

What is the brain telling us about the diagnoses of schizophrenia and bipolar disorder?

September 5 2013

We live in the most exciting and unsettling period in the history of psychiatry since Freud started talking about sex in public.

On the one hand, the American Psychiatric Association has introduced the fifth iteration of the psychiatric diagnostic manual, DSM-V, representing the current best effort of the brightest clinical minds in psychiatry to categorize the enormously complex pattern of human emotional, cognitive, and behavioral problems. On the other hand, in new and profound ways, neuroscience and [genetics research](#) in psychiatry are yielding insights that challenge the traditional diagnostic schema that have long been at the core of the field.

"Our current [diagnostic system](#), DSM-V represents a very reasonable attempt to classify patients by their symptoms. Symptoms are an extremely important part of all medical diagnoses, but imagine how limited we would be if we categorized all forms of pneumonia as 'coughing disease,'" commented Dr. John Krystal, Editor of *Biological Psychiatry*.

A paper by Sabin Khadka and colleagues that appears in the September 15th issue of *Biological Psychiatry* advances the discussion of one of these roiling psychiatric diagnostic dilemmas.

One of the core hypotheses is that schizophrenia and [bipolar disorder](#) are

distinct scientific entities. Emil Kraepelin, credited by many as the father of modern scientific psychiatry, was the first to draw a distinction between dementia praecox (schizophrenia) and [manic depression](#) (bipolar disorder) in the late 19th century based on the behavioral profiles of these syndromes. Yet, patients within each diagnosis can have a wide variation of symptoms, some symptoms appear to be in common across these diagnoses, and [antipsychotic](#) medications used to treat schizophrenia are very commonly prescribed to patients with bipolar disorder.

But at the level of [brain circuit](#) function, do schizophrenia and bipolar differ primarily by degree or are there clear categorical differences? To answer this question, researchers from a large collaborative project called BSNIP looked at a large sample of patients diagnosed with schizophrenia or bipolar disorder, their healthy relatives, and healthy people without a family history of psychiatric disorder.

They used a specialized analysis technique to evaluate the data from their multi-site study, which revealed abnormalities within seven different brain networks. Generally speaking, they found that schizophrenia and bipolar disorder showed similar disturbances in cortical circuit function. When differences emerged between these two disorders, it was usually because schizophrenia appeared to be a more severe disease. In other words, individuals with schizophrenia had abnormalities that were larger or affected more brain regions. Their healthy relatives showed subtle alterations that fell between the healthy comparison group and the patient groups.

The authors highlight the possibility that there is a continuous spectrum of circuit dysfunction, spanning from individuals without any familial association with [schizophrenia](#) or bipolar to patients carrying these diagnoses. "These findings might serve as useful biological markers of psychotic illnesses in general," said Khadka.

Krystal agreed, adding, "It is evident that neither our genomes nor our brains have read DSM-V in that there are links across disorders that we had not previously imagined. These links suggest that new ways of organizing patients will emerge once we understand both the genetics and neural circuitry of psychiatric disorders sufficiently."

More information: The article is "Is Aberrant Functional Connectivity A Psychosis Endophenotype? A Resting State Functional Magnetic Resonance Imaging Study" by Sabin Khadka, Shashwath A. Meda, Michael C. Stevens, David C. Glahn, Vince D. Calhoun, John A. Sweeney, Carol A. Tamminga, Matcheri S. Keshavan, Kasey O'Neil, David Schretlen, and Godfrey D. Pearlson ([DOI: 10.1016/j.biopsych.2013.04.024](https://doi.org/10.1016/j.biopsych.2013.04.024)). The article appears in *Biological Psychiatry*, Volume 74, Issue 6 (September 15, 2013)

Provided by Elsevier

Citation: What is the brain telling us about the diagnoses of schizophrenia and bipolar disorder? (2013, September 5) retrieved 27 April 2024 from <https://medicalxpress.com/news/2013-09-brain-schizophrenia-bipolar-disorder.html>

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