

INVESTIGATING THE IMPACT OF LATE-NIGHT INTERNET USE ON SLEEP QUALITY AND ACADEMIC ENGAGEMENT AMONG COLLEGE STUDENTS TO IDENTIFY STRATEGIES FOR IMPROVED DIGITAL WELL- BEING

Ayaan Sehgal¹, Prof. G. Anburaj²

¹School of Computer Science and Engineering Vellore Institute of Technology, Vellore-632014, Tamil Nadu, S. India.

²Assistant Professor of English Vellore Institute of Technology, Vellore-632014, Tamil Nadu, S. India.

danielanburaj@gmail.com

ABSTRACT

This paper examines the impact and consequences of using late-night technology on sleep quality and academic engagement of college students. With the rise of digital technology, late-night internet usage has become a common practice among college students, which has a direct impact on their sleep quality and academic performance. The study used multiple methods including qualitative interviews to learn more about the experiences and different viewpoints of college students with the help of questionnaires to evaluate the relationship between late-night technology usage and sleep quality along with its impact on academic engagement.

The study highlights a significant correlation with results indicating shorter sleep duration, more trouble falling asleep, and significantly greater levels of exhaustion during the day, indicating the substantial association between late-night internet use and low levels of poor sleep quality. The survey additionally examined the frequent use of late-night internet, which had a detrimental impact on academic engagement, resulting in difficulty in focusing during class hours and less involvement in discussions. Additionally, it was seen that people who had late-night internet usage found it challenging to complete any task.

The result underlines the growing need for intervention techniques and awareness raising to encourage a healthier balance between college students and their late-night internet habits and their academic responsibilities. Educational institutions can have a huge influence on promoting improved sleep and helping them raise their academic status by addressing the issue of digital well-being. In order to improve the lives of college students and their academic performance, this paper addresses the importance of incorporating digital well-being programs into educational settings and institutions while adhering to a larger conversation on controlling technology use for improved outcomes in the life of college students. The paper concludes by urging colleges to give digital well-being top priority as an essential part of their support systems for students, so that they may better prepare them to deal with the difficulties of juggling technology with their personal and academic lives.

Keywords- Late-night internet use, sleep quality, academic engagement, college students, digital well-being

1. INTRODUCTION

Easy access to the internet in the digital age has drastically altered the way college students engage with information in all spheres of life including their interactions socially and their communication with any information provided. College students have limitless access to all the resources available at their convenience because of the growth of digital tools and platforms. Because of their connectivity and information access digital technology has redefined worldwide lifestyles and become an essential aspect of many people's lives, especially those of college students who use the web for surfing, entertainment and communication. Additionally, technology is becoming a necessary instructional tool for every college student. However, with the growing internet reliance on the internet for multiple purposes, concerns have been raised as the late-night use of distal technology has been affecting the well-being of college students as it directly impacts their sleep quality and academic progress.

One of the most demanding issues of relevance of late-night use of technology is its adverse effect on sleep. This behaviour is frequently observed as a way to unwind after a long day of academic or extracurricular commitments. However, using the internet late at night may cause problems with sleep cycles and lower the quality of sleep in general, which is important for preserving both physical and mental health. College students are most susceptible to sleep problems because of the growing demands of social and academic workloads. Lack of sleep adversely influences and hampers cognitive function, memory recall, emotional control and the academic performance of the individual, according to the results of the survey conducted. Sleep plays a vital role in consolidating knowledge captured during the day and processing all the information. Students who sacrifice sleep in favour of late-night internet use may find it difficult to focus and retain material in class, which will lower their level of academic engagement. Likewise, issues

like elevated stress levels and increased risk of anxiety are also a result of lack of sleep and doom scrolling on the internet late at night. These impacts affect students' general well-being and quality of life outside of the classroom.

Academic engagement is the degree to which college students give their full attention, efforts and complete participation, including attending classes and taking part in all the activities surrounding the same. This involvement is seriously impaired by sleep deprivation as it leads to exhaustion, problems concentrating, and decreased motivation. These elements make it more difficult for college students to stay up with their coursework by lowering their capacity to satisfy academic standards. Their grades and academic performance drop as a result. Maintaining high levels of academic engagement and guaranteeing success in studies and extracurricular activities require striking a balance between appropriate rest and time management.

It is essential to comprehend the connection between academic engagement, sleep quality, and late-night internet use when creating methods to encourage college students to adopt healthy digital habits. While the internet is still a crucial tool for modern schooling, it's important to strike a balance while using it and keeping up good sleep habits while maintaining good academic report and sustaining a healthy lifestyle.

