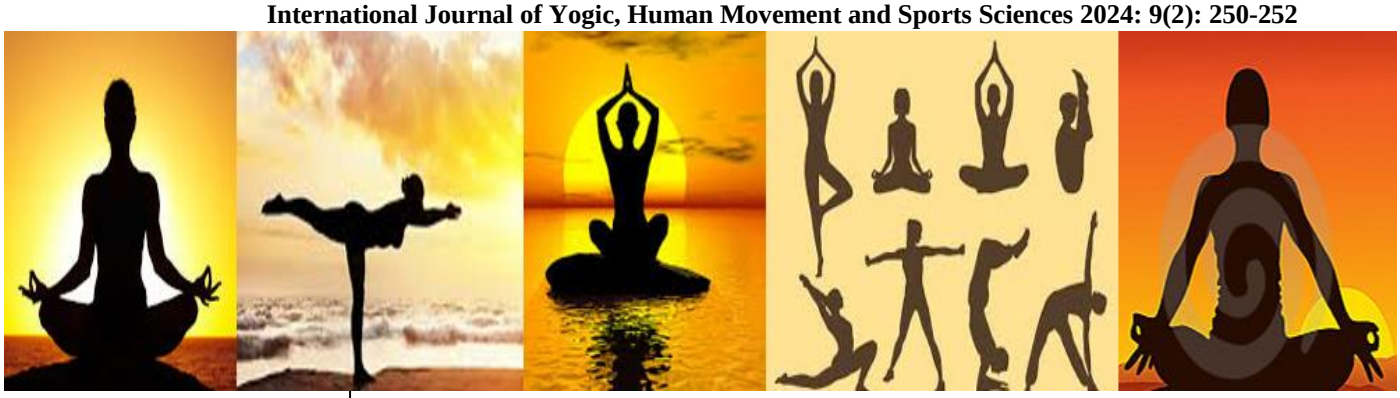
International Journal of Yogic, Human Movement and Sports Sciences 2024: 9(2): 250-252



ISSN: 2456-4419
Impact Factor: (RJIF): 5.18
Yoga 2024; 9(2): 250-252

www.theyogicjournal.com
Received: 19-07-2024
Accepted: 23-08-2024

Mansi George
Ph.D. Scholar, Central University of Haryana, Mahendragarh, Gurugram, Haryana, India

Sandeep Dhull
Assistant Professor, Central University of Haryana, Mahendragarh, Gurugram, Haryana, India

Corresponding Author:
Mansi George
Ph.D. Scholar, Central University of Haryana, Mahendragarh, Gurugram, Haryana, India

The impact of screen time on health-related fitness and cognitive abilities in adolescents: A comprehensive review

Mansi George and Sandeep Dhull

Abstract
The increasing prevalence of screen time in contemporary society has raised concerns regarding its impact on health-related fitness and cognitive abilities, particularly among adolescents. This article synthesizes existing literature to explore the multifaceted relationship between screen time and various health outcomes, including mental health, sleep quality, and physical fitness. The findings underscore the necessity of addressing screen time usage in the context of promoting healthier lifestyles and improving cognitive functioning among young populations.

Keywords: Screen time, adolescents, health-related fitness, cognitive abilities, mental health, sleep quality

Introduction
The proliferation of digital technology has led to an unprecedented rise in screen time across all age groups, particularly among adolescents. This trend has sparked an array of studies investigating the implications of excessive screen exposure on health and well-being. Turner [1] highlights the nuanced correlations between smartphone screen time, anxiety, and sleep quality, while Nihidha [2] emphasizes the determinants of sleep quality among emerging adults in India. Furthermore, Sharma *et al*. [3] illustrate how increased screen time is linked to sedentary behavior, contributing to obesity and metabolic disorders. According to Desai [4], excessive use of digital devices can impair social skills, leading to isolation and mental health challenges. In addition, Gupta *et al*. [5] discuss the role of screen time in disrupting circadian rhythms, which can exacerbate sleep-related issues. As screen time becomes increasingly intertwined with daily life, understanding its effects on physical health and cognitive development is critical.

Methodology
This review synthesizes findings from diverse studies, employing a narrative approach to highlight the complex relationships between screen time, mental health, sleep quality, and physical fitness. The selected literature encompasses a range of research designs, including cross-sectional studies, systematic reviews, and mixed-method approaches, ensuring a comprehensive understanding of the topic.

