



Is there a Risk of Another Myopia Boom? The Impact of High Screen Time on Covid-19: A Perspective

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Abstract

The review examines the impact of increased digital device usage during the COVID-19 pandemic on myopia and recommends measures to minimize its detrimental effects. Studies on digital device usage, near work, and outdoor time were reviewed, and public health policies on myopia control were presented. Recommendations were made to minimize the pandemic's impact on myopia onset and progression in children.

The study found that increased digital screen time, near work, and limited outdoor activities are associated with the onset and progression of myopia. School closures may be short-lived, but increased access to, adoption of, and dependence on digital devices could have a long-term negative impact on childhood development. Raising awareness among parents, children, and government agencies is crucial to combat entrenched myogenic behaviours during this period.

Introduction

The COVID-19 pandemic has significantly increased the use of digital technology, leading to a growing concern about prolonged screen time. Digital technology is a medium of communication, virtual interactions, and connectedness between people, and social connectedness is essential for mental well-being. The pandemic has imposed digital platforms as the only means for people to maintain socio-emotional connection, influencing how people use digital devices to maintain or avoid social relations. Screen time refers to the amount of time spent on digital devices, including work, leisure, and entertainment activities.

The pandemic has led to a shift from offline to online activities, enabling individuals to remain emotionally connected despite social distancing. However, prolonged screen time has also caused concerns about its impact on physical and mental health. While mindful and regulated use of digital devices is linked to well-being, excessive screen time is associated with negative mental health outcomes such as psychological problems, low emotional stability, and increased risk for depression or anxiety.

Restricted social interactions during the pandemic aggravated the over-use of digital devices for socializing, such as virtual dates, virtual tourism, virtual parties, and family conferences. While screen time may not negatively interfere with well-being, it is essential to monitor it. The unprecedented digital life during the pandemic has also led to increased levels of anxiety, sadness, uncertainty, and negative emotions like irritability and aggression.

A survey recorded a 50-70% increase in internet use during the pandemic, with 50% of the time spent engaging on social media in 2020. It is difficult to determine the healthy versus unhealthy extents of social connectedness over digital media, but the negative effects of digital technology are undeniable.

Despite the boom in digital health technology, digital health and well-being have demanded more attention due to prolonged screen time. This review synthesizes the evidence on the use of digital technology during the COVID-19 pandemic, its impact on health, and recommendations to foster positive health. It also identifies recommended digital habits to optimize screen time and protect against its negative effects. Finally, it introduces a multipronged approach to prevent the adverse effects of prolonged screen time and promote healthy digital habits.

Increased screen time during lock-down and COVID-19.

During the pandemic, research has highlighted the issue of increasing screen time, particularly among children and adults. COVID-19 has exacerbated the use of digital devices, leading to a significant impact on health. Digital device usage increased by 5 hours, causing heavy users to spend up to 17.5 hours per day and non-heavy users an average of 30 hours per week. A Ministry of Human Resource Development study reported 8.8 hours of screen time among younger adults and 5.2 hours among the elderly, raising concerns among these populations. The increase in screen time among children and adolescents was higher than the American Academy of Child and Adolescent Psychiatry's prescribed screen time, while adults' screen time increased between 60-80% from before the pandemic. However, no comparative studies have been conducted to determine exact differences. Additionally, UNICEF's report highlighted gaps and methodological limitations in evidence-based literature supporting the validity and utility of arbitrary screen-time cutoffs in today's digital world.

Increased screen time negatively impacts physical and mental health.

Research has shown the negative impacts of increased screen time on physical and mental health. Problematic screen time is characterized by obsessive, excessive, compulsive, impulsive, and hasty use of digital devices. Children and youth have shown lowered physical activity levels, less outdoor time, higher sedentary behavior, including leisure screen time and more sleep during the coronavirus outbreak. Sudden increases in complaints of irritability without internet connectivity and smartphone use, gambling, inability to concentrate, absenteeism in online educational classes or work due to disturbed sleep cycles, and unavoidable excessive use of smartphones have been reported in the media.

The two crucial negative impacts of screen time on the physical health of children and adolescents are sleep problems and increased risk of myopia. Excessive screen time has adverse health effects in long run, including physical health symptoms like eye strain, sleep disturbance, carpal tunnel syndrome, neck pain, and mental health problems ranging from difficulties in concentration, obsession, to diagnosable mental illnesses such as anxiety, depression, and attention-deficit hyperactivity disorder.

