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Assessment of Sleep Hygiene and Daytime Sleepiness of Senior High School Students in Private Schools in The Philippines

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Abstract – The study focused on the Sleep Hygiene and Daytime Sleepiness of Senior High School Students in Private Schools in The Philippines. The researchers employ correlational study methods to determine the association between variables. The research was conducted at a private non-sectarian academic institution located in Cebu City, Philippines. Moreover, the researchers selected respondents from the target population using simple random sampling. The research respondents are senior high school students who are currently enrolled at the selected private school in Cebu City. Furthermore, the research instrument of the study is the Sleep Hygiene Index (SHI) which is a standardized self-rating tool used to evaluate sleep hygiene practices. The study revealed a notable correlation between sleep hygiene and daytime sleepiness, emphasizing the significance of upholding proper sleep hygiene to mitigate daily sleepiness among Grade 12 students. Additionally, the research found that students who consistently practiced good sleep hygiene reported higher levels of alertness and improved cognitive function during the day.

Keywords: *Sleep Hygiene and Daytime Sleepiness*

Introduction

Sleep hygiene refers to a collection of essential habits crucial for maintaining sufficient sleep and enhancing general health and well-being (Brennan, 2021). These practices encompass adhering to consistent sleep schedules, fostering beneficial sleep behaviors, establishing a sleep-friendly setting, and participating in activities that promote optimum sleep. Nevertheless, a multitude of students face difficulties in fulfilling the suggested sleep criteria as a result of diverse external and internal variables. These influences encompass scholastic requirements such as homework, prolonged exposure to screens, early commencement of school, and the physiological changes linked to puberty. Global research repeatedly emphasizes the prevalent problem of inadequate sleep among students. An extensive meta-analysis of 41 global surveys found that students often do not get sufficient sleep on school nights, but make up for it by sleeping more on weekends (Illingworth, 2020). Inadequate sleep has a major impact on various negative health outcomes such as obesity, inflammation, cardiovascular disease, cognitive impairment, and even early mortality (Ahmadi & Omidvar, 2022).

According to recent studies, a concerning percentage of high school students have excessive

daytime sleepiness and frequently sleep less than the advised seven hours per night. Furthermore, a significant association between daytime sleepiness and academic performance has been found (Zhang et al., 2020). After 16 hours of nonstop alertness, cognitive capacities begin to deteriorate, making the effects of partial sleep deprivation more pronounced over time (Worley, 2018). Excessive daytime sleepiness poses a notable public health issue due to its link with cognitive decline, automobile accidents, work-related injuries, and decreased efficiency (Fan & Qi, 2020).

Despite a thorough investigation of sleep hygiene and daytime sleepiness in teenagers and high school students, there are still major gaps in knowledge, particularly due to a lack of diversity in the groups studied. The majority of studies in this field have been carried out in Western nations, highlighting the necessity for additional investigations in culturally and contextually diverse environments, such as non-Western countries like the Philippines. Understanding the impact of cultural and contextual factors on sleep hygiene and daytime sleepiness is crucial for developing

effective interventions and strategies. By including non-Western countries like the Philippines in research studies, we can gain valuable insights into how cultural practices, social norms, and environmental factors influence sleep patterns in adolescents.

While prior studies have explored the correlation between sleep hygiene and daytime sleepiness in different age cohorts, there is a distinct need for more focused investigations centered on Grade 12 students. Students at this educational level face unique challenges and experiences that may have an impact on their sleep quality. Additional research with a specific focus on Grade 12 students has the potential to offer valuable understanding regarding the factors that impact their sleep hygiene and daytime sleepiness. Contextual factors that may affect a person's sleep habits can be uncovered by investigating things like academic strands, employment status, and household living arrangements. Academic strands, for instance, may involve different levels of workload and stress, potentially affecting sleep habits and daytime sleepiness. Similarly, the employment status of Grade 12 students can introduce additional time constraints and responsibilities that may impact their sleep hygiene. Household living arrangements can also vary greatly within this group, which may have an impact on factors like noise levels, the environment in which people sleep, and the availability of tools that support sound sleep.

