

Study draws links between physical characteristics, like age and body mass index, and brain health

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March 7, 2018)—Mount Sinai researchers have shown, for the first time, the complex web of links between physical and behavioral characteristics, like age, body mass index (BMI), and substance use, and specific patterns of brain structure and function in patients with psychosis. The study is important because many of these characteristics can be targeted clinically to improve brain health in these patients.

The researchers found, among other things, that brain health declines as age, BMI, and substance use increase. But higher IQs were positively associated with multiple measures of brain health in people with [psychosis](#).

The results of the study will be published online in *JAMA Psychiatry* on Wednesday, March 7.

Psychosis is a term used to describe severe mental disorders characterised by symptoms in which an individual has sensory experiences of things that do not exist or beliefs with no basis in reality. Approximately 100,000 people experience psychosis each year in the United States and as many as 3 in 100 people will have an episode at some point in their lives. The findings of this study have important implications for [clinical care](#) as they identify multiple modifiable factors that can be targeted to improve brain health in patients with psychosis.

The research team, led by Sophia Frangou, MD, PhD, Professor of Psychiatry, Icahn School of Medicine at Mount Sinai, examined data from 140 patients diagnosed with psychosis. They took high-resolution MRI brain scans to measure brain volume, cortical thickness, connections between brain regions, and connectivity of [brain regions](#) during mental tasks. The team then used a statistical method called sparse canonical

correlation to discover the relationships between these features of brain integrity and measures of age, cognitive ability, BMI, substance use, physical activity, psychological trauma, family history of mental problems, and symptom severity. They found that higher age, higher BMI, and more severe psychotic symptoms were negatively associated with [cortical thickness](#) and brain activation during mental tasks. Conversely, higher IQ showed positive associations. In addition, substance use was negatively associated with measures of [brain volume](#) and brain wiring.

"These new results provide new insights on the many factors that influence brain integrity in patients with psychosis and provide evidence for the need for integrated physical and cognitive interventions in addition to psychiatric care," said Dr. Frangou.

"Patients with psychosis often have multiple health problems that impair their daily function and reduce life expectancy compared to the general population. Improving physical well-being and [brain health](#) should be the two pillars of clinical care for patients with psychosis."

Provided by The Mount Sinai Hospital

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