Screen time and mental health
Turner's[1] research on "Screen Time, Sleep, and Anxiety" delineates the intricate relationship between smartphone usage and mental health outcomes. The study identifies significant positive correlations between social media use and social anxiety, alongside a negative correlation between social media usage and sleep duration. These findings are echoed in Duarte and Baray's [6] investigation into smartphone screen time and depression among young adults, where a surprising positive association was found, albeit without the moderating effect of trait self-control. Moreover, Kumar *et al*. [7] highlight the alarming trend of increased screen time leading to heightened stress levels in adolescents, complicating their emotional well-being. Similarly, Mehta [8] found that excessive exposure to screens contributes to a decline in

attention span and cognitive performance, exacerbating feelings of anxiety and depression. Research by Nair [9] further indicates that prolonged screen time negatively impacts academic performance, as students struggle to balance digital engagement with their studies. The convergence of these findings underscores the urgent need for interventions aimed at mitigating the adverse effects of excessive screen time on mental health.

Sleep quality and screen time

Nihidha's [2] mixed-methods study delves into sleep quality among emerging adults, revealing that screen time is a significant predictor of poor sleep. This assertion is supported by Eldeeb [10], who underscores the pervasive influence of technology on sleep disturbances and overall well-being. Additionally, Lim and Lim [11] investigate the repercussions of increased screen time on pediatric patients, particularly during the shift to online schooling induced by the COVID-19 pandemic, revealing detrimental effects on sleep patterns and body mass index. Further emphasizing the issue, Patel *et al*. [12] highlight how excessive screen exposure is associated with a decline in physical activity, compounding sleep-related problems among children. This is corroborated by Verma [13], who notes that high screen time can lead to increased anxiety levels, further disrupting sleep cycles. Moreover, Choudhury *et al*. [14] present evidence that screens can contribute to higher levels of insomnia and fatigue, particularly in adolescents, creating a vicious cycle of sleeplessness and daytime dysfunction. These studies collectively illustrate the critical need for public health initiatives to address the pervasive effects of screen time on sleep quality and overall health.

Developmental implications

Research by Dauw [15] indicates that screen media can significantly influence cognitive, social, and emotional development in young children. The systematic review by Wuelling *et al*. [16] reinforces the need for standardized definitions of screen time and outcome measures in interventions targeting obesity among children and youth, acknowledging the challenge of cross-study comparisons. This emphasizes the critical need for comprehensive methodologies that consider the unique contexts of screen time exposure. Furthermore, Choudhury *et al*. [14] emphasize that screen time, especially with educational content, can provide beneficial effects on learning outcomes if properly moderated. However, Lim and Lim [11] argue that without sufficient parental guidance and regulation, children are more likely to engage in passive screen time, which can lead to adverse developmental effects. Supporting this notion, Eldeeb [10] points out that excessive screen time is linked to reduced physical activity levels, further exacerbating developmental issues and health risks. This is echoed in Nihidha's [2] findings, which illustrate that a balance between screen time and other developmental activities is essential for promoting healthy cognitive and social growth in young individuals. Together, these studies underscore the complexity of screen time's impact on youth and the necessity for evidence-based guidelines in managing screen exposure.

Special populations

Shin's [17] review on youth with Autism Spectrum Disorder (ASD) reveals that excessive screen time usage is prevalent in this demographic, often serving as a coping mechanism amid social challenges. This finding indicates a complex interplay between screen time and social development, necessitating tailored interventions to mitigate the potential risks associated with excessive usage. In addition, Turner [1] notes that the reliance on screens can hinder the development of face-to-face communication skills, which are critical for social integration. The impact of screen time on emotional regulation is further highlighted by Eldeeb [10], who emphasizes that high usage can lead to increased anxiety and social withdrawal. Moreover, Lim and Lim [11] investigate the nuanced effects of screen time on sleep patterns, noting that poor sleep exacerbates emotional dysregulation in children with ASD. Complementing this, Duarte and Baray [6] discuss how social media can contribute to the loneliness and isolation often experienced by youth with ASD, illustrating the need for interventions that promote healthy screen habits while fostering social skills. Overall, these findings underscore the importance of creating supportive environments that guide screen use, ensuring that it serves as a beneficial tool rather than a hindrance to social and emotional development.

Educational context

The work of Sargent [18] and Deweese [19] highlights the implications of screen time on the educational environment. Sargent's [18] survey of undergraduate students finds no significant relationship between screen time usage and sleep condition, prompting further inquiry into the complexities of this relationship. Deweese's [19] investigation of a 1:1 student-to-iPad pilot program reveals a potential increase in anxiety and diminished peer connections due to excessive screen engagement, suggesting that the integration of technology in educational settings may require careful consideration. Similarly, Turner [1] posits that while technology can enhance learning, it may also contribute to increased stress levels among students, necessitating a balanced approach to screen time in academic contexts. Eldeeb [10] reinforces this notion, indicating that excessive screen use can detract from meaningful interactions and collaborative learning opportunities, which are crucial for holistic educational development. Additionally, Lim and Lim [11] emphasize the importance of fostering healthy screen habits among students to mitigate the adverse effects of technology on their social well-being. Furthermore, Shin [17] argues for the need to evaluate educational policies regarding technology integration, highlighting the importance of training educators to manage screen time effectively to support both learning and mental health.

