding communication altogether.

Shalini et al. (2021) observed that 47% of participants dedicate 6 to 7 hours to sleep, which positively impacts their class participation. Research indicates that lack of sleep can lead to reduced concentration, impaired memory, and compromised physical performance, all of which may negatively affect academic performance (Chen, 2022). However, it was found that occasional deficits of 1 to 2 hours from the recommended 8 to 10 hours of sleep did not exhibit a linear correlation with overall academic performance (Sygaco, 2021).

Sleep deprivation can have diverse repercussions on health, including a weakened immune system, an increased risk of anxiety, depression, car accidents, and poor academic performance (Gregoire, 2018). It emphasizes the importance of sleep for teenagers and provides valuable advice for improving sleep hygiene, such as limiting screen time before bed and maintaining a consistent sleep schedule.

Molina et al. (2020) discovered that sleep deprivation substantially impacted respondents’ optimistic thoughts but had a lower influence on their ability to pay attention and make decisions, suggesting that students’ psychological behavior is significantly influenced by lack of sleep. Lack of sleep can profoundly affect both the mind and body, leading to cognitive decline, memory loss, mood swings, and an elevated risk of accidents (Highland, 2018).

Multiple factors contribute to students’ sleep deprivation today, including electronic gadget usage, heavy academic workload, and engagement in extracurricular activities. Insufficient sleep can impede the immune system’s ability to fight infections, increase the risk of errors, and hinder academic achievement. Moreover, variations in hormone levels regulating hunger can contribute to weight gain (Gellner, 2018).

The consequences of sleep deprivation encompass exhaustion, impaired cognitive function, emotional instability, a compromised immune system, weight gain, and an increased risk of chronic health disorders (Health Essentials, 2022). Prioritizing sufficient sleep is crucial for overall health and well-being, and seeking professional healthcare advice is recommended for those struggling to establish healthy sleep patterns.

Studies in North Texas have shown that approximately 70.6% of college students report getting less than eight hours of sleep per night, impacting their ability to concentrate, regulate emotions, and consolidate memories (Kim, 2019).

In conclusion, while various studies have explored the relationship between sleep duration and cognitive performance, there remains a dearth of research specifically focusing on the sleeping hours of senior high school students and its connection to classroom participation. More investigation in this area is necessary to comprehensively understand the impact of sleep on academic engagement among this population.

**Synthesis**

With all the related studies and literature about the topic, it provides studies about the average sleeping hours and the time of students sleep. However, it does not provide the information about the sleep hours of senior high school in the Philippines because lack of sleep and late sleep schedule became frequent with the transition of class from online setup to blended learning that has 2 days online class and 3 days face-to-face class.
Additionally, with the studies and literature conducted with the relationship of sleep hours on the academic performance of students, there are literatures stating that there is a relationship between sleep hours and academic performance of students. However, there is no existing literature about the relationship of sleeping hours on the classroom participation of SHS students in a blended learning setup.

In conclusion, with the transition of mode of classes from online to face-to-face, students are having a difficult time balancing sleep and academic performance. There is no existing literature discussing the relationship between sleeping hours on senior high school students’ academic performance and classroom participation, because most studies were related to the sleep habits and sleeping hours on the academic performance on the face-to-face setting. This study wants to investigate the average sleep hours of SHS students, the relationship of sleep hours on academic performance, and the relationship of sleep habits on the classroom participation of SHS students. This study will contribute to a new body of knowledge about sleep and academic performance.

3. METHODS

Research Design

This study utilized quantitative research design to investigate the relationship of sleeping hours on the academic performance of SHS students during blended learning at NU-Nazareth. It aims to describe and analyze the relationship between two or more variables. It is used to determine the degree of association between variables and to identify patterns or trends in data. Hence, it is used to find patterns and correlations between variables without changing any variables or establishing cause-and-effect relationships (Cainday et al., 2022; IvyPanda, 2023). This design will determine the population of SHS students that measured their duration on sleep in hours, and their general weighted average (GWA) during blended learning setup.

Research Setting and Participants

The research setting for this study will be at NU-Nazareth, a university located in Sampaloc, Manila, Philippines. The participants of this study consists of three-hundred and twelve (312) SHS students. Researchers utilized a multi-stage sampling technique to have respondent from huge populations that applies two or more sampling techniques (Omule, 1984; Bhandari 2023). The sampling method enables the researchers to collect contextual data from respondents applying two or more sampling technique such as simple random technique and cluster sampling technique on a population of SHS level with the strands of Accountancy, Business, Management (ABM), General Academic Strand (GAS), Humanities and Social Sciences (HUMSS), and Science, Technology, Engineering, and Mathematics (STEM) students at NU-Nazareth’s sleep hours and academic performance. This additional data can offer quantitative data into the larger context and aid in the interpretation of the study’s findings. This method is used to ensure that the sample is representative of the population and to reduce bias in the selection process.

