

Your brain gets bigger if you're anxious and depressed

August 5 2020, by Rachel Curtis



PhD researcher Ms Daniela Espinoza Oyarce: “We found people who have depression alone have lower brain volumes in many areas of the brain.” Credit: Australian National University

Researchers have found depression is linked to areas of the brain shrinking in size but when depression is paired with anxiety one area of the brain becomes "significantly" larger.

A new study, published in the *Journal of Psychiatry and Neuroscience*, looked at more than 10,000 people to find the effects of [depression](#) and [anxiety](#) on [brain](#) volume.

The study shows depression has a pronounced impact on the hippocampus, the part of the brain linked to memory and learning, shrinking it.

In contrast, the study found that when depression and anxiety occur together, it leads to an increase in size of the part of the brain linked to emotions, the amygdala.

"Many studies looking at the effect of depression on brain do not account for the fact that people who have depression often experience anxiety too," study lead and Ph.D. researcher Ms Daniela Espinoza Oyarce said.

Depression is the most debilitating disorder worldwide, and one-in-six Australians currently experience depression, anxiety, or both.

"We found people who have depression alone have lower brain volumes in many areas of the brain, and in particular the hippocampus," Ms Espinoza Oyarce said.

"This becomes even more relevant later in life because a smaller hippocampus is a risk factor for Alzheimer's disease and may accelerate the development of dementia."

A particularly important finding of this research is that people who had both depression and anxiety had less shrinkage in many [brain areas](#) and even an increase in the amygdala. This indicates that the true effect of depression on the brain has been underestimated because of an opposite effect in the amygdala.

"Anxiety lowers the effect of depression on [brain volume](#) sizes by three percent on average—somewhat hiding the true shrinking effects of depression," Ms Espinoza Oyarce said.

"More research is needed into how anxiety lowers the effects of depression, but for the amygdala, perhaps anxiety leads to overactivity."

More information: Volumetric brain differences in clinical depression in association with anxiety: a systematic review with meta-analysis, *Journal of Psychiatry and Neuroscience*, [DOI: 10.1503/jpn.190156](#)

Provided by Australian National University

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