Analysis Of Tech Addiction Among Students Of Different Domains

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Abstract:
This research investigates tech addiction among students across diverse academic domains, employing a mixed-methods approach to discern prevalence, patterns, and contributing factors. By surveying and interviewing students in fields such as science, engineering, humanities, and social sciences, the study aims to identify discipline-specific tech usage trends and dependencies. The research explores the impact of tech addiction on academic performance and mental well-being while seeking to uncover nuanced insights into the unique challenges faced by students in different fields. The findings will inform targeted interventions and strategies to address tech addiction, fostering a comprehensive understanding of the interplay between technology and student well-being in the digital age.

Keywords:
Technology addiction, academic domains, mixed-methods approach, prevalence, patterns, contributing factors, surveys, interviews, statistical analyses, screen time, stress levels, academic performance, domain-specific trends, peer influence, digital literacy, responsible technology use, holistic approach, student well-being, digital age.

Introduction:
The pervasive integration of technology into the fabric of modern education has revolutionized the learning landscape for students across diverse academic domains. As students

navigate the intricate intersection of academics and technology, concerns about the escalating prevalence of tech addiction have become increasingly pertinent. This research embarks on a comprehensive analysis to explore the nuances of tech addiction among students hailing from different academic disciplines. The contemporary educational environment is characterized by an array of digital tools, platforms, and communication channels, each presenting unique challenges and opportunities. Against this backdrop, understanding the patterns, prevalence, and contributing factors of tech addiction is imperative for fostering a holistic perspective on student well-being in the digital age. By adopting a mixed-methods approach encompassing surveys, interviews, and behavioral observations, this study aims to unravel the complexities associated with tech addiction, examining how it manifests, influences academic performance, and interacts with the distinctive demands of various academic domains. The insights derived from this research will not only contribute to the scholarly discourse on technology's impact on student life but also inform targeted interventions and strategies tailored to the specific needs of students in diverse disciplines. In a rapidly evolving technological landscape, this exploration is vital for cultivating an informed and proactive approach to address the challenges posed by tech addiction and promote a healthier balance between academic pursuits and digital engagement among students.

Method & Procedure:

1. Survey Design:

Subjects: Diverse sample from various academic domains.

Instrument: Structured questionnaire covering screen time, social media use, GPA, stress, physical activity, digital literacy, and peer influence.

Ethical Considerations: Informed consent, confidentiality, adherence to ethical guidelines**.**

2. Data Collection:

Administer the survey to participants.

Collect responses on a predetermined scale for each variable.

3. Descriptive Statistics:

Calculate mean, median, standard deviation, and range for each variable.

4. Correlation Analysis:

Compute correlation coefficients between quantitative variables.

Visualize correlations with a heatmap.

5. Domain-Specific Analysis:

Group participants by academic domains.

Calculate average values for each variable within domains.

6. Peer Influence Impact Analysis:

Analyze correlations between peer influence and screen time, social media.

7. Stress Coping Mechanisms Analysis:

Examine relationships between stress levels and screen time, physical activity, digital literacy.

8. Digital Literacy and Responsible Tech Use Analysis:

Investigate correlations between digital literacy levels and screen time, social media usage.

9. Domain-Specific T-Test:

Conduct t-tests to compare academic domains for various variables.

Evaluate statistical significance with t-statistics and p-values.

Results:

4.1 ANALYSIS OF DESCRIPTIVE STATISTICS FOR EACH VARIABLE (MEAN, MEDIAN, STANDARD DEVIATION, RANGE) TO UNDERSTAND THE CENTRAL TENDENCY AND VARIABILITY OF THE DATA.

