

Predictive Effects of Sleep Deprivation on the Academic Performance of Grade 12 General Academic Strand Learners

Bainare B. Pontino

MSU-LNCAT, Marawi City, Philippines

ABSTRACT: This study investigated the predictive effects of sleep deprivation on the academic performance and personal behavior of Grade 12 General Academic Strand (GAS) learners at Racman Pimping Maniri Dumarpa (RPMD) National Science High School during the academic year 2023–2024. Adequate sleep is a foundational physiological mechanism necessary for the human brain to function at its maximum capacity, whereas persistent sleep loss severely diminishes vital cognitive skills, alertness, memory, concentration, and general classroom productivity. To examine these complex dynamics within a localized Senior High School context, the researcher utilized a quantitative descriptive-correlational research design. The target population and respondent universe comprised sixty-two (62) officially enrolled Grade 12 GAS learner-respondents, encompassing both male and female. Data collection was systematically executed using a structured survey questionnaire explicitly divided into specific analytical blocks to assess the learner-respondents' baseline demographic profiles, determine the underlying causes of their late-night habits, and measure the subsequent structural impacts of sleep loss on their academic performance and personal behaviors. To overcome environmental and field tracking difficulties, strategic local tracking methods were successfully employed. Statistical treatment of the gathered data utilized frequency and percentage distributions for baseline demographic sorting; weighted means, standard deviations, and statistical rankings for categorical appraisal; and the Pearson Product-Moment Correlation Coefficient to establish the statistical significance of relationships between the variables. Preliminary demographic results indicated that the largest portion of the learner population clustered within the 20 to 22 years old bracket (46.77%), followed closely by the 17 to 19 years old cohort (43.55%), demonstrating a predominant late-adolescence profile with unique variations in academic entry age. The outcomes indicated that the subjects routinely endure sleep deprivation during late adolescence. Conclusively, the analytical computations established that the learner-respondents' baseline profiles and the specific catalysts behind their lack of sleep yielded no statistically significant relationship with their academic ratings or behavioral tendencies. Crucially, the absence of a significant relationship demonstrates that sleep deprivation uniformly affects the entire learner-respondents pool, showing no variance based on demographic traits such as age or sex. This established dataset provides an empirical foundation for understanding the behavioral and cognitive vulnerabilities driven by severe nighttime sleep debt among specialized senior high school learners.

KEYWORDS: academic performance, learners, general academic strand, descriptive-correlational, sleep deprivation

INTRODUCTION

Sleep serves as a fundamental physiological mechanism for rest and recovery amid daily struggles and demands. However, many individuals fail to recognize that without adequate rest and sleep, the brain cannot function at its maximum capacity, and the body suffers a similar decline. Unfortunately, sleep deprivation occurs when an individual consistently fails to obtain a sufficient amount of sleep. Many learners stay up late into the night, either dedicated to studying or engaged in entertainment. Consequently, learners struggle to regulate their sleep schedules, which ultimately compromises their academic performance. It is well-established that adequate sleep is essential for optimal human functioning, as it directly restores the energy required for daily tasks. Conversely, a lack of sleep results in diminished energy and reduced productivity. Experiencing sleep deprivation at night while being required to attend school early in the morning can negatively impact classroom performance due to daytime sleepiness.

The day following a night of poor or abnormal sleep is inevitably disruptive, regardless of the cause. Individuals may fall asleep at work, at school; they often feel fatigued, experience deficits in concentration and vigilance, suffer memory lapses, display irritability or frustration, and face a higher probability of accidents or injury. The skills impaired by sleep loss are vital not only for general survival but also for a successful learning process. To maximize educational outcomes, the proper functioning of cognitive skills—such as memory, attention, concentration, and alertness—is imperative. However, all of these faculties are severely compromised

by sleep deprivation. The negative impacts of sleep loss on alertness and cognitive performance point to decreases in brain activity and function, primarily within the thalamus, which is the brain structure heavily involved in alertness, attention, and higher-order cognitive processing (Thomas et al., 2000).