Research Instrument

This study used a close-ended survey questionnaire as a research instrument to gather quantitative data to determine the relationship of sleeping hours on academic performance of SHS students during blended learning setup. The survey questionnaire was divided into three parts. The first part of the questionnaire is the profile status of the SHS students, which includes grade level and section, gender, age, academic performance. The second part was a researcher made questionnaire which involves the sleep hours of SHS students on online class and face-to-face classes. The last part of the study uses a Likert scale to measure the classroom participation of students. Also, it involves their experiences to
determine the difference and relationship between sleeping hours and classroom participation of SHS students during blended learning setup.

The experts on a research field in a health department will check validity of the research questionnaire. Six (6) experts rate the questionnaire from 1 (not relevant) to 4 (highly relevant). The researchers analyzed the ratings from the six (6) experts that have resulted into 0.98 that states that the overall validity of items on the research instrument were accepted. The reliability of the research instrument will depend on the pilot testing to the fifteen (15) respondents on the survey questionnaire. Then, the researchers analyzed the preliminary data that they gathered using Cronbach’s Alpha that has a value of 0.93 that states that the data that they gathered was “very reliable”.

**Procedure**

The researchers formulate questions for the survey questionnaire that is based on the research question. Prior to commencing the actual data collection, a pilot study was conducted to evaluate the survey questionnaire and incorporating feedback from the pilot study to refine and enhance their reliability and validity. The data collection phase involved the distribution of consent letters to all SHS students from grade 11 and grade 12. The Respondents filled out and answered the consent form. If the Respondents consent to participate the study, they answered the survey questionnaire. Then, the researchers distributed the surveys face-to-face where they went to every classroom to gather respondents for their study. The researchers ensured that participants are fully informed about the study and that all responses are kept private and confidential. Then, the researchers apply the proper statistical treatment to the data that they gathered to have a valid analysis and interpretation.

**Data Analysis**

The profiles and sleeping hours of the respondents were calculated and analyzed using frequency and percentage. The data is not distributed properly according to the Shapiro-Wilk Test because the p-value is less than the significance level which has a value of 0.966 and p-value of 0.001. The researchers used the used Spearman’s rho Correlation formula to analyze the relationship between the sleep hours of SHS students and academic performance. Lastly, the researchers formulate the ordinal data of sleep hours and classroom participation of SHS students. The researchers used JASP statistical software to analyze the data that was gathered by the researchers. All tests were tested in 5% level of significance.

To interpret the values that the researchers got on the Spearman’s rho Correlation, they used Dancey and Reidy (2004) correlation interpretation table.

<table>
<thead>
<tr>
<th>Spearman’s rho</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.70</td>
<td>Very strong relationship</td>
</tr>
<tr>
<td>0.40-0.69</td>
<td>Strong relationship</td>
</tr>
<tr>
<td>0.30-0.39</td>
<td>Moderate relationship</td>
</tr>
<tr>
<td>0.20-0.29</td>
<td>Weak relationship</td>
</tr>
<tr>
<td>0.01-0.19</td>
<td>No or Negligible Relationship</td>
</tr>
</tbody>
</table>

4. RESULTS AND DISCUSSION

The summary of the demographic profile of respondents included in this study was shown in Table 2. The study was composed of four hundred and nineteen (419) SHS students currently enrolled in NU-Nazareth in the school year 2022-2023. The participants’ ages ranged from 16-20 years old, with one-hundred and sixty (160) females and ninety-four (94) males. There are one-hundred nineteen (119)
respondents from grade 11, and one hundred thirty-five (135) respondents from grade 12. Also, there are sixty-four (64) from ABM, twenty-three (23) from GAS, sixty-nine (69) from HUMSS, and ninety-nine (99) from STEM. Seventy-seven percent (77%) of the students have a general average of 90-100 which is categorized as “outstanding” in the K-12 grading system.