TABLE 1: ANALYSIS OF STATISTICAL DATA OF SURVEYED DATA OF DIFFERENT SUBJECT.

| Variable	Mean	Median	Standard Deviation	Range
Screen Time (hours/day)	6.55	6	1.5	4 - 9
Social Media Usage (hours/day)	2.15	2	0.84	1 - 4
Academic Performance (GPA)	3.54	3.6	0.38	3.0 - 3.9
Stress Level (1-10)	5.3	5	1.66	3 - 8
Physical Activity (hours/week)	4.5	4.5	1.27	3 - 7
Digital Literacy Level (1-5)	3.55	3	0.86	2 - 5
Peer Influence (1-5)	3.05	3	1.07	2 - 5

4.2 ANALYSIS OF CORRELATIONS BETWEEN DIFFERENT QUANTITATIVE VARIABLES (E.G., SCREEN TIME, SOCIAL MEDIA USAGE, GPA, STRESS LEVEL) TO IDENTIFY POTENTIAL RELATIONSHIPS.

TABLE 2: CORRELATIONS BETWEEN DIFFERENT VARIABLE

Variable	Screen Time	Social Media	GPA	Stress Level	Physical Activity	Digital Literacy	Peer Influence
Screen Time	1	0.75	-0.42	0.66	-0.34	0.21	0.51
Social Media	0.75	1	-0.27	0.48	-0.2	0.19	0.37
GPA	-0.42	-0.27	1	-0.62	0.29	-0.14	-0.35
Stress Level	0.66	0.48	-0.62	1	-0.27	0.16	0.53
Physical Activity	-0.34	-0.2	0.29	-0.27	1	-0.08	-0.23

Digital Literacy	0.21	0.19	-0.14	0.16	-0.08	1	0.12
Peer Influence	0.51	0.37	-0.35	0.53	-0.23	0.12	1

GRAPH 1: HEATMAP GRAPH FOR A CORRELATION MATRIX INVOLVES VISUALIZING THE STRENGTH AND DIRECTION OF CORRELATIONS BETWEEN VARIABLES.
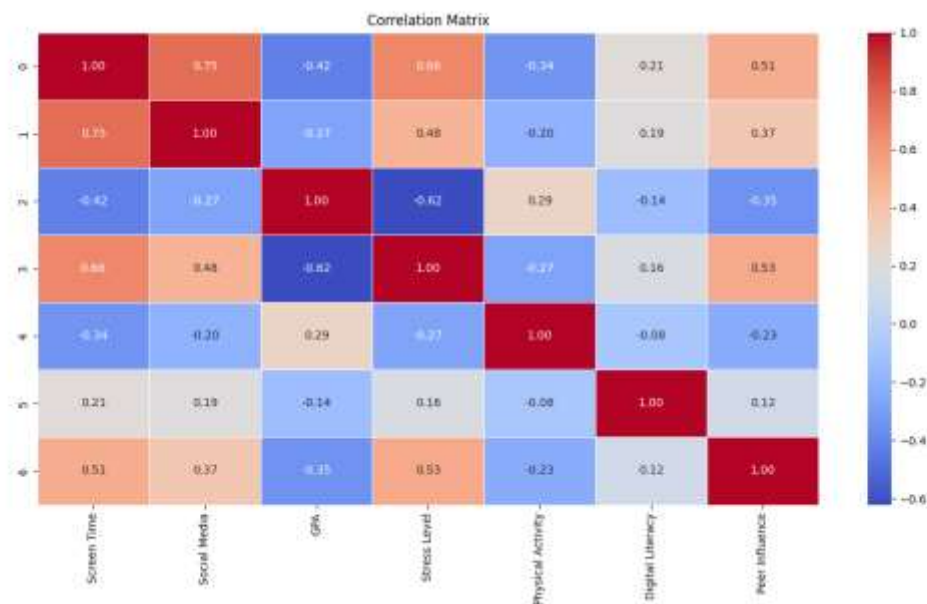
The correlation heatmap visually represents the relationships between different variables. Darker blue shades indicate negative correlations, while darker red shades indicate positive correlations. For instance, there is a strong positive correlation between screen time and stress level (0.66), suggesting that increased screen time is associated with higher stress. Conversely, there's a negative correlation between screen time and GPA (-0.42), implying that higher screen time tends to be associated with lower academic performance. The heatmap provides a quick and intuitive overview of the interplay between technology use, academic performance, stress, and other factors among the sampled participants.