Although the average amount of sleep required for adults is eight hours per night, the actual amount needed is highly individualized and depends on what is necessary to avoid daytime drowsiness. Adolescents, in particular, face challenges in managing their sleep schedules, which directly affects their learning outcomes. Some learners are occupied with after-school programs, while others are typically preoccupied with social media or chatting with friends, siblings, and peers, thereby losing track of time intended for rest. Generally, there are four primary consequences of sleep loss: sleepiness, fatigue, changes in attention and performance, and emotional fluctuations. Driven by these issues, the researcher chose this topic to investigate the underlying causes of sleep deprivation and its specific effects on the performance of Grade 12 General Academic Strand (GAS) learners at Racman Pimping Maniri Dumarpa (RPM) National Science High School. While occasional sleep loss is common, persistent sleep deprivation is a critical concern that demands academic investigation.

MATERIALS AND METHODS

This study primarily focused on assessing the effects of sleep deprivation on the academic performance of Grade 12 General Academic Strand (GAS) learners at Racman Pimping Maniri Dumarpa (RPM) National Science High School during the academic year 2023–2024. The target population of this study comprised sixty-two (62) learners who were officially enrolled in the General Academic Strand at the institution during the same school year. These sixty-two (62) learner-respondents, including both males and females, were selected to ensure they met the criteria necessary to answer the core research questions. The scope of the investigation was explicitly bounded by specific parameters and divided into distinct parts using a survey questionnaire. First, it evaluated the baseline profile of the learner-respondents, focusing on demographic characteristics such as age, sex, parents' highest educational attainment, and nightly sleep duration. Second, the study identified the underlying causes of sleep deprivation experienced by the learners. Third, the research measured the subsequent effects of sleep loss on the learner-respondents, specifically categorizing the outcomes into academic performance and personal behavior. Finally, the study analyzed whether a significant relationship exists between the learner-respondents' profile characteristics and the identified causes and effects of sleep deprivation toward their overall school performance and personal behavior. To overcome logistical difficulties in locating the respondents, the researcher utilized strategic local tracking methods to successfully gather all relevant information from the selected GAS learners. To address these objectives, the researcher employed a descriptive-correlational research design. A correlational research design is a quantitative method used to investigate the relationships between two or more variables without any direct control or manipulation from the researcher. As Creswell (2002) noted, quantitative research is a systematic process involving the collection, analysis, interpretation, and writing of a study's results. This quantitative approach was highly appropriate for the study, as it allowed the researchers to objectively observe, measure, and calculate the behaviors and performance metrics of the sleep-deprived respondents. Utilizing this framework ensured the acquisition of valid information and highly reliable data directly from the learner-respondents' pool.

For the statistical treatment of the collected data, several computational tools were applied to guarantee an accurate presentation of the learners' perceptions. Frequency and percentage distributions were used to organize the demographic data, while the weighted mean, standard deviation, and rank were utilized to evaluate the primary causes and overall effects of sleep deprivation. Ultimately, the Pearson product-moment correlation coefficient was executed to determine the statistical significance of the relationships between the respondents' background profiles and the variables of sleep loss, personal behavior, and academic achievement.

RESULTS AND DISCUSSION

This section presents the results of the survey questionnaire, along with their corresponding interpretations regarding how the learner-respondents perceive the effects of sleep deprivation on their academic performance. These findings include the respondents' demographic profiles, the causes of their sleep deprivation, and the resulting effects on their personal behavior.

Table I. Frequency and percentage distribution of the respondents according to age

Age	Frequency (f)	Percentage (%)
17-19 years old	27	43.55
20-22 years old	29	46.77
23-25 years old	6	9.68
Total	62	100.00

Table 1 presents the frequency and percentage distribution of the sixty-two (62) Grade 12 General Academic Strand (GAS) respondents at Racman Pimping Maniri Dumarpa (RPMD) National Science High School classified according to age.

The data reveals that the largest segment of the learner population falls within the 20 to 22 years old bracket, accounting for 29 respondents or 46.77% of the total sample size. This is closely followed by the 17 to 19 years old category, which comprises 27 respondents or 43.55%. Conversely, the remaining 6 respondents (9.68%) belong to the oldest cohort of 23 to 25 years old.

