

Research Paper

The Impact of Mobile Screen Time on Health and Academic Performance among Students at A Private Pharmacy College in Telangana State, India

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ABSTRACT

Background: The growing cell phone usage by pupils has raised worries regarding its possible effects on academic performance and overall wellness. There is a strong correlation between excessive screen time, health concerns, & diminished academic outcomes. This study intends to investigate these effects among pharmacy students. **Methods:** 275 students from a private pharmacy college participated in a cross-sectional survey. Self-reported screen time logs and a structured questionnaire were used to collect data, which assessed academic performance, sleep habits, behavioural changes, health problems, headaches, and eye strain. SPSS was used for the statistical analysis, and chi-square tests were used. **Results:** Findings showed a substantial correlation between excess (screen time) and inimical health effects, including sleep disruptions (64.7% of participants), behavioural modifications (43.3%), physical ailments (37.5%), and educational challenges (53.5%). Increased screen use was linked to higher stress levels, disrupted sleep cycles, and decreased concentration, ultimately impacting academic achievements. **Conclusion:** The study emphasises how excessive mobile screen time negatively affects pupils' holistic and scholastic performance. These revelations emphasise the necessity of awareness-raising initiatives and strategic measures to encourage healthier screen usage.

Keywords: Mobile Screen Time, Health, Academic Performance, Pharmacy Students

In today's digital era, anything is achievable through a quick swipe, but excess screen time jeopardizes many dimensions of life, resulting in reduced body movement, higher chances of obesity, sleep disorders, back & cervical discomfort, nervousness, and depression, all hindering accomplishment in didactical & professional environments. Extended interaction facilitated by cell phone often leads to delayed sleep initiation, a shortened sleep period, and sleep debt affecting one's mindset and coordination, while excess ST is interconnected with health concerns such as headaches, strained eyes, improper

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posture, and psychological challenges like apprehensiveness or mental exhaustion. A survey-based investigation on teenagers showed that deferred sleep commencement corresponds with 90% of survey-takers using electronic gadgets within sixty minutes before bedtime, with extended digital engagement linked to higher probabilities of apprehensiveness or mental exhaustion, and modern inquiries reveal nighttime procrastination in sleep tied to weight gain due to calorie-rich, low-nutrient ingestion. Increased mobile phone usage is also attributed to low learning pursuit and heightened anxiety among youngsters and college-going pupils, and mobile phones have overhauled our reciprocal actions by introducing challenges that affect daily life, as individuals who frequently operate Cell phones devote shorter periods to family members and family ties could weaken because of exaggerated device usage.

Excessive smartphone use, particularly networking and gaming apps, can lead to Cell Phone addiction and negatively affect psychological health by causing sleep problems, apprehensiveness, and despair, while also increasing young people's vulnerability to cyberbullying and the resulting psychological anguish. A static daily routine driven by superfluous Cell Phone usage contributes to both explicit and implicit psychological concerns, and operating a Cell Phone during the pre-sleep period can imbalance sleep cycles, harming overall wellness. Constant exposure to carefully chosen, romanticised depictions of others' lives may trigger poor self-regard, unfavourable self-comparisons, and reduced physical interaction, while concerns about sharing private data and potential security breaches can further heighten apprehensiveness and tension.

Overexploitation of mobile usage may lead to bodily fitness concerns such as strained eyes, bad posture, insomnia, and sedentary behaviour that can worsen corpulence and residual health conditions, while excess Screen time can adversely affect psychological health by increasing the threat of anxiety, depression, and a decline in overall wellness. It is also interrelated with deterrents, a shorter attention span, and trouble focusing, all of which negatively influence educational results and scholastic success, and excess ST may further disrupt productive study practices and efficient time use, harming academic performance.