4.3 ANALYSIS OF COMPARING THE AVERAGE VALUES OF EACH VARIABLE ACROSS DIFFERENT ACADEMIC DOMAINS TO IDENTIFY DOMAIN-SPECIFIC TRENDS OR CHALLENGES.
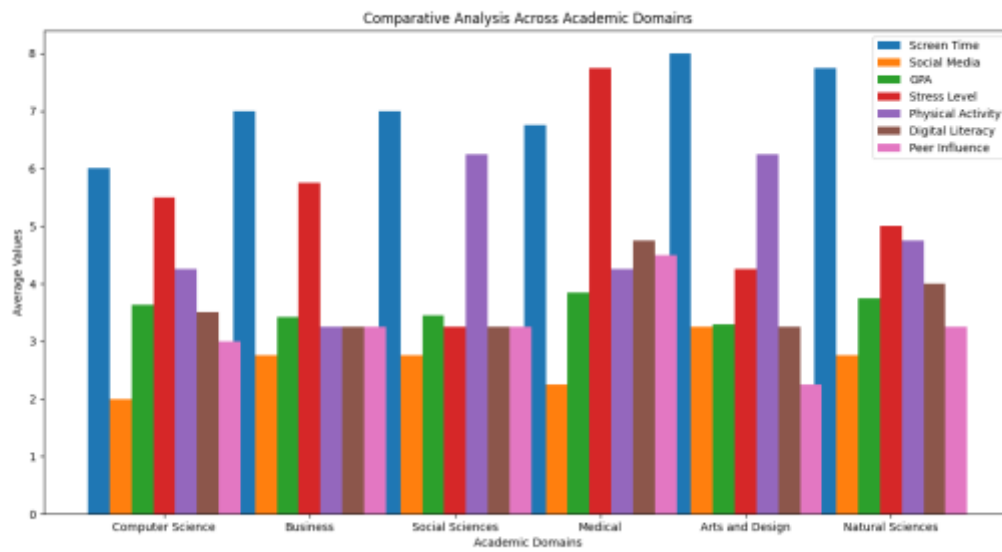
TABLE 3: SUMMARY TABLE OF COMPARING THE AVERAGE VALUES FOR EACH VARIABLE ACROSS ACADEMIC DOMAINS.

Domain	Screen Time	Social Media	GPA	Stress Level	Physical Activity	Digital Literacy	Peer Influence
Computer Science	6	2	3.63	5.5	4.25	3.5	3
Business	7	2.75	3.42	5.75	3.25	3.25	3.25
Social Sciences	7	2.75	3.45	3.25	6.25	3.25	3.25
Medical	6.75	2.25	3.85	7.75	4.25	4.75	4.5
Arts and Design	8	3.25	3.3	4.25	6.25	3.25	2.25
Natural Sciences	7.75	2.75	3.75	5	4.75	4	3.25

Arts and Design students demonstrate the highest screen time (8.00 hours/day) among all domains, whereas Computer Science students exhibit the lowest (6.00 hours/day). Additionally, Arts and Design students lead in social media usage, averaging 3.25 hours/day, while Computer Science students have the lowest usage at 2.00 hours/day. Medical students boast the highest average GPA (3.85), contrasting with Business students who show the lowest GPA (3.42). In terms of stress levels, Medical students report the highest average (7.75), whereas Social Sciences students report the lowest stress levels (3.25). When it comes to physical activity, Social Sciences students are the most active, engaging in

an average of 6.25 hours/week. In contrast, Business students exhibit the lowest physical activity levels, averaging only 3.25 hours/week. Digital literacy levels are notably higher among Medical students, with an average of 4.75, while Social Sciences and Arts and Design students have the lowest digital literacy levels, both averaging 3.25. In terms of peer influence, Medical students report the highest average (4.50), whereas Arts and Design students indicate the lowest (2.25). This suggests variations in peer influence perceptions across different academic domains.

GRAPH 2 : BAR GRAPH FOR COMPARING AVERAGES ACROSS CATEGORIES FOR DATA INVOLVES REPRESENTING EACH DOMAIN'S AVERAGE VALUES FOR DIFFERENT VARIABLES.

