
**DIGITAL ADDICTION AND PSYCHOLOGICAL WELL-BEING: A
REVIEW OF SOCIAL BEHAVIOR, SLEEP DISORDERS, MENTAL
HEALTH AND LONELINESS**

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DOI: <https://doi-doi.org/101555/ijarp.8498>**ABSTRACT**

The rapid evolution of digital technology has contributed to the growth in the use of smartphone technology, social media, on-line gaming and on-line applications across all age groups. While digital technologies offer a wide variety of advantages in the fields of communication, education, and entertainment, their overuse and misuse have resulted in digital addiction emerging as a public health issue. The goal of this review is to explore the connection between digital addiction and psychological well-being, especially with respect to social behavior and sleep disorders, as well as mental health outcomes. It discusses the definition of addiction, various types of digital addiction (smartphone addiction, social media addiction, Internet addiction, gaming addiction) and their prominent contributors including dopamine reward system, fear of missing out (FOMO) syndrome, academic stress, social validation, and overuse due to the pandemic. Past research suggests that overuse of digital media adversely impacts interpersonal relationships, particularly by decreasing face-to-face communication, withdrawing from society, and being dependent of digital media. Moreover, sleep disturbances like sleep deprivation and insomnia, late bedtime use of screens, disturbance of circadian rhythm, suppression of melatonin hormones etc. have significant correlation with digital addiction. It also emphasizes the severe psychological impact of digital addiction including anxiety, depression, stress, emotional instability, attention problems, and low self-esteem. Neuropsychological and behavioral addiction mechanisms can worsen addictive online behavior and emotional reliance. Overall findings show that digital addiction is a serious threat to psychological and social well-being, particularly of adolescents and young people. The review highlights the need to strike a balance between

digital technologies, awareness campaigns and intervention strategies to reduce the detrimental psychosocial effects of overuse of digital technologies and promote healthy digital lifestyles.

KEYWORDS: Digital addiction, psychological well-being, social behavior, Sleep disorders, Mental health.

INTRODUCTION

Digital technology has revolutionized the world and has reshaped how people communicate, learn, work and interact in society. Smartphones, social media, online gaming and internet-based applications have become a part of daily life [1]. High-speed internet connections and cheap digital devices have made screen time more common and elevated the time spent in front of screens for people of all ages. Digital technology has many advantages including instant communication, quick information access, online education and entertainment, but the overuse of these technologies has been identified as a concern all around the world [2]. This constant interaction with digital platforms has led to the development of problematic behaviors that have been dubbed “digital addiction.” Digital addiction is characterized by excessive and compulsive use of digital devices or online platforms that negatively impacts an individual's daily functioning, relationships, functioning, and productivity. There are some forms, including smartphone addiction, internet addiction, social media addiction and gaming addiction [3]. People that suffer from digital addiction may find themselves using digital devices compulsively, unable to stop or cut back on their screen time, exhibit mood swings, or forget to dedicate time to themselves or schoolwork. The need for social connection, entertainment and online validation has also grown, further increasing reliance on digital technologies, especially among adolescents and young adults as illustrated in figure 1 [4]. Digital addiction is a widespread problem that has been rapidly growing for the past decade throughout the world. Social media networking is actively used by billions of people and they spend several hours of their time online every day. These were exacerbated by the COVID-19 pandemic, which forced remote learning, work from home and social distancing [5].