REVIEW OF LITERATURE

Rania Mohammed Ahmed et.al. (2022) structured an inquiry-based study to probe the connection between ST & its ramifications on bodily and perceptual stability and educational performance among Saudi adolescents. The inquiry involved 1,000 individuals, averaging 22.3 ± 3.1 years of age, including 203 women and 69 male healthcare students. Daily screen time durations were considered as factors, whereas health indicators like visual discomfort (45%), migraines (41%), & sleep disturbances (30%) were noted as core result variables. The scrutiny has proven a nexus of perpetual ST and the occurrence of these health concerns, leading to increased severity of symptoms that are notably affected by both duration and the type of gadget used. The insights highlight the adverse consequences of ST imposes on wellness. Therefore, it necessitates further medical studies to gauge the reverberations of ST across different demographics and locations and cultivate a broader understanding and responsible habits.

METHODOLOGY

Hypothesis:

H0: There is no significant relationship between mobile Screen time and health and academic outcomes among the study participants.

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Ha: There is a significant relationship between mobile Screen time and health and academic outcomes among the study participants.

Objectives

General Objective:

- To conduct a study on the repercussions of mobile Screen time on the health and academic performance of pharmacy students at a college in Telangana state, India.

Specific Objective:

- To contrast mobile Screen time traditions & recovery outcomes between different demographics among pharmacy students.
- To scrutinize how pharmacy scholars' scholastic performance is affected by mobile Screen time.

Sample

The sample comprised 275 persons. The intended audience is pharmacy scholars (B.Pharm, Pharm.D & Pharm.D. PB) of the age group 18-25years possessing and regularly operating a mobile device, who offer weekly screen time data within a classified pharmacy college. The exploratory study will be performed over 6 months (from August 2024 to January 2025). The research is executed within a classroom setting; additionally, the screen time is collected face-to-face. Baseline characteristics were recognized via a validated questionnaire. The vision of this extended exploration is designed to scrutinize how mobile screen time affects scholarly growth pursuit & full-spectrum wellness.

Research Design

A longitudinal observational study design was used to conduct the study with a validated questionnaire. The study population was recruited using convenient sampling.

Statistical Analysis

Assessing the relevance of dependent and independent variables was completed by employing a chi-square test, undertaken via SPSS IBM 25.

Variables

Dependent Variables:

1. Screen time

Independent Variables:

1. Sleep
2. Behavioural changes
3. Physical health
4. Eye strain and headache
5. Academics

Instruments

Development of the Questionnaire: The query form was adopted and adapted from previous studies, with modifications made to suit our objectives. It has 2 sections: Section A includes socio-demographic information, for instance age, gender, study level, branch, academic year, and spousal status, while Section B contains five categories: Sleep, Behavioural Changes, Physical Health, Eye Strain and Headache, and Academics.

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Each category includes six inquiries; the subjects were requested to select options for each item. 30 questions make a questionnaire, and answers are scored on a Likert-type scale (five points). Inputs received are gauged via a Likert-type scale (five points) spanning from 0 to 4 (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Frequently, 4 = Always). The total score, which varies from 0-24, is explained below:

- **Score 0-6:** Minimal Impact
- **Score 7-12:** Moderate Impact
- **Score 13-18:** Significant Impact
- **Score 19-24:** Severe Impact

RESULTS

Participant Response Percentage

Approximately 400 respondents in a pharmaceutical college were featured, which yielded 275 valid surveys. ST findings insufficiency, unsigned consent forms, and incomplete survey forms are prominent sources of dropouts.

I. Socio-Demographic Characteristics of the Study Population

Table 1: Socio-demographic data (n=275)

Variables		No. of Cases	Percentage
Age	≤ 20 Years	152	55
	> 20 Years	123	45
Gender	Male	61	22
	Female	214	78
Branch of Study	B. Pharmacy	178	65
	Pharm. D	94	34
	Pharm. D PB	03	01
Year of Study	2 Year	90	33
	3 Year	68	25
	4 Year	84	30
	5 Year	15	5
	6 Year	18	6
Marital status	Unmarried	267	97
	Married	8	3

The general features of the participants are summarized in Table 1. The sample consists of 275 participants (N=275). Most (55%) are 20 or younger. Females comprise 78%. Programs: 65% B. Pharm, 34% Pharm. D, 1% PB. Study year: 33% second, 30% fourth, 25% third, 5% fifth, 6% sixth. Most (97%) are unmarried.

