Remittances Review
April 2024,
Volume: 9, No: 2, pp.1340-1360
ISSN: 2059-6588(Print) | ISSN 2059-6596(Online)

Received : 10 Januanry 2024, Accepted: 15 April 2024

DOI: https://doi.org/10.33282/rr.vx9i2.76

Impact of Late Night Sleeping on Academic Performance of KMC and UET Peshawar Students

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Abstract

This research examines the correlation between late-night sleeping habits and academic performance among students at Khyber Medical College, Peshawar (KMC), and the University of Engineering and Technology, Peshawar (UET). The study spans from December 22nd, 2023, to January 20th, 2024. A cross-sectional survey encompassed 535 students enrolled in medical and engineering programs at Khyber Medical College (KMC) and the University of Engineering and Technology (UET) in Peshawar. The participants, comprising both engineering and medical students, completed a questionnaire designed with three components. This survey facilitated the collection of demographic information, sleep profiles, and academic details from the students. Subsequently, the gathered data underwent entry and analysis using Origin Pro 2018. The statistical significance was determined at a 95% confidence level, and a P value below 0.05 was considered indicative of statistical significance. The result shows that both the engineering and medical students whose sleeping hours were from 7-8 hours marked their academic performance as good verified by significant p-value 0.01106, 0.04891 respectively. The engineering and

medical students whose sleeping time were from 10pm-12am perceived their academic performance as good verified by significant p-value 0.00014, 0.000446 respectively. Adequate sleep, particularly within the recommended range of 7-8 hours per day, coupled with a consistent sleeping schedule from 10 pm to 12 am, emerges as a key factor for achieving optimal academic outcomes.

Keywords: Medical Students, Engineering Students, Sleeping Habits, Academic Performance

Introduction

Apart from air, water, and food, sleep stands out as another essential biological necessity for our bodies. It is a fundamental biological need observed across species, playing a crucial role in human health and daily functioning. Despite its biological significance, individuals globally encounter challenges with sleep, and inadequate sleep habits pose an issue within university settings.[1] Buboltz et al., reported that 15% of university students express dissatisfaction with the quality of their sleep. Various factors could contribute to the disruption of sleep patterns among university students, including late-night studying, all-nighters, participation in parties, social obligations, and work, all of which are likely influential. [2]. Many students routinely accept inadequate sleep as a part of their higher education experience. [3].

The association of sleep deficiency with various risk factors and adverse outcomes in university students is a matter of concern. This is because we are aware that sleep deprivation significantly affects students' physical and emotional well-being, along with their ability to engage in critical academic skills like learning, memory, and problem-solving [4]. In higher education students, insufficient sleep is linked to engaging in risk-taking behaviors like drinking and driving, experiencing mental health challenges such as suicidal thoughts, depression, and anxiety, as well as a decrease in self-efficacy [4], Substance abuse, binge drinking, and the excessive consumption of caffeine are notable behaviors associated with inadequate sleep [5], smoking and high rates of social media utilization are correlated with insufficient sleep.

Adequate sleep is crucial for memory consolidation, learning, decision-making, and critical thinking. It is essential for optimal cognitive functioning, which is integral to academic and, possibly, social success in higher education. The recommended duration of sufficient sleep varies individually and with age. The American Academy of Sleep Medicine suggests seven or more hours of nightly sleep for adults [6], while the National Sleep Foundation recommends adolescents get 8–10 hours of sleep, and younger children even more [7].

Insufficient sleep should not be confused with insomnia, which refers to the inability to initiate or maintain sleep. Insomnia is distinct from the limitation of sleep opportunities. Short sleep duration is linked to reduced cognitive abilities, cardiovascular diseases, obesity, diabetes, all-cause mortality,

hypertension, decreased mood, heightened risk-taking behaviors, and substance use [8]. The prevalent consequence of insufficient or disrupted sleep is heightened daytime drowsiness. This increased daytime sleepiness leads to diminished alertness and dysfunction in specific brain regions, including the prefrontal cortex, potentially causing neurocognitive dysfunction [9].

Upon entering universities, students often undergo one of their initial daily routine adjustments, and regrettably, it is not typically for the better. University students commonly transition to an irregular sleep-wake cycle characterized by brief sleep durations on weekdays and phase delays, such as later wake-up times on weekends. However, this overall pattern is influenced by individual study and work schedules. It has been noted that "twice as many students as individuals in the general population report symptoms consistent with delayed sleep phase syndrome." Consequently, both sleep deprivation and suboptimal sleep quality are notably prevalent among young adults and college student populations. A recent study even revealed that university students experience at least twice as many sleep-related challenges compared to the general population [10].

University students consistently report a notably lower quality of sleep, marked by irregular sleep schedules and sleep deprivation, compared to the general population. Additionally, they experience heightened daytime sleepiness beyond what is observed in the general population. Students commonly compromise their sleep to engage in both social and academic obligations, leading to fluctuating sleep routines and the development of inadequate sleeping habits [11]. Medical and Engineering students are especially susceptible compared to non-medical students and the general population. This vulnerability stems from various stress-inducing factors, including an overwhelming academic workload, tightly packed schedules, extended study sessions, exam-related stress, peer pressure, high parental expectations, and an intensely competitive environment. The sleep disturbances experienced by Medical and Engineering students not only expose them to psychiatric illnesses but also have detrimental effects on their cognitive abilities, emotional intelligence, and academic performance [12].

Sleep disturbances are a prevalent concern among college students globally, often attributable to heightened stress from increased academic demands [13] In a study, individuals with sufficient sleep, in comparison to those deprived of sleep, demonstrated twice as many instances of utilizing innovative solutions when faced with complex mathematical problems. Some studies have regarded sleep efficiency as crucial for recovery, cognitive processing, and the integration of memory [14].

The connection between sleep and academic performance is firmly established. Insufficient sleep results in heightened drowsiness and daytime sleepiness, leading to a subsequent decline in mental alertness and concentration [9]. This can impact the capacity to handle tasks related to problem-solving, memory, and attention to detail [15]. Hence, students experiencing sleep disorders are at an elevated risk of academic failure, reflected in lower grade point averages (GPAs) below 2.0 [16]. As per data from the National Sleep Foundation in the USA, 80% of high school students who affirmed having sufficient sleep attained grades of As and Bs, contrasting with those experiencing daytime sleepiness and insufficient sleep, who showed the opposite trend [3].

Scientific studies have provided evidence of the substantial contribution of sleep to various crucial cognitive, emotional, and performance-related functions. This phenomenon has been elucidated by Carskadon MA [17] Insufficient sleep is associated with consequences such as daytime sleepiness, diminished self-rated sleep quality, heightened susceptibility to accidents, and subpar academic achievements. Demonstrating a correlation between healthy sleep habits and academic success could potentially serve as motivation for university students to adopt healthier sleep patterns. University students who comprehend the significance of maintaining healthy sleep patterns may find an avenue to enhance their academic performance [18].

In conclusion, the importance of healthy sleep patterns cannot be overstated, especially in the context of university life. Students, particularly those in Medical and Engineering fields, face unique challenges that can significantly impact their sleep quality and duration. Understanding the multifactorial nature of sleep-related issues is crucial for implementing effective interventions to promote better sleep habits and, consequently, improved academic performance and overall well-being among university students.

Internationally and nationally, extensive research has been conducted to investigate the influence of late-night sleeping habits on the academic performance of Medical and Engineering students. However, limited research has been undertaken to explore the impact of late-night sleeping on the academic performance of Medical and Engineering students specifically at KMC, Peshawar and the UET Peshawar. Our primary objective was to examine the relationship between late-night sleeping patterns and the academic performance of students enrolled at KMC, Peshawar and the UET Peshawar.

