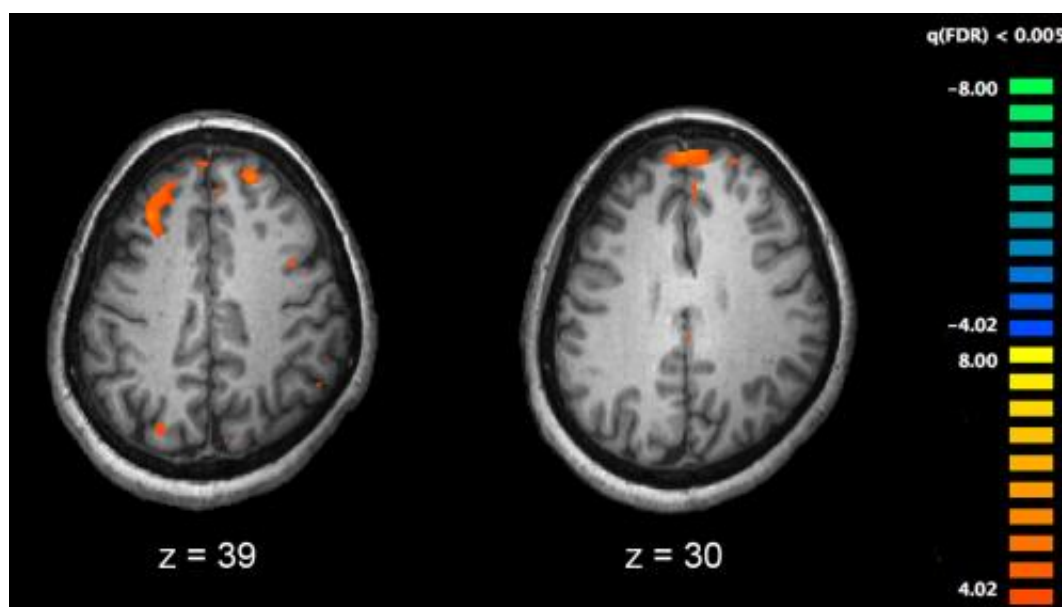


Research uncovers key differences in brains of women and men with schizophrenia

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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.

Researchers from the Icahn School of Medicine at Mount Sinai have found clear disparities in the way males and females—both those with schizophrenia and those who are healthy—discern the mental states of others.

The research, the first of its kind, will be published online on October 30, in *Social Neuroscience*.

The research team examined [emotional processing](#) in 37 clinically stable participants diagnosed with [schizophrenia](#) or schizoaffective disorder, compared with 31 healthy controls. Subjects identified emotions of other people by looking at pictures of eyes and listening to stories. Smell tests were also administered to measure odor detection and odor identification ability. Most animal species rely on their sense of smell to determine the intentions of other animals. Intelligence scores measured more complex [brain](#) processing and olfactory or scent scores measured simpler mental processing.

They found that females without schizophrenia used more complex areas of their brains to identify someone else's mental state, including other's beliefs, desires, intentions, and emotions. The healthy males used less complex brain regions to process others' [mental states](#).

Both women and men with schizophrenia used less complex brain regions to process the emotional states of others. Men with schizophrenia used less complex brain regions for processing than healthy men.

"Women and men are fundamentally different, and it is critical to perform sex-specific research across psychiatry and all of medicine," said the study's senior author, Dolores Malaspina, MD, Director, Psychosis Program, Icahn School of Medicine at Mount Sinai. "Sex-stratified research is essential for studying social processes in general and especially for conditions such as schizophrenia that present differently in women and men."

"The neurocircuitry of olfaction is very closely related to the neurocircuitry for emotional processing," said the study's first author,

Julie Walsh-Messinger, Ph.D., Assistant Professor, University of Dayton. "So the interaction between the two might be a window to better understanding schizophrenia."

The research team plans to study what causes the differences in sexes in their olfactory responses in the future.

Provided by The Mount Sinai Hospital

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