AIM

The primary aim of the study is to investigate and explore the impact of late-night technology use by college students on their sleep quality and academic engagement. By analysing this relationship, the research seeks to develop strategies that promote digital

well-being and improve academic performance, helping students achieve a healthier balance between their technology use and academic performance.

PROBLEM STATEMENT

An increasing number of college students utilise their time on the internet and technology late at night, which has sparked concerns about its impact on the quality of sleep of college students and their academic performance. Excessive consumption of the internet late at night causes many college students to be disturbed, which impairs their ability to focus and concentrate during class hours which reflects on their academic reports. This is a significant issue as sleep is vital for memory consolidation and general mental and physical health.

Late-night internet use disrupts college students' ability to focus and participate completely to fulfil their academic responsibilities, which may affect their long-term success. However,

there is a gap in current knowledge regarding the specific relationship between late-night internet use, sleep quality, and academic engagement. The results of the survey conducted to look into the impact of late-night doom-scrolling depict the direct relationship between internet usage and academic achievement or offer solutions to lessen unfavourable impacts. College students are the primary group affected by this problem. Identifying feasible ways to encourage better digital habits, raise academic engagement, and boost sleep quality is the desired outcome. Prior initiatives have focused on limiting screen time and offering general advice on sleep hygiene, but they haven't directly addressed the connection between late- night internet use and its impacts on academic performance.

The urgency of this issue emerges from the rapidly increasing habit of digital reliance among college students, who require immediate support in managing their online activities alongside with good sleep and academic practices. Dealing with the addictive nature of digital media, observing how students use the internet differently, and making sure that suggested solutions work for a variety of student demographics are some potential obstacles.

2. LITERATURE REVIEW

Owing to the possible impact on sleep quality and general wellbeing, there has been much research done on the use of the internet and technology particularly late at night before sleeping. Nearly half (46.9%) of the students used their smartphones for more than two hours before sleep, with social media being the most common activity (74.2%), followed by communication (48.8%). The findings showed that smartphone use at bedtime was associated with significant negative impacts on sleep quality. Users experienced higher rates of poor sleep quality, longer sleep latency, and difficulty in maintaining sleep.

(Elsheikh, A.A., Elsharkawy, S.A. & Ahmed, D.S. Impact of smartphone use at bedtime on sleep quality and academic activities among medical students at Al -Azhar University at Cairo. J Public Health (Berl.) (2023). <https://doi.org/10.1007/s10389-023-01964-8>) Research indicates that more than four hours of internet is linked to greater daytime fatigue ($p < 0.05$.) and a significant reduction in sleep duration and quality. Using a screen right before bed has also been connected to later bedtimes and less healthy sleep habits, all of which have a detrimental effect on daytime cognitive performance. Furthermore, there is a strong correlation between this behaviour and poorer academic (Effect of screen time use and digital technology on sleep pattern in Lebanese college students ([https://www.ijcmph.com/index.php/ijcmph/article/view/10930#:~:text=Results: 90% of students possess,grades \(p<0.05\).](https://www.ijcmph.com/index.php/ijcmph/article/view/10930#:~:text=Results: 90% of students possess,grades (p<0.05).)))

RESEARCH GAP

There is a growing amount of research on internet use and how it affects sleep, but not much research concentrates on college students' late-night internet usage and its effect on sleep patterns and academic progress. Moreover, the majority of the research currently in publication does not provide feasible suggestions for enhancing this group's digital well-being. To close these gaps and find feasible options for improving digital habits and academic engagement, this study investigates the important connections between college students' late-night internet use, sleep quality, and academic achievement.

The impact of late-night internet and technology use on sleep quality and academic performance has become a critical area of research due to its effects on students' overall well-being. Studies indicate that nearly half (46.9%) of students spend more than two hours on the internet before bedtime. The Internet has been significantly linked to negative effects on sleep, including prolonged sleep delay, trouble staying asleep, and decreased quality of sleep. This is in agreement with studies that demonstrate the negative effects of excessive screen time—using the internet for more than four hours a day—on sleep duration and quality as well as increased daytime fatigue.

(Elsheikh, A.A., Elsharkawy, S.A. & Ahmed, D.S. **Impact of smartphone use at bedtime on sleep quality and academic activities among medical students at Al -Azhar University at Cairo. J Public Health (Berl.) (2023).** <https://doi.org/10.1007/s10389-023-01964-8>)

Furthermore, it has been proven that using internet just before bed leads sleep patterns to be disturbed and which contribute to poor sleep hygiene. Students thus have difficulty focusing and staying mentally awake during the day, which has a detrimental effect on their cognitive functioning. These actions have a significant effect on academic performance there is a strong connection ($p < 0.05$) between more screen usage and poorer academic performance (**Effect of screen time use and digital technology on sleep pattern in Lebanese college students** ([https://www.ijcmph.com/index.php/ijcmph/article/view/10930#:~:text=Results: 90% of students possess, grades \(p<0.05\).](https://www.ijcmph.com/index.php/ijcmph/article/view/10930#:~:text=Results: 90% of students possess, grades (p<0.05).)))