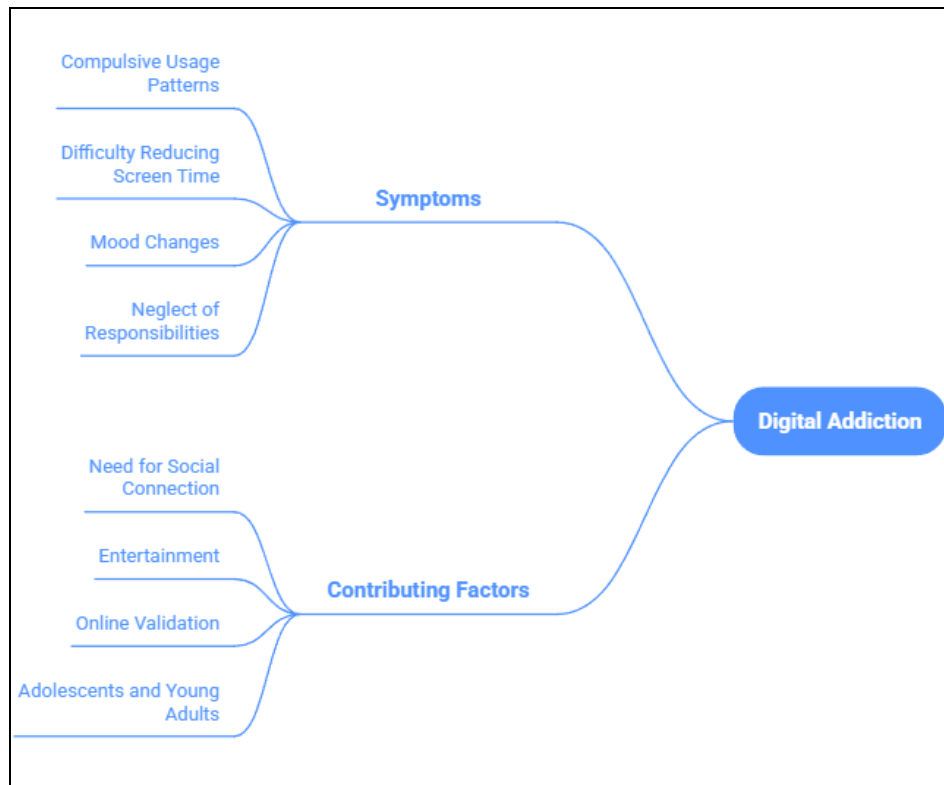


Figure 1 Digital Addiction: Symptoms and Contributing Factors.

The overuse of digital technology has been a cause of great concern in terms of its effects on psychological health and well-being. Psychological wellbeing is a person's emotional state, mental health, social participation and life satisfaction. Excessive screen time and problematic Internet use have been linked to anxiety, depression, stress, sleep problems, loneliness, and less social interaction in real life [6]. Although numerous studies have been conducted on digital addiction, the psychosocial implications of digital addiction are not fully understood. For this reason, this review will focus on the impact of digital addiction on key psychological and social issues, as well as the social behaviour, sleep disorders, mental health and loneliness factors. These connections have to be understood in order to build effective prevention programs and foster healthier behaviors online to enhance overall psychological health [7].

Objectives of the study are as follows:

- To examine the relationship between digital addiction and psychological well-being among different age groups.
- To analyze the impact of digital addiction on social behavior, sleep disorders, and mental health outcomes.
- To identify the major risk factors and psychosocial consequences associated with excessive digital technology use.

Understanding Digital Addiction

Digital Addiction is an excessive and compulsive use of digital devices and online platforms that adversely impacts the physical health, psychological wellbeing, social interactions, academic work and functional abilities of individuals. Technology is progressing at a quick pace and most individuals now use digital devices like smartphones, laptops, tablets and gaming consoles in their daily lives [8]. While these technologies offer advantages, it is possible for them to be addictive and to cause behaviors akin to other behavior disorders. People with digital addiction may exhibit signs of loss of control over their device usage, withdrawal symptoms when they're not using devices, mood swings, decreased productivity, and neglect of personal responsibilities, etc. [9]. Digital addiction can manifest itself in a variety of ways. One of the most prevalent types is "smartphone addiction," which refers to excessive reliance on smartphones for communication, entertainment, games, and social networking. As seen in figure 2 people who are addicted to smartphones often check their notifications, have a lot of time online and feel anxious when away from their smartphone [10].