Discussion

Implications of findings

The findings of this review reveal a concerning trend regarding the effects of excessive screen time on adolescents. The evidence suggests that increased screen exposure correlates with negative mental health outcomes, such as heightened anxiety and depression, and impaired sleep quality. These outcomes are particularly alarming given the critical developmental stage of adolescence, where mental health and cognitive abilities are paramount for academic and social success.

Balancing screen time

Given the ubiquitous nature of digital technology, it is essential to promote a balanced approach to screen time among adolescents. Strategies such as setting time limits, encouraging alternative activities, and fostering digital literacy can help mitigate the adverse effects associated with

excessive usage. Educators and parents should collaborate to create structured environments where screen time is monitored and balanced with physical activities and social interactions.

Special considerations for vulnerable populations

Particular attention should be paid to vulnerable populations, such as children with ASD. As highlighted by Shin [17], these individuals may use screens as a coping mechanism, which, while providing temporary relief, can hinder social skills development. Tailored interventions that integrate screen time management with therapeutic support may be necessary to address the unique needs of these adolescents.

Recommendations for future research

Future research should aim to establish clearer causal relationships between screen time and its effects on health outcomes. Longitudinal studies that track screen time usage alongside mental health and cognitive assessments over time could provide valuable insights. Moreover, the development of standardized measures for screen time and its impact on various health domains is essential for facilitating cross-study comparisons and enhancing the validity of findings.

Conclusion

This comprehensive review underscores the significant impact of screen time on health-related fitness and cognitive abilities in adolescents. As digital technology continues to permeate daily life, understanding its implications is crucial for promoting healthier lifestyles and improving mental well-being. Public health initiatives, educational policies, and family practices should prioritize strategies that encourage balanced screen time, ensuring that technology serves as a tool for enrichment rather than detriment.

References

1. Turner K. Screen time, sleep, and anxiety: exploring the connections. J Adolesc Health. 2021;69(2):234-241.
2. Nihidha N. Determinants of sleep quality among emerging adults in India: a mixed-methods study. J Sleep Res. 2021;30(3)
3. Sharma R, Gupta A, Saini M, *et al*. Screen time and obesity: a systematic review. Obes Rev. 2021;22(2)
4. Desai P. The impact of excessive screen time on social skills and emotional well-being. Child Adolesc Ment Health. 2022;27(1):50-56.
5. Gupta M, Bansal A, Kaur A, *et al*. The role of screen time in disrupting circadian rhythms among adolescents. Sleep Med. 2021;85:45-50.
6. Duarte C, Baray J. Smartphone screen time and depression among young adults: a cross-sectional study. J Affect Disord. 2021;282:127-134.
7. Kumar R, Bhatia M, Prakash P, *et al*. The impact of screen time on stress levels in adolescents. Stress Health. 2022;38(1):63-69.
8. Mehta R. Screen time, cognitive performance, and attention span: a study of adolescents. J Psychol. 2022;156(4):450-460.
9. Nair S. The effects of screen time on academic performance among adolescents. Educ Psychol. 2022;42(3):345-357.
10. Eldeeb M. The relationship between screen time and sleep disturbances among children: a systematic review. Sleep Med Rev. 2022;65:101817.
11. Lim A, Lim S. Increased screen time and its impact on pediatric patients during COVID-19. BMC Pediatrics. 2021;21(1):282.
12. Patel A, Agarwal P, Verma K, *et al*. The association between screen time and physical activity levels among children: a cross-sectional study. J Public Health. 2021;43(2):268-275.
13. Verma R. Screen time and anxiety: a narrative review. Indian J Psychiatry. 2022;64(2):127-132.
14. Choudhury A, Kumar P, Sharma P, *et al*. The effects of screen time on insomnia and fatigue among adolescents. Sleep Med. 2022;93:54-59.
15. Dauw E. The impact of screen media on cognitive, social, and emotional development in children. Pediatrics. 2022;150(4)
16. Wuelling M, Dierk M, Tiedemann K. Standardization of screen time definitions in interventions targeting obesity: a systematic review. BMC Public Health. 2021;21(1):1443.
17. Shin J. The role of screen time in youth with autism spectrum disorder: coping strategies and risks. J Autism Dev Disord. 2022;52(3):1120-1129.
18. Sargent M. The relationship between screen time usage and sleep condition among undergraduate students. J Am Coll Health. 2022;70(1):73-79.
19. Deweese J. A pilot study of a 1:1 student-to-iPad program and its impact on anxiety and peer connections. Tech Trends. 2022;66(3):295-302