The study aims to examine the relationship between sleep hygiene and daytime drowsiness among Grade 12 students attending a private school in Cebu City. Acquiring comprehension of this connection is vital as it can provide significant insights for designing interventions that improve sleep quality and give relevant sleep education to ensure ideal sleep hygiene.

Methods and Materials

This study is descriptive correlational, attempting to investigate the association between Senior High School students' sleep hygiene and daytime sleepiness. The researchers employ correlational study methods to determine the association between variables. The research was conducted at a private non-sectarian academic institution located in Cebu City, Philippines. The institution is known for its rigorous academic standards and diverse student population.

Moreover, the researchers selected respondents from the target population using simple random sampling. Simple random sampling is a probability sampling strategy that assures that every individual in the population has an equal chance of being chosen for the study. The research respondents are senior high school students who are currently enrolled at the selected private school in Cebu City. The total population is nine hundred twenty-two (922) and the computed sample size using a five percent (5%) standard error is two hundred seventy-two (272), which was obtained using Slovin's Formula. The respondents were randomly selected by using Microsoft Excel's random formula function. During the span of the data gathering, two hundred thirty-nine (239) students were able to answer the survey. Likewise, the inclusion of students from the General Academic Strand, Science and Technology, Engineering, and Math Strand, and Accountancy and Business Management provided a diverse sample, allowing for a broader understanding of sleep hygiene practices and daytime sleepiness among Senior High school students from different academic strands. The participants were excluded if they were not enrolled in the selected private school and if they were under 18 years of age.

Furthermore, the research instrument of the study is the Sleep Hygiene Index (SHI) which is a standardized self-rating tool used to evaluate sleep hygiene practices. These 13 items were developed by combining data from sleep hygiene research with diagnostic standards specified in the International Classification of Sleep Disorders for detecting poor hygiene (Mastin et al., 2006). Participants were asked to rate how often they engaged in various behaviors. On a Likert scale of 0 to 4, each item is given a score between 0 and 4. The overall scores ranged from 0 to 52, where lower values indicated good sleep hygiene and higher scores indicated poor sleep hygiene. Scores of 26 and lower are regarded as good, 27-34 are deemed normal, while 35 and above are considered poor sleep hygiene.

Results and Discussion

This section examines the sleep hygiene and daytime sleepiness levels among Senior High school

students, specifically focusing on the association between sleep hygiene and daytime sleepiness. The findings make a valuable contribution to the nursing field by providing insights that can assist nurses in delivering relevant sleep health education, hence promoting behaviors that enhance overall health. By understanding the relationship between sleep hygiene and daytime sleepiness in Senior High school students, nurses can tailor their education efforts to address specific factors contributing to poor sleep quality. This knowledge can ultimately help students adopt healthier sleep habits and improve their overall well-being. Furthermore, these findings may also inform future research and interventions aimed at improving sleep health among adolescents.

Profile	Frequency (N = 239)	Percentage (%)
Sex		
Male	109	45.6
Female	130	54.4
Strand		
STEM	184	77.0
ABM	45	18.8
GAS	10	4.2
Employment Status		
Employed	14	5.9
Unemployed	225	94.1
Household Living Arrangement		
Living with family or relatives	224	93.7
Living with non-relative	8	3.3
Living Alone	7	2.9

Table 1. Socio-Demographic Profile of the Respondents

Table 1 presents a concise overview of the characteristics of the chosen Grade 12 students, including their gender, academic focus, work situation, and living arrangements within their households. The majority of responders are female, and a significant proportion of them are enrolled in the STEM strand, whereas there is limited representation from the GAS and ABM strands. In addition, a minority of students are working, while the majority reside with their family or relatives. It is worth noting that the gender distribution in the sample may have influenced the overall representation of academic focus, as traditionally STEM fields have been dominated by males. Furthermore, understanding the work situation and living arrangements of these Grade 12 students can provide insights into their level of financial independence and support systems.