Particularly college students frequently experience partial sleep deprivation and have erratic sleep patterns. Class schedules and academic obligations make these inconsistencies much worse. A increasing amount of research highlights the importance of interventions that support positive digital habits, especially cutting back on screen usage before bed, in order to enhance sleep quality and boost students' academic performance. A growing body of research highlights the importance of interventions that support positive digital habits, especially cutting back on screen usage before bed, in order to enhance sleep quality and boost students' academic performance. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9770061/>)

3. RESULT ANALYSIS

Prevalence and Patterns of Late-Night Internet Use Among College Students

One of the biggest concerns amongst college students in recent years is the use of the internet late at night. The increasing availability of technology by students for social media, research materials, and entertainment has raised concerns about how it may affect their sleep schedule and their academic performance. The results of the study highlight the substantial connection between difficulties sleeping, academic challenges and internet usage. This research project looks at college student characteristics, internet usage habits, and how these things affect academic engagement and sleep quality. Student's technology and internet usage patterns reveal significant insights into their daily routines and habits, especially when it comes to how technology affects their general health and quality of sleep. technology and the internet have grown into crucial tools for social interaction, communication, and information access in the digital age. All of the participants in a recent research of college students had internet, and most of them reported using their devices for many hours per day. Beyond just being convenient, this excessive dependence on technology has consequences, especially when it comes to late-night internet use.

The study's concerning result is the length of time college students spend on the internet right before bed. Lots of students reported spending a lot of time on the internet in the late hours, with social media sites being the most used. According to the study, students frequently engage with social media as a source of fulfilment and leisure in addition to communication. Students usually end up staying late at night doom-scrolling and participating in online activities. This pattern is alarming because it contributes to a cycle of sleep deprivation that college students are experiencing more and more of. Students' normal circadian rhythms are unintentionally disturbed when they use the internet and

technology late the hours before bed, which makes it harder for them to fall asleep and have restorative sleep. More importantly, the information implies that college students' tendency for late-night internet use is a reflection of their increasing struggle to strike a balance between their personal and educational responsibilities. Students may

experience fear of missing out (FOMO) as a result of feeling compelled to stay connected and follow online discussions, which may encourage them to use their gadgets till late at night. This never-ending cycle impairs their capacity to obtain enough sleep as well as their cognitive abilities, which are critical for success in the classroom because they include memory retention. Staying up late at night impacts the quality of sleep, which is essential for preserving general health and academic achievement. Universities must address these technology habits and promote healthy alternatives that put rest and rejuvenation first in order to create environments that support students' well-being. To reduce these problems, initiatives that raise awareness of the effects of internet use on sleep and provide tips for improved sleep hygiene may be extremely important.

The Impact of Late Night Usage on Sleep Quality: A Comprehensive Study of College Students

Concern over the link between university students' late-night internet use before bed and their quality of sleep is growing, especially as technology becomes more and more integrated into everyday life. As per the survey conducted, it was indicated that many students who use the internet late at night experience poor sleep quality. These findings were supported by the research conducted on their Pittsburgh Sleep Quality Index (PSQI) scores. In addition, students who use the internet late at night, right before bed, are more likely than their classmates who don't use it until late in the evening to be labelled as poor sleepers. The adverse effect that internet usage can have on sleep patterns is shown by this strong association, underscoring the need for more awareness and intervention.

Multiple students reported having trouble falling asleep and staying asleep, frequently taking longer to fall asleep and waking up multiple times during the night. This problem is especially noticeable for people who use the internet late at night for activities like gaming, streaming videos, and social media browsing. The stimulation from the screen that comes

from college students participating in late-night online activities can hinder their ability to wind down, which further makes it difficult for them to fall asleep. Moreover, the result indicates that a large number of college students did not get the appropriate amount of sleep that is required for their age group, with numerous students reporting less than seven hours of sleep per night. This gives rise to a vicious cycle of inadequate amount of sleep and late-night internet use, students often wake up feeling tired and worn out alongside feeling like their underprepared for the day ahead of them.

Subsequent research suggests that various external situations, such as living circumstances and lifestyle choices, also contribute to poor sleeping qualities. when it came to sleep disturbances, male students showed greater rates than female students. This tendency might be explained by the ways that men and women use technology and manage their time differently, but further study is required to elucidate these trends. Furthermore, compared to students living in private lodgings, those living in hostels reported more sleep problems.

