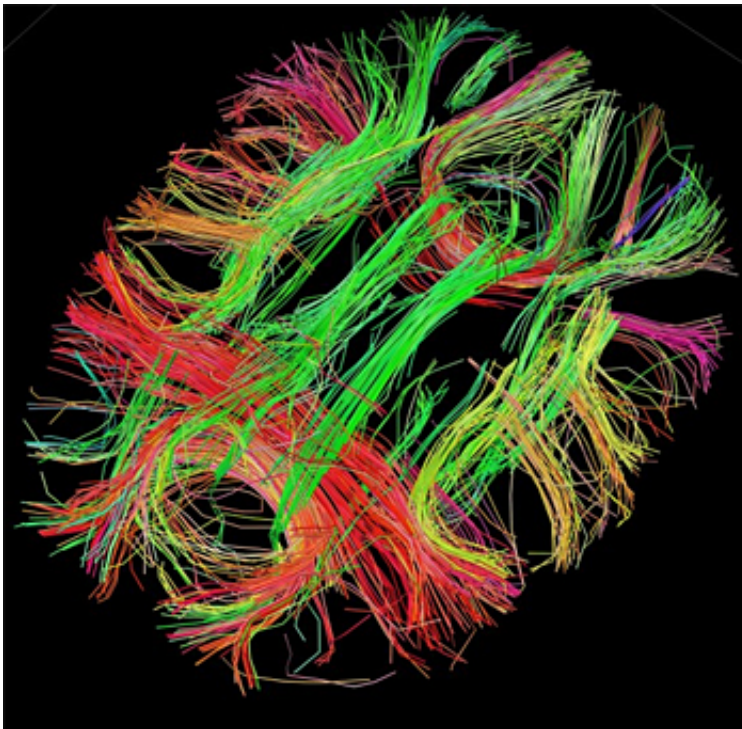


Study links brain structure, anxiety and negative bias in healthy adults

April 13 2017



White matter fiber architecture of the brain. Credit: Human Connectome Project.

Healthy college students who have a relatively small inferior frontal cortex - a brain region behind the temples that helps regulate thoughts and emotions - are more likely than others to suffer from anxiety, a new study finds. They also tend to view neutral or even positive events in a negative light, researchers report.

The researchers evaluated 62 students, collecting [brain](#) structural data from neuroimaging scans and using standard questionnaires to determine their level of [anxiety](#) and predilection for negative [bias](#).

Previous studies of people diagnosed with anxiety have found similar correlations between the size of the IFC and anxiety and negative bias, said U. of I. psychology postdoctoral researcher Sanda Dolcos, who led the study with graduate student Yifan Hu. But the new findings, reported in the journal *Social Cognitive and Affective Neuroscience*, are the first to see these same dynamics in healthy adults, the researchers said.

"You would expect these brain changes more in clinical populations where anxiety is very serious, but we are seeing differences even in the brains of healthy young adults," Dolcos said.

The study also found that the relationship between the size of the IFC and a student's negative bias was mediated by their level of anxiety.

"People who have smaller volumes have higher levels of anxiety; people who have larger IFCs tend to have lower levels of anxiety," Dolcos said. And higher anxiety is associated with more negative bias, she said. "How we see this is that the higher volume of the IFC confers resilience."

"We found that larger IFC volume is protecting against negative bias through lower levels of trait anxiety," Hu said.

According to the American College Health Association, anxiety is rampant on college campuses, where nearly 60 percent of students report at least one troubling bout of anxious worry every year.



University of Illinois psychology researcher Sanda Dolcos and graduate student Yifan Hu found brain differences among healthy college students that are linked to their risk of anxiety and negative bias. Credit: L. Brian Stauffer

"There is a very high level of anxiety in the student population, and this is affecting their life, their academic performance, everything," Dolcos said. "We are interested in identifying what is going on and preventing them from moving to the next level and developing clinical anxiety."

Anxiety can interfere with many dimensions of life, causing a person to be on high alert for potential problems even under the best of circumstances, Hu said. Negative bias also can interfere with a person's commitment to activities that might further their life goals, she said.

Understanding the interrelatedness of brain structure, function and personality traits such as anxiety and their behavioral effects such as negative bias will help scientists develop interventions to target specific brain regions in healthy populations, Hu said.

"We hope to be able to train the brain to function better," she said. "That way, we might prevent these at-risk people from moving on to more [severe anxiety](#)."

More information: Yifan Hu et al, Trait anxiety mediates the link between inferior frontal cortex volume and negative affective bias in healthy adults, *Social Cognitive and Affective Neuroscience* (2017). [DOI: 10.1093/scan/nsx008](#)

Provided by University of Illinois at Urbana-Champaign

Citation: Study links brain structure, anxiety and negative bias in healthy adults (2017, April 13) retrieved 23 April 2024 from <https://medicalxpress.com/news/2017-04-links-brain-anxiety-negative-bias.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.