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Digital game and technology addiction in early childhood

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Abstract

Digital addiction in early childhood refers to the excessive and compulsive use of digital devices such as smartphones, tablets, computers, and video games by young children, leading to negative consequences on their physical, cognitive, social, and emotional development. This phenomenon has become a growing concern due to the widespread availability and accessibility of digital technology. Children exposed to digital devices at a young age are susceptible to addiction as they may become engrossed in screens for extended periods, leading to a lack of engagement in other essential activities like physical play, social interactions, and educational pursuits. Excessive screen time can adversely impact a child's attention span, cognitive development, and learning abilities. Parents and caregivers play a crucial role in mitigating digital addiction by setting limits on screen time, providing alternative activities, and establishing healthy technology use habits. Educational institutions and policymakers also have a responsibility to promote digital literacy and create guidelines for appropriate technology use in early childhood settings.

Keywords: digital addiction, digital game addiction, early childhood.

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INTRODUCTION

The discussion concerning young children's early use of digital technologies originated in the 1980s. Initially, this debate focused on the notion that the use of digital technologies had adverse effects on the physical, cognitive, and social development of children. These discussions focus on the negative effects of this technology due to reasons such as diminishing children's physical activity, not promoting motor development as it involves only mouse usage, lacking verbal interaction, and failing to provide multisensory experiences and Replacing children's non-screen-based natural games (Cordes & Miller, 2000; Haugland, 2000; Healy, 2000; Hohmann, 1998).

Today young children are exposed to diverse digital experiences from an early age, engaging with a wide range of information and communication technologies that have become readily accessible within their homes thanks to the swift progress of technology (Holloway, Green, & Livingstone, 2013; Marsh, 2010). Children exposed to a range of digital devices like TVs, computers, tablets, and phones from a young age and raised in a tech-savvy environment tend to develop alongside these technologies (Kol, 2017). The increase in technological usage among children in the early childhood period is also highlighted in statistics from various studies. Based on a report by the OECD (2019), in the United Kingdom, it is indicated that 1% of children aged 3-4 have their own smartphones, 10% have their own tablets, 96% watch an average of 14 hours of television per week, and 36% play digital games. According to a study conducted by the Erikson Institute in the United States (2016), among 1,000 children under the age of 6, it was reported that 85% of the children used some form of technological device, 78% watched television, 53% used tablets, 42% used smartphones, and 32% used computers. The report from the comprehensive study on children and play conducted by Marsh et al. (2020) in the United Kingdom and South Africa is noteworthy. The study included 2,429 children aged 3-11 from the United Kingdom and 1,286 from South Africa. In the United Kingdom, 94% of the children had access to tablets, 84% to smartphones, 48% to smart speakers like Amazon Echo, Apple HomePod, or Google Home, 28% to wearable technologies, 17% to virtual reality equipment, and 15% to smart toys. In contrast, children in South Africa had less access, with 34% having access to tablets, 41% to smartphones, and only 10% having wearable technology or smart toys. Another study conducted by Tena et al. (2019) in Spain which included 412 children aged 0-6, revealed that these children dedicate an average of 92 minutes daily to TV viewing. Furthermore, 92% of them possess a tablet and allocate an average of 60 minutes each day for computer or tablet usage.

The statistics provided by the Turkish Statistical Institute in their reports on the use of information technology by children aged 6-15 in 2013 and 2021 also draw attention to the rapid increase in technology usage among children. According to these reports, the internet usage rate for children aged 6-15 was 50.8% in 2013, but it increased to 82.7% in 2021. It was observed that children in the 6-15 age group spend approximately 3 hours a day on social media. Among children aged 6-15 who reported regularly playing digital games, 96.2% of boys and 91.8% of girls engaged in this activity. Regarding the types of digital games played, among those who reported playing digital games regularly in the 6-15 age group, 54.3% mentioned playing war games, followed by adventure/action games at 52.0%, strategy games at 41.8%, simulation games at 27.5%, and sports games at 26.5%. Role-playing games were the least played, with only 19.1% of children in this age group participating in them. Another study conducted by Merdin & Şahin in Turkey (2023), which included 412 children aged 0-6, revealed that 85% of the children started watching television before the age of two, 30% played computer games, 75% watched videos on tablets and smartphones, 58% played games on tablets and smartphones, and 60% could use tablets and smartphones on their own.
The growing involvement of young children with technology remains a subject of continuous attention, often raising both curiosity and apprehension, given the widespread presence of technology in their lives. Debates regarding the advantages and potential risks of digital technology in children's daily routines have been a prominent topic of discussion, both in

