

PSYCHOLOGICAL IMPACT OF DIGITAL TECHNOLOGY ON COGNITIVE AND EMOTIONAL WELL-BEING

Dr. Abhishek Sharma^{1*}, Masood Maqbool², Dr Ruttuja Karkhanis More³, Sharat Vishwanath K⁴, Dattaraj Banavali⁵, Dr Manjusha Deka Saikia⁶

^{1*}Associate Professor, Poornima College of Engineering, Jaipur, Affiliated to Rajasthan Technical University, Kota, abhishek.sharma@poornima.org, ORCID ID- 0000-0002-4387-3974

²Assistant Professor, Department of Clinical Psychology, Institute of Mental Health & Neurosciences (IMHANS), masood.m.mir@gmail.com, ORCID ID: 0000-0001-5554-7503

³Assistant Professor, Department of Psychology, Specialisation in Psychology, Narsee Monjee Institute of Management Studies, ruttuja.karkhanismore@nmims.edu

⁴Faculty Nursing College, Specialisation in Mental Health Nursing, ICMR's BMHRC Bhopal Nursing College, Bhopal MP, India, sharat816@gmail.com, ORCID ID: 0009-0009-8148-9488

⁵PhD Scholar in Psychology, Amity University Rajasthan; Counsellor, Rosary College of Commerce and Arts, Navelim, Salcete, Goa, India. Email ID: dattarajbanavali11@gmail.com, ORCID ID: 0009-0000-4875-8652.

⁶Associate Professor, Faculty of Humanities and Social Sciences, Assam Down Town University Manjushadeka.saikia@adtu.in

*Corresponding Author: Email: Dr. Abhishek Sharma, abhishek.sharma@poornima.org

ABSTRACT:

Digital technology has become an essential part of communication, learning, entertainment, and social interaction, yet its psychological influence on cognitive and emotional well-being remains a growing concern. This study examined the relationship between digital technology use and cognitive-emotional well-being using secondary data from the Social Media and Mental Health dataset. A quantitative cross-sectional design was applied to 481 valid responses containing demographic information, social media usage patterns, cognitive indicators, emotional indicators, and sleep-related variables. Digital technology use was assessed through daily social media use, purposeless use, restlessness when disconnected, and validation-seeking behavior. Cognitive well-being was measured through distraction and concentration difficulty, while emotional well-being was assessed through worry, depressive feelings, comparison, validation-seeking, fluctuation of interest, and sleep issues. Descriptive statistics, reliability testing, correlation analysis, and regression analysis were conducted using Python. Results showed that digital-use risk was strongly associated with cognitive strain, emotional strain, and overall psychological strain. Daily time spent on digital platforms also showed moderate positive associations with cognitive and emotional strain. Regression findings indicated that digital-use variables explained substantial variance in psychological outcomes. The findings suggest that excessive and poorly regulated digital engagement may contribute to distraction, emotional vulnerability, and reduced well-being, although causal conclusions cannot be drawn.

KEYWORDS: Digital technology, cognitive well-being, emotional well-being, social media use, psychological strain

1. INTRODUCTION

Smartphones, social media sites, online communication systems, entertainment, and information-sharing networks have made digital technology an integral part of everyday life. The technologies have impacted the way people learn, communicate, socialize, access information, and organize their daily lives. While digital technology has educational, social, and informational advantages, current research interest is on the psychological impact of digital technology, especially when young people and adolescents are using digital technology intensively. This is therefore a significant research field to study as use of digital technology can have a negative effect on attention, on self-evaluation based on comparison, on sleep, on anxiety, and on depressive symptoms (Dienlin & Johannes, 2020).

Digital technology isn't inherently bad or good for mental health. Digital platforms can offer social support, an expression of identity, peer connection, and access to mental health information. Uncontrolled, excessive, and dependent use can, however, make one more susceptible to emotional stress. Previous studies have focused on the need to use empirical data to understand public concerns about digital technology, as its impacts can be different depending on the user's age, context, motivation, length of time using it, and psychological sensitivity (Odgers & Jensen, 2020). This suggests that research should be more advanced than the screen-time generalities and target patterns of screen use and quantifiable positive outcomes.

