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Review Article

**Managing Rapidly Increasing Screen Time in Children in the Era of
Online Education**

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Abstract

The rapid integration of digital technologies into education has significantly increased daily screen exposure among children. With schools increasingly preferring online platforms for teaching, assignments, and assessments, managing screen time has become a critical public health and developmental concern. While digital learning offers accessibility and continuity of education, excessive and poorly regulated screen use may adversely affect physical health, cognitive development, emotional well-being, and social behavior in children. This article presents a comprehensive, evidence-based framework for managing screen time in children, emphasizing balanced digital engagement, age-appropriate strategies, parental involvement, and collaboration with educational institutions.

Introduction

The digital transformation of education has accelerated over the past decade and expanded dramatically following global disruptions to traditional schooling. Online classrooms, digital homework portals, educational applications, and virtual assessments have become routine components of children's academic lives. Consequently, children now spend a substantial portion of their waking hours engaged with screens for educational purposes, often followed by additional recreational screen use. This shift has blurred the boundary between productive and non-productive screen time, creating challenges for parents, caregivers, educators, and healthcare professionals.

Screen time in itself is not inherently harmful; rather, its impact depends on duration, content quality, timing, and the extent to which it displaces essential developmental activities such as sleep, physical movement, face-to-face social interaction, and creative play. Leading health organizations emphasize that the goal should not be complete restriction but rather structured, mindful, and developmentally appropriate use of digital media [1]. Managing screen time in children therefore requires a multidimensional approach that integrates health guidelines, family routines, educational demands, and psychosocial considerations.

Conceptual Understanding of Screen Time in Modern Childhood

Screen time in contemporary childhood can be broadly categorized into educational screen exposure, functional or communicative use, and entertainment-based use. Educational screen time includes online classes, digital textbooks, research, and school-mandated platforms. Functional use encompasses

communication with family members, skill-building activities, and creative digital tools. Entertainment-based screen time includes gaming, social media, streaming platforms, and short-form video content. Differentiating these categories is essential to avoid unnecessary guilt associated with educational screen exposure while maintaining control over discretionary digital consumption.

The American Academy of Pediatrics highlights that screen time should be evaluated not only by quantity but also by context, co-engagement, and impact on daily functioning. When screen use begins to interfere with sleep, physical activity, academic engagement, or emotional regulation, intervention becomes necessary.

Developmental and Health Implications of Excessive Screen Exposure

Excessive or unstructured screen time has been associated with multiple adverse outcomes across developmental domains. Prolonged exposure to screens, particularly during evening hours, disrupts circadian rhythms and suppresses melatonin secretion, leading to delayed sleep onset and reduced sleep quality [2,3]. Sleep deprivation in children is linked to impaired attention, mood instability, weakened immunity, and reduced academic performance.

Sedentary screen use contributes to decreased physical activity and increased risk of childhood obesity and metabolic disorders [4]. Cognitive effects include reduced sustained attention, increased distractibility, and diminished executive functioning when children engage in multitasking between educational content and entertainment applications. Emotional and behavioral consequences may include irritability, anxiety, reduced frustration tolerance, and increased parent–child conflict, particularly when screen use is abruptly restricted. Long-term psychosocial risks include exposure to inappropriate content, cyberbullying, and excessive social comparison through social media platforms [5].

Global and Professional Guidelines on Screen Time

International health authorities provide evidence-based guidance on screen use in children. The World Health Organization recommends no screen time for children under one year of age and limits sedentary screen time to no more than one hour per day for children aged two to four years, emphasizing that less is better. These recommendations are part of the broader 24-hour movement guidelines, which integrate physical activity, sleep, and sedentary behavior into a unified health framework.

For older children and adolescents, organizations such as the American Academy of Pediatrics avoid rigid hourly limits and instead advocate for individualized media plans that prioritize sleep, physical activity, mental health, and academic responsibilities [6]. This flexible approach acknowledges the educational necessity of screens while reinforcing parental responsibility in setting boundaries.

Age-Specific Management Strategies

In early childhood, screen exposure should be minimal, purposeful, and supervised. Co-viewing with caregivers enhances language development and comprehension while preventing passive consumption. Real-world play, storytelling, and sensory exploration should remain central to daily routines.

In school-aged children, structured schedules that clearly distinguish between educational and recreational screen use are essential. Screen-free meals, protected bedtime routines, and daily physical activity should be consistently enforced. Content supervision and parental controls support safe and age-appropriate engagement. During adolescence, autonomy and peer interaction increase the complexity of screen management. Collaborative rule-setting, transparent communication, and education about digital well-being are more effective than rigid restrictions. Monitoring emotional responses to online interactions and social media use is critical during this developmental stage [7].

