MENTAL HEALTH IMPACTS OF SCREEN USE FOR CHILDREN AND YOUNG PEOPLE DURING COVID-19

Evidence summary

Ontario Centre of Excellence for Child & Youth Mental Health
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For information about this report, contact Dr. Jaime Brown at jbrown@cheo.on.ca.

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At a glance

What did we want to know?

We wanted to learn about the impacts of screen time during the COVID-19 pandemic.

Why did we want to know this?

- We know that the pandemic has changed public life drastically. Social distancing measures have meant that much of children's educational, social and recreational time takes place in front of screens.
- We wanted to summarize research on how screen time use has changed during the pandemic, and to explore ways screen use can be managed.
- By sharing practices suggested by researchers, we hope to help service providers and families reduce the negative mental health impacts of screen use.

What did we learn?

Even before the COVID-19 pandemic, many children and young people were already exceeding guidelines and recommendations for screen time use. We've learned that young people have been spending six or more hours a day on screens during the pandemic. Much of this time is on the internet, typically with a smartphone.

The daily life challenges of the pandemic and its quarantine restrictions have resulted in some people turning to their screens and devices to cope with, or distract from, stressful situations.

While screen time may be used to cope with stress, some research suggests increased levels of screen time are correlated with lower self-reported rates of well-being. Findings point to the ways mental health is influenced by screen time, physical activity and other factors like social support. This suggests that mental health is affected by the interconnection between multiple factors, rather than by each factor individually.

How did we learn this?

We conducted a non-systematic scan of peer-reviewed literature using relevant keywords. A complete list of keywords can be found in the methods section. The scan was conducted in April and May 2021 and focused on studies over the past 12 years published in English in peer-reviewed journals.

The literature we collected explored the effects of screen use on child and youth mental health, along with the impact of the COVID-19 pandemic on children and young people, as well as adults. The documents we reviewed included single studies, directive documents, guidelines, full systematic reviews (or review-derived products such as overviews of systematic reviews) and rapid reviews.

Are there any gaps?

Research in this area often focuses on self-reported well-being, or self-reported symptoms of anxiety and depression. There is little research on the relationship between screen time and clinically diagnosed anxiety and depression or more complex mental health diagnoses.

- Much of the research in this field has findings showing correlation and not causation — "… in other words, evidence suggests there's a relationship between screen use and changes to mental health, not that screen use directly causes changes in mental health.

Method

We set out to understand the impacts of screen use on child and youth mental health during the COVID-19 pandemic.

Scope

To best support decision makers, we aimed to synthesize data in a timely manner. We conducted a rapid, non-systematic scan of peer-reviewed research literature, grey literature and practice guidelines. Titles and abstracts of peer-reviewed articles were screened for inclusion or exclusion. Full articles were then reviewed for relevance and incorporated into this document, and additional articles were gathered from review of references of screened articles. The search results reflect information available as of May 2021.

A keyword search was performed using the following terms or combinations of terms:

Screen use, screen time, screen addiction, children and youth, infants, mental health, depression, anxiety, smartphone, pandemic, social media, sleep, problematic screen time / use, longitudinal, COVID-19.

Data was collected using five electronic databases: PubMed, PsycINFO, Medline, EBSCO and Google Scholar.

Inclusion criteria were as follows:

- research on child and youth mental health and screen use
- research on the COVID-19 pandemic and its impacts on mental health – for children and young people, as well as adults
- published between 2009 and 2021
- available in English
- published through pre-publication services, online or in print by peer-reviewed journals
- available in full-text format
- single studies, directive documents, guidelines, full systematic reviews (or review-derived products such as overviews of systematic reviews) and rapid reviews

State of the literature

The COVID-19 pandemic is ongoing, so published studies related to this topic are limited. We broadened our search criteria beyond children and young people to include adults, so that we could flesh out details related to the pandemic's effect on family and community life. While technology use has spiked in a particularly unique way in the context of the pandemic, the bulk of recent publications on this topic include editorials and statements from healthcare providers, rather than research. To bridge this gap and provide further context, we broadened our search to include research on screen use and its relationship to child and youth mental health prior to 2020–21.

Findings

Defining screen time

This field of research has rapidly shifted from its initial focus on television to encompass a variety of technologies, including computers, tablets and smartphones, used alone or in combination. As screens have become omnipresent with the arrival of smartphones, children at increasingly younger ages are exposed to screens, directly or indirectly, through their families (Lissak, 2018).

Information is limited when it comes to recommendations for daily screen use time for children and young people. In the Canadian 24-hour Movement Guidelines for Early Years, it is suggested that infants have zero hours of daily screen time, and children aged 2 to 4 have one hour or less of daily screen time (Tremblay et al., 2017). Recommended rates for children and young people aged 5 to 17 are only slightly higher, at two hours or less (Tremblay et al., 2011).

