Genetic Links Found for Mental Illness and Brain Size

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Scientists identified genes that affect your brain size and intelligence as well as your chances of developing specific mental illnesses, according to a University of California at Los Angeles (UCLA) study published online in Nature Genetics and reported by HealthDay News.

For the study, scientists examined magnetic resonance imaging (MRIs) from 21,151 healthy participants worldwide to measure the size of the brain and its memory centers. Next, researchers cross-referenced this information with the participants' genetic data.

According to Paul Thompson, PhD, a professor of neurology at UCLA, and the study's senior author, researchers hunted for genes that increased individuals' risk for a single disease their children could inherit. In addition, scientists also looked for factors that caused tissue atrophy and reduced brain size, which is a biological marker for hereditary disorders such as schizophrenia, bipolar disorder, depression, Alzheimer's disease and dementia.

Researchers found that specific genes were consistently associated with smaller memory centers. This indicated a link between genetics and those mental disorders associated with diminished brain size, scientists said. What's more, this relationship held true in subjects from various populations in North America, Europe and Australia.

"Millions of people carry variations in their DNA that help boost or lower their brains' susceptibility to a vast range of diseases," Thompson said. "Once we identify the gene, we can target it with a drug to reduce the risk of disease. People also can take preventive steps through exercise, diet and mental stimulation to erase the effects of a bad gene."

In addition, researchers also found that people with a specific variant of another gene—called HMGA2—had measurably bigger brains and higher IQ test scores.

Thompson said researchers would continue investigating genetic links to other disorders, including autism and schizophrenia.

Click here to read more about the relationship between genetics and mental illness.

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