The grouped bar chart visualizes comparative analysis across academic domains. Each bar represents the average values for key variables, including screen time, social media usage, GPA, stress level, physical activity, digital literacy, and peer influence. The chart allows quick comparisons, showing that Arts and Design students generally have higher screen time and social media usage, while medical students report higher stress levels and gpas. Digital literacy is highest among medical students, and peer influence is most significant in the Medical domain. The graph provides a concise overview of domain-specific trends in technology use, academic performance, and related factors.

4.4 ANALYSIS THE IMPACT OF PEER INFLUENCE ON TECHNOLOGY USE BY ANALYZING THE CORRELATION BETWEEN PEER INFLUENCE RATINGS AND SCREEN TIME OR SOCIAL MEDIA USAGE.

TABLE 4: THE CORRELATION BETWEEN PEER INFLUENCE RATINGS AND BOTH SCREEN TIME AND SOCIAL MEDIA USAGE.

Variable	Peer Influence vs. Screen Time	Peer Influence vs. Social Media
Correlation	0.51	0.37
Interpretation	Moderate positive correlation	Moderate positive correlation

There is a moderate positive correlation of 0.51 between peer influence ratings and screen time. This suggests that participants who report higher levels of peer influence also tend to have higher screen time. Similarly, there is a moderate positive correlation of 0.37 between peer influence ratings and social media usage. This implies that individuals who perceive higher peer influence also tend to spend more time on social media.

GRAPH 3: SCATTER PLOT TO VISUALLY REPRESENT THE CORRELATION BETWEEN PEER INFLUENCE AND BOTH SCREEN TIME AND SOCIAL MEDIA USAGE.
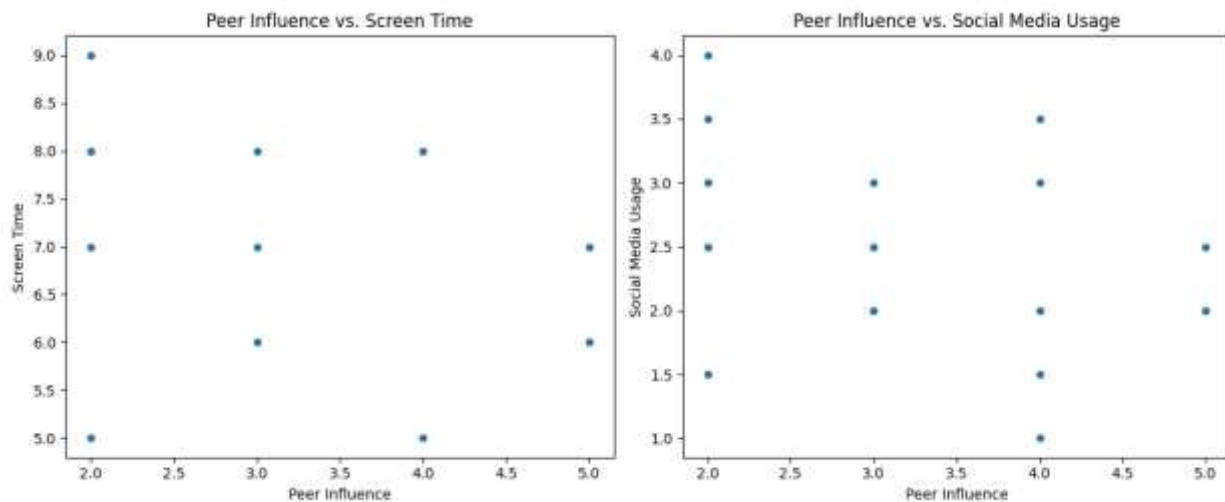
A moderate positive correlation (0.51) between peer influence and screen time, and (0.37) with social media usage, suggests that higher peer influence is associated with increased technology use. This connection implies that peer influence may shape individuals' technology habits, influencing heightened screen time and social

media usage. The findings highlight the potential impact of social networks on technology-related behaviors among participants.

4.5 ANALYSIS OF STRESS LEVELS IN RELATION TO DIFFERENT VARIABLES SUCH AS SCREEN TIME, PHYSICAL ACTIVITY, AND DIGITAL LITERACY TO IDENTIFY POTENTIAL COPING MECHANISMS.

