

Digital Technology, Gaming, and Social Media: Understanding Addiction and Behaviour Problems in Children and Teenagers

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ABSTRACT

The widespread availability and use of digital technology, gaming, and social media have raised concerns about their potential to foster addiction and behavior problems in children and teenagers. This white paper explores the addictive nature of digital technology, gaming, and social media and their impact on the behavior and well-being of young individuals. It also provides insights into strategies for recognizing, managing, and preventing addiction and behavior problems in this demographic.

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Introduction

There has been increasing evidence that the amount of time youngsters spend at home and at school using technology devices and social media is harming their development. Digital technology, gaming, and social media have become integral parts of the lives of children and teenagers [1,2]. Teens can use social media to create online identities, engage with others, and build social networks. These networks can give vital support to youth, particularly those who are excluded or have impairments or chronic diseases. While these tools offer numerous benefits, there is a growing concern regarding the addictive tendencies they may develop and the behavior problems they can exhibit [3]. This white paper examines the addictive qualities of digital technology, gaming, and social media, their potential impact on behavior, and strategies for addressing these challenges.

The Pervasiveness of Digital Technology

Children use home computers for a variety of purposes, including gaming and web surfing, as well as schoolwork. According to DeBell and Chapman of the National Center for Education Statistics, 23% of children in nursery school use the Internet, with children 5-9 years old being the most frequent users [4-6]. According to the findings, around 20.5% of their time was spent playing games, while 11.7% was spent on homework. According to Roberts et al. (2005), 8-10- year-olds are the most likely of all age groups to have a video gaming device in their bedroom, spending approximately 1 hour per day playing games [7]. Young children under the age of three or four, on the other hand, are more inclined to use the Internet to view video clips. Teens use social media for enjoyment as well as self-expression [8-10]. Furthermore, the platforms may expose teenagers to current events, allow them to

engage beyond regional boundaries, and teach them about several topics, including healthy practices. Teens may benefit from social media that is interesting or distracting, or that gives a meaningful connection to peers and a large social network.

In recent years, both the quantity and quality of studies on Internet gaming addiction has increased [3]. Gaming addiction research dates back to 1983, when the first paper suggested that video gaming addiction is a concern for students. The harmful effects of Internet gaming addiction have prompted governments and health care professionals in South-East Asian countries to take the matter seriously and establish a series of measures to curb and enhance the problem [11]. In South Korea, Internet game addiction is regarded as a major public health concern, with up to 24% of children diagnosed with Internet addiction being hospitalized [12]. Concerns appear to be well-founded, since a rising number of studies show that Internet gaming addiction is related with a variety of unfavorable outcomes [13]. [13] A limited number of studies have also discovered psychosomatic consequences [14]. Sleeping issues, seizures, and psychosomatic issues were among them [15-17]. This lengthy list illustrates that Internet gaming issues must be addressed seriously because they can negatively impact individuals in a variety of ways [18].

Understanding Digital Addiction

Internet addiction has become a severe mental health issue in many countries. According to a meta-analysis of 31 countries, the global Internet use disorder prevalence among 12-41- year-olds is predicted to be 6.0%, with the Middle East having the highest plurality [19]. Another three-decade meta-analysis discovered a 4.6% global IGD prevalence among adolescents aged 10 to 19 years [20]. It was commonly observed that Digital Addiction could cause severe suffering and functional difficulties in daily life, as well as concomitant psychiatric problems such ADHD, depression,

and anxiety. Furthermore, depression appears to be the most common symptom of IGD across all age categories (adolescents, adults, and the general public) [21-23]. Furthermore, there is a high incidence of symptoms such as social anxiety, emotional difficulties, and cognitive deficiencies among regular Internet users, according to research on the mental features of frequent Internet users. Additionally, digital addiction has a psychological and physical impact on children and adolescents, such as vision loss, hearing impairment, and obesity [24-28]. At the same time, it will disrupt children's sleeping and eating habits, inflicting significant harm to their health [29]. Furthermore, research has shown that addiction has distinct consequences on brain function. Han et al. (2018), for example, discovered that teenage IGD was associated with changes in the location of several prefrontal-striatal circuits [30]. Despite these numerous and severe deficits, DA is currently treated in an ad hoc manner, and review studies addressing intervention in individuals with DA, particularly in children and adolescents, are uncommon.