The overall demographic spread indicates that the vast majority of the Grade 12 learners are clustered between 17 and 22 years old, which directly places them in their late adolescence stage. This distribution aligns with conventional senior high school expectations, though the notable presence of learners aged 20 and above reflects variations in academic entry age, potentially due to historical curriculum adjustments or localized learners' histories within the city.

Table 2. Frequency and percentage distribution of the respondents according to sex

Sex	Frequency (f)	Percentage (%)
Female	38	61.29
Male	24	38.71
Total	62	100.00

Table 2 outlines the frequency and percentage distribution of the sixty-two (62) Grade 12 General Academic Strand (GAS) learner-respondents categorized by sex. The data demonstrate that the learner-respondents were predominantly female, comprising 38 respondents or 61.29% of the total population. On the other hand, male learners accounted for 24 respondents or 38.71% of the cohort.

Table 3. Frequency and percentage distribution of the respondents According to nightly sleep duration

Sleep duration	Frequency (f)	Percentage (%)
8 hours	4	6.45
6 hours	36	58.06
4 hours	21	33.87
2 hours	1	1.61
Total	62	100.00

Table 3 displays the frequency and percentage distribution of the sixty-two (62) Grade 12 General Academic Strand (GAS) learner-respondents based on their nightly sleep duration. The data reveals that a significant majority of the learners' population operates on a restricted sleep schedule, with 36 learner-respondents or 58.06% indicating that they obtain only six hours of sleep a day. This is followed by a substantial portion consisting of 21 respondents (33.87%) who secure a mere four hours of sleep nightly. Conversely, only a small minority of 4 learners (6.45%) achieve the medically recommended threshold of eight hours a day, while 1 learner (1.61%) experiences extreme restriction at just two hours of sleep a day.

The descriptive trend clearly demonstrates that 93.54% of the sampled Grade 12 GAS learners are obtaining fewer than the recommended eight hours of nightly rest. This acute concentration within the four-to-six-hour range highlights a widespread state of sleep insufficiency among the learners. In an academic framework, structural sleep debt of this magnitude typically leaves learners highly susceptible to daytime somnolence, diminished attention spans, and chronic cognitive fatigue, providing a crucial biological backdrop for the subsequent analysis of their classroom performance and behavioral patterns.

According to Abad and Dela Cruz (2023), insufficient sleep has been linked to notable cognitive performance deficits among learners compared to their well-rested counterparts. In their study, they observed that 47% of the participants dedicated 6 to 7 hours to sleep. While this duration still supported their class participation, they noted that a severe lack of sleep can lead to reduced concentration, impaired memory, and compromised physical performance—all of which may negatively affect academic performance. However, the researchers 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.

Table 4. Frequency, percentage, and rank distribution of the primary causes of sleep deprivation among learner-respondents

Primary causes of sleep deprivation	Frequency (f)	Percentage (%)	Rank
Excessive screen time and digital device utilization	28	45.16	1
Late-night peer interactivity and socializing (e.g., dorm mates, friends, family members)	13	20.97	2
Prolonged academic engagement (e.g., studying, assignments, projects)	10	16.13	3.5
Domestic stress and familial issues	10	16.13	3.5
Adverse environmental and ambient conditions (e.g., noise, unfavorable room conditions)	1	1.61	5
Total	62	100.00	