These recommendations stand in contrast to rates of actual screen time. Even before the COVID-19 pandemic, children and young people were exceeding daily recommended screen use rates, with studies reporting around 3 to 4 hours of screen use a day (LeBlanc et al., 2015; Trinh, Wong & Faulkner, 2014; Twenge and Campbell, 2018). When it comes to the type of devices being used, smartphones and tablets dominate. One study out of China found 83 percent of young people surveyed were using smartphones or tablets as their main electronic devices, both prior to and during the pandemic (Dong et al., 2020).

The ways screens are used has an impact on health and well-being. Passive watching of screen-based content is more detrimental than active screen use, which is characterized by mental, physical or social engagement through things like playing games, chatting with peers or using a computer to do schoolwork (Kim et al., 2020; Sanders et al., 2019).

Screen time in the pandemic

The COVID-19 pandemic has radically restructured public life worldwide, with physical distancing measures, school and work closures, and municipal shutdowns moving our lives into the private sphere of our homes. Online learning, with children spending their school day in front of a computer screen, has become a norm. Some children learn alongside parents, who are also on screens when working from home. Options to stay connected to friends and family are oriented toward virtual platforms like video calls or social media. Relaxing after a busy day can mean further screen use, through gaming or watching videos.

We know that screen use before the pandemic was already common and exceeded recommended time limits. However, screen use during the pandemic has risen significantly, with research showing young people are spending six or more hours a day on screen

(Alheneidi et al., 2021; Eyimama & Irmak, 2021). Not surprisingly, this is a trend also reflected in adult populations (Siste et al., 2020). Much of this screen use is internet-oriented, and smartphones and tablets are the tools people have been using most frequently to access the internet during the pandemic (Siste et al., 2020).

Screen time as a coping tool

The COVID-19 pandemic presents a time of unprecedented global adversity, trauma and loss. Experiences of adversity are linked with depression and stress (Tortella-Feliu et al., 2019), and studies show that pandemic anxiety and coping with quarantine measures have increased symptoms of depression and anxiety (Brooks et al., 2020; Qiu et al., 2020; Wang et al., 2020). Recreational online use is often a mechanism to cope with anxiety, depression or stress, or to escape reality (Kiraly et al., 2020; Kwon, 2012).

Screen use, anxiety and depression

Research on screen time and its correlations with mental health shows mixed results. Some studies have found little to no association between screen use and mental health concerns in young people (Jensen et al., 2019; Orben, 2019). Interestingly, some evidence shows young people reporting lower anxiety levels when they spend more time texting — a finding that perhaps suggests a correlation between social connection and well-being, rather than screen time itself (George et al., 2017). Texting can also be a preferred method of communication for those who experience anxiety (Pierce, 2009) and increases opportunities to connect with others.

Much of the research in this field is oriented toward self-reported experiences of mental distress, rather than clinical diagnoses. However, one Ontario study notes that adolescents reporting four or more hours of passive screen time per day were three times more likely to meet the criteria[1] for major depressive episode, social phobia and generalized anxiety disorder, compared to those reporting fewer than two hours (Kim et al., 2020).

Some studies show a correlation between rates of screen use and self-reported levels of well-being. One survey of Canadian young people found that adolescents who exceeded screen time guidelines were 30 to 50 percent more likely to rate their mental health sub-optimally than those who met screen time guidelines (Herman et al., 2015). There is also research that shows young people using screens for an hour or less have comparable reports of well-being to those who don't use screens at all (Twenge & Campbell, 2018).

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1 This study drew on data from the 2014 Ontario Child Study and used diagnostic criteria from the DSM-IV-TR. The DSM-IV-TR (published in 2000) is a text revision of the fourth edition of The Diagnostic and Statistical Manual of Mental Disorders, a publication by the American Psychiatric Association for the classification of mental disorders using a common language and standard criteria.

A 2020 study from Toronto's Sick Kids Hospital suggests one hour or less of screen time has no impact on depressive symptoms in young people. However, the amount of screen time matters. The study finds a statistically significant worsening of depression symptoms when screens were used for two to three hours per day, four to five hours per day, six to eight hours per day, or nine hours a day or more (Crosbie, 2020). These findings are consistent with other studies associating negative mental health outcomes with increased screen use (Guerrero et al., 2019, Nigg et al., 2019; Sanders et al., 2019).

These results suggest that level of consumption is the problem, rather than screen use itself. It has also been suggested that there may be a synergistic relationship between screen time and factors like levels of physical activity, where these factors influence mental health in relationship to each other, rather than individually (Hrafnkelsdottir et al., 2018).