anecdotal conversations and research, for more than a decade. Touchscreen devices have emerged as a prominent means of engaging and entertaining children (Johnston, 2021).
Concerns regarding children's utilization of digital technology have been exacerbated by the influence of COVID-19 and the resulting alterations in societal norms. A study conducted by Koran et al. (2022) indicates that during the pandemic, there was an increase in the use of mobile technology devices among children in the early childhood period. The research compared the technology usage of children aged 3-6 before and after the pandemic. The findings show a significant increase in the usage of these devices by these children compared to the period before the pandemic. In the study conducted by Mesce et al. (2022), it is also mentioned that technology usage among children and adolescents increased during the pandemic. Similarly, in the research conducted by Limone & Toto (2021), it is emphasized that there was a 15% increase in technology usage among children and adolescents during the pandemic, with a remarkable 61% increase in smartphone usage. These results suggest that the pandemic may have had an enhancing effect on children's access to and use of technology. These findings indicate that the pandemic has been an important factor that has affected children's lives and altered their technology usage habits. In the literature, while the increasing use of technology by children is considered a danger, some studies also highlight the contributions of technology use to children's development. According to a study conducted by Ilgar and Karakurt (2018), 57% of the participating mothers believe that increased technology use supports their children's development, and 71% think it enhances hand-eye coordination. Studies emphasizing the positive contributions of developmentally appropriate technology use to children's learning also hold a significant place in the literature (Blackwell, 2013; Blackwell et al., 2014). In these studies, technology use is particularly noted to contribute to children's literacy skills (Plowman et al., 2011) and motivation (Lindahl & Folkesson, 2010). Additionally, it is mentioned that technology use can facilitate the development of social skills through collaboration (Alper, 2011) and support children with special needs (Starks & Reich, 2023).

In the literature, the risks (Livingstone & Smith, 2014) and contributions (Blackwell, 2013, Alper, 2011) of children's technology use are widely discussed. However, it is emphasized that in early childhood, digital technologies should be used in a manner that supports children's development by promoting appropriate learning, fostering collaborative problem-solving, and incorporating play-based and inquiry-based approaches (Rosen & Jaruszewicz, 2009). In this study, the risks associated with technology use in early childhood will be examined within the scope of digital game and digital technology addiction. In this context, the definitions of digital game and technology addiction will be provided, and the study will discuss the consequences of these variables on children's development. The purpose of this study is to promote awareness about the potential risks associated with the use of digital technology during early childhood. It aims to provide an understanding of the mechanisms that lead to addiction to digital games and technology among children, and highlights the negative impact that inappropriate use of technology can have on their development.

Definition of Digital Game and Technology Addiction

During the early stages of childhood, there is a significant period of rapid growth in fundamental cognitive, physical, and social abilities. Children in this developmental phase engage in exploration through play, develop their social interaction capabilities, and gain valuable learning experiences by tapping into their imagination. Consequently, play is widely recognized as an essential component of a child's daily routine (Madej, 2016). For centuries, conventional games have served as both sources of amusement and educational tools for children. Nonetheless, the swift progression of technology in recent times has transformed the way children engage in play. This shift, known as digital play, has now firmly established itself as a significant aspect of children's daily routines and is increasingly becoming a preferred choice for their recreational activities (Fang et al., 2021; Rajić & Tasevska, 2019).

