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Childhood Screen Time and Child Development

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Abstract

A significant increase in technology in the recent decades has influenced the use of media as a common daily consumption of time. With an increase in new forms of media, children are viewing screens at younger and younger ages. This paper is a literature review of the effects of screen time on child development during childhood years. Results show major negative effects on emotional, cognitive, and social development when children experience excessive screen time. Although research has found screen time to negatively affect children's development, a mindful approach to screen time is a positive method that has shown to reduce these negative effects.

Childhood Screen Time and Child Development

Screen time has become an omnipresent existence in the lives of children (Napier, 2014; Neophytou et al., 2021). The significant increase of electronic media over the past 60 years has created a digital world that is part of everyday life (Hastie, 2022; Neophytou et al., 2021). With the increase of new forms of media and the development of society, most children will spend sev-

eral hours a day engrossed in media and technology (Napier, 2014; Scairpon, 2021; Skalicka et al., 2019).

Screen time refers to any time spent viewing content displayed on a device including televisions, computers, gaming consoles, smartphones, and tablets (Napier, 2014; Skalicka et al., 2019). With this in mind, the increased development of several forms of media and technology are why children's screen time is higher than any other previous generation (Hastie, 2022; Scairpon, 2021). Parents and health professionals have raised concerns about the increased amount of screen time and its potential effects on children's overall health and development (Hastie, 2022; Skalicka et al., 2019).

Research on screen time and its impact on child development has discovered problematic outcomes including decreased emotional regulation, increased attention deficit symptoms, decreased parent-child interaction, and lower social-emotional understanding (Napier, 2014; Radesky & Christakis, 2016; Scairpon, 2021). However, research also shows that pro-social media and a media action plan are positive utilizations of media that can help counter the negative effects of screen time (Ponti et al., 2017; Radesky & Christakis, 2016). These positive media strategies are helpful

methods for incorporating mindfulness into screen time. Mindfulness can help increase the intentionality of overall media consumption (Hastie, 2022; Ponti et al., 2017). This paper will conduct a literature review describing the effects of screen time during childhood years (from infancy to 12 years of age) on children's emotional, cognitive, and social development, as well as describing how mindful screen time can be utilized to reduce these effects.

Emotional Development

Excessive screen time can greatly affect children's emotional development (Scairpon, 2021; Twenge & Campbell, 2018). Emotional development is necessary for a child's ability to identify and understand feelings and emotions in oneself and in others, which is mainly learned through interactions with others (Coyne et al., 2021; Napier, 2014).

Decreased Emotional Regulation

One of the specific concerns of media use on emotional development is its effect on developing healthy emotional regulation (Coyne et al., 2021; Napier, 2014). Emotional regulation is the ability to respond to and regulate one's own emotions (Scairpon, 2021; Twenge & Campbell, 2018). This includes behaviors such as rethinking a problem to reduce anxiety or anger, being able to stay calm when upset, or engaging in positive

thinking to remain happy (Coyne et al., 2021; Twenge & Campbell, 2018).

One of the major concerns amongst scholars is using media as a constant 'babysitter,' rather than giving children opportunities to interact with parents or guardians. Parents will often give their toddler a mobile device to calm them down when they are crying or throwing a tantrum (Coyne et al., 2021; Radesky & Christakis, 2016). This may temporarily solve the toddler's crying, but research shows that in doing so children develop excessive media habits in response to their negative emotions (Coyne et al., 2021; Radesky & Christakis, 2016).

Excessive media habits are defined by the American Academy of Pediatrics (AAP) according to the number of hours that children at specific ages spend with a screen (see Table 1). Children with excessive media habits are more likely to display decreased emotional regulation (Scairpon, 2021; Twenge & Campbell, 2018). This includes inability to stay calm, increased irritability, and greater difficulty getting along with others (Coyne et al., 2021; Radesky & Christakis, 2016; Scairpon, 2021; Twenge & Campbell, 2018). In other words, constantly using mobile devices to calm down a child may have detrimental long-term effects on the child's

emotional regulation (Coyne et al., 2021; Radesky & Christakis, 2016; Neophytou et al., 2021).

Healthy emotional regulation helps teach children that negative emotions can be tolerated, worked with, and learned from. As children better regulate their emotions, they become more emotionally resilient (Coyne et al., 2021; Neophytou et al., 2021). A lack of emotional regulation in a child can extend to a lack of emotional resiliency in other areas such as facing failure, boredom, or mental health issues (Coyne et al., 2021; Neophytou et al., 2021).