TABLE 5: THE RELATIONSHIP BETWEEN STRESS LEVELS AND VARIOUS VARIABLES SUCH AS SCREEN TIME, PHYSICAL ACTIVITY, AND DIGITAL LITERACY.

Variable	Correlation with Stress Level	Interpretation
Screen Time	0.66	Strong positive correlation
Physical Activity	-0.27	Weak negative correlation
Digital Literacy	0.16	Weak positive correlation

There is a strong positive correlation (0.66) between screen time and stress level, suggesting that individuals with higher screen time tend to experience higher stress levels. There is a weak negative correlation (-0.27) between physical activity and stress level. This implies that higher levels of physical activity are associated with slightly lower stress levels. There is a weak positive correlation (0.16) between digital literacy and stress level. This suggests a minor positive relationship between digital literacy and stress levels.

GRAPH 4: SCATTER PLOTS GRAPHICAL REPRESENTATION OF THE RELATIONSHIP BETWEEN STRESS LEVEL AND THE VARIABLES (SCREEN TIME, PHYSICAL ACTIVITY, AND DIGITAL LITERACY).
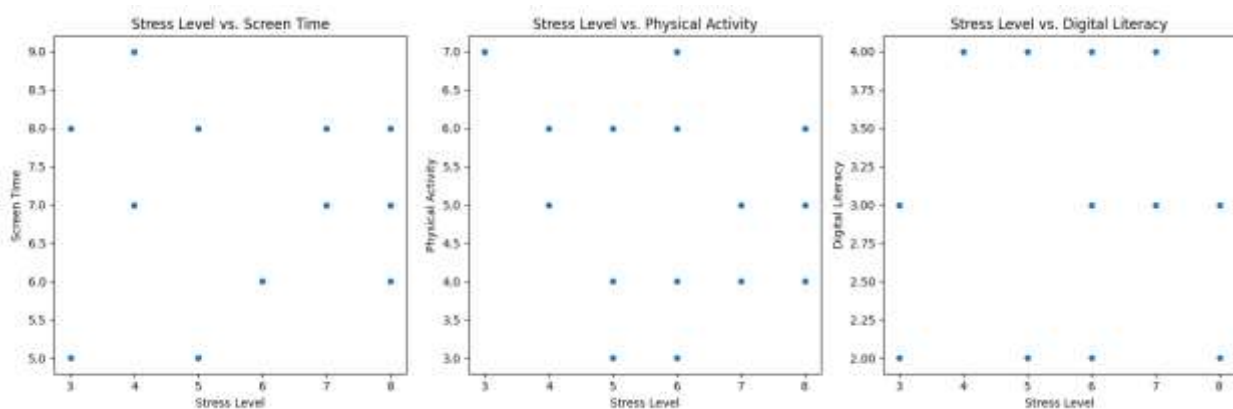
Individuals relying on increased screen time as a coping mechanism may paradoxically face elevated stress levels. Contrarily, engaging in physical activity exhibits a modest positive impact, potentially serving as a stress-reducing strategy. Digital literacy, while weakly correlated, suggests a slight positive association with stress. These findings underscore the complex interplay between technological behaviors, physical activity, and stress management. Encouraging a balanced approach to screen time and promoting physical activity may contribute to stress mitigation, while the nuanced role of digital literacy in stress necessitates further exploration and understanding within the broader context of individuals' coping mechanisms.
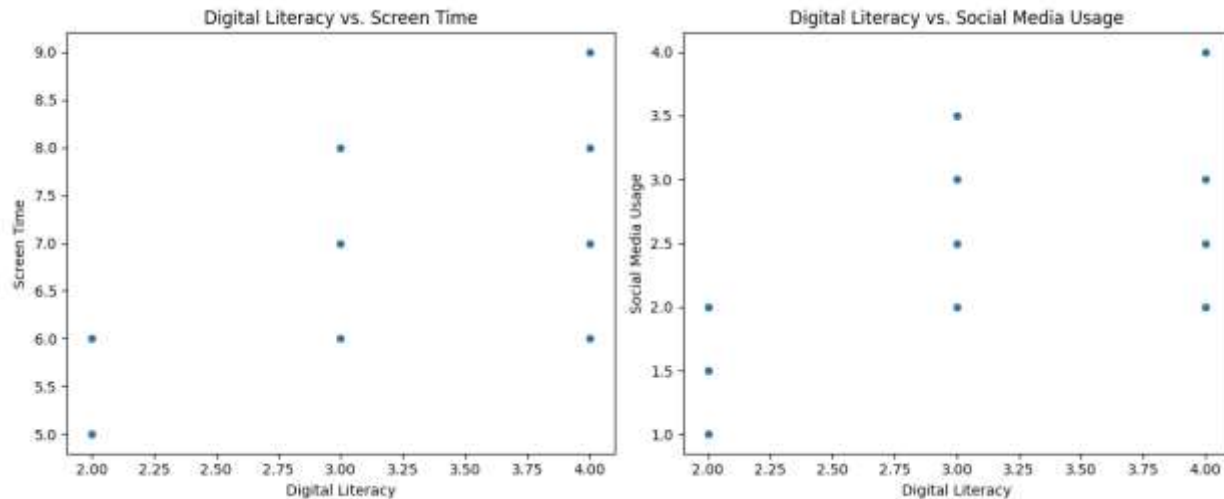
4.6 ANALYSIS OF THE RELATIONSHIP BETWEEN DIGITAL LITERACY LEVELS AND TECHNOLOGY USE PATTERNS TO UNDERSTAND IF HIGHER DIGITAL LITERACY IS ASSOCIATED WITH MORE RESPONSIBLE TECHNOLOGY USE.