Methods

The study was conducted at KMC Peshawar and UET Peshawar, between December 22nd, 2023, and January 20th, 2024. The research employed a systematic convenience sampling method to gather data from students across all levels of student classification (undergraduate freshman, senior, and graduate). The inclusion criteria included the students must be over the age of 18.

Instrument

The survey questionnaire, as detailed in the appendix, was developed using background information derived from research findings presented in the literature review. A group of professors from UET and KMC collaborated to design the data collection instrument, ensuring its content validity. Participants were required to complete a self-administered online survey containing demographic inquiries such as gender, age, and field of study. Comprising 36 questions, the questionnaire was divided into two sections: a sleep profile and an academic profile. The sleep profile assessed various aspects, including sleep duration, sleep environment factors, daytime sleepiness, and the use of sleep aids. The academic profile focused on performance, categorized as Excellent (80% and above), Good (70%-80%), Average (60%-70%), and Below Average (below 60%). Additionally, participants were asked to indicate

whether they believed they were getting enough sleep each night and if they thought they had a sleep disorder. Responses to these questions were categorized into options such as less than 6 hours, 6-7 hours, 7-8 hours, and more than 8 hours, as well as "yes" or "no" [6 and 9].

Procedures

Class representatives were instructed via email to distribute the online questionnaire to their classmates. To ensure widespread participation, data collection was conducted electronically, allowing students from various classifications—freshman undergraduate, senior undergraduate, and postgraduate—to partake at their convenience. Students were encouraged to complete the survey before the deadline of January 20, 2024. A cover letter accompanied the survey, detailing the questionnaire's purpose, inclusion criteria, assurance of anonymity for collected information, voluntary nature of participation, and the absence of penalties for withdrawal. By completing and returning the questionnaire, participants indicated their voluntary consent to partake in the research study, as outlined in the cover letter.

Statistical Analysis

Data entry and analysis were conducted utilizing Origin Pro 2018 and Ms Excel. The P value was computed at a 95% confidence level, with statistical significance indicated by P values <0.05.

Results

A total of 535 participants successfully completed the online questionnaire, with no exclusions from the final data report due to incomplete responses. Additionally, no responses were withdrawn from the final data report based on participants being under the age of 18. The majority of participants were male (n=439, 82%), while female participants numbered fewer (n=96, 18%). Participants' distribution across student classifications included 239 freshmen, 214 seniors, and 82 graduate students. Table 3 indicates no significant difference in sleep quality between genders (p= 0.017), suggesting that both male and female students experience similar sleep quality.

Regarding academic performance, the majority of participants reported good academic performance (n=256, 47.9%), followed by excellent academic performance (n=126, 23.6%), average academic performance (n=135, 25.2%), and below-average academic performance (n=18, 3.4%).

A significant portion of the total participants (58.9%) reported not getting enough sleep each night, while a smaller percentage (n=94, 17.6%) suspected they had a sleeping disorder. Participants were asked about various sleep environment variables, and responses included

"bedroom sharing" (n= 255, 47.7%), "bedroom environment" (n= 140, 26.2%), "medicine for sleep" (n=41, 7.7%), "Electronic Media" (n=475, 88.8%), and "no impact of bedroom environment" (n= 395, 73.8%). This information is visually represented in Figure 1: Sleep Environment Variables.

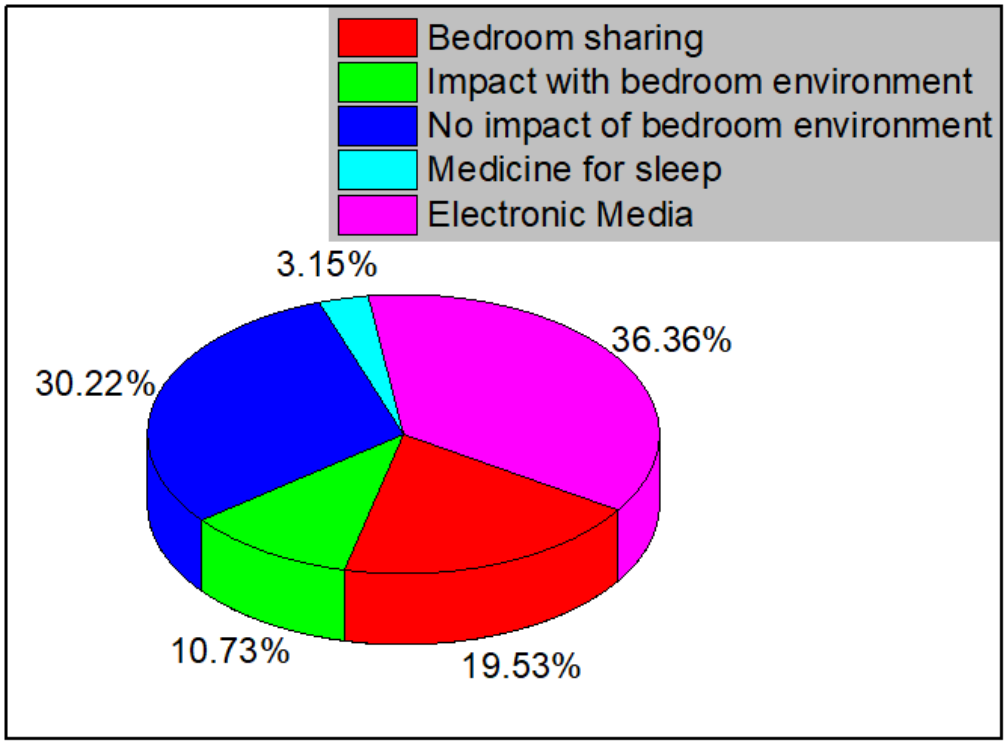

Figure 1 Sleep Environment variables

The majority of study participants reported experiencing daytime sleepiness to some extent. Responses to the frequency of experiencing daytime sleepiness included: "regular" (n=84, 15.7%), "often" (n=80, 15.0%), "sometimes" (n=203, 37.9%), and "never" (n=168, 31.4%). Participants were also queried about maintaining a consistent sleep schedule, with responses indicating that (n=225, 42.1%) answered "yes," while (n=310, 57.9%) responded with "no."

When participants were asked about factors affecting the quality of their sleep, the responses varied: (n=297, 55.5%) cited "academic workload," (n=179, 33.5%) mentioned "social activities," (n=110, 20.6%) pointed to "work commitments," (n=378, 70.7%) identified "social media," (n=54, 34.2%) referred to "medication," (n=41, 7.7%) mentioned "disease," and (n=94, 17.6%) selected "other." This information is visually presented in Figure 2.