Social media is one of the most powerful digital technologies due to its mix of communication, entertainment, social comparison, feedback systems, and constant exposure to content. It is also psychologically significant as users are not simply "consuming" information but are also "presenting" themselves, "evaluating" themselves in the eyes of their peers, and interacting with peer networks. To-date, a scoping review of social media use and well-being indicated that mental health outcomes may be mediated by use to be either active, passive, supportive, excessive, or problematic (Schønning et al., 2020). This reinforces the idea of measuring the use of digital technology using behavioral and psychological measures and not assuming that all use is equal.

Digital technology can impact psychological functioning in many ways, one being cognitive well-being. Digital engagement may cause distraction, distracting from tasks and decreasing focused attention. The use of notifications, using clingy applications, endless scrolling, and fast changes of content can lead to attentional fragmentation. These patterns are important for students and youth because digital interruptions can disrupt learning activities, memory, and goal-directed behaviors. Digital technology is a central issue that has been associated with diminished attention control, sleep dysregulation, and mental health issues, and has been identified as related to cognitive and psychological functioning (Abi-Jaoude et al., 2020).

Another area that is impacted by digital technology is emotional well-being. Hyper-social comparison, fear of missing out (FOMO), validation-seeking, and exposure to idealized others' representations can be intensified by social media. These experiences can lead to feelings of anxiety, depression, discontent, and psychological discomfort. Emotional outcomes have been reported as being central to the understanding of the psychological impacts of digital media on adolescents; it is associated with depression, anxiety, and psychological distress (Keles et al., 2020). Understand that problematic use could be particularly relevant because psychological strain is more likely to be associated with compulsive or dependent use than with just having access or occasional use.

During the COVID-19 period, there was an increased dependency on the digital world for education, communication, and social connection. At this time, young adults and students were more connected online, with many of these connections coming with stress, loneliness, and interrupted schedules. Undergraduate samples revealed that problematic smartphone and social media use became a pertinent behavioral issue during the pandemic, especially regarding mental health issues and functioning among students (Mengistu et al., 2023). There has been an increasing focus on both behavioral dependence and psychological consequences (Wacks & Weinstein, 2021), as excessive smartphone use has been linked to more general health issues among adolescents and young adults.

In recent literature, it has also been shown that the effects of social media can be explained by the mechanisms of comparison, emotional regulation, social feedback, and individual differences. Social media can have positive or negative effects on well-being, but excessive, passive, and/or emotionally reinforcing usage is more likely to have negative effects (Kross et al., 2021). Additionally, sleep seems to be an important mediating factor between social media use and mental health, with digital engagement potentially disrupting sleep practices and worsening sleep quality, which could lead to greater emotional vulnerability (Alonzo et al., 2021).

Although there has been growing evidence of the impact of digital technology on cognitive and emotional well-being, the field still has a need for studies to link digital technology use with cognitive and emotional well-being in an integrated way. The associations between social media use and adolescent mental health are detected by umbrella-review evidence, but have different strengths in different populations, outcomes, and methods (Valkenburg et al., 2022). Moreover, the meta-analytical results indicate that PSU is related to increased mental health issues among youth and adolescents, and thus, the need to evaluate maladaptive digital engagement (Shannon et al., 2022). The current pandemic period also indicates that there is a close connection between digital media use and mental health among adolescents when the situation is characterized by greater dependency on online media (Marciano et al., 2022).

The following study investigated the psychological effects of digital experiences on cognitive and emotional health, focusing on survey-based measures of social media use, distraction while using social media, difficulty concentrating or focusing, worry, depressive feelings, comparing oneself to others, looking for validation, and sleeping problems. Social media use was selected as a key operational measure of digital technology, as it is able to measure regular online interaction, digital communication, platform exposure, and psychologically relevant interaction. The study was aimed at finding out if there was any correlation between increased use of digital technology and poorer cognitive and emotional well-being.

Objectives of the study:

- To assess patterns of digital technology use among respondents.
- To examine the association between digital technology use and cognitive well-being.
- To evaluate the relationship between digital technology use and emotional well-being.

2. METHODOLOGY

2.1 Research Design

The research design adopted in this study was Quantitative and Cross-sectional research. The study was conducted based on secondary data analysis of a survey data set on social media use and mental health. The use of social media was conceptualized as a big factor of engagement with digital technology because of its frequent online use, digital communication, content exposure, and involvement with the platform.