Screen use and ADHD

A U.S. study found the amount of time adolescents reported spending online on a given day was associated with their reported same-day symptoms of conduct disorder and attention deficit hyperactivity disorder (ADHD). For conduct disorder, behaviours were associated with internet use, texting and social media use. For those with ADHD, using texting and social media increased symptoms, but using the internet did not (George et al., 2017).

Social media

Many studies cited social media as a main motivator of screen use during the COVID-19 pandemic (Alheneidi et al., 2021; Ellis et al., 2020; Siste, 2020). One study of Canadian young people during the initial pandemic shutdown reported that 48 percent surveyed had spent more than five hours a day on social media since their school had closed, with 12 percent reporting 10 hours a day or more (Ellis et al., 2020).

Social media use is associated with heightened symptoms of depression or anxiety, in part because it can encourage comparison to one's peers and judgement of others. However, it has also been cited as a way for young people to combat loneliness resulting from the pandemic lockdown and to maintain some sense of autonomy or self-exploration (Ellis et al., 2020; Gao et al., 2020; Riehm et al., 2019; Tardif-Grenier et al., 2021). As with research looking at screen use more generally and its relationship with anxiety and depression, some findings suggest social media use is part of a matrix of interconnected factors that impact well-being, rather than having an isolated direct effect on mental health (Coyne et al., 2020).

Harm reduction

As the need for physical distancing measures continues during the pandemic, so does the larger presence of screens in our lives. Turning to a harm reduction approach, rather than one that is abstinence-based, may be more successful in helping caregivers and children cope with problematic screen use. Harm reduction is a "person centred approach that seeks to reduce the health and social harms associated with a particular behavior, without necessarily requiring people from abstaining or stopping that behavior" (Vanderloo et al., 2020, p. 335).

There is a body of research and recommendations for caregivers and children to develop boundaries on internet use collaboratively. This approach focuses on shared family limits on usage, rather than banning screen time outright, and includes caregivers modelling healthy screen usage in front of children (Ellis et al., 2020; Eyimaya & Irmak, 2021; Kiraly et al., 2020; Vanderloo et al., 2020). These practices allow families to create a set of norms and expectations for where and how screen use fits into their daily lives.

- Inconsistency in boundaries — where screen time is used to reward, punish or calm children — can lead to a higher rate of daily screen time (Samaha & Hawi, 2017).
- Caregiver-child co-watching of screen content can buffer the potential negative impacts of screen use on child mental health (Kiraly et al., 2020, Vanderloo et al., 2020).
- Daily routines, focused family time where caregivers and children talk and play together, and good sleep hygiene (keeping a bedtime routine, limiting screens before bed) are ways to orient children away from screens and bolster their sense of security in what continues to be a stressful and uncertain time (Ellis et al., 2020; Eyimaya and Irmak, 2021; Kiraly et al., 2020; Vanderloo et al., 2020).

Discussion

Much of the research in this field is cross-sectional, rather than longitudinal, with findings that show correlation, rather than causation.

Studies regularly rely on self-reported screen time assessments from caregivers or from young people themselves. This type of reporting is subject to error and bias and may not be as accurate as other measurement approaches, such as using an app to track usage in real time.

Research on the impacts of screen use on the mental health of children and young people often focuses on self-reported perceptions of factors like well-being. Symptoms of depression or anxiety are explored in relation to screen use, but there is limited research involving the impacts of screen time on those with formal mental health diagnoses (George et al., 2017; Kim et al., 2020). For younger children, a caregiver's assessment of children's behaviours, such as patience with problem-solving or conflict, is often used as a proxy for well-being (Sanders et al., 2019).

The presence of screens in our lives has changed rapidly in the decades since the arrival of television. Home computers, the internet and smartphones — along with the ability of users to slide seamlessly between devices synched together — have shifted the ways children and young people experience screen time.

Research conducted even a few years ago may not accurately reflect current patterns in using technology. Many studies focus on screen time as a broad, general concept that can reference one or more types of screens. Further research is needed to understand young people's experiences using multiple technologies, often simultaneously, and the impact of that use on their mental health and well-being.

To sum up

- Higher levels of screen use by children and young people have been related to lower levels of self-rated well-being, as well as symptoms of anxiety and depression.
- During the COVID-19 pandemic, rates of screen time for young people have increased drastically beyond recommended rates for all age ranges.
- Social media has been a main aspect of screen use during the pandemic.
- Harm reduction measures — those focusing on strengthening family relationships and setting limits together as a household — can help families, children and young people better manage their screen use, particularly in the heightened stress of the pandemic.

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613-737-2297

613-738-4894

cymh.ca (EN)
smea.ca (FR)

cymhon

@CYMH_ON

CYMHOntario

695 Industrial Avenue, Ottawa Ontario
Canada K1G 0Z1

Ontario Centre of Excellence
for Child & Youth Mental Health
Centre d'excellence de l'Ontario en santé
mentale des enfants et des adolescents