

Research delves into link between test anxiety and poor sleep

28 April 2021



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College students across the country struggle with a vicious cycle: Test anxiety triggers poor sleep, which in turn reduces performance on the tests that caused the anxiety in the first place.

New research from the University of Kansas just published in the *International Journal of Behavioral Medicine* is shedding light on this biopsychosocial process that can lead to [poor grades](#), withdrawal from classes and even students who drop out. Indeed, about 40% of freshman don't return to their universities for a second year in the United States.

"We were interested in finding out what predicted students' performance in statistics classes—stats classes are usually the most dreaded undergrad class," said lead author Nancy Hamilton, professor of psychology at KU. "It can be a particular problem that can be a sticking point for a lot of students. I'm interested in sleep, and sleep and [anxiety](#) are related. So, we wanted to find out what the relationship was between sleep, anxiety and test performance to find the correlation and how it unfolds over time."

Hamilton and [graduate student](#) co-authors Ronald Freche and Ian Carroll and undergraduates Yichi Zhang and Gabriella Zeller surveyed the sleep quality, anxiety levels and [test scores](#) for 167 students enrolled in a statistics class at KU. Participants completed an electronic battery of measures and filled out Sleep Mood Study Diaries during the mornings in the days before a statistics exam. Instructors confirmed exam scores. The study showed "sleep and anxiety feed one another" and can hurt academic performance predictably.

"We looked at test anxiety to determine whether that did predict who passed, and it was a predictor," Hamilton said. "It was a predictor even after controlling for students' past performance and increased the likelihood of students failing in class. When you look at students who are especially anxious, it was almost a five-point difference in their score over students who had average levels of anxiety. This is not small potatoes. It's the difference between a C-minus and a D. It's the difference between a B-plus and an A-minus. It's real."

Beyond falling grades, a [student's](#) overall health could suffer when test anxiety and poor sleep reinforce each other.

"Studies have shown students tend to cope with anxiety through health behaviors," Hamilton said. "Students may use more caffeine to combat sleep problems associated with anxiety, and caffeine can actually enhance sleep problems, specifically if you're using caffeine in the afternoon or in the evening. Students sometimes self-medicate for anxiety by using alcohol or other sedating drugs. Those are things that we know are related."

Hamilton said universities could do more to communicate to students the prevalence of test anxiety and provide them with resources.

"What would be really helpful for a university to do

is to talk about testing anxiety and to talk about the fact that it's very common and that there are things that can be done for students who have test anxiety," she said. "A university can also talk to instructors about doing things that they can do to help minimize the effect of testing anxiety."

According to Hamilton, instructors are hindered by the phenomenon as well: Anxiety and associated sleep problems actually distort instructors' ability to measure student knowledge in a given subject.

"As an instructor, my goal when I'm writing a test is to assess how much a student understands," she said. "So having a psychological or an emotional problem gets in the way of that. It actually impedes my ability to effectively assess learning. It's noise. It's unrelated to what they understand and what they know. So, I think it behooves all of us to see if we can figure out ways to help students minimize the effects of anxiety on their performance."

The KU researcher said testing itself isn't the problem and suggested an increase in regular tests might reduce anxiety through regular exposure. However, she said a few small changes to how tests are administered also could calm student anxiety.

"In classes that use performance-based measures like math or statistics, classes that tend to really induce a lot of anxiety for some students, encouraging those students to take five minutes right before an exam to physically write about what they're anxious about can help—that's cheap, that's easy," Hamilton said. "Also, eliminating a time limit on a test can help. There's just really nothing to be gained by telling students, 'You have an hour to complete a test and what you don't get done you just don't get done.' That's really not assessing what a student can do—it's only assessing what a student can do quickly."

Hamilton said going forward she'd like research into the link between [test anxiety](#) and [poor sleep](#) broadened to include a more diverse group of students and also to include its influence on remote learning.

"The students in this study were mostly middle-

class, Caucasian students," she said. "So, I hesitate to say these results would generalize necessarily to universities that have a more heterogeneous student body. I also would hesitate to say how this would generalize into our current Zoom environment. I don't know how that shakes out because the demands of doing exams online are likely to be very different."

More information: Nancy Hamilton et al, Test Anxiety and Poor Sleep: A Vicious Cycle, *International Journal of Behavioral Medicine* (2021). [DOI: 10.1007/s12529-021-09973-1](https://doi.org/10.1007/s12529-021-09973-1)

Provided by University of Kansas

APA citation: Research delves into link between test anxiety and poor sleep (2021, April 28) retrieved 25 July 2022 from <https://medicalxpress.com/news/2021-04-delves-link-anxiety-poor.html>

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