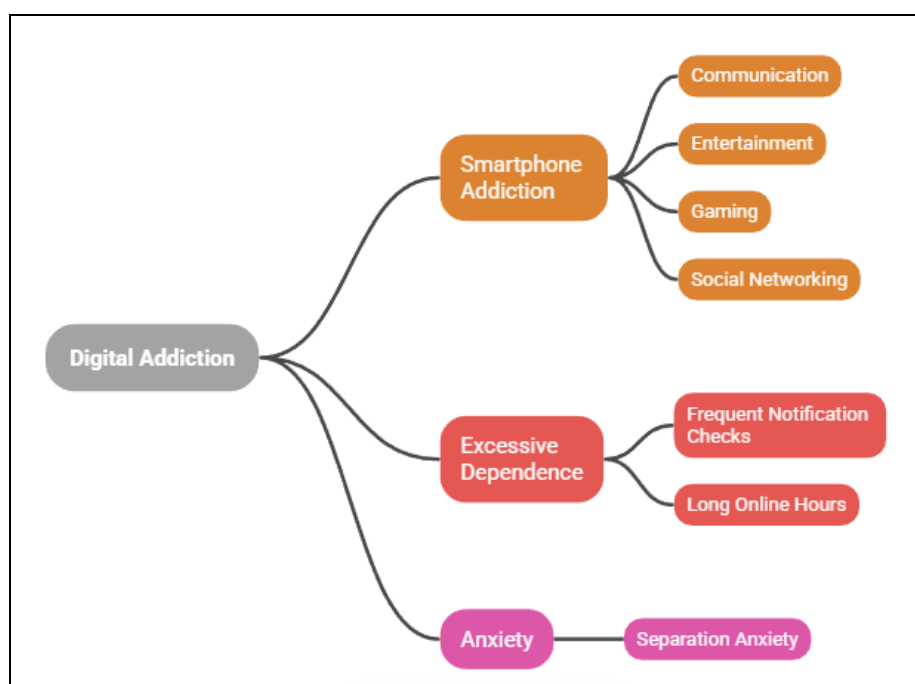


Figure 2: Digital Addiction & Smartphone Addiction.

Another type of digital addiction is social media addiction, which is defined as the uncontrollable addiction to social media, including Facebook, Instagram, Twitter, and TikTok. Social media consumption can result in a lack of in-person social interaction, emotional dependency and “keeping up with the Joneses.” Internet addiction is characterized by an

excessive use of the Internet for browsing, streaming, chatting, or any other Internet activity it causes disruption in daily life [11]. Gaming addiction, or internet gaming disorder, is a condition that is characterized by an excessive involvement in gaming, which impacts one's academic achievements, sleep patterns, social interaction, and emotional well-being. The factors that can lead to digital addiction can be attributed to several psychological and environmental factors [12]. A primary reason is the dopamine system, which indicates that digital tasks like accumulating likes, messages, or video gaming rewards stimulate pleasure facilities in the mind, fostering more usage. The other is fear of missing out (FOMO), where people always look at social media and online updates to not feel left out of any social event or trend [13]. Familiarization with digital engagement may be further accelerated due to academic stress and work-related pressure as people use digital platforms to relax and to escape the stress. Social validation is also important particularly for adolescents and young adults who seek online validation and dependence on social media, which gives them the sense of approval, attention and acceptance [14]. Further, the COVID-19 pandemic has made online learning, working remotely and social isolation more common, which led to extended screen time and higher use of digital communication. These factors have all been seen to be increasing digital addiction and its negative effect on psychological and social well-being as indicated in table 1 [15].

Table 1: Types, Risk Factors, and Effects of Digital Addiction.

Category	Description	Effects
Digital Addiction [8,9]	Excessive use of digital devices and online platforms	Poor health, reduced productivity
Smartphone Addiction [10]	Overuse of smartphones for communication and entertainment	Anxiety, compulsive checking
Social Media Addiction [11]	Excessive use of social networking platforms	Social comparison, emotional dependence
Internet Addiction [11]	Uncontrolled internet browsing and online activities	Disrupted daily life
Gaming Addiction [12]	Excessive online/offline gaming	Sleep and academic problems
Dopamine Reward System [12]	Pleasure response from likes, messages, and rewards	Repetitive behavior
FOMO [13]	Fear of missing online updates	Constant social media checking
Academic/Work Stress [14]	Stress leading to increased digital usage	Higher screen time
Social Validation [14]	Seeking approval through online interactions	Dependence on feedback
Pandemic Overuse [15]	Increased digital use during COVID-19	Prolonged screen exposure