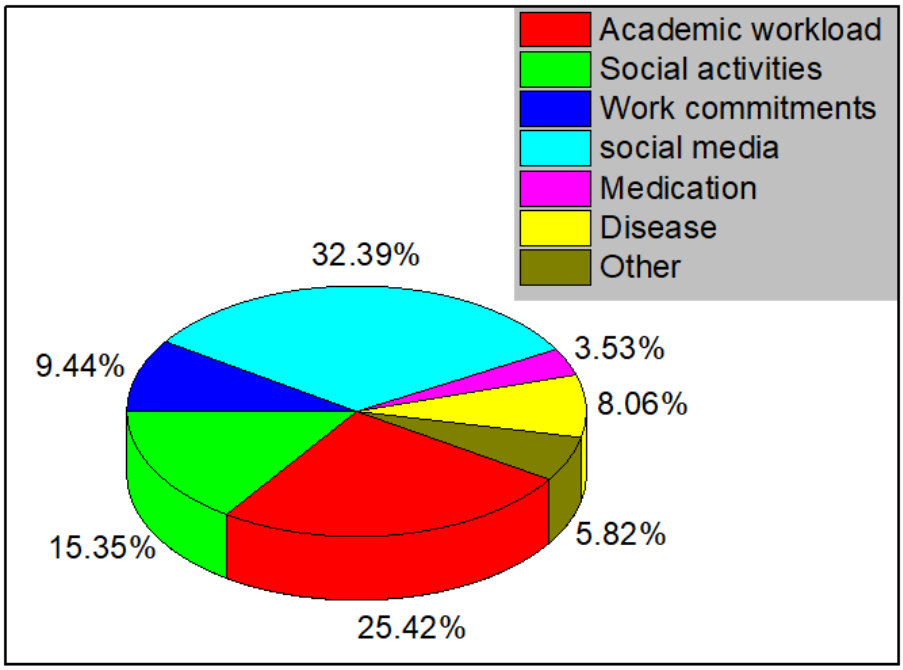

Figure 2 Variables Affecting Quality of Sleep

Sleeping hours per night for Engineering and Medical Students

Figure 3 represents the sleeping habits of medical and engineering students, categorized by the number of hours of sleep per night. The bar graph indicates the percentage distribution of students falling into different sleep duration categories. Notably, a higher percentage of medical students (21.18%) reported sleeping for less than 6 hours compared to engineering students (15.55%). In the 6-7 hours range, a slightly larger proportion of engineering students (41.46%) fell within this category compared to medical students (39.41%). In the 7-8 hours range, a similar pattern emerges, with engineering students (30.48%) having a slightly higher percentage than medical students (27.09%). Interestingly, both groups show a relatively small percentage of individuals sleeping for more than 8 hours, with engineering students (12.51%) having a slightly higher percentage than medical students (12.32%). The data highlights variations in sleep patterns between medical and engineering students, suggesting potential differences in lifestyle or academic demands that may influence their sleep duration.

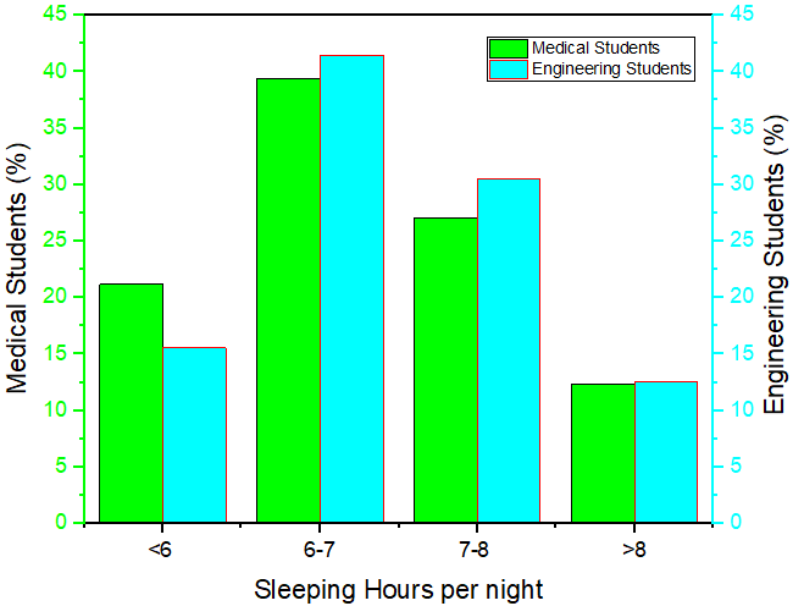

Figure 3 Sleeping hours per night for Engineering and Medical Students

Engineering Students sleeping hours and academic performance

Figure 4 illustrates the distribution of engineering students based on their reported nightly sleep hours and the perceived influence on academic performance, categorized into four groups: Excellent, Good, Average, and Below Average. The bar graph unveils intriguing patterns in the connection between sleep duration and academic achievement. Notably, among students sleeping for fewer than 6 hours, the majority (51.92%) perceives their academic performance as Good, with a significant portion (21.15%) considering it Excellent. However, a notable minority (23.07%) regards their performance as Below Average, suggesting potential adverse effects linked to inadequate sleep. In the 6-7 hours range, a majority (50.73%) views their performance as Good, with a substantial portion (22.05%) rating it as Excellent. As sleep duration extends to 7-8 hours, the trend persists, with a higher percentage (55%) perceiving their academic performance as Good. Interestingly, among those sleeping more than 8 hours, a substantial portion (57.5%) regards their performance as Good, indicating a positive correlation between extended sleep and academic success. Engineering students whose sleeping hours are 7-8 hours showed good academic performance as confirmed by significant P-value (0.011106) as shown in Table 1. These findings underscore the potential impact of sleep habits on academic outcomes,

highlighting the crucial role of sufficient sleep for overall student performance.

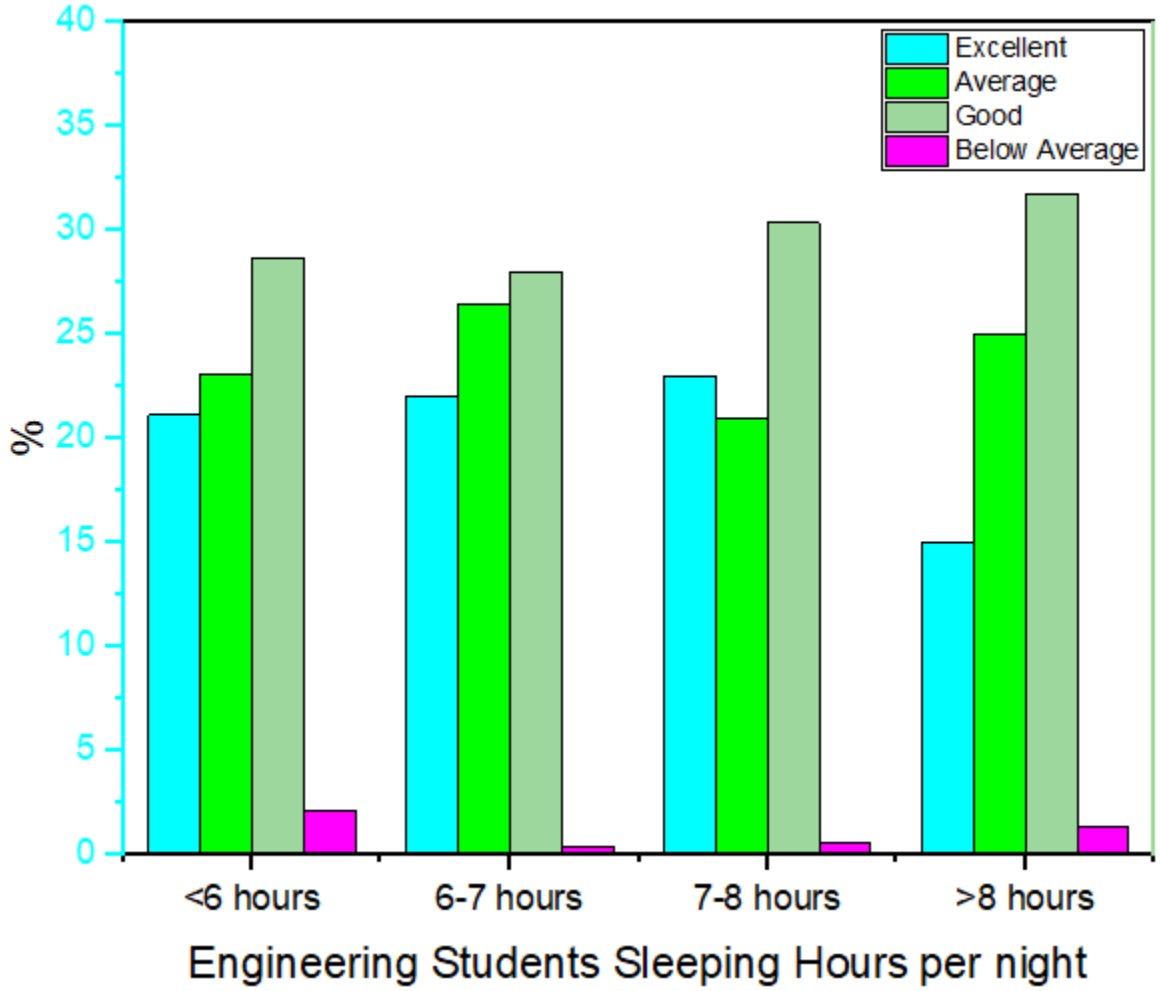

Figure 4 Engineering Students sleeping hours and academic performance

Table 1 Association of P-value of Sleeping hours and Academic Performance of Engineering Students.