II. Response to Health & Behavioral Questionnaire

Table 2 summarizes Health & Behavioral Questionnaire correspondences (N=275). Regarding sleep quality, the majority reported significant disturbances (64.7%), with 17.8% indicating moderate issues and 16.0% experiencing severe sleep problems. For behavioral changes, most participants reported moderate (38.9%) or significant (43.3%) changes, while 7.3% indicated severe behavioral issues. In terms of physical health, 51.3% of participants experienced moderate effects, and 37.5% reported significant issues, with only 1.8% experiencing severe physical health problems. Eye strain and headaches were moderate to significant for the majority (49.8% and 38.2%, respectively), while 4.4% reported severe

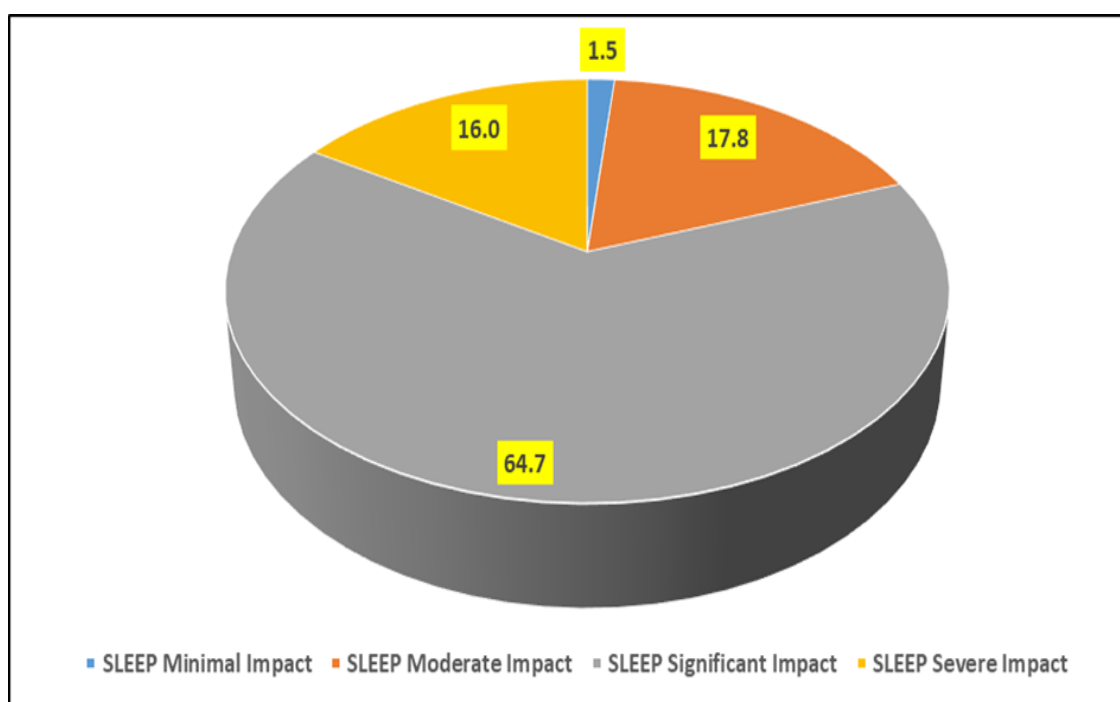
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symptoms. Finally, academic performance showed that 53.5% of participants experienced significant impacts, with 31.3% reporting moderate effects and 9.8% severe challenges.