Digital Addiction and Social Behavior

Digital addiction has affected social interaction and relationships in today's society. The digital technologies and social networking sites have made communication and connectivity much easier and a world of information available, but they have also led to an overreliance on digital devices and a decline in the quality of face-to-face social interactions [16]. Smartphone, social media and online gaming addicts can spend many hours playing online, leaving them with less time to spend with family, friends and colleagues in person. High levels of screen time reduce opportunities for face-to-face interaction and decreases the skills of interpersonal communication, including empathy, emotional understanding and listening [17]. This means that people can become more at ease in communicating online versus face-to-face in social settings. Social withdrawal is one of the significant social issues of digital addiction. People who use the Internet for too much time tend to stay away from social occasions, outdoor activities, and family time, as illustrated in figure 3 [18]. This behavior can cause emotional isolation, and a lack of involvement with community or social activities. Research has indicated that too much social networking and gaming can help to develop introverted personalities and also lower social self-confidence. As a vulnerable population, adolescents and youth are heavy users of online communication for entertainment, friendship, and emotional support [19].

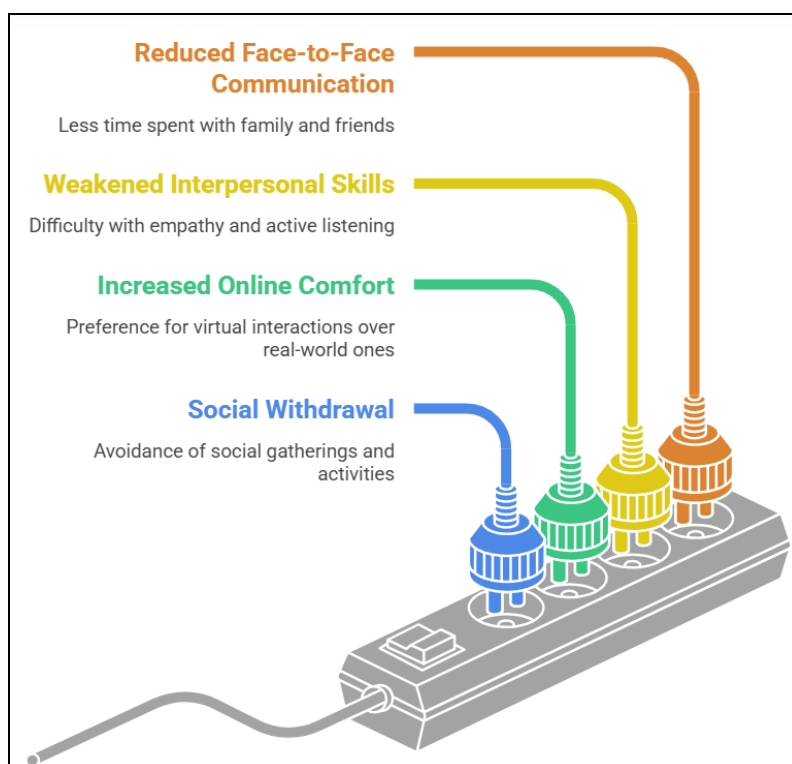


Figure 3 Consequences of Digital Addiction.