Children are being exposed to digital games at increasingly younger ages, thanks to the prevalence of technological devices like computers, tablets, and smartphones. This widespread adoption of technology has given rise to terms such as technological play, modern play, and digital gaming (Marsh, et al., 2016). Fleer (2018) points out that the notion of digital play has emerged relatively recently and highlights the absence of a unanimous consensus regarding its definition. In its most general definition, digital game refers to the use of technological tools for the purpose of playing games (Marsh, et al., 2016). Digital play encompasses activities such as playing digital games and apps, watching videos, creating content, and capturing images. This emerging mode of play has gained popularity as a cultural context among young children Also digital technology usage encompasses the time spent on any electronic device equipped with a screen, including computers, tablets, televisions, gaming consoles, and mobile phones (Lee et al.,2014). There are four types of digital games: console games, desktop games, online games, and mobile games (Digital Game Report, 2020). During the preschool period, children prefer digital games mainly because they find them entertaining, interesting, and colourful (Genç, 2014; Toran et al., 2016)

Children find digital games more engaging than non-digital games due to their inclusion of sounds and visual effects. In this context, children spending extended periods of time with digital games brings the concept of digital gaming addiction to the forefront (Lee & Morgan, 2018). Besides digital games, it's also essential to consider children's recreational use of these technologies. It's noted that children in the 0-6 age range frequently use these devices for playing games and watching videos for entertainment purposes (Yıldız ve Kanak, 2021). Especially during the COVID-19 pandemic, there has been a noticeable increase in children's recreational use of technology (Aguilar-Farias et al., 2021). At this point, technology has become an integral part of human life and the increasing duration of its usage has brought the concept of technology addiction to the forefront (Karadağ & Kılıç, 2019).

Digital game and technology addiction are two terms that have been increasingly used in recent years, especially among younger generations (Hazar & Hazar, 2017). Digital game addiction is defined as excessive and uncontrollable use that leads to social and emotional problems in a person's life, causing disruptions in their daily activities (Lemmens et al., 2009). Technology addiction refers to the excessive use of technology that leads to negative consequences, such as impaired social skills, reduced physical activity, and decreased academic performance (Alter, 2017). The inability of individuals to use digital tools appropriately and in moderation gives rise to technological addiction, digital game addiction, social media addiction, internet addiction, and digital addiction, all of which result from the interaction between the individual and digital devices (Budak & Işıkoğlu, 2022).

Digital Game and Technology Addiction in Early Childhood

The deficiency of the self-regulation mechanism present in adults within children may contribute to a heightened occurrence of digital technology and gaming addiction in youngsters. This occurs because children are capable of watching videos and playing digital games for extended periods with parental consent (Alter, 2017). Hence, the initial stage in the emergence of digital addiction during early childhood occurs when parents start entrusting their childcare duties to technology and begin relying on technological devices as caregivers (Karateke, 2020).

Karateke (2020) emphasizes that technology addiction begins during infancy due to the behaviors exhibited by parents while managing situations where they encounter difficulties in caring for the baby and need to establish control. At this point, the transition to supplemental food becomes the primary focus. Many parents face difficulties when transitioning their children to supplementary food. In order to control this situation and encourage their children to eat, they often resort to using various forms of digital media such as smartphones, tablets, and televisions. They may use videos and games as a means of making mealtime more appealing

and engaging for their children. Apart from using technological tools during the transition to supplementary food, parents can also use them as an emotion regulator to calm their children when they are cranky or anxious, for example, during visits to the doctor or guests. It has become common to rely on videos and digital games to calm infants and children in negative situations, but this practice can actually hinder the development of their emotion regulation skills. Moreover, it places the responsibility of calming their children solely on technological tools, rather than on parents gaining the necessary skills to do so (Karateke, 2020).

Important organizations, both national and international, provide recommendations for the use of digital technologies from infancy through early childhood. These recommendations are crucial and should be taken into consideration. The Green Crescent, a part of the Turkish Anti-Addiction Education Program, recommends limiting screen time for young children. They suggest that children aged between 0 to 3 years should avoid screens as much as possible. For those aged between 3 to 5 years, the recommended screen time should be limited to a maximum of 20 to 30 minutes (Yeşilay, 2021). The American Psychological Association (APA) released the "Digital Guidelines: Promoting Healthy Technology Use for Children" in 2019. The guidelines state that children aged 0-18 months should not be exposed to screens except for video chatting. For infants between 18-24 months, only qualified digital content should be used, and parents should watch this content with their children. In children aged 2-5 years, screen time should not exceed one hour per day, with only high-quality content (APA, 2019).