Certain pressures that come with living in a dorm, like shared living quarters, schedule conflicts, and noise, can cause sleep disturbances. Individual approaches that take into account these distinct lifestyles are crucial to encouraging improved sleep hygiene and general student well-being.

In this regard, educational institutions can be extremely important by putting in place initiatives that increase awareness of the value of getting enough sleep and the possible risks associated with using the internet late at night. Seminars and lectures might give students useful tips on how to cut back on screen usage, create healthier bedtime habits, and more skillfully handle social and academic pressures. The results of the survey point to a worrying pattern about the broader implications of late-night internet use and how it affects the quality of sleep.

A considerable proportion of students stated that sleep deprivation led to increased levels of exhaustion, impaired cognitive function, and elevated stress levels. Many respondents said they had trouble paying attention in class, remembering material, and doing well on tests. This drop in academic achievement frequently fuelled a vicious cycle in which students—who were already dealing with stress and anxiety—turned to using the internet later at night as a coping strategy, which made their sleep quality worse.

In conclusion, university students' usage of the internet before bed and the quality of their sleep are related in a complex way that has to be addressed right away. The results highlight

the need for focused interventions to encourage improved sleep patterns among students by showing a direct correlation between late-night Internet use and sleep disruptions.

Educational institutions may create healthier settings that promote students' mental and physical well-being by addressing the specific factors that contribute to poor sleep quality, such as gender, lifestyle choices, and living situations. A more conducive learning environment and better health outcomes can result from emphasising sleep as a crucial component of academic success for all students.

Consequences of Late-Night Internet Use on Academic Performance

The detrimental effects of poor sleep quality due to the use of late-night internet go way beyond physical health and have a significant impact on a student's academic performance. According to survey results, students who had low sleep quality frequently had serious academic difficulties, which worsened their general academic performance. Rolling out of bed in the morning was a conventional struggle for many students, which sometimes resulted in tardiness or missing classes entirely. They were accordingly less equipped to deal with the academic material and saw a reduction in learning continuity. Students who routinely remained up late using the internet reported frequent problems with fatigue and lack of attention. Less sleep at night made the students tardy at night which resulted in them finding it hard to concentrate and grasp the new material. Due to their lack of focus, students started to fall behind and were unable to understand difficult academic material or participate completely in class discussions. Their incapacity to participate completely in learning activities frequently led to a decline in academic engagement, which in turn caused more gaps in their comprehension of the subject matter and, eventually, worse academic results. Lack of sleep affected cognitive abilities, including memory and problem-solving, which made it more difficult for pupils to retain knowledge and engage in critical thought.

Because of these challenges, pupils were unable to reach their full potential and, as a result, received poorer grades. As a result of their ongoing sleep problems, students found it increasingly difficult to meet the demands of their coursework, which led to an academic decrease over time. Along with the academic challenges, sleep deprivation frequently led to feelings of anxiety and nervousness. Stress levels rose due to poor sleep quality, which made students feel overwhelmed as they tried to balance their personal and academic responsibilities. When sleep deprivation and academic pressure collided, a lot of students

turned to late-night internet browsing as a coping strategy. Late-night internet activities, such as browsing social media, gaming, or streaming content, further disrupt students' sleep cycles, deepening the cycle of poor sleep and academic struggles. The results of the survey highlight the complex relationship between successful academic performance and good sleep. Lack of sleep affects cognitive abilities, including focus, memory, and problem-solving, which are essential for academic success. Students who had trouble sleeping were caught in a vicious cycle where stress from school caused them to stay up late online, which worsened their sleep and made their problems in school much worse. The statistical significance of these results emphasises the urgency with which university students' academic performance and sleep quality need to be addressed through focused treatments.

Educational institutions must acknowledge the relationship that exists between student well-being, quality of sleep, and technology use. Universities may assist their students achieve better academic results and get better sleep by putting in place programs that encourage healthier technology usage.

Educating students about the negative effects of late-night internet use on sleep while encouraging them to practice healthier sleeping habits could be a useful strategy. Students can better manage their academic and personal life by participating in educational campaigns, workshops, and seminars that promote the value of sleep, time management, and stress reduction. Additionally, encouraging students to engage in physical activity, meditation, or reading as alternatives to screen-based relaxation methods could aid in lowering their reliance on the internet before bed. Practitioners might provide advice on improving your sleep habits and provide feasible ways to reduce the detrimental effects of technology on sleep.

