

IMPACT OF DIGITAL DEVICE USAGE ON ADOLESCENTS' MENTAL HEALTH: RISK AND PREVENTION

Rashi Tripathi

(Research Scholar)

Department of Education, University of Lucknow

ABSTRACT

In this digital world, technology has become a necessity for every human being. It has impacted many individuals' lives, but adolescents are more likely to use various technologies and digital devices. Here, it's important to check the risk and prevention from excessive use of digital devices. After conceptual and data analysis from various research papers, articles, journals, and thesis, researchers have explored the various types of digital devices and their impact on adolescent mental health. The evidence interprets the relationship between excessive use of digital devices and increased mental health issues. It also causes lack of concentration, sleep disturbance, reduced physical activity, emotional distress, and low academic performance etc. As per the current need, researchers have provided various preventive measures from the overuse of digital devices. It emphasizes balanced use of digital devices for their studies and in their personal life. Some strategies are also provided for parents to manage their child's digital device use. Hence, this paper emphasized the major risk associated with excessive use of digital devices and focuses on preventive measures that can help adolescents to balance the usage of digital devices.

Keywords: Mental health, digital device use, adolescents, risk, and prevention

Introduction

In today's digital era, the center of focus should be given to the mental health of adolescents and their holistic development. However, many youths rely excessively on the use of digital devices. This habit is affecting their mental health, thinking ability, physical health, social life, overall development, etc. There is a major need to pay attention to such deterioration and provide guidance, so that they can use the technology in a balanced way. Nowadays, in school, teachers provide homework through online sources like Google Classroom, WhatsApp, etc., which is more common in practice since COVID-19. During the pandemic, teaching-learning was provided in online mode, even though each activity of their curriculum was conducted online. This overall creates a major shift in the teaching-learning process, and slowly, teachers incorporate a blended mode of teaching. Even after COVID-19, some schools provide homework through online mode, and teachers are also connected with students on an online platform. Therefore, it's impossible to keep children away from digital devices, but we can monitor their digital device use. Here key role is played by their parents and teachers, as children spend more time at home; therefore, their parents can monitor their device usage and provide them with proper guidance. In schools, teachers can also provide lectures and conduct play-way activities to guide the negative impact of excessive device use. In the current digital world, it's impossible to stop the usage of digital devices, but we can provide appropriate guidance and set examples in front of adolescents, so that they can learn the balanced use of digital devices. Therefore, this study was conducted to provide insights into these emerging issues, focusing on the risk factors associated with excessive digital device usage, and some preventive measures were suggested for adolescents, teachers, and parents. So that they can help children manage the usage of digital devices.

Objectives

- To examine the relationship between digital device usage patterns and mental health outcomes.
- To identify specific risks associated with excessive digital device use.
- To explore how excessive digital device use may decline the mental health of adolescents.
- To evaluate preventive measures that may reduce the negative impact of digital device use on the mental health of adolescents.

Literature Review

Odgers and Jensen (2020). The main objective of the study was to analyze the recent facts regarding the associations between digital technology usage and adolescent (aged 10–24) mental health, with main emphasis on depression and anxiety. In research findings, most studies show the small, inconsistent, and largely correlational associations between digital media use and adolescent depression or anxiety, whereas screen time was a poor predictor; context and online activity type matter more. Offline risk factors strongly shape online experiences.

Marciano et al. (2022). In this study, researchers systematically examine the relationship between digital media use and mental health among adolescents during the COVID-19 pandemic. The results showed that while the increase in digital media use helped some adolescents mitigate loneliness and maintain social ties whereas excessive and addictive use was linked to greater depression, anxiety, sleep problems, lifestyle disruptions, and reduced self-esteem, particularly among girls and older youth. Meta-analytic findings revealed small but significant associations between social media use and psychological distress, and a moderate link between media addiction and ill-being.

Girela-Serrano et al. (2024). The primary aim of this systematic review study was to clarify the associations between the impact of mobile phone and wireless device (MPWD) use and mental health outcomes. The researcher found inconsistent evidence linking MPWD use to internalizing symptoms (depression, anxiety). While some longitudinal studies suggested significant associations, others did not. In contrast, there was more suggestive, though limited, evidence for an association between higher MPWD use and externalizing symptoms (behavioral problems), particularly in younger children and early adolescents. Sleep disruption emerged as a key mediator, especially when MPWDs were used at bedtime, contributing to poorer mental health outcomes. Furthermore, studies indicated that the mode and timing of device use played a moderate role in these associations.