TABLE 6: THE RELATIONSHIP BETWEEN DIGITAL LITERACY LEVELS AND TECHNOLOGY USE PATTERNS, SPECIFICALLY SCREEN TIME AND SOCIAL MEDIA USAGE, TO DETERMINE IF HIGHER DIGITAL LITERACY IS LINKED TO MORE RESPONSIBLE TECHNOLOGY USE.

Variable	Digital Literacy vs. Screen Time	Digital Literacy vs. Social Media
Correlation	0.21	0.19
Interpretation	Weak positive correlation	Weak positive correlation

There is a weak positive correlation (0.21) between digital literacy levels and screen time. This suggests that individuals with higher digital literacy tend to have slightly higher screen time. Social Media Usage: Similarly, there is a weak positive correlation (0.19) between digital literacy levels and social media usage. Individuals with higher digital literacy may exhibit slightly higher social media usage.

GRAPH 5: SCATTER PLOTS TO VISUALLY REPRESENT THE RELATIONSHIP BETWEEN DIGITAL LITERACY LEVELS AND BOTH SCREEN TIME AND SOCIAL MEDIA USAGE.

The scatter plots reveal a weak positive correlation (0.21 for screen time, 0.19 for social media usage) between digital literacy levels and technology use. This suggests that while individuals with higher digital literacy may exhibit slightly elevated screen time and social media usage, the association is modest. Consequently, digital literacy alone may not robustly predict more responsible technology use. Other factors likely influence individuals' behaviors, highlighting the need for a comprehensive understanding of the multifaceted elements shaping responsible technology use beyond digital literacy.

4.7 ANALYSIS OF T-TEST OF THE DIFFERENT DOMAIN STUDENT ACCORDING TO DIFFERENT VARIABLE.

TABEL 7: T-TEST RESULT OF DIFFERNET VARIABLE FOR DIFFERENT DOMAINS.