Effects on Behavior and Well-Being

According to an increasing number of studies on Internet addiction, it is a psychosocial condition with the following characteristics: tolerance, withdrawal symptoms, affective disorders, and issues in social relationships. Internet use causes psychological, social, educational, and/or occupational challenges in a person's life. Eighteen percent of study participants were classified as pathological Internet users, whose excessive Internet usage was producing academic, social, and interpersonal problems [31]. Excessive Internet use may increase psychological arousal, resulting in little sleep, failure to eat for long periods of time, and limited physical activity, potentially leading to physical and mental health problems such as depression, OCD, poor family relationships, and anxiety [32].

Depression is the most commonly reported psychiatric symptom related with excessive Internet use [33]. A more in-depth study on forms of applied programs on the Internet by individuals, on the other hand, demonstrates the impact of a specific program on the person's mental well-being [34-36]. In other words, spending time on photo and video-sharing programs is connected with higher levels of sadness and anxiety; conversely, spending time on book reading programs reduces depression and anxiety, therefore boosting levels of mental well-being [37]. Researchers have also found that people who spend much time online have lower perceived QOL due to a loss of long-term sleep, poor physical health, difficulty concentrating at work, and decreased intimacy with family members [38,39].

IA impairs a wide range of life functions [40,41]. Internet gaming disorder (IGD) is a complication of IA and is described as uncontrolled internet gaming behavior that has a negative influence on psycho-social functions [42]. The severity of IA and IGD is now well documented, and in 2013, IA was listed as online gaming disorder (IGD) in Appendix III of the new version of the Diagnostic and Statistical Manual for mental Disorders (DSM-5) [43]. Several IA diagnostic criteria have been presented [44-46]. The core symptoms were identified as poor planning abilities, tolerance, impairment of control, and excessive online time. Many personality disorders are caused by IA [47-50].

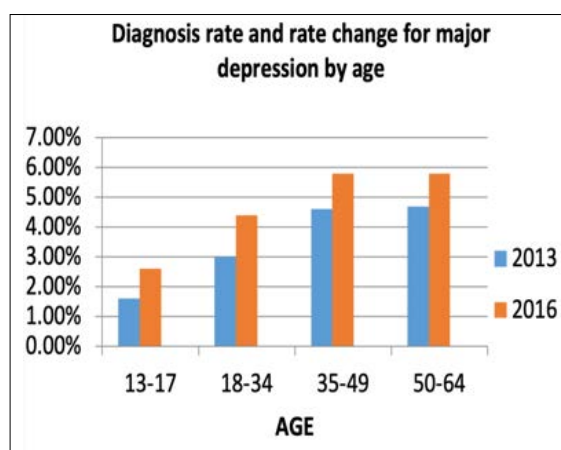


Figure 1: Diagnosis rate and rate change for major depression by age

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Recognizing Addiction and Behavior Problems

Digital addiction and behavior problems associated with excessive technology use can have a significant impact on children and adolescents, affecting their development, social interactions, and overall well-being. Recognizing the signs early on is crucial for timely intervention and support. The presence of negative outcomes is essential in recognizing internet gaming disorder and other possible digital addictions [51].

Initial symptoms of a harmful impact could include [51]:

- The abandonment of previously enjoyable activities in favor of the use of digital media
- Behavior that interferes with daily functioning
- Sleep disturbances
- Conflict-causing behavior in relationships
- Interfering with academic or occupational performance
- Lying about or concealing your use of digital media

Open communication is a two-way street, involving both expressing oneself clearly and actively listening to others. It fosters honesty, transparency, and empathy, creating a safe space for sharing thoughts, feelings, and ideas without fear of judgment or reprisal.

Rate Change for Major Depression by Age of Above Graphical Presentation [52]:

- Age between 13-17: +63%
- Age between 18-34: +47%
- Age between 35-49: +26%
- Age between 50-64: +23%

This increase in percentage of depression between young age group children and adolescents is increase year by year.