Firth et al. (2025). Researchers address the growing concerns regarding excessive and unregulated digital device use among young people and provide recommendations for youths and parents. It emphasizes the dual nature of digital technology, highlighting both its benefits, such as educational support, social connectivity, and entertainment, and its risks, including physical health issues, psychological concerns, and negative impacts on academic performance. The paper contributes to existing research by framing healthy digital device usage as a shared responsibility

between youth and parents. It underscores the need for awareness, guidance, and preventive strategies to minimize risks while maximizing the benefits of digital technologies in daily life.

Jena, K., & Sethi, M. K. (2025). In this systematic review researcher analyzed literature on the effects of digital technologies on adolescent mental health. The authors found both positive and negative influences, with negative effects (e.g., psychological disorders, isolation, cyberbullying) notably pronounced. Positive outcomes included relationship-building and digital learning opportunities. The review highlights the need for robust longitudinal research and tailored interventions, as cross-sectional correlations dominate existing studies.

Doruk, M., Mustafaoglu, R., & Gül, H. (2023). This study aimed to investigate the relationship between the use of technological devices and health-related problems among adolescents in Istanbul, Turkey. The findings revealed that smartphones were the most widely used technological device (99.4%), while game consoles were the least used (18.2%). Among participants, 28.4% reported using smartphones for more than two hours daily, which was associated with decreased sleep duration, increased sleep onset latency, fatigue, eating disorders, psychological symptoms, etc. Similarly, prolonged computer use was linked to upper and lower back pain, while television use was associated with neck pain. The study also found that middle school students had higher rates of overweight and obesity compared to high school students. The author emphasized the need for parental guidance to limit screen time and promote healthier usage habits.

Rizvi et al. (2025). In this study researcher highlights the critical need to enhance adolescent mental health measurement in India. The primary objective was to evaluate the availability and quality of mental health data among Indian adolescents and consider the relevance of adopting the Global Action for Measurement of Adolescent Health (GAMA) indicators. The findings reveal that, despite India's large adolescent population, national data on adolescent mental health are sparse and limited mainly to depression and anxiety. It is recommended that India contextualize and incorporate GAMA indicators into routine national surveys to strengthen adolescent mental health programming. Addressing current gaps can accelerate effective interventions for the over 250 million Indian adolescents.

Kumari and Choudhary (2024). Researchers examine the impact of digital screen time on adolescents, particularly focusing on the Indian context. The study findings recommended a balanced approach to screen use. The study underscores the importance of limiting screen time to

1-2 hours daily while promoting physical activity and parental monitoring. The review calls for increased awareness and evidence-based strategies to ensure healthy digital habits that support adolescent well-being.

Methodology

This study is conceptual in nature; a comprehensive and critical review of various research papers, journals, government documents, articles, newspapers, etc. has been done to identify the gaps yet to be filled in this research domain, and secondary sources were used for the collection of the data.

Discussion

Digital device usage among adolescents

“Digital device usage among adolescents encompasses the use of smartphones, computers, tablets, or similar electronic media for activities that include social networking, instant messaging, video streaming, gaming, educational tasks, information-seeking, and other forms of digital interaction. This usage is characterized by both the type and context of digital engagement and can be categorized into active participation and passive consumption, with patterns varying across demographic factors and individual behaviors” (Dienlin et al., 2020). This usage encompasses a wide variety of activities, including social media engagement, communication, entertainment, learning, and content creation, and is often measured by self-reported hours per day dedicated to these activities or by objective device tracking when available (Dienlin et al., 2020; Moreno et al., 2022). “Digital technology and media use is integral to adolescents’ lives and is associated with both positive and negative consequences, with nearly ubiquitous access to smartphones and a high prevalence of device ownership shaping their experience of technology” (Moreno et al., 2022, p. 1).

Mental health of adolescents

“Adolescent mental health in the digital age involves the investigation of how digital technology usage, including mobile device ownership and social media use, relates to depressive and anxiety symptoms. Most research reveals small, often inconsistent associations, and some studies show no direct causal effects, indicating that digital technology usage alone is unlikely to be a primary driver of mental health problems among youth” (Odgers & Jensen, 2020, p. 3). This shows that many external and internal factors affect the mental health of

adolescents, of which one of the current causes is excessive use of digital devices. Thus, technology can indirectly affect the mental health of adolescents, their ability to think critically, and it can impact their overall academic performance.

