From hyperactivity to harmony: A primary care case report on screen-limiting success

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SUMMARY

Excessive screen use in children may be linked to inattention, hyperactivity, and emotional dysregulation, mimicking neurodevelopmental disorders. Early recognition and differentiation from neurobiological causes in primary care are essential for appropriate management. An 8year old boy presented with hyperactivity and inattention, using screens five hours daily on weekdays and twelve hours on weekends. Assessment showed high screen dependency score (48/60). The Vanderbilt ADHD scores were markedly elevated, with ten positive responses across both the inattentive and hyperactive symptom domains, and clear impairment in the performance domain, particularly in relationships with parents and siblings. These findings fulfil the DSM-5 criteria for a possible diagnosis of ADHD, despite normal developmental milestones and preserved speech and sensory functions. A three-month, parent-led intervention was subsequently introduced, incorporating Google Family Link and structured routine modifications. This method successfully reduced screen time to under two hours on weekends and eliminated it entirely on weekdays. Following the intervention, the screen dependency score fell markedly to 17/60. The Vanderbilt scores also normalised, with no positive responses to the previously affected domains. Performance ratings improved reflecting better behavioural regulation and attention. This case underscores the importance of assessing screen use and implementing parent-led strategies as effective interventions within the primary care setting.

INTRODUCTION

In the digital age, screen media use has become an integral part of children's daily lives, with exposure often starting in early childhood. Excessive screen time, defined as use exceeding established health guidelines, has been linked to inattention, hyperactivity, emotional dysregulation, and impaired social interaction.[1,2] In primary care, early recognition of screen-related behavioural changes is vital to avoid misdiagnosis, prevent unnecessary pharmacological treatment, and implement timely lifestyle interventions. Herein, we present a case of a child with behavioural changes secondary to excessive screen exposure, detected early and managed through a structured, parent-led, non-pharmacological approach. This report underscores the need for systematic assessment of children's screen time in primary care during behavioural evaluations, acknowledging that high screen exposure may influence behaviour and resemble signs seen in other conditions. It demonstrates how structured, parent-led strategies can be applied in a primary care setting and encourages clinicians to assess daily screen habits as part of routine practice to support early identification and targeted management of modifiable lifestyle factors.

CASE PRESENTATION

An 8 year old Malay boy, currently a student, was brought to the clinic by his mother. The primary concern was his hyperactive behaviour and difficulty with attention, particularly in academic settings. The mother described that he frequently fidgeted, left his seat when he was expected to remain seated, and struggled to engage in quiet play. While he did not exhibit excessive talking, arguing, or temper loss, his teacher noted that although he sometimes had trouble sitting still and maintaining focus during class, he did not disrupt his classmates or leave the classroom.

The child's academic challenges extended to homework, where he often made careless mistakes and showed reluctance to initiate tasks that required sustained effort. Notably, despite these issues, he interacted well with his peers and siblings, maintained appropriate facial expressions, made good eye contact, and responded adequately to social cues. The mother also revealed that he spent a significant amount of time watching television and playing games on a smartphone, which raised the concern of excessive screen exposure playing a role in his behavioural presentation. The child was first exposed to screen devices at the age of two years old. On weekdays, he spent more than five hours per day on screens, increasing to over twelve hours during weekends. The most frequently used devices were smartphones and televisions, primarily used for watching fast-paced action cartoons on YouTube or broadcast television and smartphone online games. The mother was not consistently aware of the content her son watched, and no screen-time boundaries were in place. Screen use often occurred during mealtimes, at bedtime, and within the bedroom. The mother operated an online business that required her to engage with her smartphone for nearly 24 hours a day. Importantly, there was no significant family history of autism or ADHD, and his antenatal, postnatal, and overall developmental milestones were uneventful.

On clinical examination, the boy was observed to be active with no dysmorphic features. His sensory functions were intact, as confirmed by a normal hearing assessment by an audiologist and a speech evaluation by a speech therapist.

This article was accepted: 05 January 2026
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Prior to intervention, initial screening revealed a notably high score on the screen dependency scale for media addiction (48/60), and Vanderbilt Assessment results met DSM-5 criteria for a possible ADHD diagnosis. The child scored 2 or 3 on five of the nine inattention items (questions 1–9), and similarly on five of the nine behaviour (hyperactivity/impulsivity) items (questions 10–18). In the performance domain, he received a score of 4 on two of the eight items, indicating impaired relationships with both parents and siblings. These findings supported the view that excessive screen time might have been a contributing factor to his hyperactivity and attentional difficulties.

The mother was enrolled in a screen addiction programme organised by our clinic. During the programme, she was introduced to the Google Family Link app as a tool to monitor and manage her child's screen time. The intervention strategy focused on limiting the boy's exposure to screens, including television and smartphones, to improve his behavioural concerns. This non-pharmacological approach was structured over a three-month period, with parental assistance to adjust his daily routine.

At his follow-up review after three months of intervention, the mother reported significant improvements. Following the intervention, screen time had been substantially reduced. On weekdays, the child no longer used television or smartphone games. During weekends, screen exposure was limited to less than two hours of approved television viewing, subject to parental permission. Instead, he spent most of his time playing or engaging in activities with his siblings. His ability to remain seated and attentive had improved, as he was able to engage for hours in focused activities such as building Lego sets. Additionally, a consistent daily schedule had been implemented, notably including an earlier bedtime. Post-intervention assessments showed marked improvement, with the screen dependency score on the media addiction scale dropped dramatically from 48 to 17. Vanderbilt Assessment results resolved, with all symptom domains scoring 0, indicating that the previous concerns regarding inattention and hyperactivity were no longer present. Additionally, in the performance domain, the child scored 3 (moderately good) consistently across all items, reflecting restored and healthy relationships with parents and siblings.

