

Digital Media Use and ADHD Symptoms

WITH VARYING DIGITAL MEDIA OUTLETS AVAILABLE—from social media and internet browsing to watching television—available at the palm of our hands, there has been growing concern over how this increased exposure may affect adolescents and children. Current research is investigating the association between ADHD symptoms and digital media usage in adolescents. Some studies suggest that ADHD symptoms are intensified with digital media use, and others suggest there is a positive feedback loop between ADHD symptoms and digital media usage.

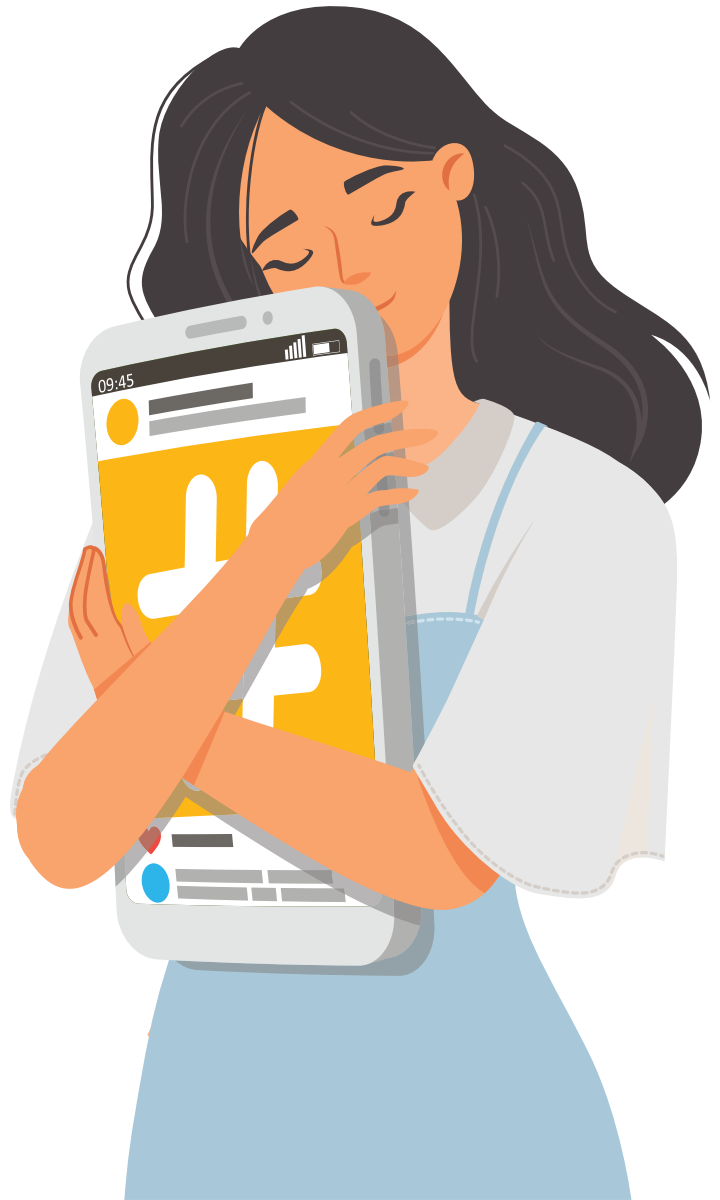
The first study investigated how self-reported smartphone addiction is associated with ADHD symptoms in adolescents. The second study examined how different types of digital media may influence the development of ADHD symptoms in adolescents, exploring both the effects of such use along with what could be mediating such effects.

Results from both studies highlight the complex interplay between digital media use and ADHD symptoms in adolescents. These results emphasize the need to consider the impact of excessive media use on ADHD symptoms.

Adolescents and smartphone addiction

There is more and more concern about adolescent smartphone addiction due to an increase in screen time, smartphone ownership, and dependency among youth. Smartphone addiction involves psychological withdrawal, dependency on smartphones to cope, cravings, and excessive levels of use, but the validity of smartphone addiction as a disorder is still being debated. Research shows inconsistent associations between ADHD symptoms and digital media use, and some suggest a bidirectional relationship with ADHD symptoms.

This study aimed to determine the directionality of the relationship between perceived smartphone addiction and ADHD symptoms in middle school students. Specifically, the study examined whether higher smartphone addiction levels would predict an increase in ADHD symptoms over time, and also whether higher ADHD symptoms would predict increased smartphone addiction levels. Data was collected from adolescents between the ages of eleven to fourteen years from grades six to eight in Canada between 2017 and 2020 over two timepoints at yearlong intervals. Questionnaires assessed self-reported ADHD symptoms and smartphone addiction as measured by the day-to-day effects of cellular phones.



This study revealed a moderate association between ADHD symptoms and smartphone addiction. Specifically, higher initial scores on smartphone addiction predicted higher ADHD symptoms later, but higher ADHD symptoms did not predict higher smartphone addiction scores later. The results suggest that perceived smartphone addiction predicts later ADHD symptoms, but initial ADHD symptoms did not predict later smartphone addiction scores.

Directions for future research include examining these associations in studies with samples of adolescents with diagnosed ADHD, and also in studies with varying time periods between timepoints. Overall, the findings suggest that adolescents' relationship with smartphones influence ADHD symptoms, highlighting the need for further research on digital media use on adolescent mental health.

Sihoe CE, Mueller U, & Liu S. (2023). Perceived smartphone addiction predicts ADHD symptomatology in middle school adolescents: A longitudinal study. *Computers in Human Behavior Reports*, 12, 1-9. <https://doi.org/10.1016/j.chbr.2023.100335>

Excess use and symptom severity

Adolescents in North America are reported to spend an average of six to nine hours daily on digital devices. Current research suggests that excess digital media use may have an impact on cognitive development and brain function, and that there is a relationship between digital media use and ADHD symptom severity.

This study analyzed long-term data on how different types of screen time outlets (social media, TV, video gaming, and computer use) may affect ADHD symptoms in adolescents. In this five-year study, adolescents in the seventh grade participated from schools in Canada starting in 2012. Participants completed the study each year until grade eleven. Online questionnaires measured self-reported daily screen time on social media, TV, video games, and computer use, as well as ADHD symptoms and impulsivity. The participants' ability to inhibit responses and working memory were measured using neuropsychological tests.

Findings from the study showed an association between social media use, video gaming, and TV watching with ADHD symptoms, with social media use appearing as most strongly related to ADHD symptoms. The results suggested a short-term impact of initial screen use on increased ADHD symptoms later. Impulsivity levels mediated the effect of initial social media use on later ADHD symptoms, suggesting that an increase in social media use led to greater impulsivity, which in turn resulted in more severe ADHD symptoms. Relatively less support was found for the roles of working memory and inhibition in mediating between initial screen time and later ADHD symptoms.

Future research should examine these questions among a sample of adolescents with diagnosed ADHD, as well as with methodologies that include multiple raters and a variety of neuropsychological tasks. Results from this study indicate the need for further research to understand how best to monitor and regulate

adolescents' screen time usage, in particular social media, given its linkages with later ADHD symptoms.

Wallace J, Boers E, Ouellet J, Afzali MH, & Conrod P. (2023). Screen time, impulsivity, neuropsychological functions and their relationship to growth in adolescent attention-deficit/hyperactivity disorder symptoms. *Nature Scientific Reports*, 13, 1-14. <https://doi.org/10.1038/s41598-023-44105-7> 



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