

New research shows lack of motivation affects cognitive performance in schizophrenia

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New research from the Centre for Addiction and Mental Health (CAMH) shows a significant relationship between motivational deficit and poor cognitive performance in people with schizophrenia. The study, published online in *JAMA Psychiatry*, is one of the first to link the two symptoms and suggests that understanding the impact of motivational impairment is an important step toward improving treatments for the disorder.

"Loss of motivation is a core feature of [schizophrenia](#) that we need to investigate with increased focus," said Dr. Gary Remington, senior scientist with the CAMH Campbell Family Mental Health Research Institute who served as the senior investigator on the study team. "It's possible that the loss of motivation is linked to a brain abnormality related to how people with the illness calculate effort. We're starting to see how fundamental this loss of drive is and how much of a barrier it can be to treatment and to optimal functioning in daily life."

Schizophrenia is a severe mental illness characterized by a diverse set of signs and symptoms including "positive", "negative" and "cognitive" symptoms. Positive symptoms include delusions, hallucinations, and other reality distortions known as psychosis. Negative symptoms include deficits in motivation and effort, and social withdrawal. Cognitive impairments are more subtle and include trouble with attention, memory and planning ability.

Treatment options for schizophrenia are limited and existing medications treat only one symptom of the illness (psychosis). Over the last decade, research efforts have shifted to focus on addressing [cognitive symptoms](#) but little attention has been paid to the interrelationship of symptoms and how motivational impairment itself can impact

cognitive ability.

"We know that cognitive impairment can be devastating for people with schizophrenia and there is a push to look at solutions, including medication options, brain training and brain stimulation techniques," said lead author Gagan Fervaha, a researcher in the Complex Mental Illness program at CAMH and a PhD candidate at the University of Toronto.

"But that might not be the whole picture," said Fervaha who is also a Vanier Scholar. "This study shows that we also need to look at motivational impairment and how it impacts cognition in order to target treatments in a better way."

Intrinsic motivation refers to the interest in, drive toward, and enjoyment of activities and goals for their own sake. Many people living with schizophrenia experience a deficit in motivation – a loss of drive and initiation that impacts a person's ability to complete everyday tasks or function well on a day-to-day basis.

Data for the study was drawn from the Clinical Antipsychotic Trial of Intervention Effectiveness (CATIE) study for chronic schizophrenia, supported by the National Institutes of Health in the United States. Participants in the CATIE study completed a series of neuropsychological tests. Cognitive, symptom and functioning data were available for 431 patients who received the same medication for six months.

Using this information, CAMH researchers evaluated the relationship between cognitive test results and levels of motivation and found that lower levels of motivation were associated with greater [cognitive impairment](#). Additionally, the study suggests that cognitive impairments are, to some

extent, secondary to motivational impairment.

"The results demonstrate that motivation needs to be evaluated in any assessment of cognition for people with schizophrenia," said Fervaha. "You can imagine that if you are told to remember something and that, because of the illness, you're not really motivated to remember it, it will be more difficult to remember than if you were highly motivated to do so."

While cognitive and motivational deficits were previously thought to be distinct domains of the illness, a better understanding of how the lack of motivation influences cognitive performance might mean it is the lack of motivation, not cognition on its own, that is causing people to perform poorly on tests. It could also mean that targeting motivational deficits might help improve uptake of existing therapies or inform new treatment approaches.

Provided by Centre for Addiction and Mental Health

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