Family-Centered Screen Time Regulation

Effective screen time management is rooted in family-centered practices. Developing a written family media plan encourages consistency and shared responsibility. Such plans typically define screen-free zones, screen-free times, acceptable content standards, and consequences for rule violations. Consistent routines reduce conflict and help children internalize healthy digital habits.

Environmental design plays a crucial role in reducing excessive screen use. Keeping devices in shared spaces, disabling autoplay features, limiting notifications, and establishing device-free bedrooms support self-regulation and reduce compulsive usage patterns. Positive alternatives such as sports, creative hobbies, reading, and family activities help fulfill the psychological needs that screens often address, including stimulation, relaxation, and social connection.

Managing Screen Use During Online Education

Online education presents unique challenges related to attention, posture, and digital fatigue. Dedicated learning devices or profiles free from entertainment applications help maintain focus during virtual classes. Scheduled breaks for movement, hydration, and eye rest reduce cognitive overload and physical strain. Clear daily schedules and ergonomic workspaces further enhance learning efficiency and minimize unnecessary screen exposure.

Collaboration between families and schools is essential. Educational institutions can support healthy screen habits by incorporating offline assignments, scheduling regular breaks, and providing guidance on appropriate device use. School-based interventions have shown modest but meaningful improvements in reducing sedentary screen time and increasing physical activity.

Indicators for Professional Intervention

While moderate screen use is a normative aspect of modern childhood, certain warning signs warrant professional evaluation. Persistent sleep disturbances, significant behavioral changes, declining academic performance, emotional withdrawal, or severe distress related to screen restriction may indicate problematic media use. Pediatricians and child mental health professionals can provide tailored guidance and early intervention when screen use begins to impair functioning [8].

Age group	Developmental focus	Screen time guidance	Key management principles
Infants (<2 years)	Brain development, bonding, sensory learning	Screen media discouraged except for video calls	Emphasis on caregiver interaction, talking, singing, reading, and physical play; co-viewing only when screens are introduced after 18 months [2,10]
Early childhood (2–4 years)	Language, motor skills, self-regulation	Sedentary screen time limited to ≤ 1 hour/day	High-quality content, adult supervision, structured routines, avoidance of passive viewing, prioritization of sleep and active play [2,3]
School-age children (5–12 years)	Cognitive skills, academic learning, social development	No fixed hourly limit; balance emphasized	Clear separation of educational and recreational screen use, screen-free meals and bedtime routines, parental controls, daily physical activity [1,6]
Adolescents (13–18 years)	Emotional regulation, identity formation, autonomy	Individualized limits based on functioning	Collaborative rule-setting, monitoring of social media impact, sleep protection, guidance on digital citizenship and mental health [1,5]

Table 1. Age-Specific Screen Time Management Priorities in Children

Component	Description	Evidence-based rationale
Screen-free zones	Designated areas such as dining tables and bedrooms	Reduces mindless consumption, improves family interaction, protects sleep quality [6]
Screen-free times	Homework hours and 60–90 minutes before bedtime	Prevents cognitive overload, improves sleep onset and duration [3,6]
Content regulation	Age-appropriate apps, safe search, parental filters	Minimizes exposure to harmful or overstimulating content [1,5]
Device management	Common-area device use, removal of devices at night	Encourages supervision and reduces compulsive nighttime use [6]
Time structuring	Fixed entertainment windows after responsibilities	Prevents gradual screen time escalation and reduces conflict [1]
Positive alternatives	Sports, creative play, reading, family activities	Meets developmental needs otherwise fulfilled by screens [2,4]

Table 2. Practical Family Media Plan Components for Screen Time Regulation

Screen time category	Examples	Management objective
Educational (essential)	Online classes, digital textbooks, assignments	Optimize ergonomics, reduce distractions, allow breaks
Functional (necessary)	Communication, skill-based learning apps	Time-bound and purpose-driven use
Recreational (discretionary)	Gaming, social media, streaming platforms	Scheduled, limited, and replaced with offline activities

Table 3. Categorization of Screen Time in the Context of Online Education

Domain affected	Observable indicators	Recommended action
Sleep	Delayed sleep onset, reduced sleep duration	Enforce bedtime screen restriction, consult pediatrician if persistent [3,5]
Academic performance	Declining grades, inattentiveness	Review screen routines, coordinate with school
Emotional well-being	Irritability, anxiety, withdrawal	Reduce recreational screen time, consider counseling [5]
Behavior	Aggression or severe distress on screen removal	Structured limits, professional guidance if severe
Social functioning	Isolation, reduced offline interaction	Encourage peer interaction and extracurricular activities

