Brain’s Visual Networks Play a Key Role in Mental Health

Poor communication between areas of the brain that process what folks see may increase an individual’s risk of mental illness.

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The inability of the visual cortex—a part of the brain that helps people understand and recognize what they see—to transmit messages to brain networks that govern focus and introspection boosts the chances that someone might develop a mental disorder, suggest new findings published in Biological Psychiatry, reports Duke University.

For the study, researchers used brain imaging to identify how patterns showing the ability of different regions of the organ to relay information to one another, also known as brain connectivity, can affect a person’s risk of developing some common forms of mental illness.

Researchers gathered data from 605 undergraduates who took part in the Duke Neurogenetics Study. Participants spent 10 minutes relaxing in an MRI scanner while it recorded blood flow to different parts of the brain. In addition, the students completed a comprehensive mental health assessment that scientists used to give each person a score known as a p-factor.

The p-factor proposes that people who have symptoms of one psychiatric disorder are also more likely to report symptoms of one or more additional mental health problems, such as depression or bipolar disorder. (Scientists assigned folks with more severe symptoms of psychiatric disorders higher p-factor scores and referred all participants diagnosed with mental illnesses for therapy.)

In addition, researchers noted that certain regions of the brain in people with these higher scores didn’t function well together. This was the case specifically for the four quarters of the visual cortex.

After careful consideration of the data, scientists learned that these visual systems had difficulty engaging with the more complex networks in the brain responsible for focus, planning and introspection. (Difficulty focusing and planning is associated with schizophrenia and severe depression, among other forms of mental illness.)

“The more we can map the p-factor onto the brain and understand how it influences mental illness, the more we can come up with novel ways of intervening,” said Maxwell Elliott, a graduate

student in psychology and neuroscience at Duke University and the study's lead author.

Scientists said they're planning to conduct this study again on a more diverse group to determine whether its results can be applied to the population as a whole.

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