Table 2: The Response to Health & Behavioral Questionnaire (N=275)

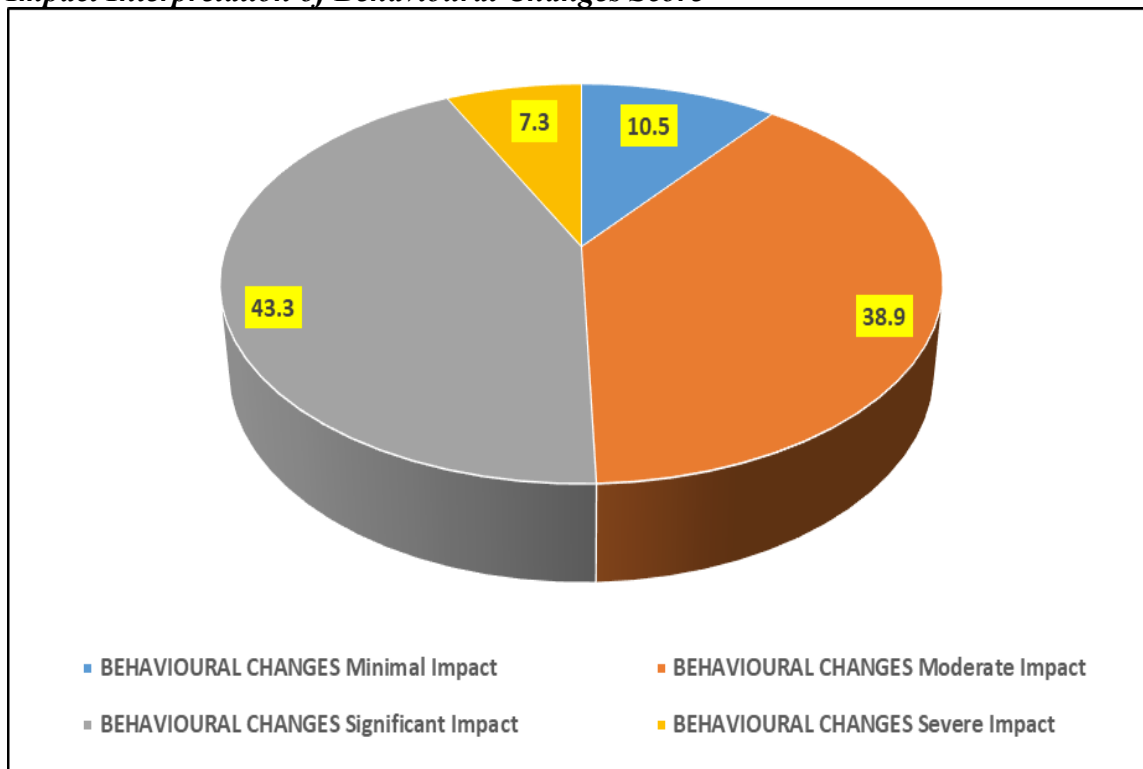
Variables		No. Of cases	Percentage
Sleep	Minimal	4	1.5
	Moderate	49	17.8
	Significant	178	64.7
	Severe	44	16.0
Behavioral changes	Minimal	29	10.5
	Moderate	107	38.9
	Significant	119	43.3
	Severe	20	7.3
Physical health	Minimal	26	9.5
	Moderate	141	51.3
	Significant	103	37.5
	Severe	5	1.8
Eye strain and headache	Minimal	21	7.6
	Moderate	137	49.8
	Significant	105	38.2
	Severe	12	4.4
Academics	Minimal	15	5.5
	Moderate	86	31.3
	Significant	147	53.5
	Severe	27	9.8