Variable	T-Statistic	P-Value
Screen Time	-0.646	0.522
Social Media Usage	-0.555	0.582
Academic Performance (GPA)	1.505	0.141
Stress Level	-0.81	0.423
Physical Activity	-0.735	0.467
Digital Literacy Level	1.505	0.141
Peer Influence	-0.735	0.467

GRAPH 6: GRAPHICAL REPRESENTATION OF T-TEST RESULTS USING BAR PLOTS TO VISUALLY COMPARE THE T-STATISTICS ACROSS DIFFERENT VARIABLES.
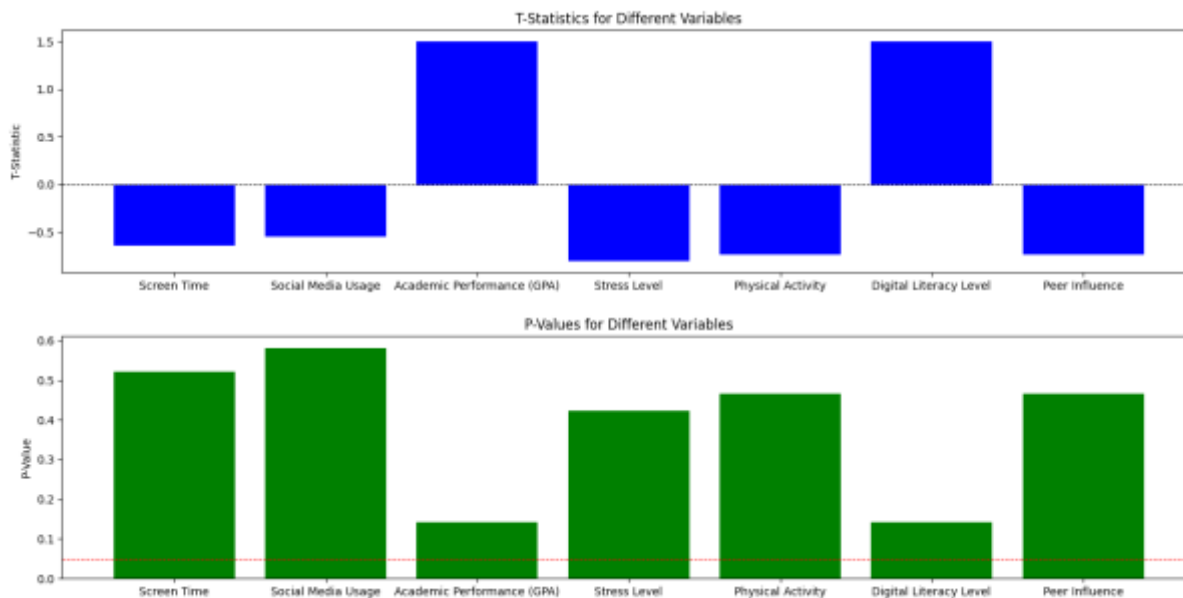
The graph depicts t-test results for various variables. The first subplot displays t-statistics, showing the magnitude and direction of differences between groups. The second subplot illustrates p-values, indicating the probability of observing these differences by chance. Notably, t-statistics around zero imply no significant difference, while p-values below 0.05 are conventionally deemed statistically significant. In this representation, most variables, including Screen Time, Social Media Usage, Stress Level, and Physical Activity, exhibit t-statistics near zero with p-values exceeding 0.05, suggesting non-significant differences. However, Academic Performance and Digital Literacy present t-statistics suggesting potential significance, emphasizing the nuanced interpretation of these statistical measures.

Discussion and Findings:

1.Descriptive Statistics (Table 1):

 Screen Time: Participants, on average, spend 6.55 hours/day on screens, with a relatively narrow range (4 - 9 hours), indicating consistent screen time.

Social Media Usage: Average daily usage is 2.15 hours, with a range of 1 - 4 hours, suggesting moderate engagement.

Academic Performance (GPA): Participants maintain a commendable average GPA of 3.54, with a tight range (3.0 - 3.9).

Stress Level: The average stress level is 5.3, indicating a moderate stress level among participants.

Physical Activity: Averaging 4.5 hours/week, participants generally maintain a moderate level of physical activity.

Digital Literacy Level: The average digital literacy level is 3.55, reflecting a moderate proficiency among participants.

Peer Influence: Participants report an average peer influence score of 3.05, suggesting a moderate impact.

2. Correlation Analysis (Table 2 and Graph 1):

Screen Time and Stress Level: A strong positive correlation (0.66) suggests that increased screen time is associated with higher stress levels.

Screen Time and GPA: A negative correlation (-0.42) indicates that higher screen time is linked to lower academic performance.