2.2. Data Source and Study Sample

Data from the Social Media and Mental Health dataset (481 participants) was used for the study. Demographic information and social media habits, cognitive responses, emotional responses, and sleep responses were included in the dataset. The dataset was deemed suitable due to measurable variables being directly related to digital technology use and psychological well-being (Afridi, 2022).

2.3 Study Variables

Use of digital technology was assessed using measures related to social media use, social media platforms, level of time spent on social media, use of social media in an unhelpful way, when social media is not used, and when social media is used, it is to validate oneself. The three factors measured were: distraction, ease of distraction, and difficulty

concentrating, which measured cognitive well-being. Emotional well-being was measured according to worry, comparison to the other students, emotional reactions to comparison, depressive feelings, fluctuation in interest in daily activities, and sleep-related problems.

2.4 Data Preparation

The data was checked for completeness, consistency, and usability before analysis. The names of the variables were checked and consolidated based on the research purpose. Demographic variables were kept for descriptive purposes. Where appropriate, Likert scale responses were treated as ordinal numerical indicators. The missing values were examined, and those variables having very few missing values were included in the analysis. Digital-use risk, cognitive strain, emotional strain, and overall psychological strain indicators were created as composite indicators.

2.5 Statistical Analysis

Demographic characteristics and patterns of digital technology use were summarized using descriptive statistics. Frequencies and percentages were used for categorical variables, while means and standard deviations were used for numerical and Likert-scale variables. All the statistical analyses were performed using the Python program with the relevant data analysis libraries. To explore the correlation between the use of digital technologies and cognitive-emotional indicators of well-being, correlation analysis was employed. To evaluate the effects of digital technology use on cognitive strain and emotional strain, regression analysis was implemented. In addition, the reliability test was also used to investigate the internal consistency of the psychological indicators constructed.

3. RESULTS

3.1 Data Screening and Sample Characteristics

There were 481 valid responses and 21 variables in this dataset, which covered demographic background, digital technology use, cognitive indicators, emotional indicators, and sleep-related well-being. Data were checked for completeness before analysis. There was little missing data, and it did not impact the primary psychological and digital-use measures. So all 481 responses were used for the analysis. The data screening summary and retained sample are presented in Table 1.

Table 1. Data Screening Summary

Data characteristic	Result
Total responses	481
Total variables	21
Valid responses retained	481
Excluded responses	0
Main psychological variables are missing	0
Main digital-use variables are missing	0
Dataset format	CSV

3.2 Demographic Profile of Respondents

The mean age for the respondents was 26.14 years, and the standard deviation was 9.92. The females were the biggest gender group, with males following them. The majority of respondents were university students, suggesting that the sample was representative of the digital behaviour and psychological health of young and student populations. Table 2 shows the demographic profile of the respondents.

Table 2. Demographic Characteristics of Respondents

Demographic variable	Category	Frequency	Percentage
Gender	Female	263	54.7%
	Male	211	43.9%
	Prefer not to say/Other	7	1.4%
Social media use	Yes	478	99.4%
	No	3	0.6%
Respondent group	University students	292	60.7%
	Others	189	39.3%
Age	Mean age	26.14 years	NA

	Standard deviation	9.92	NA
--	--------------------	------	----

3.3 Pattern of Digital Technology Use

Social media engagement was used to measure digital technology use, as this was considered a significant indicator of digital technology use. Nearly every respondent said that he or she used social media. Daily usage was high, with a majority of the respondents using social media more than five hours a day. This suggested a high level of engagement with digital platforms among participants. The table below presents the duration of digital technology/social media use per day (Table 3). Figure 1 shows the daily use of digital technology / social media by the respondents.

Table 3. Daily Time Spent on Digital Technology/Social Media

Daily usage duration	Frequency	Percentage
Less than 1 hour	34	7.1%
1–2 hours	70	14.6%
2–3 hours	101	21.0%
3–4 hours	93	19.3%
4–5 hours	67	13.9%
More than 5 hours	116	24.1%
Total	481	100.0%