The "iGen" generation of teens, born after 1995, are more likely to experience mental health issues than their millennial predecessors. The mental health impacts of excessive digital use include attention-deficit symptoms, impaired emotional and social intelligence, social isolation, phantom vibration syndrome, and diagnosable mental illnesses such as depression, anxiety, and technology addiction like gaming disorder.

The WHO has highlighted that increased screen time replaces healthy behaviors and habits like physical activity and sleep routine, leading to potentially harmful effects such as reduced sleep or day-night reversal, headaches, neck pain, myopia, digital eye syndrome, and cardiovascular risk factors such as obesity, high blood pressure, and insulin resistance due to increased sedentary time among adults. Studies have found an association between excess screen time and poor mental health among adults.

In conclusion, the perception of individual users and their engagements, rather than just longer duration, makes screen time negative or positive.

Recommendations for reducing screen-time reported in studies.

1. Resort to audio calls to beat screen fatigue as a result of multiple video calls;
2. Use the voice note option on various social media platforms to reduce the screen stare time while typing a message;

3. Actively giving up phone phubbing (the act of snubbing someone you're talking with in person in favour of your phone) and connecting with people around.
4. Proactively be in touch with friends and relatives.
5. Making small talks, checking on people around about their days and ditching the digital devices once in a while can make for a good break and enhance social connections;
6. Use of mobile applications for promoting digital wellbeing. Mobile health apps are becoming increasingly popular to stay socially connected as well as aid mental wellbeing.
7. Healthy and discrete boundaries between the personal and professional temporal spaces is helpful.

Discussion

The COVID-19 pandemic has led to a significant increase in screen time, posing both positive and negative consequences on mental health. While digital technology may have provided a platform for psychological reactions, prolonged use has led to threats to physical and mental health. It is crucial to educate people about digital habits and parental supervision on children's digital habits. The increased use of games among youth is concerning, and digital habits must be balanced with non-connected activities. A three-pronged approach is necessary to promote social connectedness and prevent the negative effects of prolonged screen time. Strategies include immediate, intermediate, and long-term strategies to promote healthy digital habits among communities during the pandemic and beyond.

Immediate Strategy

To reduce excessive screen time and its negative consequences, immediate strategies include generating and synthesizing evidence on screen time across ages in the local context. Rapid implementation of measures is crucial. Promoting healthy digital habits is essential, and public campaigns and a reliable platform for sharing information are crucial. Behavior change communication approaches can educate people on signs of excessive screen time, healthy digital habits, and available screening and treatment services. Partnerships with digital media giants, such as IT and social media companies, can also help promote healthy habits and scrutinize positive use of digital media.

Intermediate Strategy

To combat digital health issues, developing guidelines, screening tools, and treatment protocols for internet addiction, gaming disorder, or online gambling is essential. Educational institutions, corporations, and mental health agencies can ensure the implementation of these guidelines. Establishing strong referrals for managing severe consequences of screen time is crucial. Integrating digital health education into school and university curriculums can include recognizing signs of excessive screen time and risky digital habits, as well as establishing digital health modules in health and medical education.

Long-Term Strategy

The pandemic presents challenges in promoting evidence-informed policy making and legislation, particularly in monitoring digital use patterns and patient privacy. To address these challenges, national health surveys should incorporate screen-time and its consequences. Machine learning and big data analytics can help understand digital screen usage, such as the screenome project (Reeves et al., 2021). This data can inform policy and interventions to address the negative effects of digital devices and devices. Interventions to reduce distress, lifestyle modifications, and diurnal practices can promote positive mental health while reducing screen time. Longitudinal studies can assess digital habits across all ages, their impact on physical and mental health, and the cost-effectiveness of healthy digital habits promotion interventions in low-and-middle-income countries.

Conclusion

Prolonged screen time has been linked to negative effects on mental health, including the spread of COVID-19. While digital technology can provide social connections, excessive use can be harmful in the long run. Promoting healthy digital habits and positive use of technology is crucial to avoid the negative effects of excessive screen time. To address this issue, it is essential to assess and mitigate the impact of COVID-19 on screen-time and prevent potential negative consequences. Individual and systemic action is needed to address the impact of screen time on health, utilizing immediate, short-term, and long-term strategic measures to scrutinize digital use and screen time. Empowering individuals to make scientific-based decisions is crucial to mitigate these negative effects. Building and imbibing healthy digital habits is a promising preventive measure for health in the face of global digitalization.

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