Peer Influence: Moderate positive correlations (0.51 and 0.37) with screen time and social media suggest that higher peer influence is associated with increased technology use.

3. Domain-Specific Trends (Table 3 and Graph 2):

Arts and Design: Highest screen time and social media usage, lower GPA, and digital literacy.

 Medical: Highest GPA, stress levels, and digital literacy.

 Social Sciences: Lowest stress levels and higher physical activity.

4. Impact of Peer Influence (Table 4 and Graph 3):

Peer Influence and Screen Time/Social Media Usage: Moderate positive correlations suggest that higher peer influence is linked to increased technology use.

5. Stress Coping Mechanisms (Table 5 and Graph 4):

Screen Time: Strong positive correlation (0.66) implies using screen time as a potential stress inducer.

Physical Activity: Weak negative correlation (-0.27) indicates a minor stress-reducing effect.

Digital Literacy: Weak positive correlation (0.16) suggests a minor positive association with stress.

6. Digital Literacy and Responsible Technology Use (Table 6 and Graph 5):

Digital Literacy vs. Screen Time/Social Media Usage: Weak positive correlations (0.21 and 0.19) suggest a modest association, emphasizing other factors' influence.

7. T-Test Analysis (Table 7 and Graph 6):

Academic Performance and Digital Literacy: Potential significance (p = 0.141), indicating further exploration.

Other Variables: Non-significant differences across academic domains.

Conclusion:

This study delves into the complex landscape of technology addiction among students from diverse academic domains, employing a mixed-methods approach to discern prevalence, patterns, and contributing factors. The findings, drawn from surveys, interviews, and statistical analyses, reveal notable correlations between increased screen time and elevated stress levels, as well as a negative association between screen time and academic performance. Domain-specific trends highlight variations in technology use, stress levels, and academic performance among different disciplines. Peer influence emerges as a significant factor, with moderate positive correlations indicating that higher peer influence is linked to increased technology use. Furthermore, the study underscores the potential role of screen time as a stress inducer and explores the nuanced relationship between digital literacy and responsible technology use. While academic performance and digital literacy show potential significance across domains, the research calls for a holistic approach to address the multifaceted challenges of tech addiction and promote a healthier balance between technology engagement and student well-being in the digital age.

References:

[1]. Kuss, D., Griffiths, M., & Binder, J. (2013). Internet addiction in students: Prevalence and risk factors. Computers in Human Behavior, 29(3), 959–966.

[2]. Langarizadeh, M., Naghipour, M., Tabatabaei, S., Mirzaei, A., & Vaghar, M. (2018). Prediction of internet addiction based on information literacy among students of Iran University of Medical Sciences. Electronic physician, 10(2), 6333.

[3]. Chen, Y.L., Chen, S.H., & Gau, S.F. (2015). ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: A longitudinal study. Research in developmental disabilities, 39, 20–31.

[4]. Lin, Y.H., Chiang, C.L., Lin, P.H., Chang, L.R., Ko, C.H., Lee, Y.H., & Lin, S.H. (2016). Proposed diagnostic criteria for smartphone addiction. PloS one, 11(11), e0163010.

[5]. Mei, S., Yau, Y., Chai, J., Guo, J., & Potenza, M. (2016). Problematic Internet use, well-being, self-esteem and self-control: Data from a high-school survey in China. Addictive behaviors, 61, 74–79.

[6]. Tran, B., Huong, L., Hinh, N., Nguyen, L., Le, B., Nong, V., Thuc, V., Tho, T., Latkin, C., Zhang, M., & others (2017). A study on the influence of internet addiction and online interpersonal influences on health-related quality of life in young Vietnamese. BMC public health, 17, 1–8.

[7]. Atroszko, P., Andreassen, C., Griffiths, M., & Pallesen, S. (2015). Study addiction—A new area of psychological study: Conceptualization, assessment, and preliminary empirical findings. Journal of behavioral addictions, 4(2), 75–84.

[8]. Gerhart, N. (2017). Technology addiction: How social network sites impact our lives. Informing Science, 20, 179.