Engineering Students Sleeping Hours per night	Excellent (%age)	Good(%age)	Average (%age)	Below Average (%age)	Mean	S.D.	p-value
<6 hours	21.15	51.92	23.07	3.86	25	19.91761	0.08691
6-7 hours	22.05	50.73	26.47	0.75	25	20.5017	0.0926
7-8 hours	23	55	21	1	25	22.33085	0.011106
>8 hours	15	57.5	25	2.5	25	23.54074	0.12372

Medical Students sleeping hours and academic performance

Figure 5 depicts the distribution of sleeping hours reported by medical students per night and their perceived influence on academic performance, classified into four categories: Excellent, Good, Average, and Below Average. The bar graph unveils notable trends in the correlation between sleep duration and academic achievement among medical students. Particularly, for students with less than 6 hours of sleep, the majority (41.66%) regards their academic performance as Good, while a significant portion (14.58%) rates it as Excellent. However, a noteworthy proportion (31.25%) perceives their performance as Average, and 12.51% considers it Below Average, indicating potential challenges linked to insufficient sleep. In the 6-7 hours range, a majority (50%) sees their performance as Good, with a substantial portion (23.75%) rating it as Excellent. As sleep duration extends to 7-8 hours, a significant percentage (34.48%) views their performance as Average. Among those sleeping more than 8 hours, 50% believe their performance is Excellent, highlighting a positive correlation between extended sleep and academic success. Medical students whose sleeping hours are 7-8 hours showed good academic performance as confirmed by significant P-value (0.04891) as shown in Table 2. These findings emphasize the significance of adequate sleep for medical students and its potential impact on their academic outcomes.

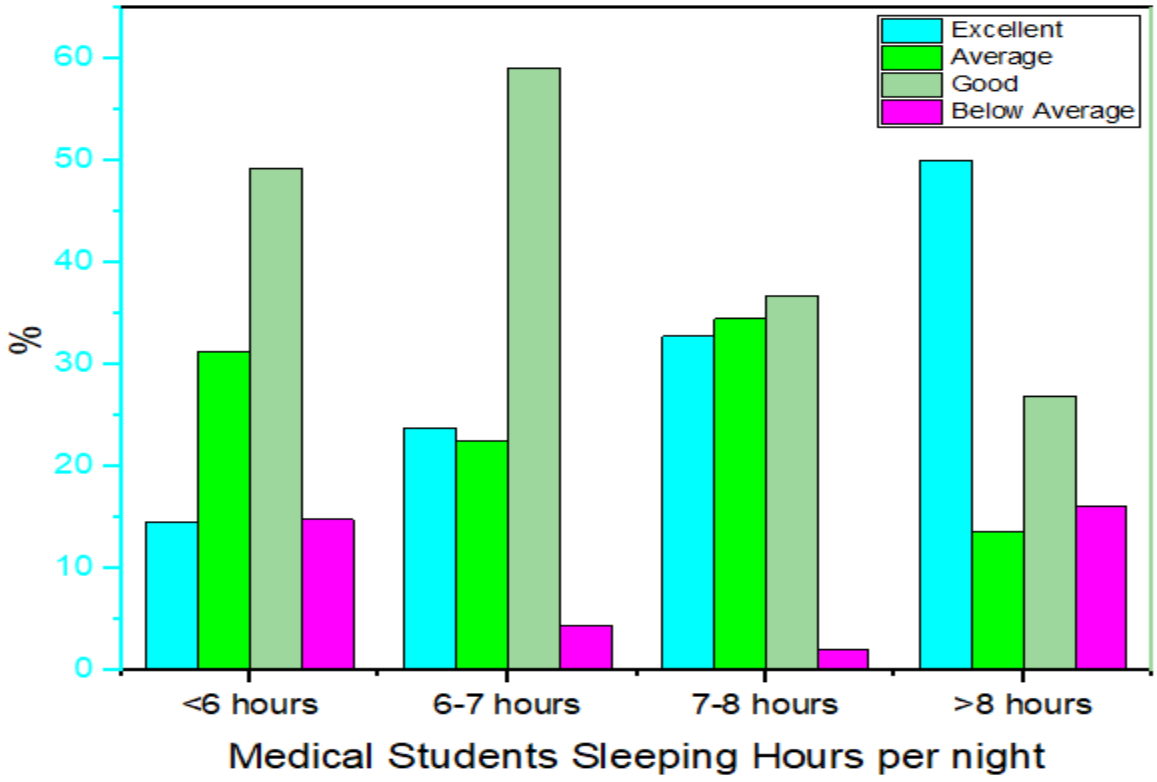

Figure 5 Medical Students sleeping hours and academic performance

Table 2 Association of P-value of Sleeping hours and Academic Performance of Medical Students.

Medical Students Sleeping Hours per night	Excellent (%age)	Good(%age)	Average (%age)	Below Average (%age)	Mean	S.D.	p-value
<6 hours	14.58	41.66	31.25	12.51	25	13.91875	0.03696
6-7 hours	23.75	50	22.5	3.75	25	19.01206	0.07833
7-8 hours	32.75	31.03	34.48	1.74	25	15.5705	0.04891
>8 hours	50	22.72	13.63	13.65	25	17.20754	0.06221

Male and Female Sleeping Hours

Figure 6 illustrates the sleeping habits of individuals categorized by gender, specifically focusing on the percentage distribution of females and males in different sleep duration ranges. The bar graph reveals interesting patterns in sleep duration preferences. Notably, a higher percentage of females (21.87%) reported sleeping for less than 6 hours compared to males (16.81%). In the 6-7 hours range, a slightly larger proportion of males (40.68%) fell within this category compared to females (38.54%). The 7-8 hours range shows a distinct difference, with a higher percentage of males (30.68%) compared to females (23.96%). Additionally, in the category of sleeping for more than 8 hours, females (15.63%) have a higher percentage compared to males (11.83%). These findings suggest gender-based variations in sleep patterns, emphasizing the importance of considering gender-specific factors when addressing sleep-related issues or promoting healthy sleep habits.