DISCUSSION

Excessive screen time, defined as media exposure that exceeds internationally recommended guidelines, has become a significant public health concern in recent years. The American Academy of Paediatrics (AAP) advises that children under two years of age should have no screen exposure, and those aged two to five years should be limited to a maximum of one hour per day.[3] However, these recommendations are frequently exceeded, with children often engaging in prolonged, unsupervised screen use. This is particularly concerning, as evidence has consistently shown that excessive screen exposure can have far-reaching implications on cognitive, behavioural, and socio-emotional development.

High screen time has been associated with reduced IQ scores, deficits in metacognition and inhibition, and poorer self-regulation abilities.[4,5] These neurocognitive changes are frequently accompanied by heightened emotional reactivity and lower effortful control. Consequently, children with high daily screen exposure may present with increased externalising behaviours, such as hyperactivity, impulsivity, and restlessness.[2,4] This case illustrates such an association, as the patient demonstrated elevated scores on both the Screen Dependency Scale (SDS)[6] and Vanderbilt ADHD assessment, highlighting the potential overlap between screen-related behavioural symptoms and those seen in neurodevelopmental disorders.

Although the child's presentation could have been interpreted as indicative of attention-deficit/hyperactivity disorder (ADHD), careful evaluation suggested that his symptoms were likely influenced by lifestyle factors. The distinction between true neurobiological disorders and screen-related behavioural concerns is critical in primary care. ADHD is characterised by persistent, context-independent symptoms of inattention, impulsivity, and hyperactivity, which occur across multiple settings, including home, school, and social environments, and typically do not improve substantially with lifestyle modification alone.[7] Accurate diagnosis requires a thorough clinical history, the use of validated rating scales, and corroborative input from multiple informants such as parents and teachers.

In contrast, screen-related behavioural changes are often context-specific, emerge or worsen in parallel with increased screen exposure, and may resolve or significantly improve with structured reduction in screen use8. Importantly, these cases rarely necessitate long-term pharmacological therapy; instead, they respond well to behavioural strategies, environmental restructuring, and parental education about healthy media use.[8,9] The use of structured assessment tools, such as the SDS, alongside a detailed screen time history, can greatly aid in differentiating between these conditions in a primary care setting.[10]

The ability to make this distinction has important implications. Misdiagnosing screen-related behavioural problems as ADHD may lead to premature labelling, unnecessary pharmacological treatment, and avoidable specialist referrals. Primary care physicians, who are often the first point of contact for concerned parents, are in a unique position to identify modifiable lifestyle factors contributing to behavioural symptoms. A thorough assessment should include exploration of the child's daily routines, sleep habits, family dynamics, and the nature and duration of screen exposure.

In this case, the mother was enrolled in a screen addiction programme organised by our clinic. During the session, she was introduced to the Google Family Link app, a parental control tool that enables monitoring, setting time limits, and restricting inappropriate content. The intervention plan focused on gradually reducing the child's screen time, including television and smartphone use, and re-establishing a structured daily routine. Over a three-month period, the parents were supported to implement consistent limits and introduce alternative activities such as sibling play and interactive family engagement.

This approach aligns well with the core principles of family medicine, including prevention, health promotion, and active family involvement. Parent-led, non-pharmacological

strategies are supported by the literature as effective, accessible, and cost-efficient options that can be integrated into routine primary care. By addressing underlying factors early and within the child's environment, such strategies may also lessen reliance on specialist referrals and medical treatment.

The success observed in this case shown by the marked reduction in daily screen time was reflected in improvements in both SDS and Vanderbilt scores, with better attention, reduced hyperactivity, more consistent routines, and earlier bedtimes. These outcomes suggest that screen-related behavioural issues can be identified and may improve with early intervention, especially when parents are equipped with the right knowledge and tools to support lasting change. Involving the mother directly in the management plan and providing educational resources and practical digital tools strengthened her ability to set and enforce healthy limits, underscoring the value of parental empowerment in achieving positive outcomes.

From a systems perspective, it demonstrates how primary care can address common behavioural concerns, potentially lowering the need for specialist referral. This not only reduces healthcare costs and waiting times but also fosters continuity of care and strengthens the therapeutic relationship between the physician and family. Incorporating screen time assessment into standard paediatric behavioural evaluations is therefore recommended. Simple, structured questions during consultations can uncover excessive screen use, allowing for early counselling and the introduction of preventive measures. The lessons from this case align with the growing body of evidence supporting a proactive, holistic approach to addressing child behavioural concerns in primary care.

CONCLUSION

This case suggests that excessive screen time in children may be associated with behaviours resembling neurodevelopmental disorders, and that a structured, parent-led, non-pharmacological intervention coincided with notable improvements in attention, behaviour, daily routines, and overall functioning. While promising, causality cannot be established from a single case, and further research with comparison groups and extended follow-up is needed to confirm these observations.

In primary care, systematic assessment of screen exposure can identify modifiable lifestyle factors, guide targeted support, and reduce the risk of misdiagnosis. Differentiating screen-related behaviours from underlying neurobiological conditions requires thorough history taking and validated measurement tools. The positive outcomes in this case underscore the importance of parental engagement and practical strategies in supporting sustainable change. By showing how tailored lifestyle modification can align with improved outcomes, this report highlights the value of careful behavioural evaluation and supports non-pharmacological approaches within routine primary care.

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