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From Digital Dependence to Digital Well-Being: Examining the Impact of Excessive Technology Use on the Mental Health of College Students

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Abstract:

The college students are the citizens of tomorrow. They are the human capital for the nation. The digital technology has become an essential part of college students' academic and personal lives. Smartphones, social media, and online learning platforms provide several benefits, but excessive use may also be associated with difficulties in concentration, emotional well-being, sleep, and social interaction. This study examines digital technology-use habits and related concerns among college students. A quantitative descriptive research design was used, based on questionnaire responses from 60 students studying Bachelor of Business Administration (BBA), Bachelor of Computer Applications (BCA), Master of Business Administration (MBA), and Master of Computer Applications (MCA). Data were analyzed using frequencies, percentages, and average scores. The findings show that 36.7% of respondents agreed or strongly agreed that they spent more time using technology than originally planned. 31.7% reported that excessive technology use affected their concentration and academic performance, while 41.7% reported that spending too much time online sometimes affected their mood or made them feel lonely. Further, 31.7% reported staying awake longer than planned because of smartphone or internet use. At the same time, 55% agreed or strongly agreed that they maintained a healthy balance between online and offline activities. The findings suggest that students experience different levels of difficulty in managing digital technology. The study recommends digital awareness, responsible screen-time management, healthy sleep habits, and balanced offline activities to support student well-being.

Keywords: *Digital dependence, Digital well-being, College Students, Mental Well-being, smartphone use, screen time*

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1. Introduction

Technology has revolutionized the ways of learning. It offers the various competitive advantages such as customization, accessibility, affordability, integration, automation etc. (Bhanot & Gaikwad, 2025). Digital technology has become an important part of modern education and everyday life. College students use smartphones, laptops, social media, and online learning platforms for studying, communication, entertainment, and information sharing. Technology enables students to access learning materials, attend online classes, prepare assignments, and communicate with teachers and classmates. Despite these benefits, excessive technology use may create challenges when students spend more time online than

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planned or find it difficult to control their smartphone use. Frequent notifications, repeated checking of social media and late-night internet use may interfere with study routines, sleep, and personal relationships. Many times, it leads to the digital stress for the users (Gaikwad & Bhattacharya, 2024). The mental well-being is important for students because it influences their daily functioning, learning experiences, relationships, and quality of life. Students may experience stress, difficulty concentrating, sleep-related concerns, or reduced face-to-face interaction for several reasons. Digital technology may be one factor associated with these experiences, but it is not necessarily the only cause. Previous studies have examined the relationship between problematic smartphone use and psychological symptoms. Research has also explored connections between social media use, mental health, and sleep (Ahmed et al., 2024; Elhai et al., 2017). These studies highlight the importance of understanding technology-use patterns alongside students' well-being. The present study examines digital technology-use habits among college students and describes their responses concerning concentration, emotional well-being, sleep, social interaction, and digital well-being practices.

2. Problem Statement

College students depend on digital technology for academic activities, communication, and entertainment. However, difficulty managing screen time may be associated with concerns about concentration, emotional well-being, sleep, and social interaction. The present study investigates students' digital technology-use habits and their reported experiences in these areas.

3. Objectives of Study

- To study digital technology-use habits among college students
- To understand students' reported difficulties in controlling smartphone use
- To examine students' responses concerning stress, mood, and mental tiredness
- To study students' reported concentration and academic difficulties related to technology use
- To examine sleep-related concerns associated with technology-use habits
- To understand students' perceptions of smartphone use and face-to-face interaction
- To suggest practical measures for promoting healthy digital habits among college students

4. Research Questions

1. What digital technology-use habits do college students report?
2. To what extent do students report difficulty controlling their smartphone use?
3. What concerns do students report regarding concentration, emotional well-being, and sleep?
4. How do students perceive the relationship between smartphone use and face-to-face interaction?
5. What digital well-being practices do students report?

5. Review of Literature:

Elhai et al. (2017) reviewed research on problematic smartphone use and its relationship with anxiety and depression-related symptoms. Their review highlighted the importance of understanding how problematic smartphone use may be associated with psychological functioning. This literature is relevant to the present study because it provides a background for examining students' reported smartphone-use difficulties

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alongside their emotional experiences. However, the relationship between smartphone use and mental well-being may be influenced by several factors, and association alone does not establish cause and effect.

