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Research uncovers key genes linked to different symptoms of schizophrenia

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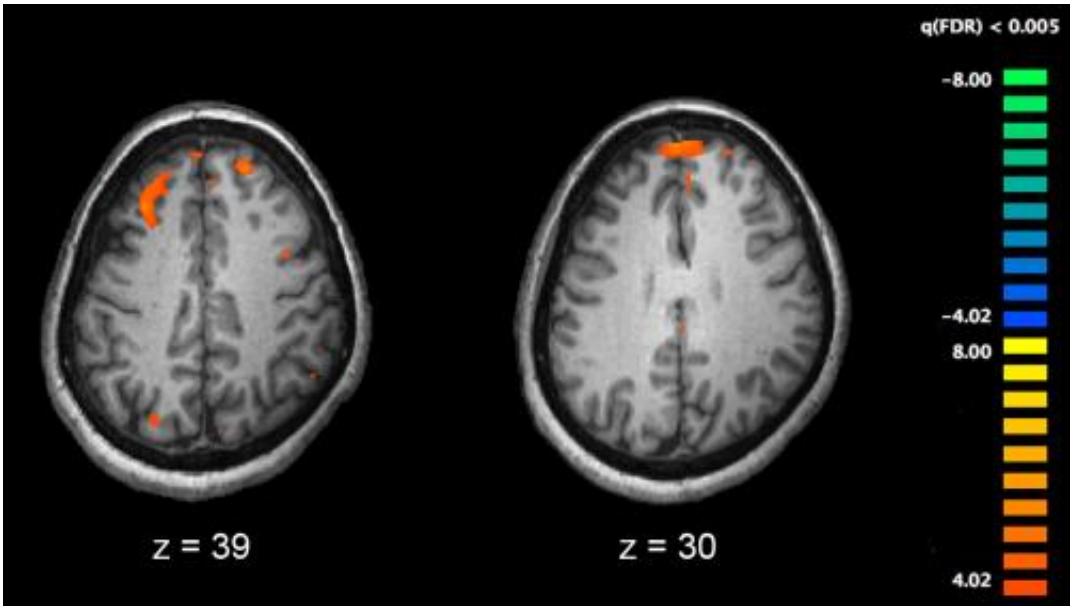

Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown in orange, during an fMRI study of working memory. Credit: Kim J, Matthews NL, Park S./PLoS One.

New research from a team of psychologists including University of Dayton assistant professor Julie Walsh-Messinger has uncovered key genes linked to different symptoms of schizophrenia—a discovery that could lead to better, more precise treatments for individuals.

The study "represents a much-needed step forward" by identifying four previously unknown genetic diseases within the umbrella diagnosis of schizophrenia. Walsh-Messinger worked with researchers at New York University Langone Medical Center to evaluate patients, and their findings are published in the current issue of the journal *EBioMedicine*.

"People have been studying schizophrenia for over 100 years now, trying to figure out what causes it and how to treat it effectively," Walsh-Messinger said. "These findings are incredibly exciting because we are actually able to identify four different pathways to the disorder that we call schizophrenia.

"It's a heterogeneous disorder, which means one person with schizophrenia can look very different from another person with schizophrenia. And, although it only affects a very small subset of the population—about 1 percent—it causes a lot of social and occupational dysfunction and makes it very challenging for these individuals to experience fulfillment in their lives and be productive members of society."

The authors say their research is important because "patients may respond well to one medication but not another" and doctors "currently have little to guide their decisions besides trial and error."

Walsh-Messinger said, for instance, the team found a SLC39A13 mutation related to certain symptoms. The gene is a zinc transporter, so zinc augmentation could be a good starting point for treatment. However, that treatment might not be effective for someone without that mutation. More information on the genes is available from NYU.

Walsh-Messinger said the study is ongoing, and will need to be expanded to a larger population.

"There's still a lot to be discovered," she said. "But this gives us a good starting point for how to approach treatment."

More information: Thorsten M. Kranz et al. Phenotypically distinct subtypes of psychosis accompany novel or rare variants in four different signaling genes, *EBioMedicine* (2016). DOI: 10.1016/j.ebiom.2016.03.008

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