Health & Medicine

Getting to the Bottom of Depression

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Some people with depression suffer because a structural abnormality in the brain prevents them from interpreting social cues from other people. That's the implication of a groundbreaking study published by Columbia psychiatric researchers Myrna Weissman and Bradley Peterson in the *Proceedings of the National Academy of Sciences* this spring.

Weissman and Peterson conducted one of the largest-ever imaging studies of people at risk for developing depression. Using functional magnetic resonance imaging (fMRI), they examined the brains of 131 people, aged 6 to 54. At the time of the study, none of their subjects had ever experienced depression, but about half were at high risk for developing depression based on their family history of the illness. The researchers excluded from their study people who already had depression because they did not want to observe in people's brains structural abnormalities that could have *resulted* from the illness, but rather they sought to identify structural abnormalities that signaled their predisposition.

Indeed, the study revealed something remarkable about the brains of people whose parents and grandparents had depression: their brain cortex, which is the outermost layer of the organ, was 28 percent thinner on the right hemisphere than is normal. That's a drastic reduction of brain tissue, on par with what has been observed previously in persons with Alzheimer's disease and schizophrenia. "We almost didn't believe it," says Peterson. "But we checked and rechecked all of our data, and we looked for all possible alternative explanations."

Additional tests showed that the subjects with a thinned right cortex were less able to pay attention to, interpret, and remember social cues.

Weissman and Peterson hypothesize that a thinning of the right cortex is a precursor to depression only when it occurs in tandem with other structural irregularities. Their data suggest, for instance, that a thinning of the left cortex also might have to occur

for depression to take root. In other cases, a thinning of the right cortex, and its ensuing cognitive difficulties, might lead to schizophrenia, attention-deficit hyperactivity disorder (ADHD), or other psychiatric problems, according to previous studies.

Weissman and Peterson say that their research, by identifying what appears to be a common anatomical basis for such disorders, points toward new treatment strategies for depression. "For example, either behavioral therapies that aim to improve attention and memory or stimulant medications currently used for ADHD may surface as possible treatments for people who have familial depression and this pattern of cortical thinning," says Peterson.

"This is entirely speculative at this point, but it's a logical hypothesis to test based on the findings from this study."



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