Impact Interpretation of Sleep Score

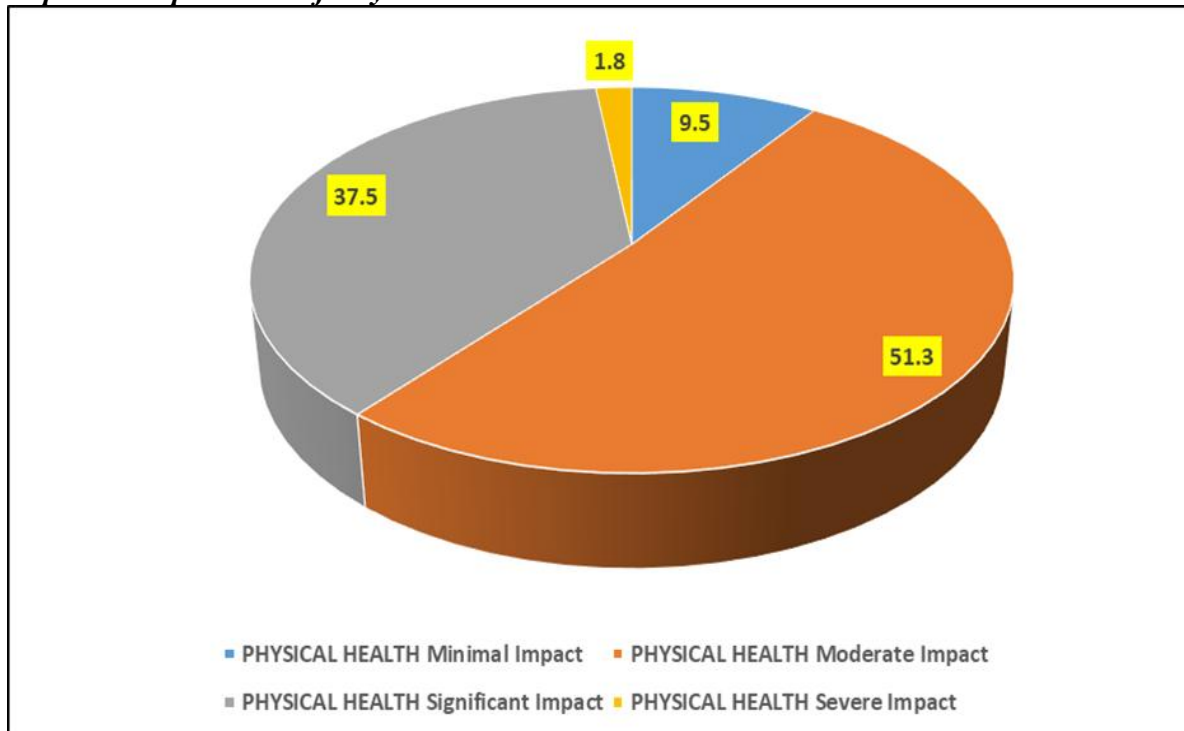


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Impact Interpretation of Behavioural Changes Score