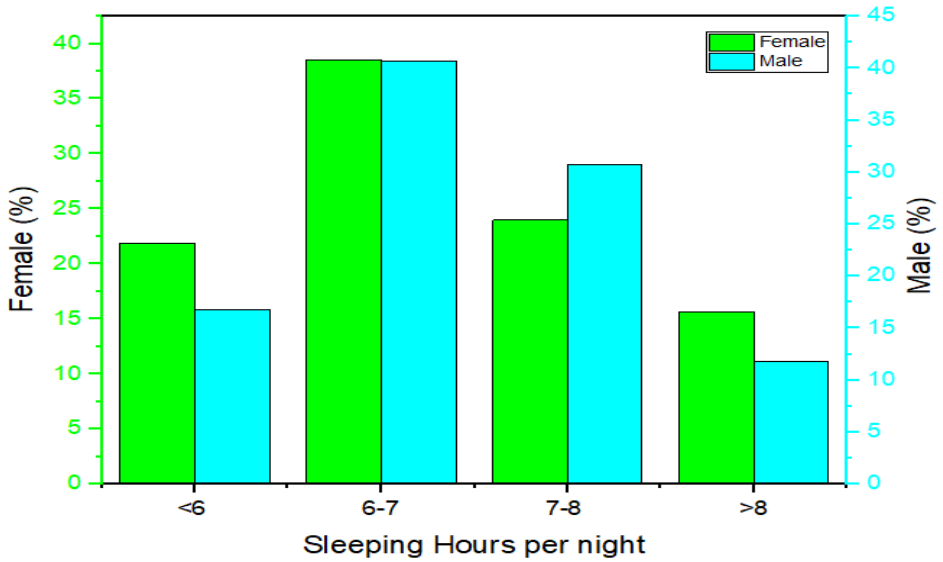

Figure 6 Male and Female Sleeping Hours

Table 3 Association of P-value of Sleeping hours of Female and Male Students.

Sleeping Hours per night	<6 hours	6-7 hours	7-8 hours	>8 hours	Mean	S.D.	P-Value
Female	21.87	38.54	23.96	15.63	25	9.69548	0.01414
Male	16.81	40.68	30.68	11.83	25	13.14851	0.03195

Female Students and Academic performance

Figure 7 presents the sleeping patterns of female students categorized by the number of hours they sleep per night and the perceived impact on their academic performance, with four distinct groups: Excellent, Good, Average, and Below Average. Notably, among those who sleep for less than 6 hours, a significant percentage (40%) perceives their academic performance as both Good and Average, while 20% considers it Excellent. Strikingly, none of the respondents in this category reported Below Average academic performance, suggesting a potential resilience or adaptability to shorter sleep durations. In the 6-7 hours range, the majority (51.35%) views their performance as Good, with 16.21% rating it as Excellent. A notable portion (24.34%) considers their academic performance to be Average, and 8.1% reported Below Average performance. As sleep duration increases to 7-8 hours, a higher percentage (36.36%) perceives their academic performance as Excellent, while a considerable proportion (27.28%) considers it Average. In the >8 hours category, a substantial number (36.36%) rates their performance as Excellent, with no reports of Below Average performance. These findings suggest a positive correlation between longer sleep durations and academic success among female students, highlighting the potential benefits of prioritizing sufficient sleep for optimal academic performance.

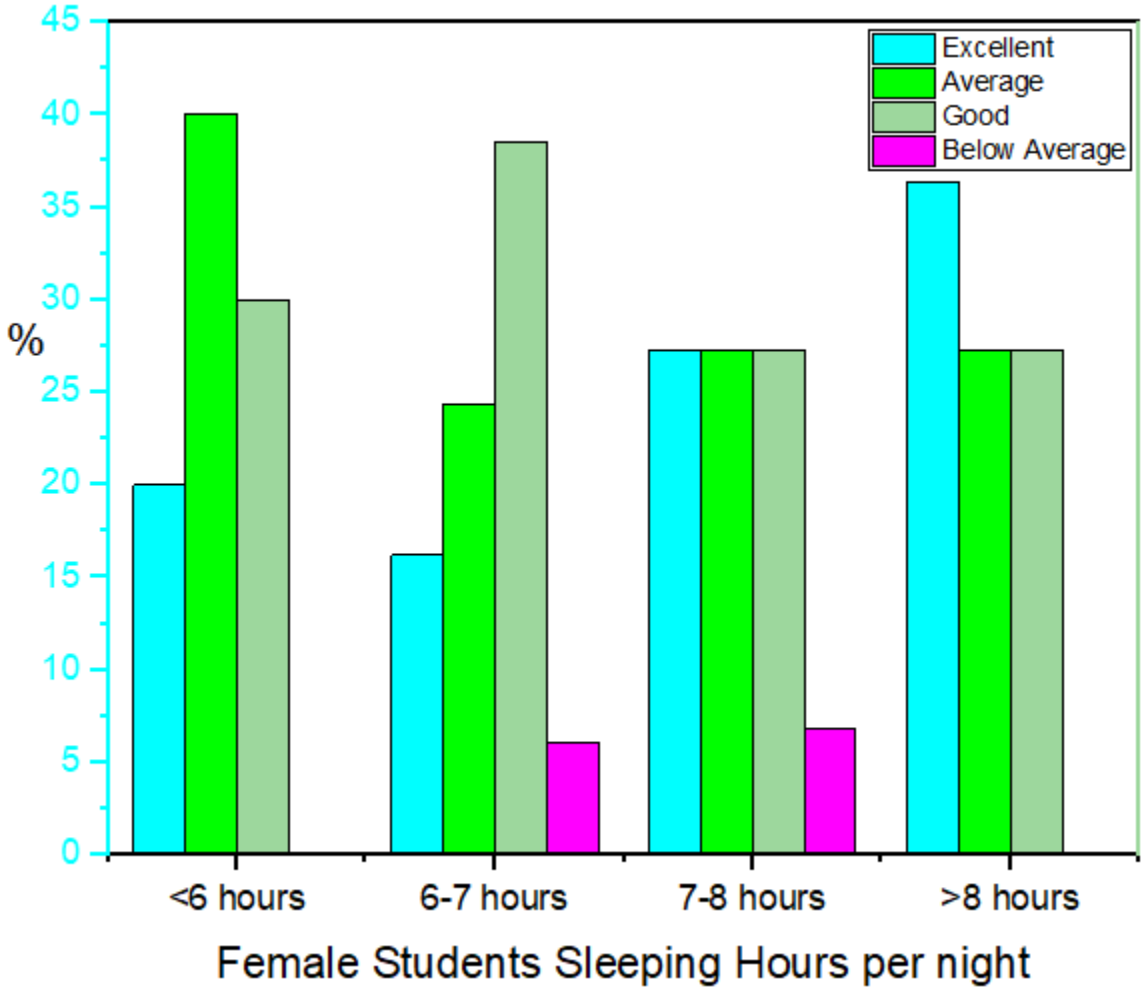

Figure 7 Female Students and Academic performance

Male Students and Academic performance

Figure 8 depicts the sleep patterns of male students, categorized by their nightly sleep duration and the perceived impact on academic performance. The classification includes four groups: Excellent, Good, Average, and Below Average. Notably, among male students with less than 6 hours of sleep, the majority (58.82%) perceives their academic performance as Good, with a significant portion (20%) rating it as Excellent. However, a noteworthy proportion (17.66%) considers their performance Average, and a smaller percentage (3.52%) deems it Below Average, indicating a notable impact on academic outcomes despite many managing well with insufficient sleep. In the 6-7 hours range, a substantial percentage (47.48%) believes their performance is Good, with 25.13% rating it as Excellent. As sleep duration increases to 7-8 hours, the trend persists, with a higher percentage (48.88%) perceiving their performance as

Good. Among those sleeping more than 8 hours, a significant majority (41.17%) views their academic performance as Excellent, emphasizing a positive correlation between extended sleep duration and academic success among male students. These findings underscore the significance of sufficient sleep for male students and its potential influence on academic achievements.