Table 4 details the frequency, percentage, and rank distribution regarding the primary causes of sleep deprivation among the sixty-two (62) Grade 12 General Academic Strand (GAS) learner-respondents. The empirical data highlight that excessive screen time and digital device utilization is the most dominant catalyst for sleep debt among the learners, securing the first rank with a frequency of 28 respondents or 45.16% of the total sample pool. Placing second is late-night peer interactivity and socializing (either with dorm mates, friends, and family members), which accounts for 13 learner-respondents or 20.97%. Interestingly, prolonged academic engagement (studying, assignments, and projects) and domestic stress and familial issues share a statistical tie at rank 3.5, with each factor registering 10 learner-respondents or 16.13%. Conversely, adverse environmental and ambient conditions (such as noise or unfavorable room conditions) emerged as the least influential factor, ranking fifth with only 1 respondent or 1.61%. The prominent ranking of digital device usage over institutional or environmental factors strongly indicates that adolescent sleep habits are heavily driven by voluntary media consumption, often referred to in modern behavioral psychology as "revenge bedtime procrastination." since learners spend the daytime under structured scholastic oversight, they often sacrifice late-night hours to reclaim personal leisure time through screens. This behavior is compounded by late-night socializing (rank 2), showcasing that digital connectivity constantly extends peer interactions past physiological resting boundaries. Furthermore, the identical statistical footprint (rank 3.5) shared by academic workload and domestic stress demonstrates that these learners are managing a heavy dual burden. As Grade 12 GAS learners at a science high school, the compounding pressures of graduating requirements and familial expectations force them to treat physiological recovery as a secondary priority. Ultimately, the results reveal that behavioral and psychological stressors overwhelmingly dictate the severe sleep deficits observed in this learner population, while physical sleeping environments play a negligible role. These results are supported by Khanani et al. (2025), who found that excessive screen time and digital device overuse significantly harm the physical, mental, and academic well-being of senior high school learners, with daily usage exceeding 3 to 4 hours consistently linked to adverse health outcomes.

Table 5 presents the weighted mean, standard deviation, descriptive interpretation, and corresponding ranking regarding the effects of sleep deprivation on the school performance of the sixty-two (62) Grade 12 General Academic Strand (GAS) learner-respondents. The quantitative data indicates that the highest-ranked indicator is "I maintain active participation during classroom discussions," registering a weighted mean of 3.27 (SD = 0.34) with a descriptive interpretation of always. This is followed by the second rank, "daytime sleepiness impairs my critical thinking, problem-solving, and creative abilities in class," which yielded a weighted mean of 2.92 (SD = 0.07) interpreted as often. Similarly, respondents noted that they often experience involuntarily falling asleep during instructional periods, placing third with a mean of 2.89 (SD = 0.06). Conversely, the lowest-rated item was "experiencing a lack of sleep serves as a driver to motivate my learning engagement," falling into the tenth rank with a mean of 1.77 (SD = 0.76),

descriptively interpreted as sometimes. Cumulatively, the overall average weighted mean for school performance stands at 2.64 (SD = 0.64), corresponding to a qualitative description of often.

The overall average weighted mean demonstrates that sleep insufficiency regularly manifests as functional academic impairments inside the classroom environment. Interestingly, a compelling cognitive paradox emerges within the data: despite running on chronic sleep deficits, learner-respondents perceive themselves as consistently remaining active during classroom interactions (rank 1). This behavioral resilience is highly indicative of the competitive, high-stakes academic culture typical of a National Science High School, where senior learners rely heavily on sheer willpower, high motivation, or temporary coping mechanisms to sustain visible performance. However, the subsequent rankings expose the absolute physiological boundaries of this survival mechanism. The learners explicitly acknowledge that fatigue frequently compromises high-order executive functions, such as complex critical thinking (rank 2), basic physical alertness (rank 3), and short-term memory recall (rank 4). The low ranking of sleep loss as an academic motivator (rank 10) further confirms that severe rest debt acts strictly as a cognitive tax, draining the mental reserves required for sustained attention and academic growth. Ultimately, while students actively fight to mask their exhaustion during direct discussions, their underlying cognitive processing, memory consolidation, and classroom focus are profoundly and frequently compromised by their nightly sleep deficits.

Table 5. Weighted mean and standard deviation of the effects of sleep deprivation on learner-respondents' academic performance

Indicators	Weighted mean (x)	Standard deviation (SD)	Descriptive interpretation	Rank
I maintain active participation during classroom discussions.	3.27	0.34	Always	1
Daytime sleepiness impairs my critical thinking, problem-solving, and creative abilities in class.	2.92	0.07	Often	2
I experience involuntarily falling asleep during instructional periods.	2.89	0.06	Often	3
Drowsiness compromises my ability to recall previous lessons and academic concepts	2.73	0.07	Often	4
I experience lapses in attention and focus while the teacher is discussing the lesson.	2.61	0.001	Often	5
I struggle to maintain alertness and fight off sleep during class hours.	3.05	0.16	Often	6
Late-night digital device utilization causes me to arrive late for my morning classes.	2.53	0.01	Often	7
Sleep deprivation diminishes my motivation to participate in classroom activities.	2.34	0.09	Sometimes	8
I perceive that my academic achievements would improve if i obtained sufficient nightly rest.	2.31	0.11	Sometimes	9
Experiencing a lack of sleep serves as a driver to motivate my learning engagement.	1.77	0.76	Sometimes	10
Overall average weighted mean	2.64	0.64	Often	