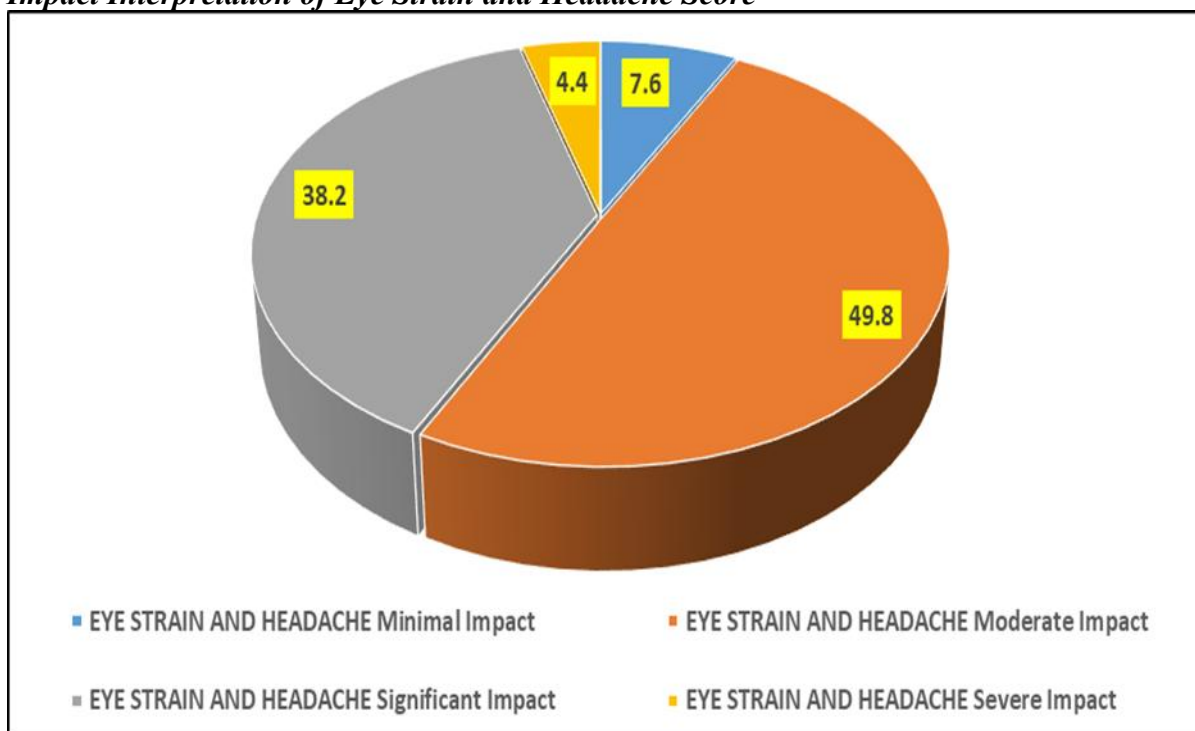


Impact Interpretation of Physical Health Score

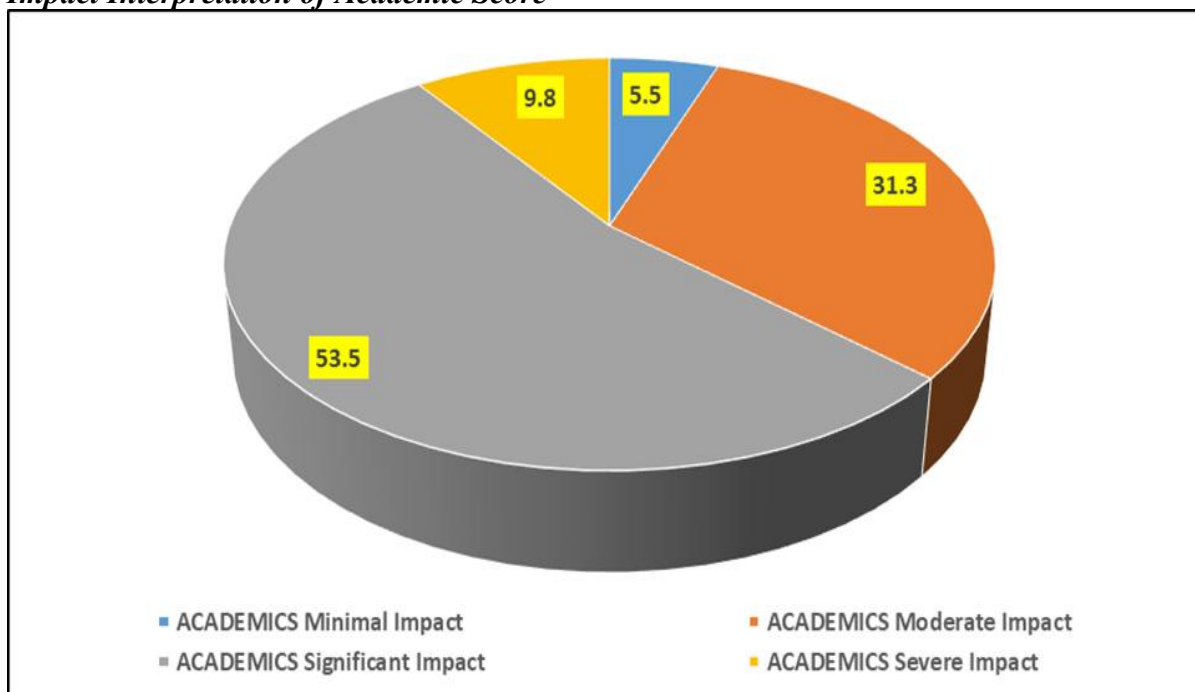


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Impact Interpretation of Eye Strain and Headache Score



Impact Interpretation of Academic Score



Cross-Domain Impact Score Summary in Participants:

Across all four assessed domains, behavioural changes, sleep disturbances, eye strain and headaches, and physical health, the majority of participants reported noticeable to significant impacts. Most individuals fell within the Moderate to Significant categories for each area, indicating frequent or recurring challenges rather than minimal effects. Severe impact levels were present but consistently represented a smaller portion of respondents, showing that

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while intense issues exist, they are less common. Overall, the findings suggest that a substantial proportion of participants experience meaningful disruptions to their daily functioning and well-being across multiple dimensions.

III. Association Between Average Screen Time and Variables:

Table 3: Association Between Average Screen Time and Sleep Quality:

Table 3 shows a significant nexus ($p < 0.001$) between ST and sleep disturbances. Higher screen use was associated with more sleep issues, with 98 severe cases and 72 excessive screen users affected.

St-Variable	N	Never	Rarely	Sometimes	Frequently	Always	X ²	P Value
Minimal	2	0	2	0	0	0	26.75	< .001*
Moderate	15	0	1	1	9	4		
Significant	98	7	15	17	38	21		
Excessive	160	6	11	30	72	41		
Total	275	13	29	48	119	66		

Table 4: Association Between Average Screen Time and Behavioural Changes:

Table 4 shows a significant nexus ($p < 0.001$) between ST and behavioral changes. Minimal changes were rare among high-screen users. In moderate and significant cases, excessive ST was common, with 58 participants reporting significant changes. The findings suggest that higher screen time is linked to more pronounced behavioral changes.

St-Variable	N	Never	Rarely	Sometimes	Frequently	Always	X ²	P Value
Minimal	2	0	0	0	2	0	21.09	< .001*
Moderate	15	1	3	5	5	1		
Significant	98	13	22	20	40	3		
Excessive	160	25	35	35	58	7		
Total	275	39	60	60	105	11		

Table 5: Association Between Average Screen time and physical health:

Table 5 shows a significant nexus ($p < 0.001$) between ST and PH issues. Higher screen time was associated with more moderate (45 cases) and significant (54 cases) health problems.

St-Variable	N	Never	Rarely	Sometimes	Frequently	Always	X ²	P Value
Minimal	2	0	2	0	0	0	19.27	.082
Moderate	15	4	7	2	0	2		
Significant	98	34	39	20	5	0		
Excessive	160	46	62	36	10	6		
Total	275	84	110	58	15	08		

Table 6: Association Between Average Screen Time and Eye Strain/Headache Symptoms:

Table 6 shows no significant nexus ($p = 0.082$) between ST and eye strain/headaches. However, excessive screen users reported more eye strain, with 98 experiencing significant symptoms.

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St-Variable	N	Never	Rarely	Sometimes	Frequently	Always	X ²	P Value
Minimal	2	0	0	1	1	0	31.79	< .001*
Moderate	15	3	3	1	1	7		
Significant	98	10	13	33	15	27		
Excessive	160	8	19	45	34	54		
Total	275	21	35	80	51	88		

Table 7: Association Between Average Screen Time and Academic Performance

Table 7 shows a significant nexus ($p < 0.001$) between ST and academic difficulties. Excessive screen users reported more challenges, with 74 facing frequent issues and 33 experiencing significant academic struggles.

