

Inattention to Problematic Media Use Habits

Interaction Between Digital Media Use and Attention-Deficit/Hyperactivity Disorder

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KEYWORDS

• ADHD • Media • Children • Adolescents

KEY POINTS

- As digital media (DM) access continues to surge among youth, caregivers and clinicians are concerned about problems associated with its excessive use.
- Children with attention-deficit/hyperactivity disorder (ADHD) are more at risk to experience negative effects on sleep, academic achievement, attention and cognitive skills.
- Youth with ADHD are more likely to use DM excessively.
- ADHD symptom severity and circumstances of DM access are among the factors that mediate these negative effects.
- Several key interventions for parents and clinicians to assist youth with problematic DM habits, and opportunities for advocacy groups and DM industry for public health interventions are discussed in light of research.

Digital media (DM) use is increasingly prevalent among youths. In the United States, the average child spends almost 10 hours a day engaging in some form of DM, which represents a longer duration than an adult's average workday.¹ Caregivers and clinicians have been concerned about the effects of heavy media engagement on adolescents.² These effects include problems with sleep, cognitive skills, academic vigor,

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and athletic participation. Factors that mediate the negative effects of media include location, timing, and duration of access.³ More recent findings also suggest children with certain psychiatric disorders may be at increased risk of experiencing these negative effects.⁴

Attention-deficit/hyperactivity disorder (ADHD) is a neurobiologic disorder affecting up to 10% of youths across the world and is characterized by cognitive and behavioral symptoms that include inattention, impulsivity, and hyperactivity.⁵ Children with ADHD face difficulties in regulating impulses and maintaining engagement in age-typical activities, including academics and social obligations. ADHD has been linked to polymorphisms of the DRD4 gene (DRDR-7 repeat allele), which has been associated with sensation-seeking behaviors and, thus, struggles with impulse control and limiting time spent on preferred activities.⁶

Hypoactivity in dorsolateral prefrontal cortex among individuals with ADHD correlates with deficits in both executive functions (EFs) and emotion regulation. Such deficits may result in increased reliance on adults to regulate the behavior of children with ADHD, including media activity, along with increased mood reactivity in response to caregiver's attempts to intervene in DM use.

In order to understand the interaction between DM use and ADHD, a review of the literature with clinical studies and surveys on PubMed and PsycInfo was carried out using the keywords *attention*, *ADHD*, *media*, *Internet*, *video games*, *social network*, and *children and adolescents*. The resulting studies were reviewed for content and relevance. Further literature identified among references was also retrieved and reviewed. In result, a total of 38 clinical studies were reviewed; a synopsis is presented next.

MEDIA USE HABITS AMONG YOUTH WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Children with ADHD experience problems with impulse regulation, time management, task organization, and prioritization. These children experience more difficulty in limiting and monitoring their own media use and tend to spend more time on video games (VGs) compared with healthy children.⁷ Similarly, children with ADHD tend to have more problematic play characteristics compared with the general population, resulting in frequent excessive media use. More severe ADHD symptoms correlate with lower academic achievement among participants who played VGs greater than 1 h/d on average.⁸ These studies tend to be cross-sectional and cannot address whether excessive media use leads to attention problems or vice versa. However, increased attention symptoms were found to predict heavier and problematic media use 1 year later in one prospective study.⁹

Sleep difficulties are often reported among youths with problematic DM use.³ Sleep deprivation is a known risk factor for psychiatric problems, obesity, and memory deficits. In summary, ADHD poses a risk factor for excessive DM use and several biological factors seem to contribute to this heavier engagement.

The severity of ADHD symptoms has been shown to correlate with various aspects of problematic media use in children.¹⁰ Excessive VG play is correlated with the severity of inattention symptoms rather than hyperactivity.⁴ Hyperactivity/impulsivity symptom severity was linked to a 3 times more likelihood of severe reactions to attempts at limiting DM use. As a result, parents often report a reduced ability to limit, regulate, and supervise their children's DM use.⁷

Social and psychological factors mediating the relationship between media use and ADHD include frequency of interpersonal conflict.¹¹ Children who use DM more tend

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