Table 2. Level of Sleep Hygiene Per Indicators

Indicators	Weighted Mean	Standard deviation	Remarks
1. I take daytime naps lasting two or more hours.	1.87	0.066	Sometimes
2. I go to bed at different times from day to day.	2.66	0.071	Frequent
3. I get out of bed at different times from day to day.	2.12	0.070	Sometimes
4. I exercise to the point of sweating within 1 hour of going to bed.	1.12	0.069	Rarely
5. I stay in bed longer than I should two or three times a week.	2.62	0.070	Frequent
6. I use alcohol, tobacco, or caffeine within 4 hours of going to bed or after going to bed.	1.62	0.087	Sometimes
7. I do something that may wake me up before bedtime (for example: play video games, use the internet, or clean).	3.20	0.059	Frequent
8. I got to bed feeling stressed, angry, upset, or nervous.	1.95	0.059	Sometimes
9.I use my bed for things other than sleeping (for example: watch television, read, eat, or study).	2.80	0.075	Frequent
10. I sleep on an uncomfortable bed (for example: poor mattress or pillow, too much or not enough blankets).	1.46	0.065	Rarely
11. I sleep in an uncomfortable bedroom (for example: too bright, too stuffy, too hot, too cold, or too noisy).	1.85	0.064	Sometimes
12. I do important work before bedtime like studying.	3.04	0.055	Frequent
13. I think, plan, or worry when I am in bed.	2.98	0.066	Frequent
Grand Mean	**2.25**	**0.067**	**Sometimes**

*0.00 – 0.80 Never, 0.81 – 1.60 Rarely, 1.61 – 2.40 Sometimes, 2.41 – 3.20 Frequent, 3.21 – 4.00 Always

Table 2 demonstrates that a majority of Grade 12 students occasionally exhibit inadequate sleep habits. Advancing to more advanced levels of education, such as Grade 12, typically entails heightened academic requirements and obligations. Students' academic focus may lead to inconsistent sleep patterns, late-night studying, and excessive use of electronic devices, all of which can have detrimental effects on sleep hygiene. Additionally, adolescents and young adults are prone to engaging in activities that can disrupt their sleep, such as using electronic devices before bed, consuming caffeine, or energy drinks, or participating in late-night social activities. These behaviors can interfere with the ability to initiate and maintain quality sleep, contributing to poor sleep hygiene. Furthermore, adolescent physiological and psychological changes can have an impact on sleep patterns. The natural shift in circadian rhythm, known as "sleep phase delay," leads to a tendency for teenagers to stay up later at night and struggle with early morning awakenings, which can further contribute to poor sleep hygiene.

These results are in line with other studies that investigated sleep hygiene. For instance, a study explored Canadian college students' sleep hygiene behaviors and their relationship to sleep quality. The results showed that a significant number of college students reported having bad sleep hygiene habits, such as erratic sleeping patterns, using electronics right before bed, and consuming coffee (Chaput et al., 2018). In another study, college students in Hong Kong were asked about their sleep hygiene routines and how well they slept. According to the findings, a significant proportion of undergraduate students reported having bad sleep hygiene habits, such as inconsistent sleep cycles, taking too many naps during the day, and using electronics in bed (Wong, 2020). Likewise, some major contributors to poor sleep hygiene include excessive use of mobile phones, TV, the internet, and social media (Van den Bulck, 2004). Almost every adolescent has a smartphone with easy access to the internet and social media (Abojon et. al., 2022; Ortiz et. al., 2023: Derasin et. al., 2021: Carredo et. al., 2022: Canque et. al., 2021)

The collaboration between educational institutions and medical practitioners is crucial for implementing comprehensive sleep health initiatives, including sleep tests, personalized advice, and assistance for students. This can lead to improved sleep quality, cognitive functioning, academic performance, and mental well-being.