Long-term exposure to digital interactions can lead to online dependency – where people feel uneasy, anxious or restless without access to the internet and digital devices. This dependency increases the virtual interaction and reduces the offline interaction and social bonding. Relationship problems within the family, between partners and friends can also be a cause of digital addiction [20]. When someone uses the smartphone too much during conversations, at dinner, or at social events, it can lead to a lack of emotional connection and feelings of neglect from close relationships. Also, the constant usage of social networks can lead to more misunderstandings, feelings of jealousy and trust issues, especially within the context of relationships. Excessive use of social media is a concern as studies have shown that a greater usage of social media is linked to less relationship satisfaction and poor communication quality [21]. Digital addiction obstructs the bond and unity of the family, leading to a reduction of family time, quality family time and the emotional distance between family members. Social isolation is another critical consequence of Digital Addiction. Digital technologies are designed to increase connectivity; excessive online time and activity can paradoxically foster feelings of loneliness and isolation. Those who spend more time in virtual realities environments might not be getting the real world social support and emotional attachment they need [22]. In accordance with the results obtained from several studies carried out, the members of the higher level of digital addiction group ranked their social well-being lower than the members of the moderate group, and they also thought that they were more socially isolated than the moderate group. However, there are some marked age distinctions in digital behaviours in the research to-date. The older generation may be more motivated to use social media for their work, while young people (adolescents and university students) are more likely to be dependent on and influenced by the media's influence on society [23]. Older adults are less digitally addicted although they need more virtual communication, but may feel socially isolated. The results indicate that digital addiction has a different impact on social behavior in different age groups and a balanced use of digital devices and healthy interpersonal interactions is required [24].

Digital Addiction and Sleep Disorders

Internet addiction is a significant element in sleep disorders among various age groups. Heavy smartphone use and social media, online gaming and internet use in general, especially at night, has been robustly correlated with poor sleep quality and sleep disorders. People with digital device addiction tend to spend a lot of time online, and this can make it difficult for them to get a good night's sleep and rest. Frequent use of electronic devices before sleep

disrupts the body's natural processes and can lead to sleep deficiencies, insomnia, delayed sleep onset and circadian rhythm disruptions [25]. Digital screen exposure is one of the key factors that leads to sleep disorders in digital addiction. Smartphones, tablets, laptops and television screens emit blue wavelength light, a direct impact on the brain's sleep-regulating mechanisms. Excessive exposure to blue light in the evening or night can disrupt the body clock and delay sleepiness. People who use digital devices frequently before sleeping often have problems falling asleep and difficulty staying asleep. Too much exposure to screens also raises the level of mental stimulation and emotional arousal levels, which makes it difficult for the brain to chill out before going to sleep [26]. Another common symptom of digital addiction is sleep deprivation. Many people stay up late to check social media, watch videos online, play games or talk to others on the internet and forgo sleep. Impacts of chronic sleep loss include poor concentration, memory impairment, mood and emotional control, academic achievement and health. Teens and young adults addicted to their phones and computers are showing signs of sleep deprivation and daytime fatigue, decreased productivity and cognitive dysfunction, according to research. In addition, overuse of technology can contribute to sleep disturbances such as falling asleep or staying asleep. Addicted users might experience disruptions to their normal sleep pattern, increase sensitivity to light at night and irregular sleep habits, thereby making it worse [27]. There are also strong links between using digital devices at night and delayed sleep onset and disruption of your circadian rhythm. The body's internal biological clock that controls the sleep-wake cycle is called circadian rhythm. This natural cycle is disrupted by too much screen time, which leads people to oversleep and waking up feeling tired and unrefreshed. Important biologically is one effect, that is melatonin suppression. Melatonin is a hormone, which regulates sleep and induces sleepiness. The concern with exposure to blue light is that it reduces the ability to secrete melatonin, thus delaying the onset of sleep and impairing sleep quality. Furthermore, as shown in table 2 [28] screen exposure at night time stimulates the brain and thus prevents the brain learning to relax and go to sleep. The factors that have a significant impact on sleep disorders using digital devices are excessive screen time, desynchronisation of biological rhythms and unhealthy night time use of digital devices. It is crucial for them to be understood to promote healthy sleep habits and to reduce the negative consequences on the physical and psychological health of digital technology [29].

Table 2: Effects of Digital Addiction on Sleep Disorders and Sleep Quality.