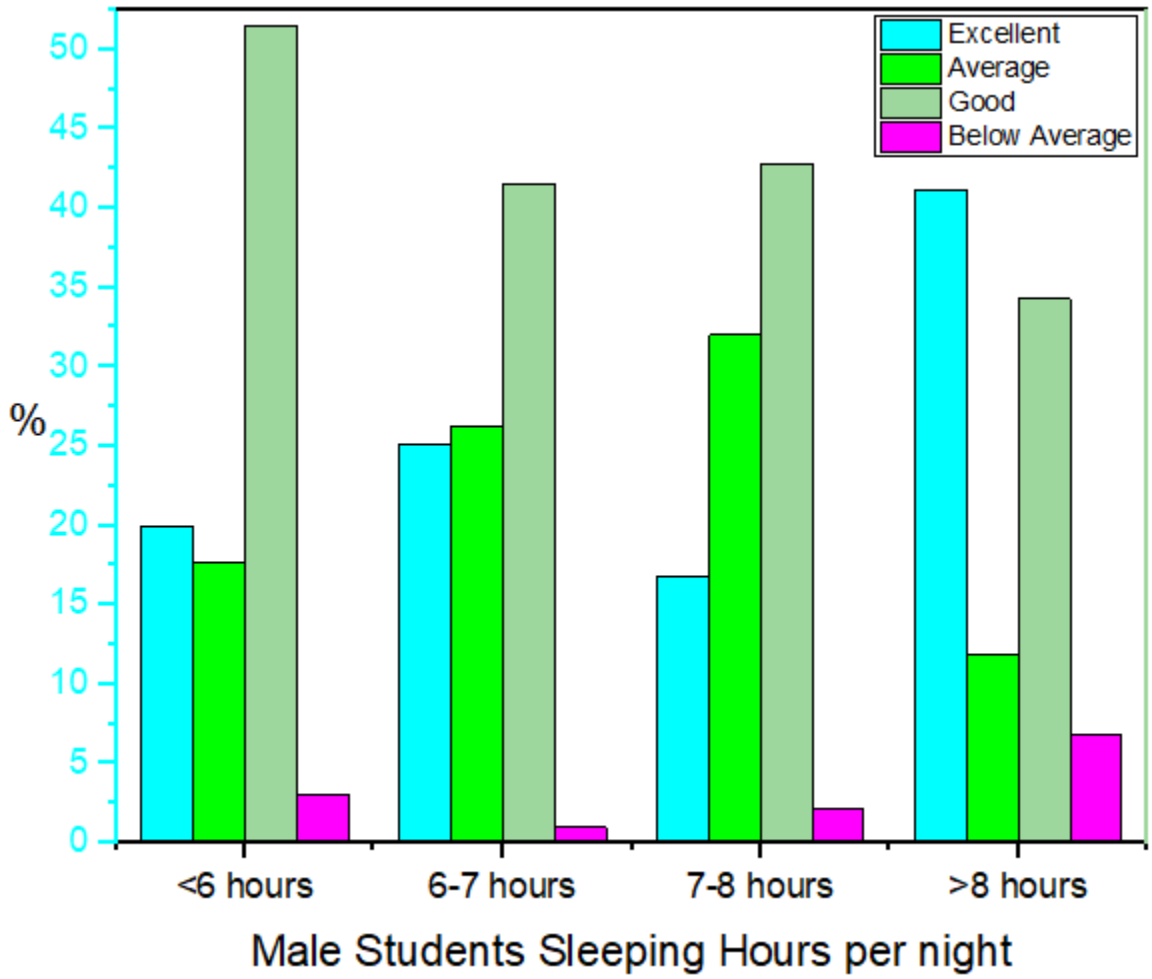

Figure 8 Male Students and Academic performance

Engineering Students Sleeping Time and Academic Performance

Figure 9 represents the distribution of engineering students based on their reported sleeping time per night and the perceived impact on academic performance, categorized into four groups: Excellent, Good, Average, and Below Average. The bar graph reveals interesting trends in the relationship between sleeping time and academic performance. The number of students who sleeping before 10 pm are 33, the majority (57.57%) perceive their academic performance as Good, while a notable portion (27.27%) still considers it Excellent. However, a significant

minority (15.16%) views their performance as Average. The number of students whose sleeping time is between 10 pm and 12 am are 134, a majority (52.23%) again sees their performance as Good, with a significant portion (23.13%) rating it as Excellent. However, a significant minority (1.49%) views their performance as below average. The number of students whose sleeping time is 12-2 am are 132, the trend continues, with a higher percentage of students (52.27%) perceiving their academic performance as Good. However, a significant minority (3.03%) views their performance as Below Average, suggesting potential negative consequences associated with insufficient sleep. The number of students whose sleep after 2 am are 29, the trend continues, with a higher percentage of students (48.27%) perceiving their academic performance as Good with a significant portion (27.58%) rating it as Excellent. However, a significant minority (3.46%) views their performance as Below Average, suggesting potential negative consequences associated with insufficient sleep. Engineering students whose sleeping time is from 10 pm-12 am showed good academic performance as confirmed by significant P-value (0.00014) as shown in Table 4. These results show the potential impact of sleep habits on academic outcomes, emphasizing the importance of sleeping time for students' academic performance.

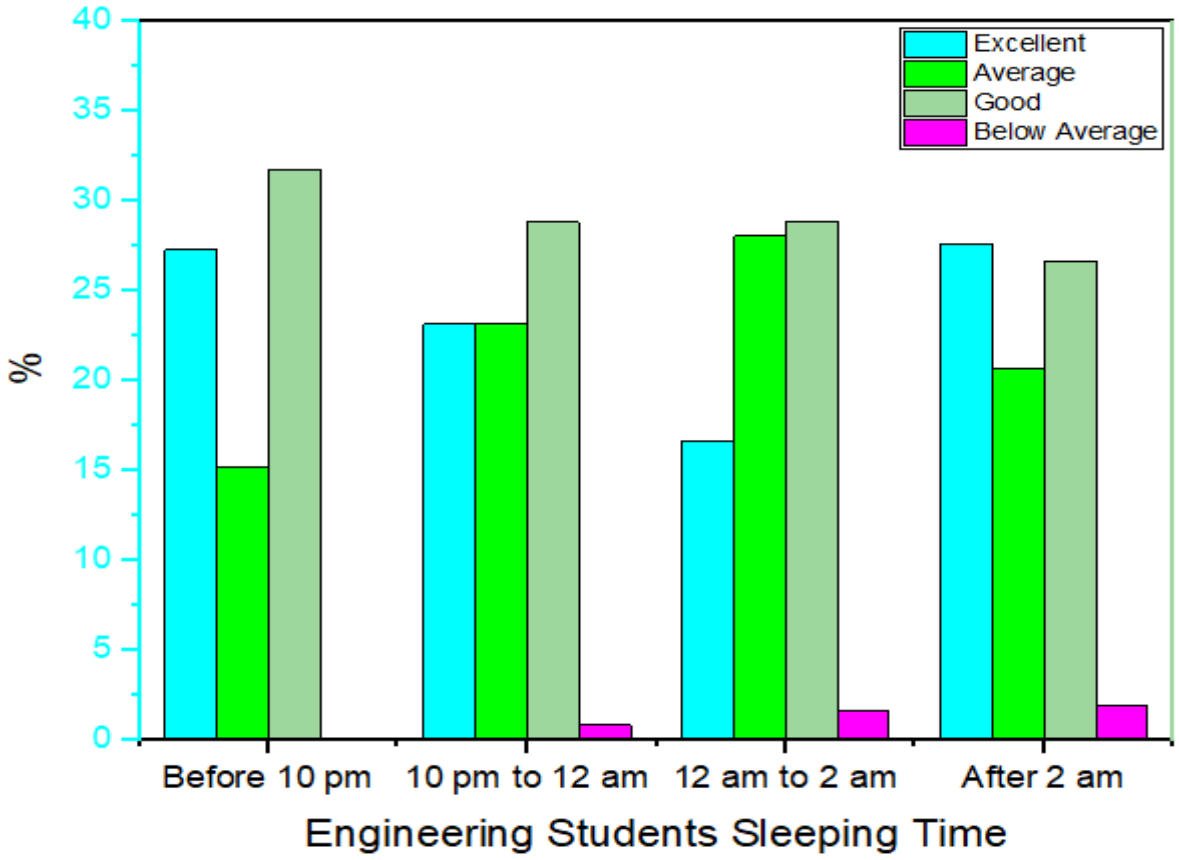

Figure 9 Engineering Students Sleeping Time and Academic Performance

Table 4 Association of P-value of Sleeping Time and Academic Performance of Engineering Students.