Observing their online activities and their overall behavior can also provide clues about their digital engagement. Pay attention to their screen time, their emotional state, and their social interactions to identify any potential issues. Here are some resources for assessing and diagnosing digital addiction in children and teenagers:

- **The Center on Internet Addiction (CIA):** The CIA is a non-profit organization that provides information and resources on Internet addiction. Their website includes a self-assessment tool for children and teenagers.
- **The American Academy of Child and Adolescent Psychiatry (AACAP):** The AACAP is a professional organization that provides information and resources on mental health issues for children and teenagers. Their website includes a fact sheet on Internet addiction.
- **The National Adolescent Health Information Center (NAHIC):** The NAHIC is a part of the Office of Adolescent Health (OAH) that provides information and resources on adolescent health. Their website includes a page on Internet addiction.

Management and Prevention Strategies

Digital addiction, also known as internet addiction or problematic internet use (PIU), is a growing concern in today's hyper connected world. It is characterized by excessive and uncontrolled use of digital devices, such as smart phones, computers, and tablets, which can negatively impact a person's daily life, relationships, and mental health.

Management Strategies for Digital Addiction Cognitive-Behavioral Therapy Intervention

CBT is successful in treating substance addiction, gambling, emotional, and eating disorders as the most evidence based, transdiagnostic psychotherapy approach [53]. CBTs are based on the cognitive-behavioral model, which claims that ideas determine feelings and that modifying one's thoughts may help in behavioral change [54,55]. As a result, cognitive-behavioral models for understanding the development and maintenance of IA have been proposed [56]. CBT has been widely utilized to address problematic Internet use.

Cognitive-behavioral therapy, in particular, have the ability to increase self-control, despair, and anxiety, as well as diminish symptoms of Internet addiction in the adolescent population. According to a study, which used cognitive-behavioral therapy for addictive behaviors among seventh to ninth graders, the experimental group demonstrated greater self-control than the control group, indicating preliminary efficacy in reducing Internet addiction [57].

CBT-Based Intervention

CBT-based intervention is a sort of compound psychotherapy in which CBT is used concurrently or sequentially with other treatments such as pharmaceutical, psychotherapy, and family counseling. This holistic strategy may be useful in addressing difficult issues. Combining CBT with other therapies that have different treatment goals and methods may have a synergistic effect. Kim et al. (2018), for example, ran a CBT-music therapy program among Internet overuse adolescents, and the results revealed that participants' Internet addiction, sadness, and anxiety ratings were lower than after a one-month follow up group intervention [58].

Family Intervention

Family is important for children's and teenagers' growth and development because it provides emotional connections and behavioral restraints [59]. Parenting methods, household bonds, and familial functioning are all important factors to consider when dealing with teenage behaviors like IA. Adolescents who do not receive appropriate attention and support from their parents are

more prone to develop psychological difficulties, which may lead to an excessive use of the Internet to escape unfavorable sentiments about their home situations. Good family functioning has been associated to a lower chance of having IA, suggesting that family characteristics may be important IA management targets [60].

Digital-Based Intervention

The emergence of new technologies frequently introduces new problems for maintaining, improving, and regaining mental health and well-being, but it also opens the door to new, successful interventions. One of the most promising interventions in digital (internet, smartphone, computer, tablet, etc.) addictions is digital-based intervention. "Digital-based" solutions are those that employ digital platforms to provide assessment, prevention, and intervention. Web-based tools, mobile applications, wearables, and virtual reality platforms are useful in assessing and treating a wide spectrum of mental health issues, notably depression, anxiety, and substance and behavioral addiction [61].

Other Interventions

Aside from the above-described psychological interventions, physical exercise intervention is an essential intervention approach that favorably improves individual cognition, mood, and physical fitness. Tseng et al. (2022) conducted a 12-week strategic physical activity intervention among school-aged children, suggesting that a well-planned physical activity program could be a practical and efficient behavioral technique to improve motor and cognitive skills in digitally addicted youngsters [62].

Digital Literacy and Responsible Use

In the age of information technology, where digital devices and the internet have become an integral part of our lives, equipping children and teenagers with digital literacy skills and responsible online behavior is crucial for their wellbeing and future success. Modern learners have a natural skill to browse and use the Internet. The Internet has evolved into a "participatory culture" allowing students to create, interact, and cooperate with students all over the world. Acceptable Use Policies are implemented by school districts to ensure appropriate student use of the Internet and technology equipment at school [63].