Ahmed et al. (2024) examined social media use, mental health, and sleep through a systematic review with meta-analyses. Their research highlights the importance of considering sleep and mental well-being when studying digital behavior. Students who use smartphones late at night may delay their bedtime or disrupt their regular routines. Nevertheless, sleep problems may also arise from academic workload, personal circumstances, or other lifestyle factors.

Bányai et al. (2017) investigated problematic social media use among adolescents in a large-scale study. Their work contributed to the understanding of problematic patterns of social media engagement among young people. Although adolescents and college students are different populations, this research supports the importance of studying digital engagement and its possible relationship with everyday functioning.

Przybylski et al. (2013) studied fear of missing out, commonly known as FoMO. This concept refers to concern that others may be experiencing rewarding activities without an individual being involved. Such concern may encourage repeated checking of social media and online messages. However, fear of missing out was not measured in the present study and is included only as a possible explanation from previous literature.

- **Research Gap**

Earlier studies have examined problematic smartphone use, social media engagement, and psychological well-being. However, there is value in studying these issues in specific student groups and educational settings. The present study provides a descriptive account of digital technology-use habits among 60 students from four academic programs: BBA, BCA, MBA, and MCA. It examines several areas of student experience through a single questionnaire. The study is exploratory and does not claim to represent all college students.

6. Research Methodology:

The present study contributes a descriptive analysis of questionnaire responses from 60 students. It examines technology-use habits, concentration, emotional well-being, sleep, social interaction, and digital well-being practices within one student sample.

- **Research Design:** The study follows a **quantitative descriptive research design**. This approach uses numerical questionnaire responses to describe students' digital technology-use habits and reported experiences. The study is cross-sectional because the responses were collected at one point in time.
- **Sample Size and Respondents:** The study includes 60 completed questionnaire responses from college students enrolled in BBA, BCA, MBA, and MCA programs. The sample contains 15 respondents from each of the four programs.
- **Sampling Method:** The analysis uses the 60 completed responses available in the questionnaire export. The file does not document a formal probability-based selection procedure. Therefore, the sample is treated as a non-probability sample and the results are limited to the respondents included in the dataset.
- **Data Collection Method:** Data were collected using a structured questionnaire. The available questionnaire included demographic questions and 11 statements concerning digital dependence,

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concentration, emotional well-being, sleep, social interaction, and digital well-being practices. The demographic variables analyzed were age, gender, and academic programme.

- **Measurement Scale:** The 11 statements were rated on a five-point scale: 1-Stronlgy Disagree to 5-Stronlgy Agree. For the negatively worded statements, a higher score indicates greater agreement with the concern described. For the two positively worded statements, a higher score indicates greater agreement with the reported healthy digital practice.
- **Method of Data Analysis:** The data were analyzed using simple statistical methods: **Frequency:** the number of students selecting each response. **Percentage:** the proportion of students selecting a response, calculated out of 60. **Average score:** the mean of the five-point responses for each statement. The percentage was calculated using the following formula: Percentage = (Number of responses ÷ Total responses) × 100 The average score was calculated by adding the scores for a statement and dividing the total by the number of respondents. These methods were selected because they are straightforward and suitable for describing the collected questionnaire responses. The study does not use the results to make clinical diagnoses or establish causal relationships.
  - **Ethical Considerations**

The analysis excludes the email column from the dataset and does not report individual participants' identities. The available data file does not contain a verifiable record of ethics committee approval or participant consent procedures. Accordingly, this paper makes no claim that formal ethics approval was obtained. The study's consent and data-protection procedures should be documented in accordance with the institution's research requirements before external publication.

4. Results and Data Analysis:

4.1 Demographic Profile of Respondents

Table 1. Age Distribution

Age group	Number of respondents	Percentage
Below 18 years	4	6.7%
18–20 years	21	35.0%
21–23 years	33	55.0%
24 years and above	2	3.3%
Total	**60**	**100%**

Interpretation: The largest group of respondents was aged 21–23 years, representing 55% of the sample. Students aged 18–20 years accounted for 35%. The remaining respondents were below 18 years or aged 24 years and above.