4. DISCUSSION IN RESULT

College students use the internet extensively, particularly late at night, and this has revealed both interesting advantages and unexpected difficulties. On the one hand, the internet is an unmatched resource for learning, socialising, and leisure. Quick access to information, peer communication, and entertainment are all available to students, helping them succeed academically and maintain daily routines. In this regard, the internet is essential to the educational process since it provides flexibility and assistance for a wide range of student demands. Yet the study's observations also point to a few unintended disadvantages. The

substantial relationship that exists between late-night internet use and poor sleep quality is one troubling result. Although many students access social media or streaming services to relax after a long day, this behaviour interferes with their sleep cycles. Many students said that using the internet right before bed interfered with their daily cycles, making it difficult for them to fall asleep and wake up feeling rested. The wider effects of sleep deprivation include elevated stress levels, trouble focusing in class, and a reduction in overall academic achievement. Interestingly, not every student stated that using the internet late at night had a negative effect on their academic performance. Some students asserted that their academic involvement was mostly unaffected, especially those whose late-night activities were relevant to their studies or who were not easily distracted by FOMO (Fear of Missing Out). This disparity

demonstrates how different students handle their digital habits and deal with sleep loss in different ways. It implies that while some students may be more resistant to the detrimental consequences of late-night internet use, others may be more susceptible, especially if those students use the internet primarily for amusement or social purposes.

According to the statistics, customised strategies are crucial for limiting the detrimental effects of late-night internet use on sleep and academic achievement. Universities may, for example, start offering workshops on digital wellness that address time management, good online practices, and the value of good sleep hygiene. Students could also benefit from peer support groups and counselling services to help them create better screen-time management techniques. Establishing awareness and offering resources to assist students in managing their digital lives can help institutions lessen the negative consequences of late-night internet use while encouraging better behaviours that are customised to meet the needs of each student. This method acknowledges the variety of student experiences and fosters resilience in the face of the problems caused by excessive internet use.

UNEXPECTED FINDING

One unexpected finding from the research is the varied impact that late-night internet use has on students' mental health. Some students reported that their late-night online activities, such as social media exchanges or streaming video, provided a little relief from the pressures of their studies, even though many others claimed to feel anxious and overwhelmed as a result of sleep deprivation. Despite the detrimental effects on their quality of sleep, many students said that participating in online activities helped them unwind or

divert their attention from their anxieties. While some people use the internet as a coping strategy to deal with stress, others find that it makes them feel more anxious and feeds a vicious cycle of restless nights and difficulties in school. While most students report negative effects on their sleep and academic engagement, other students gain from late-night digital activities that improve their academic performance, according to the research.

Students who took part in study groups or instructional webinars, for example, reported that these activities increased their academic interest even when they were held late at night.

This difference emphasises how crucial it is to discern between digital actions that are beneficial and detrimental.

5. SCOPE OF FURTHER RESEARCH

Although this study sheds light on how late-night internet use affects students' academic performance and quality of sleep, there are a few important aspects that still need to be explored. Initially, more research ought to be done on the particular kinds of online activities—whether they are academic, recreational, or social—that have a different impact on students' wellbeing. This could entail investigating the effects of certain actions on sleep patterns and cognitive engagement, such as browsing through social media or attending instructional webinars. Future research can determine which online activities represent the greatest risks and which may benefit kids by differentiating between productive and unproductive digital habits. Longitudinal research is also required to evaluate the long-term consequences of late-night internet use on academic achievement, mental health, and sleep quality. More customised therapies may be based on a better knowledge of how continuous late-night internet use may contribute to cumulative health or academic issues. Long-term student tracking, for example, would show if students' digital habits change over time and how these changes impact their academic performance, emotional stability, and general well-being.

6. CONCLUSION

The study highlights how late-night internet use among college students is a developing worry because it has a substantial negative influence on both academic performance and sleep quality. The results show that a lot of kids stay up late playing video games, streaming videos, and surfing social media, which throws off their sleep cycles and makes them suffer academically.

The survey also paints a more complex picture, with some students noting that studying late at night or participating in webinars can have a good impact on their academic engagement. According to the findings, there is a complicated relationship

between late-night internet use, wellbeing, and academic achievement. While some students use the internet as a coping strategy to lessen the burden of their studies, others experience anxiety and sleep deprivation. These findings highlight the necessity of focused interventions, such as awareness campaigns, workshops on digital wellness, and recommendations on good sleep hygiene, that encourage healthy technology practices.

To further understand individual variations in internet use, sleep patterns, and their long-term impacts, more research is needed in the future. Universities may create a more encouraging atmosphere that supports both academic achievement and general student well-being by addressing these problems.

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