Table 4. Warning Indicators Suggesting Problematic Screen Use in Children

Strategy	Role of school	Role of family
Structured schedules	Timetabled online sessions with breaks	Reinforce routines at home
Offline assignments	Incorporation of non-screen tasks	Support completion without devices
Device discipline	Clear platform usage guidelines	Separate school and leisure device use
Health education	Digital well-being awareness	Reinforce habits and monitor impact

Table 5. School and Parent Collaborative Strategies to Reduce Screen Burden

Discussion

The findings and frameworks presented in this article highlight that the rapid escalation of screen time among children is not merely a behavioral issue but a multifactorial phenomenon shaped by educational systems, family environments, technological design, and developmental vulnerability. The increasing preference for online learning platforms has normalized prolonged screen exposure, making traditional screen time limits insufficient and often impractical. Instead, contemporary evidence supports a paradigm shift toward contextual, quality-focused, and function-based management of digital media use in children [9].

A key insight emerging from this discussion is the importance of distinguishing educational screen time from discretionary digital consumption. Online education, while indispensable, introduces extended sedentary behavior and cognitive load that may amplify the negative effects of additional recreational screen use. Studies suggest that when educational screen exposure is not counterbalanced by adequate physical activity and sleep, cumulative screen burden increases the risk of sleep disturbances, attentional difficulties, and emotional dysregulation. The categorization of screen time into educational, functional, and recreational domains therefore offers a pragmatic and developmentally sensitive approach, enabling families to preserve learning opportunities while controlling excess exposure.

Age-specific differences in screen tolerance and vulnerability further underscore the need for tailored management strategies. Younger children demonstrate heightened sensitivity to passive screen exposure due to ongoing neurodevelopment, language acquisition, and self-regulation processes [2,10]. In contrast, adolescents face increased psychosocial risks related to social media use, including anxiety, social comparison, and sleep deprivation [5]. The age-stratified strategies summarized in Table 1 reinforce existing global recommendations and emphasize that screen time policies must evolve alongside developmental stages rather than apply uniform limits.

The role of the family environment emerges as a central determinant of successful screen time regulation. Evidence consistently shows that structured routines, consistent parental modeling, and clear household rules are more effective than punitive or reactive restrictions [6–8]. The Family Media Plan framework presented in Table 2 aligns with behavior-change theories that prioritize environmental design and habit formation over direct control. Limiting device access in bedrooms, enforcing screen-free meals, and scheduling entertainment use after responsibilities are completed collectively reduce conflict and promote internalization of healthy digital habits.

Educational institutions also play a critical role in mitigating excessive screen exposure. School-based strategies such as integrating offline assignments, scheduling regular screen breaks, and clearly defining platform usage expectations can substantially reduce unnecessary digital load [9].

Collaborative parent–school approaches ensure consistency between academic and home environments, reinforcing screen management as a shared responsibility rather than an individual parental burden.

The warning indicators summarized in Table 4 emphasize that screen time becomes clinically relevant when it interferes with essential domains of functioning, including sleep, academic performance, emotional stability, and social engagement. Persistent symptoms warrant professional assessment, as excessive screen use may coexist with or exacerbate underlying developmental, behavioral, or mental health conditions. Early identification and intervention are crucial to prevent long-term adverse outcomes.

Overall, this discussion reinforces that effective screen time management in the era of online education requires a holistic, evidence-informed approach. Rather than viewing screens solely as a risk factor, they should be understood as tools whose impact depends on structure, supervision, and balance. Policies and practices that prioritize sleep, physical activity, family interaction, and emotional well-being while accommodating educational demands are most likely to support healthy child development in an increasingly digital world [10].

Implications for Practice and Policy

The insights presented in this discussion have practical implications for clinicians, educators, policymakers, and families. Pediatric and mental health professionals should incorporate screen use assessment into routine consultations. Schools should integrate digital well-being principles into curriculum planning. Policymakers should support guidelines that recognize the educational necessity of screens while safeguarding children’s holistic development. Together, these efforts can ensure that digital education enhances, rather than compromises, child health and well-being.

Conclusion

The preference for online platforms in education has fundamentally altered children’s daily screen exposure. Managing this shift requires moving beyond simplistic screen time limits toward a holistic framework that balances educational needs with physical health, emotional well-being, and social development. Evidence supports structured routines, family media planning, age-appropriate supervision, and collaboration with schools as effective strategies for maintaining healthy digital engagement. By fostering mindful and purposeful screen use, families can harness the benefits of digital learning while safeguarding children’s long-term development.

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