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Subject: MRI Shows How Facial Expressions Can Help Diagnose Bipolar or Depression

Date: Thu, 06 Sep 2018 05:52:03 +0000

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# MRI Shows How Facial Expressions Can Help Diagnose Bipolar or Depression

By [Rick Nauert PhD](#)

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 MRI Shows How Facial Expressions Can Help Diagnose Bipolar or Depression

Brain imaging technology that traces the way neurons react when a person processes facial expressions such as anger, fear, sadness, disgust and happiness can help determine if a person has [bipolar disorder](#) or [depression](#).

Investigators say neurons in the brain structure called the amygdala play a key role in processing emotion. Using magnetic resonance imaging (MRI), nerve cells in this brain area are shown to respond differently to facial expressions depending on whether the person has bipolar disorder or depression.

In people with bipolar disorder, the left side of the amygdala is less active and less connected with other parts of the brain than in people with depression. Lead researcher Dr. Mayuresh Korgaonkar from the University of Sydney believes these differences could potentially be used in the future to differentiate bipolar disorder from depressive disorders.

Overall, the findings from this study had 80 percent accuracy in making this distinction. The research appears in the journal *Biological Psychiatry: Cognitive Neuroscience and NeuroImaging*.

The ability to distinguish between two similar mental disorders that respond to different treatment methods is important. “Mental illness, particularly bipolar disorder

and depression, can be difficult to diagnose as many conditions have similar symptoms,” Dr Korgaonkar said.

“These two illness are virtually identical except that in bipolar individuals also experience [mania](#).

“This means distinguishing them can be difficult and presents a major clinical challenge as treatment varies considerably depending on the primary diagnosis.

“The wrong diagnosis can be dangerous, leading to poor social and economic outcomes for the patient as they undergo treatment for a completely different disorder. Identifying brain markers that could reliably tell them apart would have immense clinical benefit.

“Such a marker could help us better understand both these disorders, identify risk factors for developing these disorders, and potentially enable clear diagnosis from early onset,” Korgaonkar said.

Experts believe approximately 60 percent of patients with bipolar disorder are initially misdiagnosed as having major depressive disorder. Moreover, an accurate diagnosis of bipolar disorder may take up to a decade to be established.

The reason for this is that among individuals with bipolar disorder the depressive phase of the illness is the first to present. And, bipolar depression is similar to major depression in terms of clinical symptoms.

Researchers said emotion processing is a core problem underlying both these disorders. Investigators are now implementing phase 2 of the study to improve identification of the markers in a larger cohort of patients.

Source: [Westmead Institute for Medical Research](#)