Brain scans reveal differences in depression and bipolar disorder, study finds

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(Medical Xpress)—Brain scans measuring blood flow can help diagnose bipolar disorder at an early stage and distinguish the condition from depression, according to a study conducted by a University of Pittsburgh research team published today in the *British Journal of Psychiatry*.

Bipolar disorder, characterized by mood swings that range from severe depression to very elevated or irritable moods, is difficult to diagnose and often is misdiagnosed as clinical depression. Currently, only one in five patients with bipolar disorder is correctly diagnosed when first assessed by a physician, with an accurate diagnosis often taking up to 10 years. Problems with diagnoses can occur for various reasons, including miscommunications between patients and doctors. For example, patients with bipolar disease sometimes interpret manic phases as normal and do not disclose them to their physician.

"Earlier and more accurate diagnoses can make an enormous difference for patients and their families, and may even save lives," noted Jorge Almeida, M.D., Ph.D., assistant professor of psychiatry at Pitt and lead author of the study. "This is a very promising finding that highlights the usefulness of neuroimaging to help identify biological markers associated with different mental health conditions."

For this study, 44 females were evaluated: 18 with bipolar-I disorder, 18 with unipolar depression (also called major depressive disorder), and 18 healthy individuals to act as a control group. The women were carefully matched for demographic and clinical variables, and all were

experiencing a depressive episode as they were assessed for the study.

Researchers used a new and promising imaging method called Arterial Spin Labelling to measure blood flow, in a non-invasive fashion, to brain regions associated with depression. They found that measuring blood flow could identify with 81 percent accuracy which women were depressed (unipolar depression) and which women had bipolar depression. They also used a new analytical method called Pattern Recognition Analysis that allows researchers to individualize brain differences to a specific person.

"These results also suggest that we may one day be able to predict future bipolar behavior in younger adults who haven't shown any symptoms, allowing for earlier and more accurate treatment," added Dr. Almeida. "Researchers will now test these new technologies in a larger sample and in a multi-center study."

Provided by University of Pittsburgh Medical Center