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The Effects of Screen Time on Sleep Patterns, Academic Performance Among Female Undergraduate Students of Degree College of Hyderabad

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Abstract
The Study investigates about the impact and adverse effects of the screen time on the sleeping patterns and academic performance of the college going females and understanding how the extended dependency on digital devices influencing the sleep quality, concentration levels on academic wise of the students (female). To provide valuable data analysis on study a sample was selected from the Degree Girls College. The respondents of this study were female undergraduate students aged 17 to 24 years, To collect comprehensive information about the respondents and their sleep schedule, Screen time, cumulative grade point average and active participation in academic performance, a demographic questionnaire was employed. An interesting correlation has been detected between the screen operation, sleep commotion and cognitive academic presentation. Additionally, 67% of the respondents observed that excessive screen time affect their ability to concentrate on academic tasks. Moreover; a cumulative interpretation has been made by performing a proper statistical analysis which disclosed that exorbitant screentime, especially before the bedtime is analogous with poor sleeping habit and quality, stimulating truncated academic performance, unbalanced sleep schedule, less concentration, memory issues and substandard grades. Additionally; the study also draws the significance of maintaining a proper sleep schedule; curtailing the use of electronic devices say smartphone to trim the screen time; emphasizing the success in academic balance, sleep schedule and screen usage by enforcing fellow female undergraduate students and educational institutions to take up ideal yet supportive measures to sway all screen time; academic performance and accepted sleep schedule hand in hand.

Keywords: Digital Dependency, Cognitive performance, Quality Sleep Patterns, Screen time impacts, Academic Success, Excessive Screen Time.

Introduction

The present study investigates about the impact and adverse effects of screen time on the sleeping patterns and academic performance of the college going females. With the increasing use of electronic devices say 'smartphones', the sleeping patterns and academic performances are drastically getting out-turned. This

present perturbing issue is leading to the momentousness of analysing and understanding how the extended use screentime influences the sleep quality and the academic outcomes of the students.
Recently, screen time has been involved into students' study and social activities, especially among undergraduates who use screens for both study and entertainment purposes. In Ukraine, the wide use of electronic screens such as smartphones, laptops, tablets, and television sets have raised concerns regarding their impact on students' well-being aspects like sleeping habits, stress levels, cognitive processes, mental wellbeing, concentration levels, academic performance and many others.
Being sleep crucial for cognitive functions, information integration, and academic success. On the other side, prolonged screen time, especially before bed, might have drawbacks such as sleep issues, shorter sleep durations, and increased daytime weariness. These sleep problems might result in poor problem-solving abilities and attention to detail, as well as moderate to low academic performance.
Having collected the data by rolling Google forms or by conducting a statistical survey by collecting the data of the students by considering variants such as sleeping schedule, screen time academic performance and other details. An interesting correlation has been detected between the screen operation, sleep commotion and cognitive academic presentation. Moreover; an interpretation has been made by performing a proper statistical analysis which disclosed that exorbitant screentime, especially before the bedtime is analogous with poor sleeping habit and quality, stimulating truncated academic performance, unbalanced sleep schedule, less concentration, memory issues and substandard grades.

Scope of Study

The purpose of the study "The Effect of Screen Time Influences Sleep Patterns and Academic Performance of Female Undergraduate Students" is to investigate the complex relationship that exists between particular academic performance among female undergraduate students, screen time usage, and sleep quality. Because digital technology is becoming more and more ingrained in their daily lives, this demographic is especially pertinent because it could have a big impact on their academic and health outcomes. because of high screen timing, students are getting average GPA which creates a huge impact on their academic performance. The students are facing issues such as stress, headaches, and low concentration in their studies.

1. Population: Female undergraduates enrolled in a range of university courses.
2. Age range: 17-22.
3. Screen time: The amount of time spent on digital devices for social, educational, and recreational reasons, such as laptops, desktop computers, tablets, and smartphones.
4. Sleep patterns: length, quality, and disruptions of sleep.
5. Academic performance: Study habits, academic accomplishment, and grade point average (GPA)

Objectives of study:

1. To study how screen time influences the sleep patterns of female undergraduate students.
2. To Identify the connection between screen time and academic performance in female undergraduate students.
3. To examine how changes in sleep patterns caused by screen time impact academic performance.

Methodology and Analysis

In order to investigate how screen use impacts sleep habits and academic performance among female college students, this study employs a quantitative, cross-sectional survey approach. Without a long-term study, we can find patterns and connections between these aspects by gathering data at one particular moment.

Samples and Participants

The study's target population is female undergraduates from a range of academic fields. Using a stratified random sample technique, we will choose individuals from various academic years to guarantee a fair representation.