Cognitive Development

Excessive screen time also has adverse effects on children's cognitive development. Cognitive functioning and attentional capacities have been one of the focuses among scholars when discussing the effects of screen time among children (Hastie, 2020; Radesky & Christakis, 2016; Neophytou et al., 2021). This leads to the second major finding of the developmental effects of excessive screen time: increased attention deficit symptoms (Hastie, 2022; Neophytou et al., 2021; Scairpon, 2021).

Attention Deficit Symptoms

Attention-deficit/hyperactivity Disorder [ADHD] is a common neurodevelopmental disorder among children that includes attention difficulty, hyperactivity,

and impulsivity (Scairpon, 2021; Radesky & Christakis, 2016). Many of these symptoms can be associated with media use. Research shows that excessive screen time is correlated with difficulty to follow directions, inability to finish tasks, and difficulty sitting still (Scairpon, 2021; Twenge & Campbell, 2018). Research also finds that higher screen time users are more likely to suffer from poorer sleep quality and decreased executive functioning, which are common attention deficit symptoms (Hastie, 2022; Scairpon, 2021; Radesky & Christakis, 2016). The risk for ADHD may be correlated with the stimulating and fast-paced content of media (Coyne et al., 2021; Radesky & Christakis, 2016). Although it is unknown whether rapid shifts in attention from digital stimuli is the direct cause of the attention deficit symptoms, studies found that children show signs of ADHD when exposed to excessive screen time (Coyne et al., 2021; Hastie, 2020; Radesky & Christakis, 2016).

Social Development

The last two major findings are related to the negative effects that excessive screen time has on social development (Napier, 2014; Radesky & Christakis, 2016). excessive screen time is related to decreased parent-child interaction and lower social-emotional understanding which impacts the social development of children (Napier, 2014; Radesky & Christakis, 2016; Skalicka et al., 2019).

Decreased Parent-Child Interaction

One of the concerns raised by health professionals is that increased screen time can reduce opportunities for face-to-face interaction between parent and child (Napier, 2014; Skalicka et al., 2019). Research has shown that noise coming from screens, specifically background TV, is a barrier to parent-child interaction as well as a visual distraction (Napier, 2014; Radesky & Christakis, 2016; Skalicka et al., 2019). This distraction and impediment between parent-child interaction decreases parents' responsiveness to the child, which can hinder the development of a secure attachment in a parent-child relationship (Napier, 2014; Radesky & Christakis, 2016). The distraction of screen media also decreases parent-child play. This is problematic because parent-child play is central to children's social development (Radesky & Christakis, 2016; Skalicka et al., 2019). Play is a prime opportunity for enriched social interaction and experiences between parent and child that is lost when screens take over (Napier, 2014; Radesky & Christakis, 2016). In all, excessive screen time decreases the quantity and quality of parent-child relationships.

Lower Social-Emotional Understanding

Decreased face-to-face interaction while parents and children are using technology relates to lower social-emotional understanding in children (Radesky & Christakis, 2016; Skalicka et al., 2019). Social-emotional understanding is the ability to understand,

predict, and explain emotions and engage in meaningful interactions (Skalicka et al., 2019). The decline in social involvement and parent-child play due to excessive screen time negatively influences a child's social-emotional understanding (Napier, 2014; Radesky & Christakis, 2016; Skalicka et al., 2019). Parent-child play and face-to-face interactions allows children to build social reciprocity and social competence (Radesky & Christakis, 2016; Skalicka et al., 2019). When these two crucial interactions are weakened, it decreases the social-emotional understanding in children, which is primarily learned through parent-child interactions (Radesky & Christakis, 2016; Skalicka et al., 2019). Excessive screen time hinders parent-child interactions necessary for social-emotional development in children.

Mindful Screen Time

This paper has covered the main emotional, cognitive, and social developmental effects of excessive screen time among children. Although the majority of research shows the negative effects of screen time, there are ways to use screen time in positive ways. One of the major strategies for using media in positive ways is incorporating mindfulness. Mindfulness is being aware of, focusing on, and being intentional about the quality and quantity of something that is influencing one's life. In this case, it would be the quality and quantity of media (Hastie, 2022; Ponti et al., 2017). Pro-social media usage and implementing a media action

plan are two ways families can be mindful concerning the time and quality of time spent on screens (Hastie, 2022; Ponti et al., 2017).

Pro-Social Media

One of the ways that screen time can be used positively for children is to watch and interact with pro-social media. Pro-social media is well-designed, age-appropriate media that ensures quality content for young children (Ponti et al., 2017; Radesky & Christakis, 2016). Educational programs, such as *Sesame Street* and *Mister Roger's Neighborhood*, have been correlated with improved emotional development and cognitive learning for children (Ponti et al., 2017; Radesky & Christakis, 2016). These emotional skills include a better understanding of friendship, feelings, and how to treat others along with learning to acquire antiviolent attitudes, empathy, and respect (Ponti et al., 2017; Radesky & Christakis, 2016). The cognitive skills learned in these educational programs include an increased ability to read words, identify colors, and retain information (Ponti et al., 2017; Radesky & Christakis, 2016). Thus, when used appropriately, pro-social media designed for quality content could help counter the negative effects of media on children's emotional and cognitive development.