However, research conducted in our country, as well as in other countries, has revealed that infants are already starting to use screens. Children aged 0-6 now have their own digital devices and spend long hours using them, which is not conducive to their development. It is worth noting that most of the content children consume on their digital devices is purely for entertainment, such as watching videos and playing games. (EI, 2016; Marsh et al., 2020; Merdin & Şahin, 2023; OECD, 2019; Tena et al., 2019). It's crucial to pay attention to the latest research that indicates a continuous surge in screen usage time (Byrne et al., 2021; Veldman et al., 2023). This increased use of screens has raised concerns among medical experts, researchers, and educators regarding the timing and consequences of screen time (Bustamante et al., 2023). The increased use of digital technologies in early childhood is a major risk factor for the development of digital technology addiction and behavioral problems such as depression and aggression in children (Wu et al., 2014). Digital gaming and technology addiction are closely related concepts, especially when it comes to young children's use of digital tools. It's crucial to understand how addiction symptoms manifest in this context. Lemmens et al. (2009) identified seven symptoms of digital game addiction, which are listed in table 1 below.

Table 1. Digital Game Addiction Addiction Criteria

Digital Game Addiction Addiction Criteria	**Symptoms**
Salience	The game starts to direct thoughts (worry, anxiety), emotions (desire, craving) and behavior (excessive consumption)
Tolerance	Increasing frequency and time spent playing games in direct proportion
Modd Modification	Turning the game into a means of entertainment in order to get rid of personal problems
Withdrawal	Sudden reactions such as moodiness and irritability.
Relapse	Increase in the desire to play repeatedly to an uncontrollable size
Conflict	Conflict with the environment, lying in order to continue playing
Problems	Problems in school and social life

In the addiction process, the games played by the child first start to direct the child's thoughts, behaviors and emotions. As time passes, children are increasingly drawn towards digital

games and tools, resulting in a gradual increase in screen time. The use of digital tools and games to regulate emotions and reduce personal distress is also a sign of addiction. The continuous desire of a child to play games and the inability to control it can lead to symptoms such as mood swings, irritability, and anger over time. These symptoms may occur when the child is unable to access digital tools or when the digital game suddenly stops or gets interrupted. Children who are addicted to digital tools and games often face a conflict with their environment. This can lead to lying in order to access digital games, which can cause problems both in the child's school and social life. In this context, Firstly we will address the variables that cause digital addiction in early childhood and then focus on the developmental consequences of digital technology and game addiction (Lemmens, 2009).

Understanding the Reasons behind Technology and Digital Game Addiction in Young Children.

In today's digital age, it's not uncommon for young children to get hooked on games and technology. However, excessive use of digital devices can lead to addiction and negatively impact a child's development (İlvan ve Ceylan, 2023). Young children have a higher risk of developing a digital addiction due to their incomplete mental development. This risk is further increased by the frequent use of digital devices from infancy and the use of these devices as a pacifier by parents (Karateke, 2020; Park & Park, 2014).

It's crucial to understand the causes of digital game and technology addiction in early childhood, which can include factors such as easy access to devices, lack of parental supervision, and the instant gratification that these technologies provide (Zahariades, 2018). Some studies have stated that technology addiction may be related to an individual's personality traits (Hussain, & Pontes, 2018). However, given that the self-regulation skills found in adults in early childhood are not yet developed in children, and that children can use digital tools with their parents' permission (Alter, 2018), the factors influencing digital addiction are discussed in the context of family and child-related factors. In Park & Park's (2014) conceptual model of smartphone addiction in early childhood, the antecedents of addiction are analyzed under two headings as child and family-related antecedents. Factors related to the family were parental education level, age, income, employment status of both parents and attitudes towards and use of smartphones. Child-related factors were age, gender, siblings, and participation in early childhood education (Park & Park, 2014).

Parents' low level of education increases the likelihood of problematic technology use by children. Because the educational level of parents decreases, their awareness of smartphone addiction also decreases. Parents with low education levels have a high tendency to give smartphones to their children. This leads to an increase in children's smartphone addiction rates (Park & Park, 2014). According to the research carried out by Merdin and Şahin (2023), it was found that parents possessing advanced levels of education tend to be more involved in managing their children's electronic media usage.