Category	Description	Effects
Digital Addiction & Sleep Disorders [25]	Excessive nighttime use of digital devices	Poor sleep quality, sleep disorders
Blue Light Exposure [26]	Light emitted from smartphones, tablets, and screens	Delayed sleepiness, disturbed biological clock
Sleep Deprivation [27]	Reduced sleep due to prolonged online activities	Fatigue, poor concentration, low productivity
Insomnia [27]	Difficulty initiating or maintaining sleep	Irregular sleep habits, nighttime alertness
Delayed Sleep Onset [28]	Late sleeping caused by nighttime screen exposure	Reduced sleep duration
Circadian Rhythm Disruption [28]	Disturbance of the body's sleep-wake cycle	Tiredness, unhealthy sleep patterns
Melatonin Suppression [28]	Reduced melatonin production due to blue light	Poor sleep quality, delayed sleep
Nighttime Screen Exposure [28]	Continuous digital engagement before bedtime	Cognitive stimulation and emotional arousal
Overall Impact [29]	Combined effects of excessive digital usage	Negative physical and psychological well-being

Digital Addiction and Mental Health

Digital addiction has become a serious psychological problem due to the relationship it shares with a number of mental health problems. Excessive use of a smart phone and social media, online games and applications online have been shown to have a negative impact on emotional health, thinking and psychological balance [30]. Digital technologies offer communication, entertainment and learning benefits, but can have detrimental effects on emotional issues and mental health conditions if used excessively and addictively. There are increasing evidences of digital addiction that is associated with anxiety, depression, stress, emotional instability, attention problem and low self esteem [31]. Anxiety is one of the most often seen psychological effects of digital addiction. People may feel nervous, afraid and stressed by the ever-present need to interact socially and be connected to the internet. Users who are not able to use their smart phone or social networks feel anxious, typically referred to as the fear of missing out (FOMO) [32]. Constantly being notified online and being compared to others via social media and virtual communication can lead to psychological strain and emotional overload. Excessive use of electronic technology has actually been strongly associated with depression, as well. An individual's excessive social media or online activity can lead them to feeling lonely, sad, hopeless and emotionally discontent because they have less social interaction in the real world and more of what they see online compared to what is

actually happening. Longer screen time and problematic internet usage was reported to have a correlation with increased depression symptoms particularly in adolescents and young adult age group as seen in figure 4 [33]. One more side effect of digital addiction is stress. After long-term use of the internet, stress from learning on the internet, gaming competition and information overload can raise the level of psychological stress [34]. Overuse of digital devices may also cause mental fatigue and poor emotional control. An unstable mood is another common symptom that is present in digital addicts: they can experience a change in their mood if they use too much online and be irritated, frustrated and impulsive. In addition, prolonged use of the digital world can cause attention problems and problems in focusing [35]. Alternate between applications, notifications, and internet content may be difficult to focus on and impact academic or occupational results, which may be a result of cognitive control impairment [36]. Low self-esteem is also closely related with digital addiction, especially in social media users. Comparing oneself to others, online bullying and a desire for social validation, which comes from the number of likes and comments given on posts, or a rise in followers during social media can negatively influence self-worth and body image [37]. In fact, digital addiction has been associated with the reward system of the human brain, as the online activities that it engages in (such as gaming, social media scrolling or notification) stimulate the release of dopamine levels [38]. All addictions are reinforced as dopamine chemicals are stimulated again and again over time, and as is the case with other addictions, dependence on the digital platform grows. Excessive digital use patterns are further reinforced by behavioral addiction mechanisms like craving, tolerance, withdrawal symptoms, and loss of control [39]. Over time, they can cause emotional, mental and cognitive imbalances. Hence, an understanding of the psychological and neurobehavioral effects of digital addiction is essential to create and implement interventions for improving digital usage [40].

