

# Association of Digital Media Use With Subsequent Symptoms of Attention-Deficit/Hyperactivity Disorder Among Adolescents

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## Abstract

### Importance

Modern digital platforms are easily accessible and intensely stimulating; it is unknown whether frequent use of digital media may be associated with symptoms of attention-deficit/hyperactivity disorder (ADHD).

### Objective

To determine whether the frequency of using digital media among 15- and 16-year-olds without significant ADHD symptoms is associated with subsequent occurrence of ADHD symptoms during a 24-month follow-up.

### Design, Setting, and Participants

Longitudinal cohort of students in 10 Los Angeles County, California, high schools recruited through convenience sampling. Baseline and 6-, 12-, 18-, and 24-month follow-up surveys were administered from September 2014 (10th grade) to December 2016 (12th grade). Of 4100 eligible students, 3051 10th-graders (74%) were surveyed at the baseline assessment.

### Exposures

Self-reported use of 14 different modern digital media activities at a high-frequency rate over the preceding week was defined as many times a day (yes/no) and was summed in a cumulative index (range, 0-14).

### Main Outcomes and Measures

Self-rated frequency of 18 ADHD symptoms (never/rare, sometimes, often, very often) in the 6 months preceding the survey. The total numbers of 9 inattentive symptoms (range, 0-9) and 9 hyperactive-impulsive symptoms (range, 0-9) that students rated as experiencing often or very often were calculated. Students who had reported experiencing often or very often 6 or more symptoms in either category were classified as being ADHD symptom-positive.

### Results

Among the 2587 adolescents (63% eligible students; 54.4% girls; mean [SD] age 15.5 years [0.5 years]) who did not have significant symptoms of ADHD at baseline, the median follow-up was 22.6 months (interquartile range [IQR], 21.8-23.0, months). The mean (SD) number of baseline digital media activities used at a high-frequency rate was 3.62 (3.30); 1398 students (54.1%) indicated high frequency of checking social media (95% CI, 52.1%-56.0%), which was the most common media activity. High-frequency engagement in each additional digital media activity at baseline was associated with a significantly higher odds of having symptoms of ADHD across follow-ups (OR, 1.11; 95% CI, 1.06-1.16). This association persisted after covariate adjustment (OR, 1.10; 95% CI, 1.05-1.15). The 495 students who reported no high-frequency media use at baseline had a 4.6% mean rate of having ADHD symptoms across follow-ups vs 9.5% among the 114 who reported 7 high-frequency activities (difference; 4.9%; 95% CI, 2.5%-7.3%) and vs 10.5% among the 51 students who reported 14 high-frequency activities (difference, 5.9%; 95% CI, 2.6%-9.2%).

### Conclusions and Relevance

Among adolescents followed up over 2 years, there was a statistically significant but modest association between higher frequency of digital media use and subsequent symptoms of ADHD. Further research is needed to determine whether this association is causal.