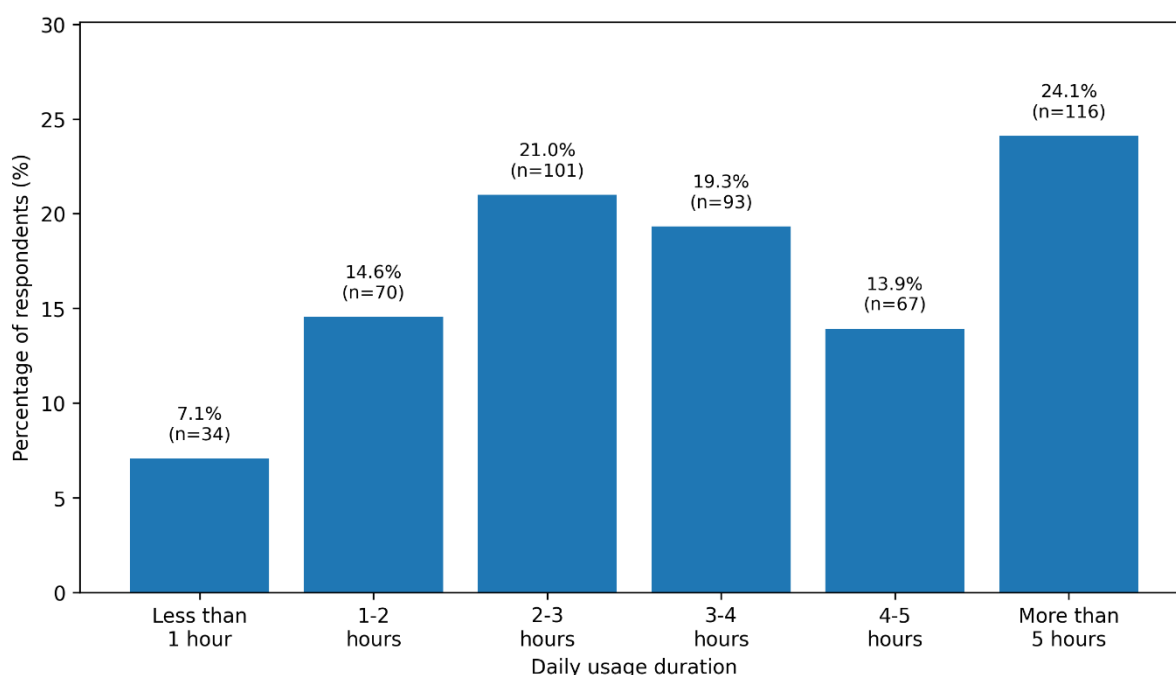


Figure 1. Daily Time Spent on Digital Technology

3.4 Reliability and Composite Score Analysis

The scores were aggregated by creating composite scores for digital-use risk, cognitive strain, emotional strain, and overall psychological strain. The Cronbach alpha reliability coefficient for the cognitive strain scale was good ($\alpha=0.82$). The emotional strain scale proved to be reliable (acceptable reliability), whereas the psychological strain scale proved to be reliable (good reliability). The reliability of the digital-use risk scale was marginal and should therefore be used with caution. Table 4 shows reliability and composite score results.

Table 4. Reliability and Composite Score Results

Scale / composite score	Cronbach's alpha	Mean	Standard deviation	Interpretation
Digital-use risk	0.597	3.00	0.88	Marginal reliability
Cognitive strain	0.814	3.31	1.10	Good reliability
Emotional strain	0.724	3.04	0.80	Acceptable reliability
Overall psychological strain	0.852	3.17	0.85	Good reliability

3.5 Association Between Digital Technology Use and Cognitive-Emotional Well-Being

All psychological strain indicators were positively correlated with digital-use risk, with significant positive relationships. Digital-use risk was positively related to cognitive strain, emotional strain, and total psychological strain.

There were also moderate positive associations between time spent on digital platforms and cognitive and emotional strain, but these were highly significant. Correlations among digital technology usage and mental health are presented in Table 5. The relationship between digital technology use and psychological well-being indicators is shown as an association in Figure 2. The correlation structure among digital-use risk, cognitive strain, emotional strain, and overall psychological strain is shown in Figure 3.

