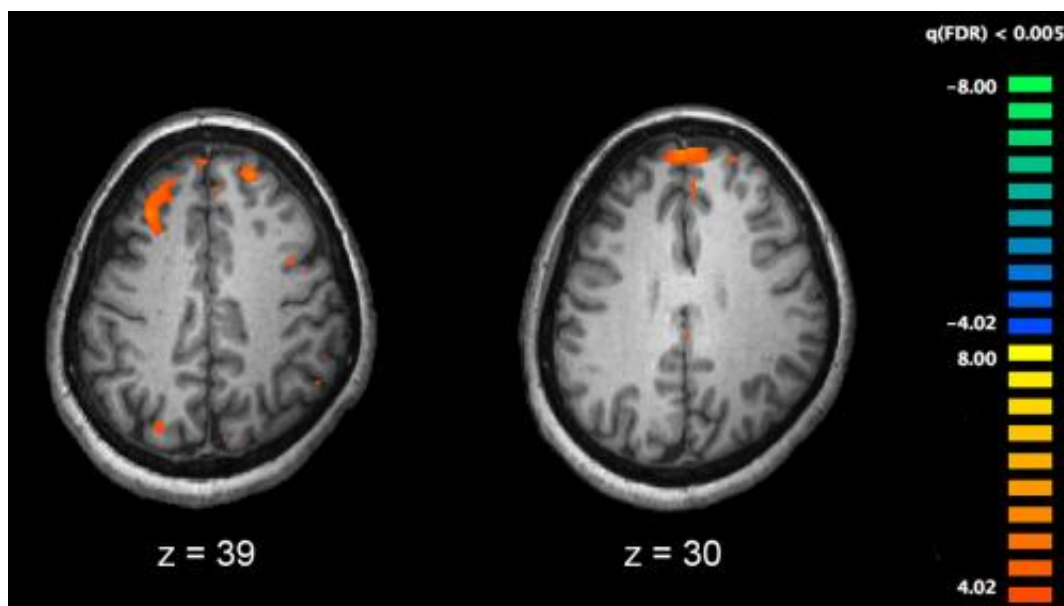


# Researchers reveal sex differences in association between symptoms of schizophrenia and superoxide dismutase

September 16 2020, by Zhang Nannan



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.

Schizophrenia is a disabling psychiatric disorder characterized by positive symptoms, such as hallucinations and delusions, negative

symptoms, such as decreased expression ability, and cognitive defects, such as impaired executive function and memory ability. Excessive oxidative stress and dysregulated antioxidant defense system have been proposed to be important risk factors for schizophrenia. The activities of superoxide dismutase (SOD), an important antioxidant enzyme, were found to be abnormal in patients with schizophrenia.

Previous studies have shown sex differences in disease risk, course and outcome of [schizophrenia](#). Moreover, some animal studies have reported sex differences in oxidative stress markers. However, no studies have explored the sex difference in the association between SOD activity and clinical symptoms in patients with schizophrenia.

Recently, Dr. Wang Dongmei and her colleagues, under the guidance of Prof. Zhang Xiangyang, from the Institute of Psychology of the Chinese Academy of Sciences, explored the sex differences in clinical characteristics and SOD activity as well as their relationship in never-treated first-episode (NTFE) patients with schizophrenia in the Han Chinese population.

165 NTFE patients with schizophrenia and 133 healthy controls were recruited. Further, the researchers examined their total SOD and manganese SOD (MnSOD) activities, and evaluated the psychopathological symptoms by a five-factor model of the Positive and Negative Syndrome Scale (PANSS).

"Depressive factor was positively correlated with MnSOD and total SOD activity in [male patients](#), while PANSS positive symptom was independently correlated with MnSOD activity in [female patients](#)," said Dr. Wang.

"There were [sex differences](#) in the association between SOD activity and clinical phenotype in NTFE patients with schizophrenia, sex is one of the

important factors in evaluating the relationship between antioxidant [activity](#) and clinical psychopathological symptoms in patients with schizophrenia," she said.

This work was published online in the *World Journal of Biological Psychiatry* on August 27th, 2020 entitled "Sex differences in the association between symptoms and superoxide dismutase in patients with never-treated first-episode schizophrenia."

**More information:** Dong Mei Wang et al. Sex differences in the association between symptoms and superoxide dismutase in patients with never-treated first-episode schizophrenia, *The World Journal of Biological Psychiatry* (2020). [DOI: 10.1080/15622975.2020.1805510](https://doi.org/10.1080/15622975.2020.1805510)

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