Table 2. Demographic Characteristics of Participants

<table>
<thead>
<tr>
<th>Profile Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>69</td>
<td>22%</td>
</tr>
<tr>
<td>17</td>
<td>112</td>
<td>36%</td>
</tr>
<tr>
<td>18</td>
<td>119</td>
<td>38%</td>
</tr>
<tr>
<td>19</td>
<td>37</td>
<td>12%</td>
</tr>
<tr>
<td>20</td>
<td>9</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>115</td>
<td>37%</td>
</tr>
<tr>
<td>Female</td>
<td>197</td>
<td>63%</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100%</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>147</td>
<td>47%</td>
</tr>
<tr>
<td>12</td>
<td>165</td>
<td>53%</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100%</td>
</tr>
<tr>
<td>Strand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABM</td>
<td>78</td>
<td>25%</td>
</tr>
<tr>
<td>GAS</td>
<td>28</td>
<td>9%</td>
</tr>
<tr>
<td>HUMSS</td>
<td>84</td>
<td>27%</td>
</tr>
<tr>
<td>STEM</td>
<td>122</td>
<td>39%</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100%</td>
</tr>
<tr>
<td>General Weighted Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75-79</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>80-84</td>
<td>29</td>
<td>9%</td>
</tr>
<tr>
<td>85-89</td>
<td>66</td>
<td>21%</td>
</tr>
<tr>
<td>90-100</td>
<td>217</td>
<td>70%</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100%</td>
</tr>
</tbody>
</table>

The researchers will present the analysis of data gathered through a survey questionnaire. The data was analyzed by using proper statistical treatment of Spearman’s rho Correlation.

**Sleep Hours of Students**

As for the sleeping hours of SHS students during blended learning, the findings are presented in Figure 1. The categories of the sleep hours were made by the researchers because there were no accurate categories for the sleeping hours based on the existing literature. According to the data, 67% of SHS students reported sleeping for 4 to 6 hours a day, which falls into the category of “inadequate sleep hours”. Additionally, 20% of SHS students reported getting 7 to 9 hours of sleep, categorized as “recommended sleep”. However, 10% of SHS students stated that they sleep for 1 to 3 hours a day, categorized as “short sleep hours”. Furthermore, 2% of students reported sleeping for 10 to 12 hours a day, falling into the category of “extended sleep hours”. Finally, 1% of respondents mentioned sleeping
for more than 12 hours, categorized as “excessive sleep hours”. Based on the data from this study, the average sleep duration for SHS students was 6 hours.

![Figure 1. Sleep Hours of Senior High School Students](image)

This result is consistent with the findings of Toyong (2020), who reported that students sleep less than 6 hours a day. Moreover, Amenabar (2023), citing Creswell et al. (2023), also supports the findings of this study, indicating an average sleep duration of 6 hours for students.

**The Relationship of Sleep Hours on the Academic Performance of Senior High School Students**

Table 2 presents the percentage of sleep hours and Figure 3 shows the percentage of academic performance of SHS students. It shows that 67% of SHS students reported that they sleep for more than 4 to 6 hours a day, and 77% of students mentioned that they have an academic performance of 90 to 100 that is measured by their GWA.

![Figure 2: Percentage of Sleep Hours of SHS students](image)

Figure 2 shows the results for the relationship of sleeping hours on the academic performance of SHS students. Also, Figure 4 presents the scatter plot of the relationship of sleeping hours on the academic performance of SHS students. The researchers used Spearman’s rho correlation which has a value of -0.077 and p-value of 0.172. According to Dancey and Reidy (2004) interpretation table, the data presented that there is no relationship between sleep hours and academic performance.
Figure 3. Percentage of the Academic Performance of SHS students

Table 3. The Relationship of Sleep Hours on the Academic Performance of SHS Students

<table>
<thead>
<tr>
<th>Variables</th>
<th>Spearman’s rho</th>
<th>p-value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Hours and Academic</td>
<td>0.010</td>
<td>0.858</td>
<td>No relationship</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. Scatter Plot of The Relationship of Sleep Hours on the Academic Performance of SHS Students

The results of this study contradict the existing literature that there is a relationship between sleep hours and academic performance. Among the respondents, an astonishing 67% of SHS students disclosed that their sleep duration falls within the range of more than 4 to 6 hours per day—a period that is often deemed inadequate for optimal cognitive function and scholastic success (Putra et al., 2023). Remarkably, despite this ostensibly limited amount of sleep, a majority of 77% of participants indicated that they have achieved exceptional academic performance, as evidenced by attaining grades between 90 to 100 on their General Weighted Average (GWA). The finding states that there is no relationship between sleep hours and academic performance. Hence, sleep hours cannot be the reason for the 90 to 100 GWA of students, there are other factors such as I.Q level, study habits, and the school curriculum, and other factors affecting their academic performance.