Table 5. Correlation Between Digital Technology Use and Psychological Well-Being

Relationship tested	Correlation coefficient	p-value	Interpretation
Digital-use risk and cognitive strain	0.622	<0.001	Strong positive association
Digital-use risk and emotional strain	0.634	<0.001	Strong positive association
Digital-use risk and overall psychological strain	0.695	<0.001	Strong positive association
Daily time spent and cognitive strain	0.407	<0.001	Moderate positive association
Daily time spent and emotional strain	0.350	<0.001	Moderate positive association

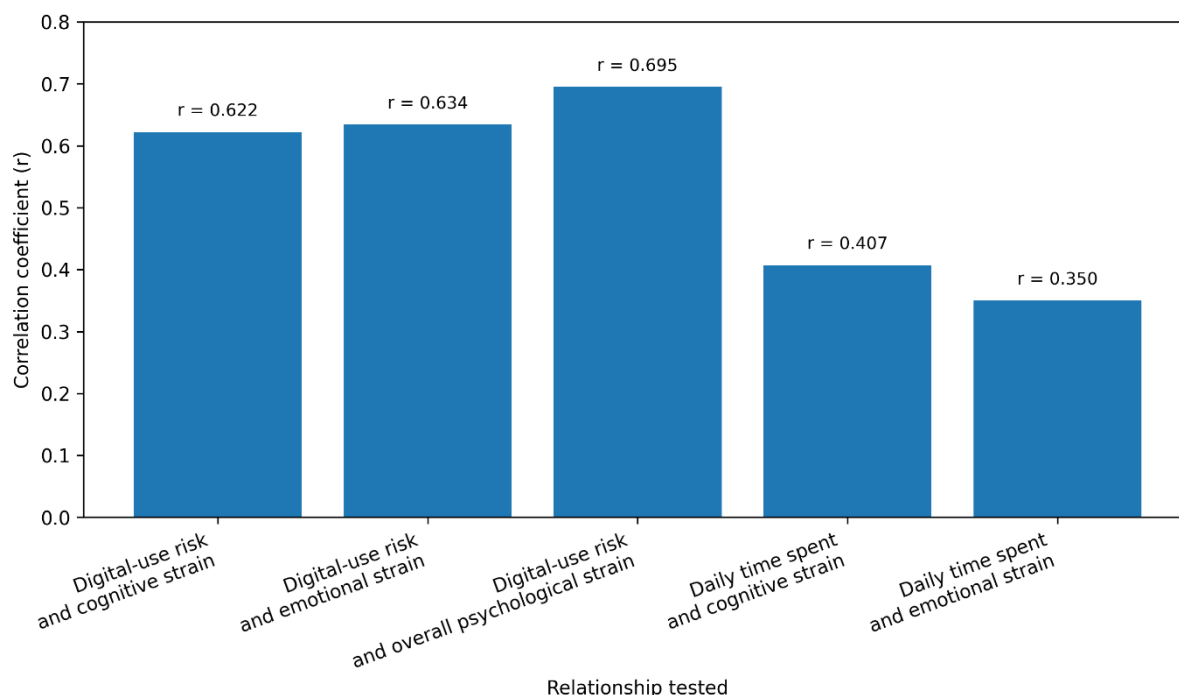


Figure 2. Association Between Digital Technology Use and Psychological Well-Being