However, educators need to consider how to prepare today's generation to be responsible and ethical life-long learners in the digital age. Teachers must approach, advise, and assist students in practicing proper and professional behavior while actively participating in real learning experiences through the use of blogs, wiki spaces, learning management systems, online research, and other tools [63].

School and Community Initiatives

The school system is increasingly being used to drive prevention campaigns, as well as to address health promotion and public health concerns [64]. This can take the form of teacher and parent training, student education, and awareness raising, and it may improve protective factors and reinforce positive behaviors or characteristics of the environment that minimize the risk of unfavorable events [64]. School-based efforts are efficient in that they provide access to a large number of kids at a low cost [65,66].

Various measures can be used to prevent internet addiction and cyber bullying in schools. One strategy is to provide students with educational activities and self control training, which has been demonstrated to be successful in boosting knowledge about internet addiction and promoting responsible internet use. Furthermore,

it is critical to raise awareness about internet addiction among teachers and provide them with practical knowledge on how to approach and support kids who are addicted to the internet. School-based intervention programs should be created to identify students who are at risk of becoming addicted to the internet and to provide support to them and their parents [67].

As a result, there is current scientific agreement on the importance of developing well-controlled, methodically sound therapies for IAs that is anchored in empirical evidence and theory [68,69]. Reliable research findings and appropriate media dissemination are required to inform evidence-based policy provision, as is proper evaluation of school-based intervention programs and more randomized controlled trials (RCTs) with embedded evaluation standards to inform evidence-based recommendations [70-72].

These initiatives should target specific populations (for example, adolescents) and specific online activities, such as problematic social media use or gaming, reflect current knowledge, be theory-driven, and aim to improve skills and competencies associated with risk and protective factors [73-76]. This could then justify funding and the establishment of public health policies, perhaps leading to a reduction in the incidence and prevalence of IA [77,78]. Yeun and Han found large effects for reducing IA and improving self-control and self-esteem when parent involved counselling, self-control training programs, or a specific (theory-based) form of therapy were used in a meta-analytic review of psychosocial treatment interventions that included prevention initiatives. For all of us, technology is an important part of daily life. It can be difficult for parents to keep up with the continuously growing new technological innovations that appeal to our teenagers. While we may not always be able to keep up with the latest developments, we can provide a framework for our family members to build a healthy and safe relationship with technology [79].

Promoting Positive Behaviors and Well-Being

Fostering positive behaviours and overall well-being in children and teenagers is crucial for their healthy development and successful transition into adulthood. Here are some effective strategies to encourage positive behaviours and well-being in children and teenagers [79]:

- Have a frank conversation: Technology is a part of everyday life. Help your youngster understand that having this 'tool' is a privilege and that they must use it wisely. That implies adhering to the guidelines you've set up for its use.
- Encourage them to think about the future: It's an essential lesson to learn that internet content is permanent. How do you want your child to be perceived in the world - not just now, but when they're an adult searching for work?
- Remind them to be kind: Respect is essential. Teach your child not to say or do anything online that could cause harm or humiliation to others, just as you would want them to behave in person. They ought to stay away from doing anything that they know would make them unhappy, such as forwarding something that will hurt or embarrass someone else.
- Teach them to respect people's privacy: If they get any private content, such as personal or graphic images or videos, they should remove it immediately. Failure to do so could have serious consequences.

Fostering well-rounded individuals who can navigate the digital world responsibly is crucial for success in today's society. These individuals have a strong understanding of digital technologies,

enhanced critical thinking skills, improved communication and collaboration skills, stronger problem-solving skills, greater social responsibility, improved productivity and efficiency, expanded career opportunities, enhanced personal growth and development, greater global awareness, and increased civic engagement.

Conclusion

The addictive nature of digital technology, gaming, and social media can contribute to behavior problems and well-being issues in children and teenagers. However, with the right strategies in place, parents, caregivers, educators, and communities can help young individuals develop a healthier relationship with digital devices, fostering a well-rounded, balanced lifestyle while preventing and managing addiction and behavior problems. Through collaboration and education, we can empower the next generation to make informed, responsible choices in their digital lives and achieve better overall well-being [80].

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