Risk of using digital devices on adolescents' mental health

Mental Health Associations

The excessive use of digital devices can impact the overall well-being of adolescents. As per the various research studies, it's seen that there is an association of increased use of digital devices and deterioration in mental health, which also affects their sleep cycle, thinking ability, academic performance, etc.

Physical and mental consequences

Excessive use of digital devices among adolescents is associated with health symptoms such as eye strain (34.7%), difficulty sleeping (24.6%), headaches (16.1%), and musculoskeletal discomfort (Harshita, 2025). Prolonged screen exposure also takes time away from physical activity, family engagement, and academic focus 66.9% of adolescents reported low academic performance, and 74.6% reduced family time because of device use. Psychosocially, adolescents regularly experience anxiety (21.2%), loneliness (20.3%), social isolation (16.1%), and pressure to maintain online visibility, all of which can increase emotional distress.

Cyberbullying and Social Media

Cyberbullying, exposure to harmful content, and social comparison are among the particular risk factors that come with using social media, and they are all linked to increased anxiety and depression. Adolescents who struggle to control their usage of social media and suffer negative consequences make up about 11% of the population. Other factors that increase vulnerability include discrimination and online harassment (American Psychological Association, 2024).

Preventive measures for adolescents' mental health

Rising Screen Time & Nighttime Usage

- After COVID, online education has significantly increased screen time among adolescents.
- It is seen that children are using social media more in peak hours, i.e., between 9 PM and 3 AM, often unsupervised.

- This raises risks of cyberbullying, exposure to inappropriate content, and mental health issues.

Home as the Digital Safety Hub

- The home environment plays a major role in the digital safety of adolescents.
- Parents who regularly monitor their children's digital device use, their children face fewer mental health issues.
- Hence, collaboration among teachers, parents, social media companies, and policymakers is essential.

The emerging mental health issue among adolescents needs to be addressed so that they can develop holistically. It requires the collaboration of main stakeholders, which include educators, parents, social media corporations, and policymakers; their collaborative actions can help to create a safe digital environment. Thus, these four pillars should work together to fulfill their responsibilities among adolescents. These pillars are as follows: -

1. Teachers

- Schools should implement digital citizenship curricula.
- Teachers should be given proper training to guide students on online etiquette, privacy, and cyber safety.

2. Parents

- Parents are the first line of defense in monitoring digital activity. Their involvement is needed in regulating the digital device use of adolescents.
- Parents should be aware of various parental control software, like Messenger Kids, Instagram's Supervised Accounts, and WhatsApp's Parental Guide etc.
- Some government initiatives, like Meta's Digital Suraksha for Teens, aim to educate families.

3. Social Media Corporations

Social media platforms have played a major role in adolescent life; they provide various safety mechanisms for users. So that their safety can be enhanced and adolescents can be protected. But the inappropriate use of social media can harm adolescents.

- For instance, Meta has rolled out parental control features on Messenger and tools on Instagram that help restrict unwanted interactions.

- Similarly, TikTok has introduced functions to manage screen time and activate restricted modes that block inappropriate content. These platforms must enhance safety features and conduct school-based orientation programs.

4. Policymakers

- Policy intervention is necessary for a safer digital environment for adolescents. The Indian government's "Digital India" initiative includes peer education and teacher training focused on cyber safety.
- Legislation that mandates digital citizenship education in school curricula and ensures stringent data protection laws can significantly contribute to online adolescent safety.

Conclusion

This study concludes that there is a relationship between digital device usage patterns and mental health outcomes. The researcher has identified specific risks associated with excessive usage of digital devices and their impact on the mental health of adolescents. A holistic, multi-stakeholder approach is vital to ensure safe and responsible digital engagement. (TOI Lifestyle Desk, 2024). Thus, various preventive measures have been suggested to the main stakeholders, like parents, teachers, policymakers, etc., so that they can provide guidance and help children in reducing the negative impact of digital device use on their mental health. They can instruct and guide adolescents in the balanced use of digital devices for their studies and daily life online activities. Thus, digital devices offer both risks and opportunities for adolescents, whereas it depends on their direction, frequency of usage. Here, social media can also have both benefits and risks. Thus, guiding adolescents about digital device use and social media use can help them protect their mental health. Even the utilization of safety tools by parents can also manage adolescent device usage.

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