Table 2. Gender Distribution

Gender	Number of respondents	Percentage
Female	35	58.3%
Male	25	41.7%

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Total	**60**	**100%**

Interpretation: Female respondents accounted for 58.3% of the sample, while male respondents accounted for 41.7%. Both groups were represented in the collected data.

Table 3. Academic Programme

Programme	Number of respondents	Percentage
BBA	15	25.0%
BCA	15	25.0%
MBA	15	25.0%
MCA	15	25.0%
Total	**60**	**100%**

Interpretation: Each academic programme contributed 15 respondents, representing 25% of the sample. The collected responses therefore contain equal numbers of students from BBA, BCA, MBA, and MCA.

4.2 Digital Dependence Habits

Table 4. Students' Responses Concerning Digital Dependence

Statement	Agree or Strongly Agree	%
I check my smartphone repeatedly without an important reason.	17	28.3%
I spend more time using technology than originally planned.	22	36.7%
I find it difficult to control or reduce my smartphone use.	17	28.3%

Note: The figures combine the "Agree" and "Strongly Agree" responses.

Interpretation: A total of 22 students (36.7%) agreed or strongly agreed that they spent more time using technology than originally planned. Seventeen students (28.3%) reported repeated smartphone checking, and the same number reported difficulty controlling or reducing smartphone use. These responses suggest that some students experience difficulty managing their digital habits.

4.3 Technology Use and Academic Concentration

Table 5. Effect of Technology Use on Concentration and Academic Performance

Response	Number of respondents	Percentage
Strongly disagree	7	11.7%
Disagree	14	23.3%

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Neutral	20	33.3%
Agree	15	25.0%
Strongly agree	4	6.7%
Total	**60**	**100%**

Interpretation: Nineteen students (31.7%) agreed or strongly agreed that excessive technology use affected their concentration and academic performance. Twenty students (33.3%) selected the neutral response, while 21 students (35%) disagreed or strongly disagreed. The results show that students had different experiences. Some reported academic distraction related to technology use, while others did not agree with the statement. The study measures students' reported experiences rather than actual academic marks.

4.4 Technology Use and Emotional Well-Being

Table 6. Emotional Well-Being Responses

Statement	Agree or strongly agree	Percentage
I frequently feel stressed, anxious, or mentally tired.	23	38.3%
Spending too much time online sometimes affects my mood or makes me feel lonely.	25	41.7%

Interpretation: Twenty-three students (38.3%) agreed or strongly agreed that they frequently felt stressed, anxious, or mentally tired. Twenty-five students (41.7%) reported that spending too much time online sometimes affected their mood or made them feel lonely. These findings identify emotional well-being as an area worth examining. However, the questionnaire does not establish that digital technology caused these feelings, and the responses are not clinical assessments of mental health.

4.5 Technology Use and Sleep

Table 7. Sleep-Related Responses

Statement	Agree or strongly agree	Percentage
I stay awake longer than planned because of smartphone or internet use.	19	31.7%
I feel tired during the day because of insufficient sleep related to my technology-use habits.	17	28.3%

Interpretation: Nineteen students (31.7%) agreed or strongly agreed that smartphone or internet use kept them awake longer than planned. Seventeen students (28.3%) reported daytime tiredness associated with insufficient sleep related to their technology-use habits. The results suggest that sleep routines are relevant to digital well-being among the respondents. However, sleep duration and quality were not independently measured.

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4.6 Technology Use and Social Interaction

Table 8. Smartphone Use and Face-to-Face Interaction

Response	Number of respondents	Percentage
Strongly disagree	14	23.3%
Disagree	12	20.0%
Neutral	18	30.0%
Agree	10	16.7%
Strongly agree	6	10.0%
Total	**60**	**100%**

Interpretation: Sixteen students (26.7%) agreed or strongly agreed that smartphone use reduced the time they spent interacting face-to-face with friends and family. Eighteen students (30%) selected the neutral response, while 26 students (43.3%) disagreed or strongly disagreed. This indicates that students had varied experiences regarding the relationship between smartphone use and face-to-face interaction. Most respondents did not agree with the statement.