Academic Performance of Engineering Students	Excellent (%)	Good (%)	Average (%)	Below Average (%)	Mean	S.D.	P-Value
Before 10 pm	27.27	57.57	15.16	0	23.66	5.08853	0.00263
10 pm to 12 am	23.13	52.23	23.15	1.49	52.585	3.8164	0.00014
12 am to 2 am	16.66	52.27	28.04	3.03	21.76	5.35647	0.0039
After 2 am	27.58	48.27	20.69	3.46	1.955	1.57612	0.08531

Medical Students Sleeping Time Vs Academic Performance:

Figure 10 depicts the distribution of medical students based on their reported sleeping time per night and its perceived impact on academic performance, categorized into four groups: Excellent, Good, Average, and Below Average. The bar graph reveals intriguing trends in the relationship between sleeping time and academic performance. Among students sleeping before 10 pm (23 in number), the majority (56.52%) perceives their academic performance as excellent, with a notable portion (34.78%) considering it good. However, a significant minority (8.7%) views their performance as average. For those whose sleeping time is between 10 pm and 12 am (89 students), a majority (42.69%) sees their performance as good, with a significant portion (30.33%) rating it as excellent. Nevertheless, a noteworthy minority (3.37%) views their performance as below average. Among students sleeping from 12 am to 2 am (72 in number), the trend continues, with a higher percentage (38.88%) perceiving their academic performance as good. However, a significant minority (5.55%) views their performance as below average, suggesting potential negative consequences associated with insufficient sleep. For those sleeping after 2 am (24 students), the trend persists, with a higher percentage (45.83%) perceiving their academic performance as good, and a significant portion (4.16%) rating it as excellent. Medical students whose sleeping time is from 10 pm-12 am showed good academic performance as confirmed by significant P-value (0.000446) as shown in Table 5. These results underscore the potential impact of sleep habits on academic outcomes, emphasizing the significance of sleeping time for students' academic performance.

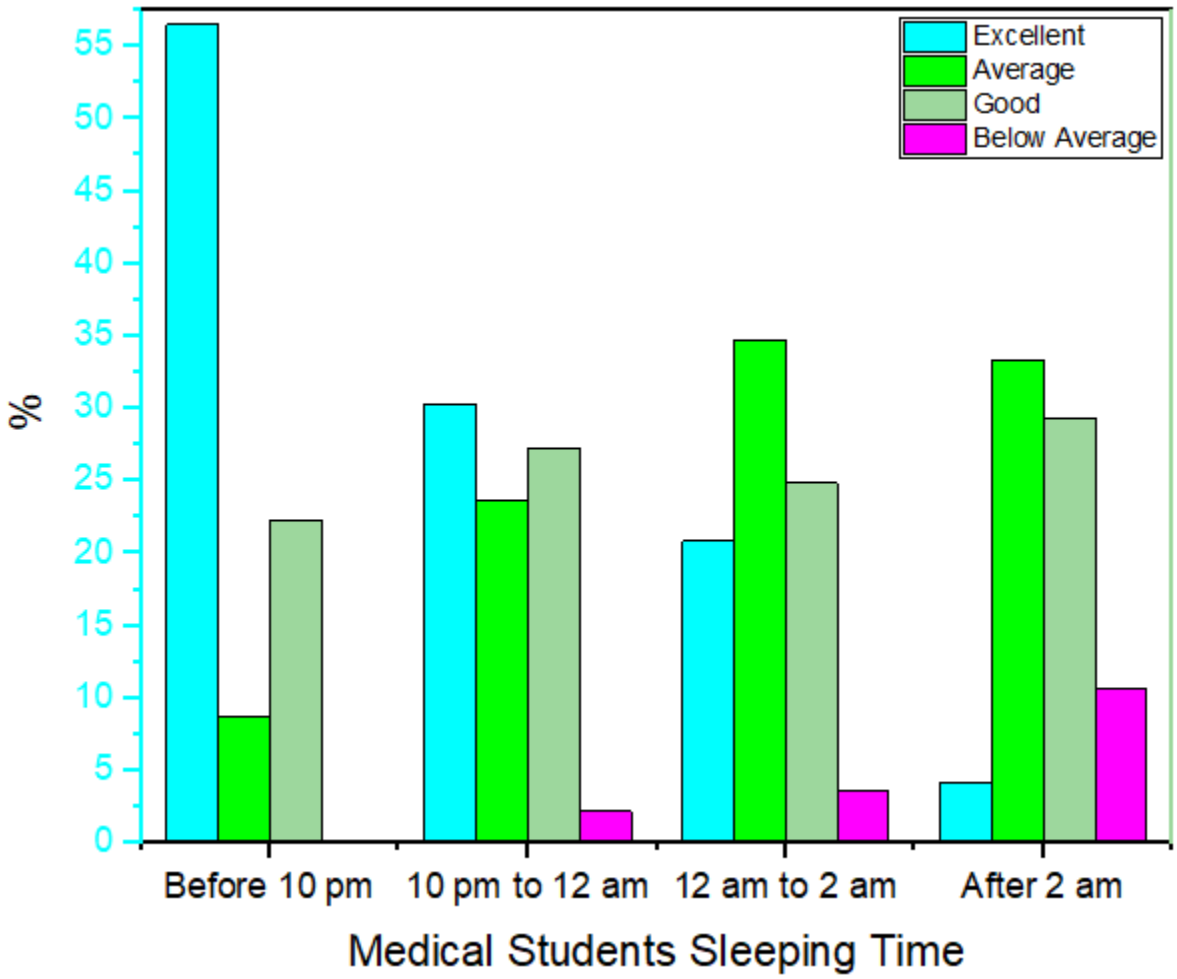

Figure 10 Medical Students Sleeping Time Vs Academic Performance

Table 5 Association of P-value of Sleeping Time and Academic Performance of Medical Students.

Academic Performance of Medical Students	Excellent (%)	Good (%)	Average (%)	Below Average (%)	Mean	S.D.	P-Value
Before 10 pm	56.52	34.78	8.7	0	27.96	21.898	0.08368
10 pm to 12 am	30.33	42.69	23.61	3.37	40.545	4.77981	0.000446
12 am to 2 am	20.83	38.88	34.74	5.55	25.1	12.00239	0.02491
After 2 am	4.16	45.83	33.35	16.66	6.395	7.21413	0.17436

Conclusions

Sleep is paramount for overall well-being, playing a crucial role in facilitating learning processes and enhancing memory functions. The pervasive issue of sleep deprivation is a noteworthy challenge in contemporary society, significantly impacting academic performance. Medical and engineering students, consistently facing intense academic stress and pressure, require sufficient sleep to rejuvenate daily and facilitate optimal learning and memory processing. Unfortunately, sleep disturbances are prevalent among these students, contributing to a decline in their academic performance. It is crucial for both medical and engineering students as well as their educators to recognize the detrimental impact of sleep deprivation on academic achievements. Implementing measures to enhance the sleep quality of students is imperative to foster a conducive learning environment and promote overall well-being. Adequate sleep, particularly within the recommended range of 7-8 hours per day, coupled with a consistent sleeping schedule from 10 pm to 12 am, emerges as a key factor for achieving optimal academic outcomes.

