

Study shows brain's response to sadness can predict relapses into depression

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A University of Toronto study shows that when formerly depressed people experience mild states of sadness, their brain's response can predict if they will become depressed again.

"Part of what makes depression such a devastating disease is the high rate of relapse," says Norman Farb, a PhD psychology student and lead author of the study. "However, the fact that some patients are able to fully maintain their recovery suggests the possibility that different responses to the type of [emotional challenges](#) encountered in everyday life could reduce the chance of relapse."

Farb and his team showed 16 formerly [depressed patients](#) sad movie clips and tracked their brain activity using [functional magnetic resonance imaging](#) (fMRI). Sixteen months later, nine of the 16 patients had relapsed into depression. The researchers compared the [brain activity](#) of relapsing patients against those who remained healthy and against another group of people who had never been depressed.

Faced with sadness, the relapsing patients showed more activity in a frontal region of the brain, known as the medial prefrontal gyrus. These responses were also linked to higher rumination: the tendency to think obsessively about negative events and occurrences. The patients who did not [relapse](#) showed more activity in the rear part of the brain, which is responsible for processing [visual information](#) and is linked to greater feelings of acceptance and non-judgement of experience.

"Despite achieving an apparent recovery from the symptoms of depression, this study suggests that there are important differences in how formerly depressed people respond to emotional challenges that predict future well-being," says Farb. "For a person with a history of depression, using the frontal brain's ability to analyze and interpret sadness may actually be an unhealthy reaction that can perpetuate the chronic cycle of depression. These at-risk individuals might be better served by trying to accept and notice their feelings rather than explain and analyze them."

The research was published in *Biological Psychiatry*. Farb was under the supervision of professor Adam Anderson in the Department of Psychology.

Provided by University of Toronto

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