Individuals with high level of schizotypal traits exhibit altered brain structural and functional connectivity

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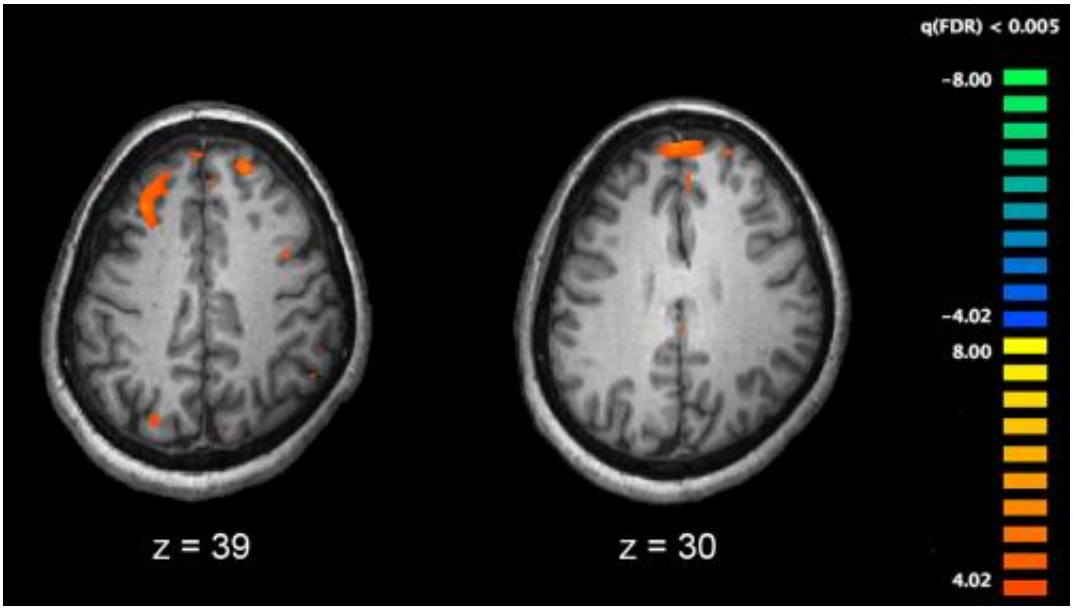

Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown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

Schizophrenia is a complex psychiatric disorder involving a wide range of cognitive, emotional, and social function impairments and altered

brain structure. Recent findings suggest a continuum approach: that continuous symptoms and psychiatric disorder related traits can be integrated as risk features for the development of the corresponding disorders.

Schizotypy refers to schizophrenia-like traits below the clinical threshold in the general population. One of the phenotypic markers will be the potential change of brain structure and functional connectivity associated with the disorders. However, it is not well understood whether schizotypy is associated with specific changes in brain connectivity.

In order to bridge this gap of knowledge, Dr. Raymond Chan and his team members from the Institute of Psychology of the Chinese Academy of Sciences (CAS) have examined the brain structural and functional connectivity changes associated with schizotypy.

They recruited 87 participants with a high level of schizotypal traits and 122 participants with a low level of schizotypal traits to undergo both resting-state and diffusion tensor imaging scans.

According to the researchers, individuals with a high level of schizotypal traits exhibited increased structural connectivity probability within the task control network and within the default mode network; increased variability and decreased stability of functional connectivity within the default mode network and between the auditory network and the subcortical network; and decreased static mean functional connectivity strength mainly associated with the sensorimotor network, the default mode network and the task control network.

Results suggest that individuals with a high level of schizotypal traits do exhibit both compensatory and deficient connectivity mainly associated with the default mode network, the task control network and the sensorimotor network.

These findings therefore indicate the underlying brain connectivity adaptive changes in individuals with high level of schizotypal traits, and provide a possible neurobiological basis for the connectivity decompensation hypothesis in schizophrenia spectrum disorders.

More information: Yong-ming Wang et al. Altered brain structural and functional connectivity in schizotypy, *Psychological Medicine* (2020). DOI: 10.1017/S0033291720002445