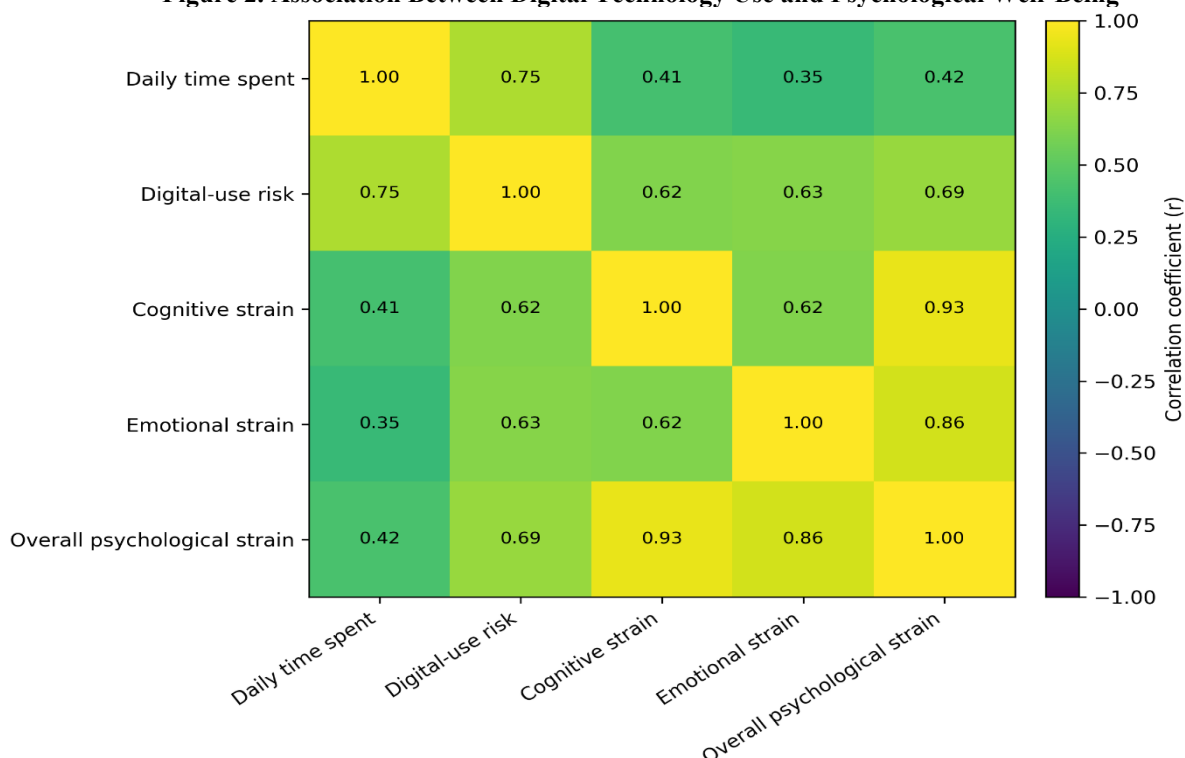


Figure 3. Correlation Heatmap of Digital Use and Psychological Strain

3.6 Regression Analysis and Main Findings

Multiple regressions were performed to examine whether the use of digital technology contributed to predicting cognitive strain, emotional strain, and overall psychological strain. All three psychological outcomes were significantly predicted by the findings of the digital-use variables. The variance in cognitive strain was explained by 43.2%, emotional strain by 48.7%, and overall psychological strain by 51.8% of digital-use variables. The regression results showed that higher use of digital technology was related to higher psychological strain. The validation-seeking behavior was a better predictor of emotional strain, and restlessness when not using social media was an important predictor of cognitive strain. The ad hoc use of technologies and the time spent online every day were also factors that led to psychological load. The results of these indicated that duration of use and behavioral dependence on digital platforms are relevant to cognitive and emotional well-being.

The overall results showed that there was a statistically significant relationship between using digital technology and cognitive and emotional well-being. Participants who scored higher on digital-use risk demonstrated higher levels of distraction, difficulty concentrating, concern, depression, social comparison, seeking validation, sleep issues, and psychological stress. This finding lent support to the study goal and suggested that the use of digital technology was significantly related to psychological well-being outcomes.

4. DISCUSSION

This study's results indicated that using digital technology was significantly related to cognitive and emotional health. An increased risk for using digital technology was associated with increased cognitive strain, emotional strain, and psychological strain. The results suggest that the psychological effects of digital technology should not only be considered in terms of the time spent online, but also in terms of the quality, purpose, and pattern of engagement. Digital platforms can facilitate communication and access to information, but may also contribute to an increased psychological vulnerability if these are used in excess or inappropriately. This interpretation aligns with research findings that the digital technology–well-being relationship is complex and contingent on user characteristics, digital technology usage patterns, and the psychosocial contexts (Dienlin & Johannes, 2020).

The high level of digital-use risk associated with cognitive strain suggested that excessive/abnormal digital use could impact attention and concentration. Those who used digital technology at a higher level of risk also indicated higher levels of distraction and attentional fragmentation, indicating how digital technology may be a source of attentional fragmentation. Unnecessary checking of the platform, unnecessary scrolling, frequent flipping between content, and interruptions due to notifications might impair sustained attention. This is important because being able to focus attention, process information, and stay engaged in goal-directed activities is an essential component of cognitive well-being. The findings are consistent with recent cognitive research, which posits that digital technology affects cognition through its demands for attention, its use of multi-tasking, information overload, and lack of reflective processing (de Barros, 2024).