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References:

[1] W. Buboltz Jr, S. M. Jenkins, B. Soper, K. Woller, P. Johnson, and T. Faes, “Sleep habits and patterns of college students: an expanded study,” *J. Coll. Couns.*, vol. 12, no. 2, pp. 113–124, 2009.

[2] W. C. Buboltz Jr, F. Brown, and B. Soper, “Sleep habits and patterns of college students: a preliminary study,” *J. Am. Coll. Heal.*, vol. 50, no. 3, pp. 131–135, 2001.

[3] A. A. Al Salmani, A. Al Shidhani, S. S. Al Qassabi, S. A. Al Yaaribi, and A. M. Al Musharfi, “Prevalence of sleep disorders among university students and its impact on academic performance,” *Int. J. Adolesc. Youth*, vol. 25, no. 1, pp. 974–981, 2020.

[4] S. D. Hershner and R. D. Chervin, “Causes and consequences of sleepiness among college students,” *Nat. Sci. Sleep*, pp. 73–84, 2014.

[5] M. E. Patrick, J. Griffin, E. D. Huntley, and J. L. Maggs, “Energy drinks and binge drinking predict college students’ sleep quantity, quality, and tiredness,” *Behav. Sleep Med.*, vol. 16, no. 1, pp. 92–105, 2018.

[6] C. C. Panel: *et al.*, “Joint consensus statement of the American Academy of Sleep Medicine and Sleep Research Society on the recommended amount of sleep for a healthy adult: methodology and discussion,” *J. Clin. Sleep Med.*, vol. 11, no. 8, pp. 931–952, 2015.

[7] M. Hirshkowitz *et al.*, “National Sleep Foundation’s updated sleep duration recommendations,”

Sleep Heal., vol. 1, no. 4, pp. 233–243, 2015.

[8] S. Hershner, "Sleep and academic performance: measuring the impact of sleep," *Curr. Opin. Behav. Sci.*, vol. 33, pp. 51–56, 2020.

[9] M. Reisi *et al.*, "Academic performance, sleep disorders and their association in middle school students in Iran," *Int. J. Pediatr.*, vol. 5, no. 3, pp. 4541–4549, 2017.

[10] S. P. Gilbert and C. C. Weaver, "Sleep quality and academic performance in university students: A wake-up call for college psychologists," *J. College Stud. Psychother.*, vol. 24, no. 4, pp. 295–306, 2010.

[11] H. Raley, J. Naber, S. Cross, and M. Perlow, "The impact of duration of sleep on academic performance in University students," *Madridge J Nurs*, vol. 1, no. 1, pp. 11–18, 2016.

[12] N. Fatimah, M. Hasnain Nadir, M. Kamran, A. Shakoor, M. Mansoor Khosa, and M. Raza Wagha, "Depression among students of a professional degree: Case of undergraduate medical and engineering students," *Int J Ment Heal. Psychiatr*, vol. 2, p. 2, 2016.

[13] M. C. Pascoe, S. E. Hetrick, and A. G. Parker, "The impact of stress on students in secondary school and higher education," *Int. J. Adolesc. Youth*, vol. 25, no. 1, pp. 104–112, 2020.

[14] R. Jalali, H. Khazaei, B. K. Paveh, Z. Hayrani, and L. Menati, "The effect of sleep quality on students' academic achievement," *Adv. Med. Educ. Pract.*, pp. 497–502, 2020.

[15] P. Alhola and P. Polo-Kantola, "Sleep deprivation: Impact on cognitive performance," *Neuropsychiatr. Dis. Treat.*, vol. 3, no. 5, pp. 553–567, 2007.

[16] J. F. Gaultney, "The prevalence of sleep disorders in college students: impact on academic performance," *J. Am. Coll. Heal.*, vol. 59, no. 2, pp. 91–97, 2010.

[17] A. BaHammam, E. Al-Faris, S. Shaikh, and A. Bin Saeed, "Sleep problems/habits and school performance in elementary school children," *Sleep Hypn.*, vol. 8, no. 1, p. 12, 2006.

[18] M. Lowry, K. Dean, and K. Manders, "The link between sleep quantity and academic performance for the college student," *Sentience*, vol. 3, no. 2, pp. 16–19, 2010.

Impact of Late Night Sleeping on Academic Performance of University of Engineering and Technology Peshawar and Khyber Medical College Students

Thank you for participating in this survey. Your input is valuable in understanding the relationship between late sleeping habits and the academic performance of students. Please answer the following questions honestly and to the best of your ability.

1	Gender	Male	Female			
2	Age	18-20	21-24	25-29	30 or above	
3	Field of Study	Engineering	Medical			
4	Year of Study	1	2	3	4	5
5	On average, What time do you go to bed on week days?	Before 10:00 PM	10:00 PM-12:00 AM	12:00 AM-02:00 AM	After 02:00 AM	
6	On average, how many hours of sleep do you get on weekdays?	Less than 6 hours	6-7 hours	7-8 hours	More than 8 hours	
7	Do you keep a constant check on your sleep time?	Yes	No			
8	Do you share your bedroom with your siblings?	Yes	No			
9	Do you suffer any disease that effects your sleep?	Yes	No			
10	Do you normally take any medicine for sleep?	Yes	No			
11	Does your bedroom environment has any impact on your late sleeping?	Yes	No			
12	If yes, how would you rate your bedroom environment?	Below satisfactory	Satisfactory	Good		
13	Do you use any electronic media before going to bed?	Yes	No			
14	If yes, do you think your use of electronic media before bed affects you sleep?	Yes	No			
15	Do you perform any heavy work or exercise before going to bed?	Yes	No			
16	Do you take a shower before going to bed?	Yes	No			
17	Do you play any sort of mobile game before going to bed?	Yes	No			
18	Do you watch any sort of entertainment programs (like movies or dramas etc.) before going to bed?	Yes	No			
19	Do you recite The Holy Quran before going to bed?	Yes	No			
20	Do you take a nap during the afternoon?	Yes	No			
21	If yes, what is the frequency of your afternoon nap?	Regularly	Often	Sometimes	Never	
22	Do you see nightmares during your sleep?	Regularly	Often	Sometimes	Never	
23	Do you sleep walk?	Yes	No			
24	Do you talk during your sleep?	No	Yes (noticed myself)	Yes (told by someone)		
25	Do you suddenly fall asleep during academic hours in boring session?	Yes	No			
26	Do you experience episodes of headache during academic hours?	Yes	No			
27	Do you experience other health related issues (like nausea and vomiting etc.)	Yes	No			

	during academic hours?					
28	Do you feel tiredness during academic hours?	Yes	No			
29	Do you feel a huge appetite after late sleeping?	Yes	No			
30	Do you feel fresh after late sleeping?	Yes	No			
31	Do you follow a strict timetable for managing you sleep hours and academic hours?	Yes	No			
32	What factors do you think contribute to students staying up late? (Select all that apply)	Academic workload	Social activities	Work commitments	Technology Use (e.g., phones, computers)	others
33	How would you rate your overall academic performance?	Excellent (80 % and above)	Good (70 % to 80 %)	Average (60% to 70%)	Below average (below 60 %)	
34	Have you noticed any correlation between your sleeping habits and academic performance?	Yes	NO			
35	If yes, please describe how your sleeping habits have affected your academic performance?					
36	Do you think your institution should implement policies or programs to promote healthy sleep habits among students?	Yes	NO			