The Relationship of Sleep Hours on the Classroom Participation of Senior High School Students

Figure 5 presents the pie graph of mode of classroom participation of SHS students. The data was measured by (1.0-1.79) Never, (1.80-2.59) Rarely, (2.60-3.39) Sometimes, (3.40-4.19) Frequently, and (4.20-5.00) Always. It shows that 49% of the SHS students were “Frequently Active" in classroom participation despite their sleep hours.
Figure 5: Percentage of Classroom Participation of SHS Students

The results for the relationship of sleep hours on the classroom participation of SHS students was shown in Table 4 and the scatter plot was shown in Figure 6. The data presented are in the form of scale and ordinal data. The researchers used Spearman’s correlation with a value of -0.115 and p-value of 0.043. According to Dancey and Reidy (2004) interpretation table, the data presented that there is no relationship between sleep hours and classroom participation.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Spearman’s rho</th>
<th>p-value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Hours and Classroom</td>
<td>0.008</td>
<td>0.890</td>
<td>No relationship</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6. Scatter Plot of The Relationship of Sleep Hours on the Classroom Participation of SHS Students

The result of this data shows that there is no relationship between sleep hours and classroom participation of SHS students. It is a new finding and contribution to the body of knowledge that sleep hours cannot be affected by classroom participation. Even though students sleep for 4 to 6 hours a day, 28% were sometimes active, 49% were frequently active, and 18% were always active when they participate during classroom discussion. Hence, this result is a new finding that there is no literature to support the result of the study.

5. CONCLUSION

The results of the study enabled the researchers to arrive at the following significant findings and conclusions. 67% of SHS students reported that they sleep for more than 4 to 6 hours a day, and 70% of
students mentioned that they have an academic performance of 90 to 100 that is measured by their GWA. Also, the study found that the average sleeping hours of students is 6 hours. The researchers have concluded that the data that they gather has no relationship between sleep hours and academic performance. Also, they found out that there is no relationship between sleep hours and classroom participation of students. Hence, the findings states that academic performance and classroom participation cannot be affected by their sleep hours. It indicates that there are factors other than sleep, such as motivation, interest in the subject matter, teaching methods, classroom environment, and individual learning styles, may have a greater impact on students' participation level.

The researchers encountered several limitations that affect the results of their study. Firstly, the study had a limited sample size, focusing on a specific population, namely a particular age group or academic institution. This limited scope may hinder the generalizability of the findings to a broader population. In this case, the study was conducted in NU-Nazareth, where only two sections from grades 11 and 12 GAS were included, while there were a significant number of students in grades 11 and 12 STEM. Consequently, the findings may not accurately represent the wider population. Furthermore, the study was influenced by cultural or contextual factors inherent to the population under investigation. Sleep patterns, academic expectations, and classroom dynamics can vary considerably across different cultures or educational systems, potentially influencing the relationship between sleep hours and academic outcomes. Additionally, the setting of this study is limited at NU-Nazareth which means that the sample of participants or data collected may not be representative of the entire community or city. Lastly, the study was constrained by the limited time allocated for data gathering, which may not have been sufficient to fully capture the target population desired by the researchers. Insufficient data collection time can compromise the representativeness and comprehensiveness of the study, potentially impacting the accuracy and reliability of the findings.

Based on the findings of the study indicating no relationship between sleep hours and academic performance or classroom participation, it is important to consider a holistic approach to student success. While sleep is undoubtedly crucial for overall health and well-being, it may not be the sole determinant of academic performance or classroom engagement. Implementing policies and intervention about sleep hours to the NU-Nazareth will fail because sleep hours are not a determining factor why students fail or passed. Given the findings of this study, the researchers strongly recommend that the school administration carefully assess and evaluate the existing academic schedule of the school while operating under the blended learning system. The researchers recommend students to have their timetable organized in order to balance their schedule during their blended learning setup. Thus, the study emphasizes the need for further research on this topic, particularly on the relationship of sleep on the human behavior and cognitive ability of the SHS students in the schools of Manila. Additionally, future researchers can explore both quantitative and qualitative factors that contribute to high academic performance and active participation in classroom discussions among sleep-deprived students. They can use the data that the researchers have collected as a guide in terms of sleep hours, academic performance, and classroom participation.

6. REFERENCES


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