Legend: 3.26 – 4.00: always; 2.51 – 3.25: often; 1.76 – 2.50: sometimes; 1.00 – 1.75: never

These findings are consistent with the study of Jalali et al. (2020), who asserted that sleep is an inseparable part of human health and life that is crucial for learning, practice, and overall physical and mental well-being. They noted that sleep quality directly affects an individual's learning capacity, academic performance, and neurobehavioral functions.

Table 6. Weighted mean and standard deviation of the effects of sleep deprivation on personal behavior of learner-respondents

Indicators	Weighted mean (x)	Standard deviation (SD)	Descriptive interpretation	Rank
I experience frequent yawning when i obtain insufficient sleep	3.03	0.30	Often	1
I experience headaches or migraines during periods of sleep restriction.	2.61	0.04	Often	2
I become easily angered when i do not receive enough sleep.	2.53	0.018	Often	3
I feel easily irritated when my parents request me to perform household tasks while i am drowsy.	2.39	0.016	Sometimes	4
I withdraw from socializing with friends when sleepiness negatively impacts my mood.	2.37	0.005	Sometimes	5
Chronic sleep insufficiency makes me feel physically exhausted.	2.35	0.001	Sometimes	6
Prolonged sleep loss heightens my emotional sensitivity and vulnerability.	2.29	0.01	Sometimes	7
Sleep deprivation diminishes my interest in maintaining household cleanliness.	2.26	0.017	Sometime	8
I exhibit impulsive tendencies and behaviors when experiencing severe sleep deficits.	2.19	0.04	Sometimes	9
I experience sensory hallucinations as a consequence of extreme sleep deprivation.	1.98	0.16	Sometimes	10
Overall average weighted mean	2.40	0.061	Sometimes	

Legend: 3.26 – 4.00: always; 2.51 – 3.25: often; 1.76 – 2.50: sometimes; 1.00 – 1.75: never

Table 6 presents the weighted mean, standard deviation, descriptive interpretation, and corresponding hierarchical ranking regarding the effects of sleep deprivation on the personal behavior of the sixty-two (62) Grade 12 General Academic Strand (GAS) learner-respondents.

The statistical results indicate that the highest physiological manifestation among the ranked metrics is "I experience headaches or migraines during periods of sleep restriction," securing the second rank with a weighted mean of 2.61 (SD= 0.04) and a descriptive interpretation of often. This is followed closely by the third rank, "I become easily angered when I do not receive enough sleep," with a weighted mean of 2.53 (SD= 0.018), also interpreted as often. In terms of domestic interactions, respondents noted that they "sometimes" feel easily irritated when parents request them to perform household chores during states of drowsiness, placing fourth with a mean of 2.39 (SD= 0.016). Conversely, the lowest-rated behavioral output was "I experience sensory hallucinations as a consequence of extreme sleep deprivation," which occupied the tenth rank with a weighted mean of 1.98 (SD= 0.16), interpreted as sometimes. Cumulatively, the overall average weighted mean for the personal behavior variable stands at 2.40 (SD= 0.061), establishing a qualitative description of sometimes.

The overall average weighted mean implies that while systemic rest debt does not entirely destabilize the daily lives of the learners, it introduces distinct physiological, emotional, and social disruptions on an occasional basis. The prominent ranking of somatic reactions—specifically structural headaches and physical exhaustion—demonstrates that acute sleep loss triggers internal physical stress before outward behavioral shifts occur. However, the data highlights that this physical strain frequently overflows into emotional instability and interpersonal friction, as evidenced by heightened anger (rank 3) and direct irritability toward family members (rank 4). From a developmental standpoint, late-adolescent learner-respondents undergo complex neurobiological transitions that make their emotional regulation processes highly vulnerable to sleep deficits. Interestingly, the low score for sensory

hallucinations (rank 10) indicates that the learner body is navigating chronic partial sleep restriction rather than the severe medical pathology associated with absolute, long-term sleep deprivation. Ultimately, while these GAS learner-respondents attempt to manage their fatigue to sustain their daily schedules, the compounding exhaustion routinely limits their capacity for emotional regulation, family involvement, and personal well-being.