St-Variable	N	Never	Rarely	Sometimes	Frequently	Always	X ²	P Value
Minimal	2	0	0	0	2	0	23.42	< .001*
Moderate	15	1	5	2	7	0		
Significant	98	24	20	11	33	10		
Excessive	160	23	37	13	74	13		
Total	275	48	62	26	116	23		

Table 8: The summary of the study outcomes on health and academic performance.

Table 8 summarizes descriptive statistics for all variables. Significant associations ($p < 0.05$) were found. Mean scores ranged from 11.62 to 15.29, medians from 12 to 16, and ranges from 0 to 24, indicating interrelated disturbances.

Variable	Items	Mean (SD)	Median (IQR)	Range	X ²	P Value
Sleep	6	15.29 ± 3.57	16(5)	2 → 24	197.09	<.000
Behavioral changes	6	12.12 ± 4.35	13(6)	1 → 24	166.54	<.000
Physical health	6	11.62 ± 3.75	12(4)	0 → 22	213.49	<.000
Eye strain & headache	6	11.88 ± 3.72	12(4)	0 → 22	201.43	<.000
Academics	6	13.38 ± 4.39	14 (5)	0 → 24	221.81	<.000

DISCUSSION

The examination gathered details of 275 characters, with 78% (214 students) being female and 22% (61 students) being male. Age dispersion presented 45% (123 students) aged 21 and above, while 55% (152 students) were below the age of 20.

Regarding academic programs, 65% (178 students) were integrated into the B. Pharm program, while 34% (94 students) were in the Pharm. D program.

Analytics illustrated that 16% (44 students) experienced severe sleep disturbances, while 64.7% (178 students) exhibited notable sleep difficulties. The input assessment confirmed a robust convergence of ST& insomnia-related concerns.

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The evaluated outcomes identified that 43.3% (119 students) experienced significant emotional distress, while 38.9% (107 students) indicated reasonable behavioral changes. Excessive ST showed a notable connection to emotional and conceptual challenges.

Among participants, 51.3% (141 students) were found with modest health issues, while 37.5% (103 students) experienced severe problems equivalent to headaches and vision fatigue.

The survey has revealed that 49.8% (137 students) had moderate manifestations of Eye strain and headache, while 38.2% (105 students) reported discomfort.

Approximately 53.5% (147 students) reported considerable academic difficulties, while 9.8% (27 students) experienced severe academic setbacks. Overwhelming ST was closely tied to declining academic success.

CONCLUSION

The evidence sourced from the current issue draws attention to the detrimental aftereffects of excessive Screen time on learning and health outcomes. Respondents in their second and fourth years observed significant difficulties, with the exploitation of phones affecting both their scholarly achievement & living standards. Additionally, B.Pharm apprentices (65%) engaged with escalated usage of phone than Doctor of Pharmacy (34%), indicating contrasts in internet utilization purposes & study approaches. Overall, the study output shows that excessive screen time is linked to negative health effects and lower academic performance. These findings highlight the need for balanced and mindful mobile use among students.

Future Recommendations

- **Limit Screen Exposure:** Establish tech-free zones (such as bedrooms, classrooms, while eating, etc.). Minimize mobile use before sleep to enhance rest quality.
- **Keep leisure electronic usage to a couple of hours** daily.
- **Monitor Usage:** Utilize default system applications to understand & regulate Screen time.
- Participate in exercise routines, sports, or outdoor recreation.
- **Optimize Display Settings:** Adjust brightness, contrast, and font size per your comfort.
- Digital detox every 60-90 minutes and a 10–15-minute break to prevent fatigue.
- **Minimize Distractions:** Develop a plan that reduces screen interruptions and enhances focus.

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Conflict of Interest

The author(s) declared no conflict of interest.

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