A strong association between the findings of digital-use risk and emotional strain was also found in the emotional findings. For the first time, there was a positive correlation between digital-use risk and worry, depression, comparisons, validation-seeking, fluctuation of interests, and sleep problems. The results show that emotional well-being can be influenced by exposure to digital platforms and also by the emotional processes that take place during the use of these platforms. Seeing others, needing others to confirm your own self, and constantly seeing idealized content is something that is common in social media environments. These life experiences can enhance negative self-assessment and emotional instability. Previous studies have demonstrated that, in certain cases, social media can offer emotional support, but in others, it can be emotionally rewarding, fulfilling, and pleasurable, or it can be excessive and negative/upsetting (Shensa et al., 2016).

Further regression results showed that the digital-use variables accounted for a large amount of variance in the cognitive, emotional, and overall psychological strain. This implies that digital technology engagement had a significant dimension in the data set and was a predictor of well-being outcomes. Restlessness without the use of social media was an important predictor for cognitive strain, and validation-seeking behavior was particularly important to emotional strain. These findings suggest that dependence components of digital use could be of more psychological significance than the amount of time spent using digital media. The same results have been observed with a youth sample, where overuse of digital media was correlated to psychological distress and sleep-related issues (Khan et al., 2025).

Digital use-emotional well-being relationships could also be mediated indirectly via behaviour. Too much engagement can result in lower sleep quality, higher screen time at night, and fewer opportunities for other offline activities that can foster psychological well-being. This interpretation was further supported by the presence of sleep-related problems in the emotional strain score. Previous studies have found links between mental health issues and increased screen time use in adolescents, but these findings are inconsistent across studies and populations (Santos et al., 2023). The present findings thus suggest that the use of digital technology can impact wellbeing in complex ways, via emotional, behavioural, and physiological pathways.

The results also help to shape the larger discussion on the negative or positive effects of digital technology. The findings do not imply that online usage in general is harmful. Instead, they suggest that the more excessive, unnecessary, emotionally dependent, and/or validation-seeking and restless that it is, the greater the risk. In addition, studies conducted using the metacognitive approach have confirmed that the psychological impact of digital technology is not exclusive and that it should be studied in specific contexts of its use and impacts, and not within generalized frameworks of digital technology in general (Liñan, 2025). This is not insignificant as digital technologies continue to be essential for education, communication, and social participation.

The cognitive results can also be interpreted in a broader context with regard to the use of technology and cognition. Certain digital activities can contribute to the provision of learning and information, but if there is too much or there is some form of poor regulation, then it can have compromising effects on cognitive efficiency due to distraction and the demands of multitasking. Technology can be used in a variety of ways, with different cognitive demands, and by people with varying cognitive control abilities, potentially suggesting that technology has a range of effects based on these factors (Benge & Scullin, 2025). Thus, the present study offers a balanced perspective: Digital technology can have positive psychological effects if used on purpose, but can also have negative effects if it becomes an addiction and/or interferes with functioning.

There are a number of implications of the study. Digital well-being interventions should be targeted toward decreasing purposeful use, notification management, sleep hygiene, and/or engagement with validation. Mental health workers and teachers need to take into account digital behavior when evaluating students' and young adults' cognitive and emotional health. The results also emphasize the importance of future longitudinal studies, as this cross-sectional study wasn't able to determine causality. Findings revealed high statistical associations, but should be understood as relationships, not causal relationships. Overall, the evidence indicates that there is a psychological effect related to digital technology, with the most consistent evidence on its effects being when engagement is excessive, emotionally reinforcing, or cognitively disruptive (Rasmussen et al., 2020).

5. CONCLUSION

Use of digital technology was highly related to cognitive and emotional well-being. Greater digital-use risk was associated with greater distraction, difficulty concentrating, worry, depressive feelings, social comparison, seeking validation, sleep issues, and overall psychological distress. The results showed that the psychological effects of digital technology were not just related to how long the child spends online, but also to the way in which the child uses the Internet for purposes other than tasks assigned by instructors, to the child's sense of restlessness when not online, and to the extent to which the child is emotionally dependent on a platform. Cognitive well-being was suggested to be impacted by a decrease in attention, repetition of distracting behavior, and inattention, and emotional well-being, on the other hand, was suggested to be influenced by comparisons, seeking validation, worry, and problems with mood. The cross-sectional design allowed no causal inferences, but the associations observed indicated that overuse and unregulated use of digital media could be a factor in psychological vulnerability. The findings highlighted the significance of using digital platforms in a balanced, conscious, and conscious manner. Future studies should adopt a longitudinal design, larger measures of digital technology, and/or more diverse populations to better understand causal pathways and to create effective digital well-being interventions.