Moreover, table 7 displays the statistical correlation matrix testing the significant relationships between the socio-demographic profiles of the sixty-two (62) Grade 12 General Academic Strand (GAS) respondents—specifically age, sex, and nightly sleep duration—and the primary causes and subsequent effects of sleep deprivation on their academic performance and personal behavior. The Pearson product-moment correlation coefficient (r) and corresponding probability values (p) were utilized to evaluate the viability of the null hypothesis (H_0) at the standard $\alpha=0.05$ level of significance. These results correspond closely with the findings of Short and Louca (2015), whose study exposed healthy adolescent learners to sleep restriction to isolate direct causal shifts in personal behavior. Following sleep loss, their respondents experienced sharp, measurable spikes in negative behavioral traits, including depressed mood, generalized anxiety, confusion, anger, and severe fatigue, alongside a massive drop in baseline vigor. Notably, the researchers identified that female learner-respondents exhibited a much higher behavioral vulnerability to sleep loss, displaying significantly steeper paths toward anxiety and depressive symptoms.

Table 7. Correlation matrix testing the significant relationship between learners' Profiles and the causes and effects of sleep deprivation

Profile variables vs. Research factors	Computed Pearson r	P-value	Statistical decision	Verbal interpretation
Learners' profile vs. Primary causes				
Age vs. Primary causes	0.082	0.526	Failed to reject H_0	Not significant
Sex vs. Primary causes	-0.114	0.378	Failed to reject H_0	Not significant
Nightly sleep duration vs. Primary causes	0.065	0.617	Failed to reject H_0	Not significant
Learners' profile vs. Effects on academic performance				
Age vs. Effects on academic performance	-0.053	0.683	Failed to reject H_0	Not significant
Sex vs. Effects on academic performance	0.091	0.482	Failed to reject H_0	Not significant
Nightly sleep duration vs. Effects on academic performance	-0.128	0.321	Failed to reject H_0	Not significant
Learners' profile vs. Effects on personal behavior				
Age vs. Personal behavior	0.047	0.718	Failed to reject H_0	Not significant
Sex vs. Personal behavior	-0.076	0.557	Failed to reject H_0	Not significant
Nightly sleep duration vs. Personal behavior	0.103	0.426	Failed to reject H_0	Not significant

As presented in Table 7, the statistical computations for the learner-respondents' profile against the primary causes of sleep deprivation revealed negligible correlations: age ($r=0.082$, $p=0.526$), sex ($r=-0.114$, $p=0.378$), and nightly sleep duration ($r=0.065$, $p=0.617$). Similarly, cross-referencing the profile variables with the perceived effects on academic performance yielded no meaningful linear relationships, with age ($r=-0.053$, $p=0.683$), sex ($r=0.091$, $p=0.482$), and nightly sleep duration ($r=-0.128$, $p=0.321$) all remaining statistically flat. Finally, the correlations between the demographic profile and effects on personal behavior registered equivalent non-significant trends across age ($r=0.047$, $p=0.718$), sex ($r=-0.076$, $p=0.557$), and nightly sleep duration ($r=0.103$, $p=0.426$). Because all computed p -values are substantially greater than the significance threshold ($p>0.05$), the study fails to reject the null hypothesis (H_0). Consequently, it is statistically established that there is no significant relationship between the respondents' demographic profiles and the causes or behavioral and academic effects of sleep deprivation.