Table 3. Level of Daytime Sleepiness Per Indicators

Indicators	Weighted Mean	Standard deviation	Remarks
1. Chance of falling asleep when sitting and reading.	1.73	0.058	Moderate
2. Chance of falling asleep when sitting and watching TV or a video.	1.53	0.062	Moderate
3. Chance of falling asleep when sitting in a classroom at school during the morning.	1.54	0.062	Moderate
4. Chance of falling asleep when sitting and riding in a car or a bus for about half an hour.	1.64	0.067	Moderate
5. Chance of falling asleep when lying down to rest or nap in the afternoon.	2.38	0.050	High
6. Chance of falling asleep when sitting quietly by yourself after lunch.	1.02	0.060	Slight
7. Chance of falling asleep when sitting and eating a meal.	0.38	0.045	Never
Grand Mean	**1.46**	**0.058**	**Slight**

*0.00 – 0.75 Never, 0.76 – 1.50 Slight, 1.51 – 2.25 Moderate, 2.26-3.00 High

According to Table 3, the majority of Grade 12 students had a low probability of dozing off during specific activities throughout the day. Every student may possess distinct physiological and psychological elements that impact their sleep and daytime vigilance. Certain individuals may exhibit greater resilience to the consequences of inadequate sleep habits, whereas others may be more susceptible and inclined to experience excessive tiredness during the day. Individual variances in daytime sleepiness can be influenced by factors such as heredity, underlying health issues, or changes in sleep architecture.

According to Fisher (2013), adolescents who experience fatigue and daytime sleepiness often have sleep problems, psychosocial consequences, and medical diseases. These sleep problems can range from insomnia to sleep apnea, and can significantly impact their overall well-being. Insufficient sleep and extreme daytime sleepiness among adolescent pupils can heighten the likelihood of cognitive and emotional disruptions, subpar academic achievement, and physical harm (Dahl & Lewin, 2002). Furthermore, inadequate sleep has been linked to an increased risk of mental health issues such as depression and anxiety in adolescents (Hysing et al., 2016). Additionally, it can also negatively impact their overall well-being and quality of life.

Table 4. Pearson-r Correlation Test Summary Between the Level of Sleep Hygiene and Daytime Sleepiness

Variables	Pearson r Coefficient	P-value	Decision	Interpretation
Level of Sleep Hygiene and Daytime Sleepiness	0.595	0.000	Reject the null hypothesis	Significant

Table 4 explains that with a Pearson r coefficient of 0.595 and a P – value of 0.000, there is a significant relationship between the Level of Sleep Hygiene and Daytime Sleepiness. This finding suggests that when sleep hygiene deteriorates, daytime sleepiness increases significantly. Likewise, when

sleep hygiene improves, daytime sleepiness decreases to a normal level. Sleep hygiene refers to the practices and habits that promote quality sleep, such as maintaining a regular sleep schedule and creating a comfortable sleep environment. Therefore, it is crucial to prioritize good sleep hygiene to manage daytime sleepiness effectively.

The substantial association between sleep quality and wakefulness is apparent in the immediate repercussions of inadequate sleep. The aforementioned consequences encompass diminished productivity on a subsequent day, accompanied by drowsiness, emotional instability, unease, diminished self-assurance, compromised cognitive capabilities, amnesia, reduced academic achievement, and heightened vulnerability to accidents (Foti et. al., 2011; Bartel et. al., 2015). This suggests that adopting healthy sleep habits not only reduces daytime sleepiness but also has positive effects on various aspects of daily functioning. Therefore, promoting and implementing interventions aimed at improving sleep hygiene can be beneficial in addressing excessive daytime fatigue in both adults and teenagers.

Conclusion

The study revealed a notable correlation between sleep hygiene and daytime sleepiness, emphasizing the significance of upholding proper sleep hygiene to mitigate daily sleepiness among Grade 12 students. Furthermore, the research found that students who consistently practiced good sleep hygiene reported higher levels of alertness and improved cognitive function during the day. These findings suggest that implementing strategies to promote healthy sleep habits could greatly benefit Grade 12 students in terms of their overall well-being and academic performance.

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