

Study: Smartphone alerts increase inattention—and hyperactivity

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Credit: Peter Griffin/Public Domain

Society's increasingly pervasive use of digital technology may be causing ADHD-like symptoms even among the general population, according to a new study of college students presented this week in San Jose, California at the Human-Computer Interaction conference of the Association for Computing Machinery.

"Less than 10 years ago, Steve Jobs promised that smartphones 'will change everything,'" said Kostadin Kushlev, a psychology research scientist at the University of Virginia, who led the study with colleagues at the University of British Columbia. "And with the Internet in their pockets, people today are bombarded with notifications - whether from email, text messaging, social media or news apps - anywhere they go. We are seeking to better understand how this constant inflow of notifications influences our minds."

Kushlev said that recent polls have shown that as many as 95 percent of smartphone users have used their phones during social gatherings; that seven in 10 people used their phones while working; and one in 10 admitted to checking their phones during sex. Smartphone owners spend nearly two hours per day using their phones.

The researchers designed a two-week experimental study and showed that when students kept their phones on ring or vibrate, they reported more symptoms of inattention and hyperactivity than when they kept their phones on silent.

"We found the first experimental evidence that smartphone interruptions can cause greater inattention and hyperactivity - symptoms of attention deficit hyperactivity disorder - even in people drawn from a nonclinical population," Kushlev said.

During Kushlev's and his colleagues' study, 221 students at the University of British Columbia drawn from the general student population were assigned for one week to maximize [phone](#) interruptions by keeping notification alerts on, and their phones within easy reach. During another week participants were assigned to minimize phone interruptions by keeping alerts off and their phones away. At the end of each week, participants completed questionnaires assessing inattention and hyperactivity. The results showed that the participants experienced

significantly higher levels of inattention and hyperactivity when alerts were turned on.

The results suggest that even people who have not been diagnosed with ADHD may experience some of the disorder's symptoms, including distraction, difficulty focusing and getting bored easily when trying to focus, fidgeting, having trouble sitting still, difficulty doing quiet tasks and activities, and restlessness.

"Smartphones may contribute to these symptoms by serving as a quick and easy source of distraction," Kushlev said.

Kushlev emphasized, however, that ADHD is a neurodevelopmental disorder with a complex biological and environmental etiology.

"Our findings suggest neither that smartphones can cause ADHD nor that reducing smartphone notifications can treat ADHD," he said. "The findings simply suggest that our constant digital stimulation may be contributing to an increasingly problematic deficit of attention in modern society."

The silver lining is that the problem can be turned off.

"Importantly, we found that people can reduce the harmful effects of overstimulation by smartphones simply by keeping their phones on silent and out of easy reach whenever possible, thus keeping notifications at bay," Kushlev said.

His research colleagues at the University of British Columbia are Jason Proulx, a senior research assistant, and Elizabeth W. Dunn, an associate professor of psychology.

Provided by University of Virginia

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