Also, parents' low level of income increases the likelihood of problematic technology use by children. Families with limited financial means might have a lower incidence of smartphone addiction among their children, as they may not be able to afford expensive smartphones. It is important to note that families with low-income may face various limitations that can affect their children's development. Due to the lack of resources and access to different activities, parents with low-income levels may find it easier to allow their children to use smartphones more frequently (Park & Park, 2014). However, some studies show that parents with higher incomes tend to allow their children more freedom in using digital tools and direct them towards digital technologies more frequently (Güzen, 2021).

A systematic analysis was conducted by Veldman et al. (2023) on research focusing on factors associated with screen time in children aged 0-5 years. The findings indicate that the presence

of electronic devices in children's bedrooms is linked to increased screen time. Furthermore, the study suggests a negative correlation between family income and parental education level with children's screen time. Additionally, it was observed that higher parental self-efficacy in regulating screen time is associated with reduced screen time in children. Yalçın et al. (2022) discovered that video game participation is more prevalent among older children, males, families with lower parental education levels, households with three or more children, households equipped with game consoles, computers, and tablets, children with daily screen time exceeding two hours, those who do not comply with parental screen time regulations, and households with other individuals who play video games. Many parents allow their young children to use electronic devices like mobile phones, tablets, and computers, thinking it will make them calm and obedient. However, this decision is often based on a lack of awareness and unfounded concerns (Hilčenko & Jakovljević, 2019).

The study findings from Keya et al. (2020) indicate that strained parent-child relationships and parental tendencies to push their children to excel academically, alongside parental neglect, the child's feelings of loneliness and anxiety, and permissive parenting, are linked to the development of digital game addiction in children. According to a study conducted by Süral (2022), children's digital addiction can be caused by negative role modeling, indifference, lack of guidance, and free parenting behaviors of their parents. The study also highlights that the increasing digitalization of the world, the pandemic process, and problems in urbanization are environmental factors that contribute to the development of digital addiction in children.

In some studies, children's digital game and technology addiction is addressed in the context of parent-child relationships. According to Hazar (2019), children are more likely to develop digital game addiction if their parents play digital games and have weak parent-child relationships. Similarly, Chang and Kim (2020) suggested that low family closeness is a strong predictor of children's addiction to digital games. On the other hand, Choo et al. (2015) found that strong relationships between parents and children help reduce such addiction. Ilvan and Ceylan (2023) conducted a study that examined the correlation between digital game addiction and the relationship between mothers and their children, as well as mothers' usage of digital devices. The study concluded that negative mother-child relationships and mothers' usage of digital devices were significant predictors of children's digital game addiction.

Some studies examine parents' guidance strategies and their own use for children's digital gaming and technology use. Güzen (2021) conducted a study on digital parenting and found that fathers tend to give their children more freedom when it comes to technology use than mothers. Additionally, fathers prefer strategies that encourage their children to use digital tools more often. Moreover, it has been found that allowing children unrestricted access to digital tools and encouraging them to use such tools can significantly increase the risk of digital game addiction in children. This situation is a major predictor of digital game addiction (Güzen, 2021). Şenol et al. (2023) conducted research that found that active parenting strategies can reduce children's tendencies towards digital game addiction, while strategies that involve directing and releasing children to play digital games can actually increase their tendencies towards addiction. In a study conducted by Maddox (2023), a significant correlation was found between children's screen time and the media they consume at home with their parents. Accordingly, it is stated that parents' media habits and behaviors can significantly affect and shape children's screen time. According to Wu et al. (2014), a restrictive parenting approach toward children's digital technology usage has been identified as significantly effective in managing and controlling their screen time. During the pandemic, children have been spending more time with digital tools which has led to an increase in their tendency towards digital game addiction (Güzen, 2021). As for digital parenting, it has been observed that parents are now more likely to use free guidance strategies to direct their children towards digital tools (Güzen, 2021). At the same time, when both parents work, children tend to spend more time in front of screens. This is because the child is left alone more often and the amount of time parents allocate to their child is more limited (Park & Park, 2014).