These empirical findings bear critical implications for the title framework, predictive effects of sleep deprivation on the academic performance of Grade 12 General Academic Strand learners. The total absence of statistical significance across all matrix coordinates indicates that demographic variances such as age, sex, or slight differences in restricted sleep windows do not serve as distinct predictive markers against the repercussions of sleep loss. The underlying explanation for this structural trend lies in the

pervasive homogeneity of the data: over 93% of the sampled Grade 12 learners operate underneath a severe nightly sleep deficit, running primarily on just four to six hours of rest. Because sleep restriction is a widespread, environmental reality across the entire strand rather than an isolated phenomenon, the subsequent physiological taxes such as impaired critical thinking ($m=2.92$; often) and frequent headaches ($m=2.61$; often)—exert an equal toll on all students regardless of baseline traits. Furthermore, the uniform determination of the learner body to maintain active classroom participation ($m=3.27$; always) underscores a shared academic coping mechanism common in high-stakes science high school environments. Therefore, individual profile dynamics fail to act as mathematical predictors of grading variances or behavioral drops, demonstrating that the burden of chronic sleep debt is experienced as a universal systemic tax across the entire Grade 12 GAS cohort at RPMD National Science High School.

CONCLUSION

The statistical outcomes of this investigation lead to the conclusion that sleep deprivation operates as a universal, non-discriminatory physiological tax that affects the Grade 12 General Academic Strand (GAS) cohort as a whole, rather than an isolated issue dictated by individual student demographics. Because an overwhelming 93.54% of the sixty-two (62) respondents systematically undergo severe sleep debt—averaging a restricted four to six hours of nightly rest—baseline attributes such as age and biological sex do not provide mathematical predictive value or offer an active shield against the repercussions of sleep loss, thereby requiring the formal acceptance of the null hypothesis. Furthermore, the data reveals that voluntary lifestyle choices, specifically excessive screen time and late-night socializing, serve as the predominant behavioral triggers behind these systemic sleep deficits, pointing to a widespread trend of bedtime procrastination over environmental factors. Interestingly, despite regularly enduring internal cognitive impairments—such as compromised critical thinking, retention lapses, and frequent headaches, these senior learners successfully utilize a short-term behavioral insulation technique driven by academic willpower to maintain active classroom participation. Ultimately, because the entire learner-respondents pool is evenly affected by sleep insufficiency yet remains uniformly determined to meet graduation requirements through direct behavioral adaptation, individual profile traits fail to create mathematical variations in grades or behavioral failure, proving that the burden of chronic sleep debt is experienced as a shared, homogeneous reality across the entire strand at Racman Pimping Maniri Dumarpa (RPMD) National Science High School.

REFERENCES

1. Abad, J. M., & Dela Cruz, R. T. (2023). The relationship of sleep hours on the academic performance and classroom participation of senior high school students. *Edukasiana: Jurnal Inovasi Pendidikan*, 2(3), 222–236.
2. Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* Pearson Education.
3. Jalali, R., Khazaei, H., Paveh, B. K., Hayrani, Z., & Menati, L. (2020). The effect of sleep quality on students' academic achievement. *Advances in Medical Education and Practice*, 11, 497–502.
4. Khanani, M. I., Khan, M. R., Farooqi, M. F., Fazal, J., Aabideen, Z., & Alkuwaiti, N. S. (2025). Digital media use and screentime exposure among youths: A lifestyle-based public health concern. *Cureus*, 17(7), Article e440159.
5. Short, M. A., & Louca, M. (2015). Sleep deprivation leads to mood deficits in healthy adolescents. *Sleep Medicine*, 16(8), 987–993. <https://doi.org/10.1016/j.sleep.2015.03.007>
6. Thomas, M., Sing, H., Belenky, G., Holcomb, H., Mayberg, H., Dannals, R., Wagner, H., Thorne, D., Popp, K., Rowland, L., Welsh, A., Balwinski, S., & Redmond, D. (2000). Neural basis of alertness and cognitive performance Impairments during sleepiness. I. Effects of 24 h of sleep deprivation on waking human regional brain activity. *Journal of Sleep Research*, 9(4), 335–352.

Cite this Article: Pontino, B.B. (2026). Predictive Effects of Sleep Deprivation on the Academic Performance of Grade 12 General Academic Strand Learners. *International Journal of Current Science Research and Review*, 9(10), pp. 5281-5288. DOI: <https://doi.org/10.47191/ijcsrr/V9-i10-06>