Data Collection

A structured online questionnaire will be used to collect data on students' screen time habits, including how many hours they spend using devices such as laptops, TVs, tablets, and smartphones for academic and non-academic purposes; sleep patterns, including sleep duration, quality, and disturbances, academic performance, including self-reported GPA and study habits.

Also, key variables including, Independent variable I.e. screen time (measured in hours per day); dependent variables and academic performance (measured via self-reported GPA); and dependent variables, including factors that may affect sleep and academic performance, such as age, year of study, workload, caffeine consumption, and exercise habits.

Data Analysis

To analyse the data further were employed Descriptive statistics in order to understand the screen time, sleep patterns & academic performances.

Descriptive Statistics: including mean, SD, modes, were employed for the better understanding & characterizing the behaviour of each variable.Statistical summaries of such as average screen time, average GPA of undergraduate students, average sleep schedule of individual students were consumed Descriptive statistics**.**Correlation Method was used to examine & illustrate the relationship strength & direction of relationship among .Also, Various Methods of regression Analysis such as linear Regression; logistic Regression & ordinal Regression were utilized for the analysis further based on the nature of the dependent variable to associate the relationship b/w screen time, sleep patterns & Academic performance.

Interpretation and Discussion:

Screen time vs. study time

Regression analyses were conducted to evaluate the relationships between meeting at least two out of three guidelines and academic performance. Likewise, regression models were applied to analyze the associations between other sleep measures and academic performance.

The dataset indicates that screen time can have a varied effect on student concentration. A majority of students (41) report that screen time somewhat impairs concentration, and 23 students say it significantly impairs concentration. This could be due to distractions from non-educational content, such as social media or entertainment, which are often associated with excessive screen time. Only a small number (7 students) report that screen time enhances concentration, typically from the use of educational apps or other focused activities. This suggests that screen time unless structured and purposeful for most students, leads to some concentration impairment.

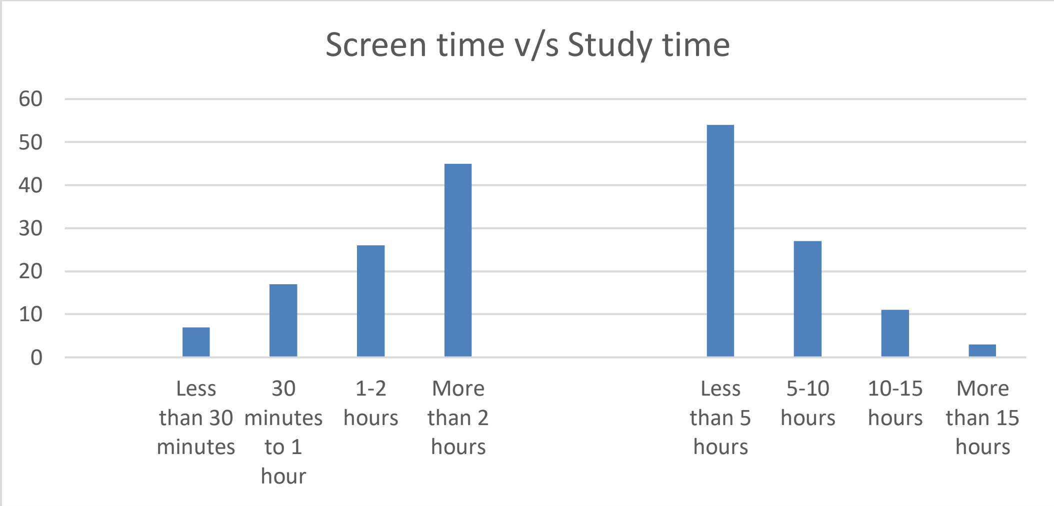
Regarding study time, most students (54) spend less than 5 hours on screen, followed by 27 students who spend 5-10 hours. The number of students who study for 10-15 hours is fewer (11), and very few (3 students) study for more than 15 hours. It's reasonable to assume that students who study for longer periods may experience more pronounced negative effects on concentration, especially if screen time is used for both academic and recreational purposes. For students who study less than 5 hours, screen time may be more manageable and less likely to significantly impair concentration.

Looking at the relationship between concentration and study time, we hypothesize that longer screen time may lead to a greater impairment in concentration. The largest group of students (54) who spend less than 5 hours on screen likely experience no noticeable effect or only somewhat impaired concentration, possibly because the screen time is used for focused academic tasks. However, those who spend 5-10 hours on screen may report somewhat impaired or even significantly impaired concentration due to the increasing likelihood of distraction. The few students (3) who study for more than 15 hours are likely facing significant concentration issues, either from screen fatigue or diminishing returns from prolonged exposure to screens.

