

**Media contact**

Rhiannon Bugno

+1 214 648 0880

Biol.Psych@UTSouthwestern.edu

Brain abnormality indicates general risk for mental illness

A new study in Biological Psychiatry identifies functional connectivity impairments associated with transdiagnostic risk for common forms of mental illness

Philadelphia, May 17, 2018 – A new [study](#) by researchers at Duke University reports an abnormality in visual regions of the brain that is associated with a person's general risk for mental illness. The findings, published in [Biological Psychiatry](#), indicate a signature abnormality shared between common forms of mental illness, which could help clinicians assess a patient's general risk for developing a mental illness. The signature abnormality was present in participants involved in the study who already had a higher risk of mental illness. This was characterized by a reduced efficiency between visual areas and brain networks important for integrating sensory information and suppressing distracting information.

Researchers have long thought that some aspects of the biology of the risk for psychiatric disorders were specific to particular disorders, and by studying specific groups of patients, may have mistaken general risk factors as specific risk factors. Newer research suggests that a person's risk for developing mental illness is not specific to one form of disorder, but is instead shared across many different disorders. "In other words, there may be a single risk factor that predicts whether an individual develops any form of psychiatric disorder, be it depression, post-traumatic stress disorder, addiction, or even schizophrenia," said first author Maxwell Elliott, a doctoral student in the laboratory of Ahmad Hariri, PhD.

"In this paper by Elliott and colleagues, reduced cortical efficiency may be one of these general risk traits," said John Krystal, MD, Editor of *Biological Psychiatry*.

The 605 university students included in the study were a subset from the larger Duke Neurogenetics Study. Many of the participants met criteria for psychiatric disorders, including alcohol or substance use disorder, major depressive disorder, and bipolar disorder. However, rather than dividing the participants by a specific diagnosis, Elliott and colleagues gave each person a score that reflected their general mental health liability based on psychiatric assessments.

Functional magnetic resonance imaging (fMRI) of the whole brain identified a relationship between the individual scores and increased connectivity between the visual cortex and specific brain networks important for high level thinking. The networks, referred to as default mode network and frontoparietal network, are critical for behaviors aimed at completing a particular task, and suppressing internal distractions to tease out sensory information relevant to that task.

"These patterns suggest that broad risk for mental illness may reflect subtle problems in how a person is able to integrate their thoughts, plans, and actions with their fundamental experience of the world, which in humans is principally represented by visual information," said Mr. Elliott.

Notes for editors

The article is "A Connectome Wide Functional Signature of Transdiagnostic Risk for Mental Illness," by Maxwell L. Elliott, Adrienne Romer, Annchen R. Knodt, and Ahmad R. Hariri (<https://doi.org/10.1016/j.biopsycho.2018.03.012>). It appears in *Biological Psychiatry*, published by Elsevier.

Copies of this paper are available to credentialed journalists upon request; please contact Rhiannon Bugno at Biol.Psych@UTSouthwestern.edu or +1 214 648 0880. Journalists wishing to interview the authors may contact Maxwell Elliott at maxwell.elliott@duke.edu or +1 651 307 8069.

The authors' affiliations and disclosures of financial and conflicts of interests are available in the article.

John H. Krystal, MD, is Chairman of the Department of Psychiatry at the Yale University School of Medicine, Chief of Psychiatry at Yale-New Haven Hospital, and a research psychiatrist at the VA Connecticut Healthcare System. His disclosures of financial and conflicts of interests are available [here](#).

About *Biological Psychiatry*

Biological Psychiatry is the official journal of the [Society of Biological Psychiatry](#), whose purpose is to promote excellence in scientific research and education in fields that investigate the nature, causes, mechanisms and treatments of disorders of thought, emotion, or behavior. In accord with this mission, this peer-reviewed, rapid-publication, international journal publishes both basic and clinical contributions from all disciplines and research areas relevant to the pathophysiology and treatment of major psychiatric disorders.

The journal publishes novel results of original research which represent an important new lead or significant impact on the field, particularly those addressing genetic and environmental risk factors, neural circuitry and neurochemistry, and important new therapeutic approaches. Reviews and commentaries that focus on topics of current research and interest are also encouraged.

Biological Psychiatry is one of the most selective and highly cited journals in the field of psychiatric neuroscience. It is ranked 6th out of 142 Psychiatry titles and 10th out of 258 Neurosciences titles in the Journal Citations Reports® published by Thomson Reuters. The 2016 Impact Factor score for *Biological Psychiatry* is 11.412. www.sobp.org/journal

About Elsevier

[Elsevier](#) is a global information analytics business that helps institutions and professionals advance healthcare, open science and improve performance for the benefit of humanity. Elsevier provides digital solutions and tools in the areas of strategic research management, R&D performance, clinical decision support and professional education, including [ScienceDirect](#), [Scopus](#), [SciVal](#), [ClinicalKey](#) and [Sherpath](#). Elsevier publishes over 2,500 digitized journals, including [The Lancet](#) and [Cell](#), 38,000 e-book titles and many iconic reference works, including [Gray's Anatomy](#). Elsevier is part of [RELX Group](#), a global provider of information and analytics for professionals and business customers across industries. www.elsevier.com

Media contact

Rhiannon Bugno
Editorial Office, *Biological Psychiatry*

+1 214 648 0880

Biol.Psych@UTSouthwestern.edu