4.7 Students' Digital Well-Being Practices

Table 9. Healthy Digital Habits

Statement	Agree or strongly agree	Percentage
I consciously limit unnecessary screen time and keep my phone away while studying.	23	38.3%
I maintain a healthy balance between online activities and offline life.	33	55.0%

Interpretation: Twenty-three students (38.3%) agreed or strongly agreed that they consciously limited unnecessary screen time and kept their phones away while studying. Thirty-three students (55%) agreed or strongly agreed that they maintained a healthy balance between online and offline activities. The findings suggest that more than half of the respondents felt they maintained a healthy online–offline balance. However, these responses reflect students' perceptions and were not verified against actual device-use records.

4.8 Average Scores for All Questionnaire Statements

Table 10. Average Scores on the Five-Point Scale

Questionnaire statement	Average score
Repeated smartphone checking	2.75
Spending more time online than planned	2.93
Difficulty controlling smartphone use	2.70

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Technology use affects concentration	2.92
Feeling stressed, anxious, or mentally tired	2.82
Online activity affects mood or loneliness	3.07
Staying awake longer than planned	2.77
Daytime tiredness related to technology habits	2.73
Reduced face-to-face interaction	2.70
Limiting screen time while studying	3.10
Maintaining a healthy online–offline balance	3.65

Interpretation: The highest average score was for maintaining a healthy balance between online and offline activities (3.65). The average for limiting screen time while studying was 3.10. Among the negatively worded statements, the highest average was for online activity affecting mood or loneliness (3.07). The average scores provide a simple summary of the responses. They do not indicate a medical diagnosis or establish that digital technology caused the reported experiences.

5. Findings:-

The findings are stated below:

- The study included 60 students, with equal representation from BBA, BCA, MBA, and MCA. Most respondents (55%) were aged 21–23 years. A total of 36.7% reported spending more time using technology than originally planned.
- 31.7% reported that excessive technology use affected their concentration and academic performance. 41.7% reported that spending too much time online sometimes affected their mood or made them feel lonely. 31.7% reported staying awake longer than planned because of smartphone or internet use.
- 26.7% reported that smartphone use reduced their face-to-face interaction with friends and family. A total of 55% agreed or strongly agreed that they maintained a healthy balance between online and offline activities.
- Students have different experiences and practices concerning digital technology.

6. Suggestions:

- The Colleges can organize awareness programs on responsible smartphone use, digital distractions, and the importance of maintaining a balance between academic and personal activities.
- The students can review their device-use patterns, reduce unnecessary notifications, and set specific periods for social media and entertainment.
- Students can keep their phones away during focused study periods, take planned breaks, and avoid unnecessary notifications while completing academic work.
- Students can maintain regular sleeping schedules and avoid allowing unnecessary online activities to delay bedtime.
- Colleges can encourage sports, cultural programs, student clubs, group discussions, and other activities that provide opportunities for offline interaction.

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- Students experiencing persistent stress, sleep difficulties, or concentration problems should have access to appropriate support and counselling services.
- Technology should not be treated as entirely harmful. Students should be encouraged to use it purposefully for learning, communication, and recreation while maintaining time for sleep, study, physical activity, and personal relationships.

7. Conclusion:

The study examined digital technology-use habits and selected well-being concerns among 60 college students. The results show that some respondents reported spending longer online than planned, concentration difficulties, emotional concerns, sleep-related problems, and reduced face-to-face interaction. At the same time, 55% reported maintaining a healthy balance between online and offline activities. The findings suggest that students have different experiences with digital technology. Technology is valuable for education and communication, but some students may benefit from support in managing screen time, reducing distractions, and maintaining healthy routines. Colleges can promote digital awareness, focused study practices, healthy sleep habits, and offline activities. The aim should be to encourage responsible and balanced technology use rather than discourage all digital activity. Since the study is based on 60 questionnaire responses, the findings cannot be generalized to all college students or used to establish that technology directly causes mental health problems. Further research involving larger student groups and well-tested questionnaires would provide a more complete understanding of digital dependence and digital well-being.

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