Child-related factors affecting digital addiction include the child's age, gender, number of siblings, and whether the child attends early childhood education institutions. The less developed the mental faculties are in younger children, the easier it is for them to become deeply engrossed, increasing the likelihood of digital addiction (Park & Park, 2014). When it comes to gender differences, studies suggest that boys may be more prone to digital addiction. The reason for this could be that boys are generally more curious about experimenting with digital devices than girls, and they also tend to have lower levels of self-control than girls. (Park & Park, 2014). Research has shown that parents may be more restrictive when it comes to their daughters' use of digital tools. This is because boys tend to spend more time with these tools than girls, as concluded by studies conducted by Işıkoğlu et al. (2021) and Küçük & Çakır (2020). Additionally, boys are more likely to develop a digital game addiction compared to girls, as found by Budak and Işıkoğlu (2023). Children without siblings or with fewer siblings may be more prone to higher levels of digital addiction due to their increased likelihood of spending more time alone, as compared to children with more siblings with whom they can interact. This may be a reflection of children spending time alone with digital devices and a lack of social interaction (Leung, 2007). Moreover, when children participate in educational settings such as preschool or kindergarten, they are guided by teachers and have more opportunities to interact with their peers, which in turn reduces the likelihood of developing a digital addiction. In contrast, children who do not attend any preschool or kindergarten often spend more time alone at home, which can potentially increase the risk of digital addiction due to a lack of parental resources (Park & Park, 2014).

Developmental Consequences of Digital Technology and Game Addiction

Digital technology and game addiction have become a growing concern in recent years due to their potential developmental consequences. Children and young adults who spend excessive amounts of time on their devices can experience negative effects on their cognitive, emotional, social and physical development. Excessive reliance on technology, viewed as a societal health concern by educators and parents, induces anxiety and stress in children. This dependency may result in heightened introversion, diminished self-esteem, and an elevated risk of social isolation. Research indicates that children often experience feelings of anxiety, helplessness, and frustration upon disengaging from digital devices (Celebi, 2023).

In recent years, numerous studies have been conducted on the correlation between digital game and technology addiction and the social and emotional well-being of children. According to Akaroğlu (2022), children who are addicted to digital games tend to have poor social-emotional health. Similarly, Durmaz (2023) suggests that digital addiction is linked to lower levels of social skills in children. Budak's (2020) research findings indicate that as children's digital game addiction increases, their social competence decreases and negative social behaviors increase. In addition, Ilgar and Karakurt's (2018) study, which includes mothers' views on the impact of digital game addiction on their children's development and behavior, highlights that digital game addiction leads to a disconnection from real life and negative influences on behavior. Research indicates a correlation between high levels of digital game addiction and increased aggression in children (Jeong et al., 2017; Lee & Morgan, 2018). Excessive and unsupervised engagement in digital gaming can have negative impacts on children's emotional regulation, cognitive patterns and behavior. It can lead to an inability to control play urges and result in aggressive behaviors during everyday activities (Mustafaoğlu & Yasacı, 2018). Furthermore, children tend to incorporate the content they see in these games into their daily lives and may prefer playing digital games over spending time with their families. As a result, digital technology and game addiction negatively affect children's social-emotional development (Şenol et al., 2023). It is crucial to recognize this connection and take steps to prevent the potential negative effects that can arise from prolonged exposure to digital games. Another developmental area where the effects of digital addiction are examined in research is cognitive development. It is predicted that digital addiction affects the release of dopamine and

serotonin, causing irregularities in the child's brain (Langley, 2020), which may negatively affect the child's cognitive development. According to Endert's (2021) study, children with strong self-control abilities tend to have lower levels of digital addiction. Additionally, the study found that prolonged use of digital tools negatively affects children's academic performance. Similarly, Öndeş and Kılıç (2022) concluded that digital game addiction has an adverse impact on children's math skills. Research has shown that exposing children to digital media at a very young age can have negative effects on their cognitive development and executive functions. According to a study conducted by Barr et al. in 2010, children who started watching TV at the age of one showed negative effects on their cognitive development when they turned four years old. Similarly, Zimmerman and Christakis found in their study that children who started watching TV before the age of three had negative effects on their cognitive development when tested at the age of six to seven. On the other hand, children who started watching TV between the ages of three to five did not seem to have such negative effects.