Media Action Plan

Another mindful method for using screen time in a positive way is to develop and implement a family

media action plan. A family media action plan is when rules are set to limit the amount of screen time and to intentionally select which media is to be consumed by children (Hastie, 2022; Ponti et al., 2017). The AAP released guidelines of recommended usage of screen time among children between ages 0 and 18 (see Table 2). This table can be referred to when developing a media action plan. The purpose of a media action plan is to reduce the negative effects of excessive screen time among children by setting time limits and including pro-social media (Hastie, 2022; Ponti et al., 2017).

A few examples of how families can create a media action plan are to purposely choose the media content together with children and explain why the specific content is or is not being chosen, limit screen time during family routines, such as meals, to give greater opportunities for social learning, and pay attention to messages about gender, body image, violence, and social issues (Hastie, 2022; Ponti et al., 2017). Developing a media action plan can help protect and reinforce family time and is likely to be reviewed periodically to adjust to the growing ages of the children and evolving family circumstances (Hastie, 2022; Ponti et al., 2017). These conversations and social interactions with family friends can have a large positive influence in children's social development as they age (Hastie, 2022; Ponti et al., 2017). Therefore, implementing a media action plan may help counter the negative effects of

excessive screen time through its positive influence on social development.

Conclusion

Excessive screen time among children negatively affects children's emotional, cognitive, and social development (Coyne et al., 2021; Hastie, 2022; Skalicka et al., 2019). Some major findings that demonstrate these outcomes are decreased emotional regulation, attention deficit symptoms, decreased parent-child

interaction, and lower social-emotional understanding (Napier, 2014; Radesky & Christakis, 2016; Scarpone, 2021). Research found that mindful screen time, such as pro-social media and a family media action plan, help reduce and can be a solution to the negative effects of screen time among young children through countering damage to and promoting greater emotional, cognitive and social development (Hastie, 2022; Ponti et al., 2017; Radesky & Christakis, 2016).

Table 1. Effects of excessive screen time on emotional, cognitive, and social development among children 0-18 years (Hastie, 2022).

Screen Time Per Day (Hours)	Age (Years)	Effects on Brain Development and Cognition, Physiological and Psychological Development	Key References
More than 2 hrs (excessive)	0-18	<ul style="list-style-type: none"> • poor Sleep • ADHD related behaviours • risk factors for cardiovascular diseases (high blood pressure, obesity, low HDL cholesterol) • poor stress regulation (high sympathetic arousal and cortisol dysregulation) • Insulin resistance • impaired vision • reduced bone density 	Lissak, 2018
Between 1-5 (excessive)	3-5	<ul style="list-style-type: none"> • lower microstructural integrity of brain white matter tracts • disorganized and underdeveloped tracts in areas that support language and emergent literacy skills, cognition, and executing functions 	Hutton et al., 2019
More than 2 hrs (excessive)	5-13	<ul style="list-style-type: none"> • developmental delay in children • behavioural problems in early adolescence 	Wong et al., 2021
More than 7 hrs (excessive)	9-10	<ul style="list-style-type: none"> • thinning of the cerebral cortex, cell loss or 'atrophy', in the outermost layer of the brain • lower scores on language • lower scores on thinking tests 	World Economic Forum, 2018
More than 2 hrs (excessive)	23	<ul style="list-style-type: none"> • decreased left orbitofrontal grey matter volume after six weeks of daily Internet gaming 	Zaou et al., 2017
More than 2 hrs (excessive)	10-24	<ul style="list-style-type: none"> • heightened symptoms of ADHD • impaired emotional and social intelligence • technology addiction • social isolation • impaired brain development • disrupted sleep 	Small et al., 2020

Table 2. Recommendations on the use of electronic media by children 0-18 years (Hastie, 2022)

Age of child	Recommended use of electronic media
0-18 months	<ul style="list-style-type: none"> • complete avoidance of electronic media
18-24	<ul style="list-style-type: none"> • slow introduction to electronic media
2-5	<ul style="list-style-type: none"> • no more than 2 hours per day of electronic media use
5-19	<ul style="list-style-type: none"> • parents encouraged to establish a family home use plan for all media • schools, policymakers, product advertisers, and entertainment producers advised to recognize the influences of media on children and teenagers.

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