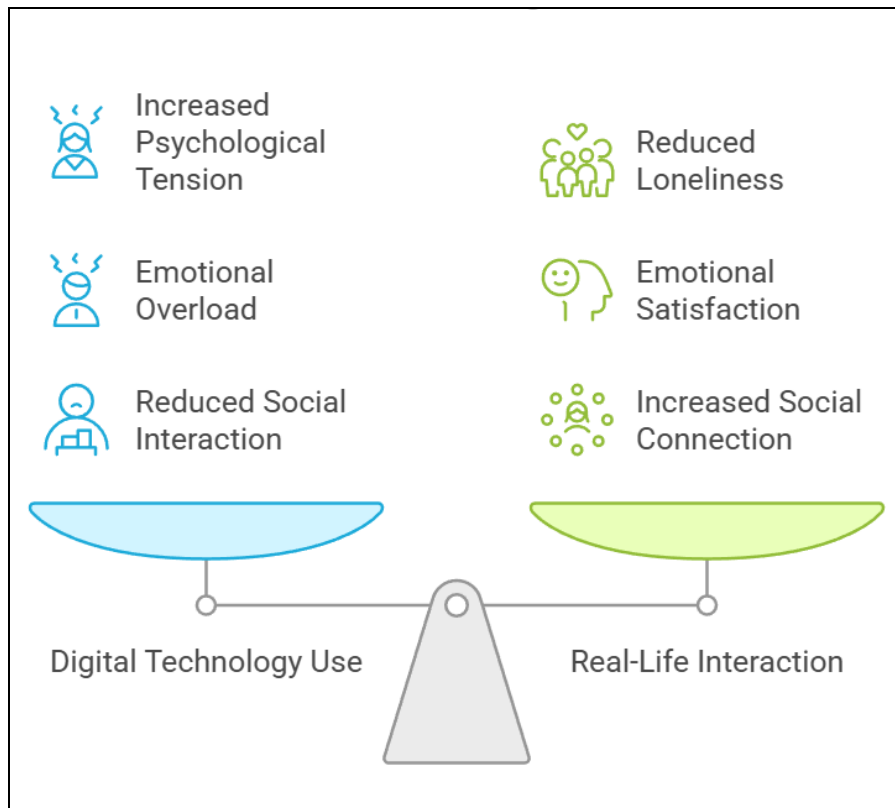


Figure 4 Balancing Digital and Real-Life Interactions for Well-being.

Recommendations

- Schools are required to have digital wellness and screen-time management programs in place to minimise the risk of digital addiction among students.
- Parents and caregivers should help children and young people to develop healthy digital behaviors and habits by encouraging them to interact offline, be physically active, and get a good night's sleep.
- Mental health practitioners should establish screening and intervention protocols for people who exhibit mental health symptoms and signs of digital addiction.
- Governments and health agencies should encourage people to be aware of the negative psychosocial impacts of excessive use of digital technology.
- Future studies should be conducted in a longitudinal and cross-cultural manner, in order to gain deeper insights into the long-term psychological and behavioral outcomes of digital addiction.

CONCLUSION

Digital technology is now a part of everyday life, and it has many applications which benefit communication, education, entertainment and information exchange. Digital device and

online platform use, however, has become a digital addiction, and the overuse and misuse of these devices and platforms are problematic for psychological and social health. This review shows strong associations with negative impacts of social behavior, sleep quality, and mental health. Overuse of smartphones, social media, Internet and gaming activities may lead to decreased face-to-face interaction, social isolation, and interpersonal relationships. In addition, excessive screen time and screen use at night lead to sleep disturbances, insomnia, delayed sleep onset, and disturbed sleep patterns. The review also reveals that digital addiction has a significant impact on the mental health, including anxiety, depression, stress, emotional instability, attention problems, low self-confidence, etc. The brain is responsible for the mechanisms that foster compulsive digital use and emotional relationships with online platforms, such as dopamine pathways that produce rewards and addictive behaviors. The psychosocial impacts appear particularly harmful with adolescents and young adults, who are more reliant on digital technologies for communication, entertainment and social validation. Finally, the results highlight the need for the responsible and balanced use of digital technology to ensure good psychological health and a healthier lifestyle. To combat the negative effects of digital addiction, there are several key elements of public awareness campaigns, parental supervision, digital literacy education, and mental health treatment. Further studies are needed to examine the long-term effects of excessive digital engagement, as well as to provide effective prevention and intervention strategies, through longitudinal and cross-cultural studies. Good digital practices and using technology mindful can assist individuals in maintaining a balanced approach to technology and social and emotional health.

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