Excessive use of digital games and technological devices can negatively impact children's physical development. Early childhood digital addiction is linked to sleep problems, and studies have shown that having digital devices in the room where children sleep (Cespedes et al., 2014) or allowing them to sleep with mobile devices (Levenson et al., 2016) can lead to reduced sleep duration and sleep disorders. Digital addiction is a serious concern as it can lead to lifelong obesity. This problem can occur from early childhood, as shown by a study conducted by Cox et al. in 2012. Fullerton et al. (2014) found that digital game addiction is linked to a sedentary lifestyle. Furthermore, the habit of eating in front of a screen during prolonged screen time reduces physical activity among children and increases their calorie intake, thus posing a significant risk of obesity. It has been reported that excessive use of digital devices from a young age can lead to vision problems such as myopia in children (Langley, 2020). Additionally, prolonged exposure to technology during childhood can result in musculoskeletal disorders. Research suggests that digital game addiction is linked to cardiovascular health issues, as well as an increased risk for conditions such as diabetes, cancer, and cardiovascular diseases in later stages of life (Çelik & Bektaş, 2023).

Conclusion and Implications

As a result, early childhood authorities suggest that technology use before the age of 2 isn't conducive to children's development. It's advisable for children, even at later ages, to engage actively with high-quality content under parental guidance for no more than an hour a day. During infancy, when parents rely on technology to soothe their children, it can foster digital dependency, potentially leading to excessive technology use in the future. This overuse of digital tools and games during early childhood may result in addiction and hinder a child's healthy development. It can reduce their social interaction skills, decrease physical activity levels, and cause distractions. This addiction can affect the emotional and mental health of children, disrupt their sleep patterns, and negatively affect their school performance. Therefore, it is crucial for parents and caregivers to be mindful of balanced and controlled use of digital technology from an early age to ensure healthy growth and development of children.

National and international organizations recommend limited screen time for young children. The Green Crescent and the American Psychological Association both suggest avoiding screens for children under 2 years old and limiting screen time to 1 hour per day for those aged 2-5 years. In this context, parents can use technology in line with their children's development by following these suggestions:

1- Setting Limits: Establish clear boundaries and rules for technology use based on your child's age and maturity level. Define specific time limits and guidelines for device use, ensuring they do not exceed healthy limits.

2- Content Control: Choose age-appropriate and educational content for your child. Focus on interactive and educational apps, games, and content that align with your family values and interests.
3- Interactive Engagement: Encourage your child to engage interactively with technology rather than passively consuming content. Encourage activities that promote problem-solving skills, creativity, and critical thinking.
4- Activities: Participate in technology-based activities together as a family. Play educational games, watch informative videos, or explore creative apps collectively, fostering bonding and shared experiences.
5- Be a Role Model: Demonstrate balanced and responsible technology use yourself. Your behavior serves as an example for your child, so exhibit healthy tech habits and limit your screen time.
6- Open Communication: Maintain an open and ongoing dialogue about technology use with your child. Educate them about both the positive and negative aspects of technology and encourage them to ask questions and share concerns.
7- Safety and Privacy: Teach your child about online safety, including issues related to privacy, cyberbullying, and appropriate online behavior. Monitor their online activities and ensure they understand the importance of safeguarding personal information.
8- Monitor and Supervise: Keep an eye on your child's technology use, especially for younger children. Be aware of the content they are accessing and the amount of time spent online.
9- Encourage Balance: Emphasize the importance of a balanced lifestyle that includes various activities such as outdoor play, reading, social interactions, and creative pursuits, alongside technology use.
10- Stay Informed: Stay updated on technological advancements, trends, and potential risks associated with different platforms and devices to make informed decisions about your child's technology use.
11- By following these recommendations, parents can help their children utilize technology in ways that support their development, learning, and overall well-being while mitigating potential negative effects. Adjusting these recommendations according to your child's individual needs and interests is crucial for effective guidance.

Statement of Researcher

Researcher's contribution rate statement: Since the study has a single author, the entire contribution belongs to the author.

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