Therefore, there appears to be a negative correlation between screen time and concentration. As screen time increases, particularly beyond 5 hours, students are more likely to experience impaired concentration, which could adversely affect their academic performance. Although some students may benefit from screen time, especially through educational apps, the overall trend suggests that excessive screen exposure leads to fatigue, distractions, and reduced focus. To improve academic performance, it may be beneficial for students to limit screen time, especially outside of structured study sessions, and incorporate regular breaks to help maintain concentration levels.

Screen time needs to be managed very carefully in the academic context. Optimal concentration and maximal performance can be achieved by the fine balance that students maintain between the use of screens and physical activity plus adequate sleep, along with using non-digital study methods. Future researchers may consider narrowing down to specific screen activities (social media, gaming, or educational apps) to have a more detailed understanding of their impact on concentration and academic outcomes.

In the comparison of screen time usage and academic performance among undergraduate female scholars. We demonstrate in this study the effects of various magnitudes of screentime on their academic outcomes, particularly the nature of activities in which they indulge while on screens. The largest group of students belongs to the "More than 2 hours" category since 45 students dedicate a good amount of their day to screen use, with very few students in the "Less than 30 minutes" category, which includes only seven students. Most of the time spent on screens is in fact allocated to social media browsing 53 students, significantly fewer using their screen time for studying or completing schoolwork only 3 students. This data insinuates that though screen time might be high in their daily scheduling, a negligible part of it is put into academic purposes.



When we consider the study time data, which shows that 54 students report spending less than 5 hours per week on studying, a clear link emerges between screen time and academic performance. Students who spend a considerable amount of time on entertainment-related activities such as social media (53 students) and watching videos or movies (30 students) are likely to have less time available for academic work. The data suggests that the higher the screen time, particularly in the "More than 2 hours" category, the more likely students are to spend less time studying, which could result in lower academic performance. Among students who report spending less time studying, we see that 35 students have an average academic performance, which may reflect the distraction caused by excessive screen use.

In contrast, students who report spending 5 to 10 hours a week studying (27 students) could be better positioned academically, with a larger proportion of these students achieving above-average (50 students) or excellent academic performance (10 students). This group is likely balancing their screen time with focused study time. However, this doesn't eliminate the possibility that even moderate screen use, if not carefully managed, can still lead to distractions that impede academic success. The data implies that screen time, when not directed toward productive activities like studying, can have a negative moderating effect on academic performance.

The impact of excessive screen time can also be seen in the academic performance of students who spend over 2 hours on screens. With 45 students in this category, it is likely that many of them are engaging primarily in social media browsing, video watching, and texting. These activities, though enjoyable, provide little academic benefit and could reduce the amount of time and energy available for studying. Given that only 35 students report average academic performance, and no students in this category reported excellent performance, it’s evident that prolonged screen use is linked to average or lower academic outcomes.

A key moderating factor in this analysis is the way screen time is allocated. While the total duration of screen time plays a role in academic performance, the content of that screen time is equally important. For instance, the small group of students who use screens for educational purposes (3 students) seem to be less distracted by entertainment, suggesting that purposeful use of screen time for studying could lead to better academic performance. Students who focus on entertainment rather than academics may experience diminished academic outcomes due to less focus on schoolwork. Therefore, the key takeaway is that managing screen time effectively—balancing entertainment with productive study time—can help improve academic performance despite the overall amount of screen time.

Screen Time Vs Sleep Patterns

Excessive screen time is clearly affecting the sleep patterns of females, as reflected in the data. A significant 45% of females report spending more than 2 hours on screens daily, while 26% spend 1 to 2 hours, and 17% spend 30 minutes to 1 hour, leaving only 7% with less than 30 minutes of screen time. Notably, 78% of females agree that excessive screen time disrupts their sleep patterns. This disruption seems to be linked to difficulties in waking up refreshed in the morning, with 56 females specifically reporting trouble waking up early and feeling rested. The overuse of screens, especially before bedtime, contributes to poor sleep quality and can delay sleep onset, leaving individuals feeling fatigued and less energized the following day.

The data regarding their sleeping habits, Among the females surveyed, 36% stated they received 6-7 hours of sleep, while 23% of females had less than 6 hours of sleep, which falls below the recommended amount for adequate rest. Only 22% of females indicated sleeping between 7-8 hours, and 14% of females were able to sleep more than 8 hours. These statistics indicate that many females are not obtaining enough restorative sleep, which may be directly associated with increased screen time. As screen time rises, particularly in the hours leading up to bedtime, it can disrupt the body's circadian rhythm, making it more challenging to fall asleep and attain deep, restorative sleep.