REFERENCES

1. Abi-Jaoude, E., Naylor, K. T., & Pignatiello, A. (2020). Smartphones, social media use, and youth mental health. *Cmaj*, 192(6), E136-E141.
2. Afridi, S. A. (2022). Social media and mental health dataset (smmh.csv) [Data set]. GitHub. <https://github.com/syedanwarafri/Social-Media-and-Mental-Health/blob/main/smmh.csv>
3. Alonzo, R., Hussain, J., Stranges, S., & Anderson, K. K. (2021). Interplay between social media use, sleep quality, and mental health in youth: A systematic review. *Sleep medicine reviews*, 56, 101414.
4. Benge, J. F., & Scullin, M. K. (2025). A meta-analysis of technology use and cognitive aging. *Nature human behaviour*, 9(7), 1405-1419.
5. de Barros, E. C. (2024). Understanding the influence of digital technology on human cognitive functions: A narrative review. *IBRO neuroscience reports*, 17, 415-422.
6. Dienlin, T., & Johannes, N. (2020). The impact of digital technology use on adolescent well-being. *Dialogues in clinical neuroscience*, 22(2), 135-142.
7. Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: the influence of social media on depression, anxiety, and psychological distress in adolescents. *International journal of adolescence and youth*, 25(1), 79-93.
8. Khan, M. H., Rauf, N., Javed, M. M., & Zia, K. (2025). Exploring the Psychological and Sleep-Related Correlates of Excessive Digital Engagement in Pakistani Youth. *The Critical Review of Social Sciences Studies*, 3(4), 2236-2243.
9. Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in cognitive sciences*, 25(1), 55-66.
10. Liţan, D. E. (2025). Psychological “effects” of digital technology: a meta-analysis. *Frontiers in Psychology*, 16, 1560516.
11. Marciano, L., Ostroumova, M., Schulz, P. J., & Camerini, A. L. (2022). Digital media use and adolescents' mental health during the COVID-19 pandemic: a systematic review and meta-analysis. *Frontiers in public health*, 9, 793868.
12. Mengistu, N., Habtamu, E., Kassaw, C., Madoro, D., Molla, W., Wudneh, A., ... & Duko, B. (2023). Problematic smartphone and social media use among undergraduate students during the COVID-19 pandemic: In the case of southern Ethiopia universities. *PloS one*, 18(1), e0280724.
13. Odgers, C. L., & Jensen, M. R. (2020). Annual research review: Adolescent mental health in the digital age: Facts, fears, and future directions. *Journal of Child Psychology and Psychiatry*, 61(3), 336-348.
14. Rasmussen, E. E., Punyanunt-Carter, N., LaFreniere, J. R., Norman, M. S., & Kimball, T. G. (2020). The serially mediated relationship between emerging adults' social media use and mental well-being. *Computers in Human Behavior*, 102, 206-213.

15. Santos, R. M. S., Mendes, C. G., Sen Bressani, G. Y., de Alcantara Ventura, S., de Almeida Nogueira, Y. J., de Miranda, D. M., & Romano-Silva, M. A. (2023). The associations between screen time and mental health in adolescents: a systematic review. *BMC psychology*, 11(1), 127.
16. Schønning, V., Hjetland, G. J., Aarø, L. E., & Skogen, J. C. (2020). Social media use and mental health and well-being among adolescents—a scoping review. *Frontiers in psychology*, 11, 1949.
17. Shannon, H., Bush, K., Villeneuve, P. J., Hellemans, K. G., & Guimond, S. (2022). Problematic social media use in adolescents and young adults: systematic review and meta-analysis. *JMIR mental health*, 9(4), e33450.
18. Shensa, A., Sidani, J. E., Lin, L. Y., Bowman, N. D., & Primack, B. A. (2016). Social media use and perceived emotional support among US young adults. *Journal of community health*, 41(3), 541-549.
19. Valkenburg, P. M., Meier, A., & Beyens, I. (2022). Social media use and its impact on adolescent mental health: An umbrella review of the evidence. *Current opinion in psychology*, 44, 58-68.
20. Wacks, Y., & Weinstein, A. M. (2021). Excessive smartphone use is associated with health problems in adolescents and young adults. *Frontiers in psychiatry*, 12, 669042.