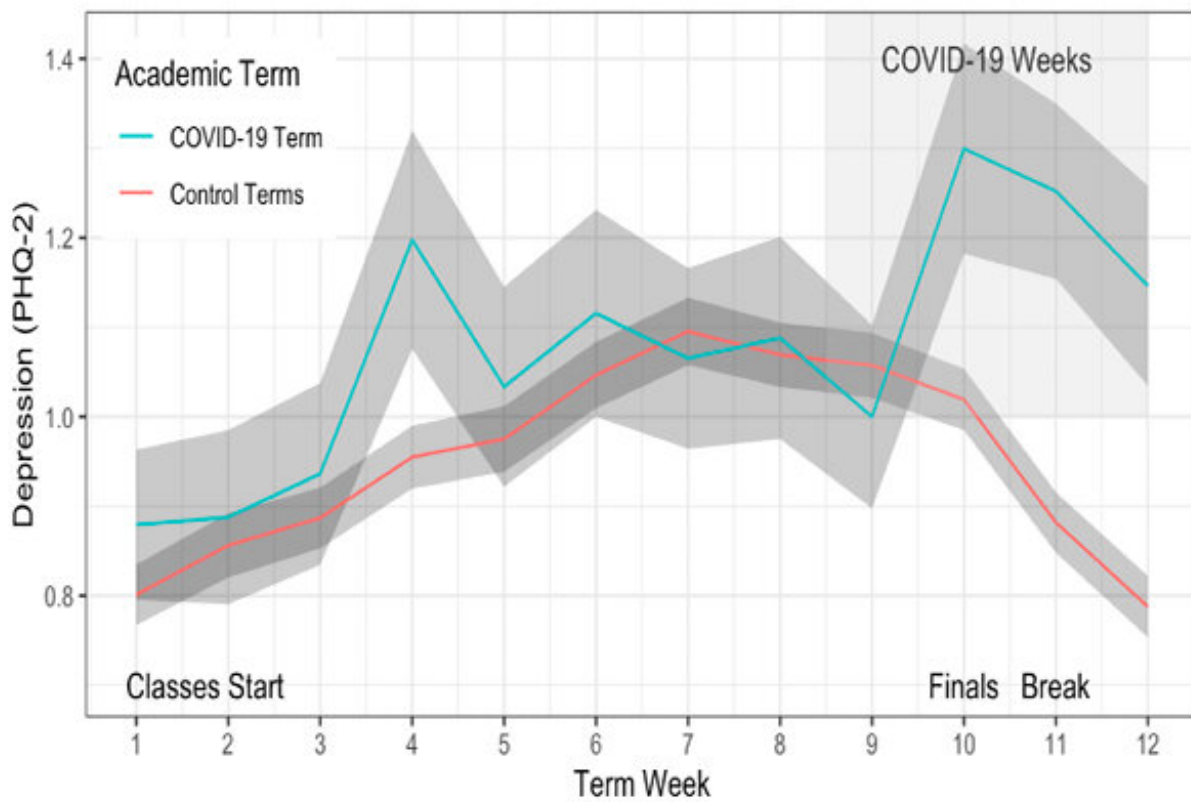


COVID-19 increased anxiety, depression for already stressed college students

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Depression levels of students across the first academic term impacted by the COVID-19 pandemic (green) spike when compared to the historic average (red). Weeks nine through 12 were influenced by major campus policy changes and are represented with a shaded box (upper right). Credit: Jeremy Huckins.

College students were more anxious and depressed during the initial outbreak of COVID-19 than they were during similar time frames in previous academic years, according to a Dartmouth study.

The research also found that sedentary behavior increased dramatically during the onset of the public health crisis in early March.

The study, published in the *Journal of Medical Internet Research*, used a mix of smartphone sensing and digital questionnaires from more than 200 students participating in a research program that is tracking mental health throughout their undergraduate years.

"COVID-19 had an immediate negative impact on the emotional well-being of the [college students](#) we studied," said Jeremy Huckins, a lecturer on psychological and brain sciences at Dartmouth. "We observed a large-scale shift in mental health and behavior compared to the observed baseline established for this group over previous years."

Self-reported symptoms of depression and anxiety within the student research group spiked noticeably at the onset of COVID-19. At the [time](#), major policy changes related to COVID-19 were also being put in place, including the request that students leave campus and the switch to remote learning.

These changes coincided with the end of classes and final exams, already one of the most stressful times for students in any academic term.

According to the study, anxiety and depression decreased slightly after the final exam period as students settled into shelter-in-place locations. This suggested some resilience in the face of COVID-19, but levels remained consistently higher than similar periods during previous academic terms.

Unlike previous terms studied, sedentary time increased dramatically during this year's spring break period.

"This was an atypical time for these college students. While spring break is usually a period of decreased stress and increased [physical activity](#), spring break 2020 was stressful and confining for the students participating in this study. We suspect that this was the case for a large number of college students across the country," said Huckins.

The study used StudentLife, a sensing app developed at Dartmouth, to collect information from [student](#) volunteers. StudentLife passively collects behavioral information from user's smartphones such as duration of phone usage, number of phone unlocks, sleep duration, and sedentary time.

Data on depression and anxiety were collected using weekly, self-reported assessments also administered through the StudentLife app.

"This is the first time we have used sensor data from phones to give us unique behavioral insights into the reaction of students to the onset of the pandemic on a college campus," said Andrew Campbell, the Albert Bradley 1915 Third Century Professor of computer science at Dartmouth and one of the lead researchers of the StudentLife study.

"We plan to further analyze how these students adjusted both physically and mentally during remote learning that leads on from this study."

In the research, the team also reported a connection between anxiety and COVID-19 news coverage. The link between depression and news reporting was apparent, but not as strong. As news coverage intensified, there was an increase in [sedentary behavior](#) and a longer duration of phone usage.

According to the study, the decrease in the number of locations visited

was consistent with the [social distancing](#) and shelter-in-place policies implemented by local governments.

The study's findings on the uptake of social distancing recommendations contrasts with other research of college students in which governmental social distancing policies were not followed. Findings in the current study are also contrary to media depictions of college-age students flouting social distancing recommendations during the spring break period.

"Many people wouldn't expect college students to listen to social distancing orders, but these students did. We found that when social distancing was recommended by local governments, students were more sedentary and visited fewer locations on any given day," said Huckins. "Clearly the impact of COVID-19 extends beyond the virus and its direct impacts. An unresolved question is if mental health and physical activity will continue to degrade over time, or if we will see a recovery, and how long that recovery will take."

The research is part of a multiyear study focusing on the [mental health](#) of undergraduate students as they progress through their undergraduate careers. The complete study combines smartphone mobile sensing with functional neuroimaging.

"When we set out two years ago to follow 200 students across their [college](#) experiences, we could never have anticipated the inflection point in our data as a result of such a catastrophic event as the pandemic," added Campbell.

Upon completion of the full study, researchers will be able to extend their findings on the disruption at the start of the COVID-19 pandemic to the long-term impact of remote learning and social isolation that the students are experiencing.

More information on the StudentLife research program can be found at:
studentlife.cs.dartmouth.edu/

More information: Jeremy F Huckins et al, Mental Health and Behavior of College Students During the Early Phases of the COVID-19 Pandemic: Longitudinal Smartphone and Ecological Momentary Assessment Study, *Journal of Medical Internet Research* (2020). [DOI: 10.2196/20185](https://doi.org/10.2196/20185)

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