This evidence on the imbalance found in the number of females who do not existent receive 7-8 hours of optimal sleep makes it clear that an increment in screen time would be one of the contributors influencing inferior quality of sleep.

The value Corelation of the quality of sleep is -0.251609804. Therefore, females need to develop healthy practices regarding screen times if they want to generate better sleeping patterns which consist of setting restrictions concerning the usage of the devices before night as well as the incorporation of serene activities like ...Reading or meditation can possibly allow her to fall asleep. Through making these adjustments, females can increase both the quantity and quality of their sleep, which will then translate to better physical and mental health.

Conclusion

The research findings highlight the clear relationship between Screen Time, Sleep patterns and Academic performance. The study indicates that too much screen usage impairs focus, which lowers academic performance and study effectiveness. The majority of students stated that screen usage hinders their ability to concentrate, especially when it is utilized for non-academic activities like social media and amusement. A significant percentage of students (41) reported that screen usage slightly reduces their concentration, while 23 reported that it significantly impairs their ability to focus. In contrast, only seven students found screen time advantageous to attention, primarily through instructional apps. Furthermore, pupils who spent more than five hours on screens were more likely to have attention problems, whereas those who reduced their screen time to less than five hours performed better academically.

The statistics also revealed that among students who studied for 5-10 hours per week, 50 obtained above-average performance, with 10 reporting excellent performance. Less screen time was associated with greater academic performance, but students who spent more than five hours on screens had discernible focus problems.

The majority of students (78%) indicated that excessive screen usage interfered with their sleep, making it difficult to wake up feeling refreshed in the morning. 56 students particularly noted having trouble waking up early in the morning due to poor sleep quality. Sleep duration statistics revealed that 23% of students got less than six hours of sleep, while just 22% got the recommended 7-8 hours.

The assumption stating that increased screen time before sleep time pushes back the time when an individual falls asleep and reduces the total sleep period is supported by the correlation index of (-0.2516), which indicates a negative correlation between screen time and sleep quality. The need for controlling screen time was further confirmed by the performance results of students whose purpose of using screens was mainly educational as they performed better than those whose purpose was recreational. These results highlight how essential it is to balance leisure and productive study activities when controlling screen time in order to boost academic success.

It has been proven that screen time affects sleeping patterns alongside academic performance. A good number of students pointed out that extended use of screens, especially right before sleeping, led to poor sleep quality and sleep onset latency. In time, these students experienced fatigue and poor sleep quality, which negatively affected their focus and performance in school. Because of the association between excessive screen time and poor quality of sleep, healthy digital use among students becomes even more important. Students can lessen these negative impacts by refraining from using screens for relaxation before sleeping and finding a balance between academic and recreational use of screens. With stronger academic performance and better sleep, these strategies will enhance the overall health of physically active female students.

Suggestions

To mitigate the effects of screen time on academic performance and sleep patterns of female undergraduate students, there are a number of effective strategies that can be used. On top of the list is for academic institutions to sensitize students about how the use of screens disrupts quality sleep and concentration. Workshops and seminars aimed at making students aware of the dangers of long exposure to screens and the effect of such exposure on mental alertness and academic achievement can prove quite useful. Creating a structured study plan that designates screen-free periods would be a great way to reduce the unnecessary exposure to digital screens. For instance, they could use the Pomodoro method or the 20-20-20 rule so that within that structured time frame they could induce study habits and that can also be used as breaks to rest their mind and eyes. In addition to no screen use an hour before sleep and the use of already implemented night mode and blue light filters to at least minimalize the disruption of sleep patterns. Alternatively, print few materials. Be more practical. Write by hand. Discuss more in groups. This will reduce the reliance on digital devices. Support can also be extended to students by universities, for instance, through the provision of programs like sleep education. They teach, for example, relaxation methods and how to manage stress, and can as well show effective ways the students can tuck themselves in bed especially when it is time to sleep. Creating awareness about healthy lifestyle practices will make students aware of the need for proper sleep. More organized time management and health programs will promote screen time management among undergraduate female students, ultimately improving their academic performance and sleep patterns. According to the data provided, it is glaring that excessive screen time impacts both academic performance and sleep patterns. The first graph proved that about 45% of learners go beyond two hours while only about 10% confine their use within less than 30 minutes. The second graph would also place roughly 50% of high screen time students in the sub-5-hour studying bracket; therefore, there is a correlation between high screen usage and low study time. The third graph will show that a healthy proportion of students, 53 percent, spend their screen time just browsing through social media. Inversely, 30% watch videos or movies, activities that go further into the night and can affect quality of sleep by delaying bedtime and resulting in less overall rest. Thus, unhealthy quality of sleep patterns may also impair focus memory, and cognitive performance.

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