

Novel analysis offers clues to schizophrenia underpinnings

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(Medical Xpress) -- A new method of genetic analysis developed by Queensland researchers has shed fresh light on the elusive genetic underpinnings of schizophrenia and shown that schizophrenia-causing genetic variations are common in the general population.

The collaborative study by The University of Queensland's Queensland Brain Institute (QBI), The University of Queensland Diamantina Institute (UQDI) and the Queensland Institute of Medical Research (QIMR), found that all people carry genetic variants for schizophrenia.

While previous studies have pinpointed several [genes](#) along with rare chromosomal deletions and duplications associated with the disease, these account for less than three per cent of risk of schizophrenia.

But the new method found that about a quarter of schizophrenia is captured by many variants that are common in the general population.

According to QBI's, Associate Professor Naomi Wray, who led the international study, this suggests that we all carry genetic risk variants for schizophrenia, but that the disease only emerges when the burden of variants, in combination with [environmental factors](#), reaches a certain tipping point.

“They imply that each affected person may carry a unique combination of genetic risk variants, which in turn is consistent with a spectrum of symptoms and treatment responses,” Associate Professor Wray said.

Published in the latest issue of *Nature Genetics*, the study uses very distant genetic relationships between individuals that are estimated from nearly one million DNA markers, and shows the extent to which people with schizophrenia have more similar genomic profiles to each other than to people unaffected by this disorder.

This is the largest study of its kind to date with more than 20,000 participants.

Associate Professor Wray says the results hold out hope that as even larger study samples are collected, more specific genes will emerge, which will provide clearer insights into the underlying biology of schizophrenia.

It's a paradigm which has already proved to be successful for other complex genetic traits and disorders, such as Crohn's Disease.

Associate Professor Wray says that better understanding the genetic architecture of schizophrenia will ultimately aid the earlier diagnosis and management of the disorder.

“Because the risk of any one gene is so low, in order to make further progress we need to gather even larger cohorts that are carefully collected with detailed symptom and treatment information,” she said.

Associate Professor Wray is one of 96 co-signatories of a letter published this year in *Molecular Psychiatry*, the premier journal for research in psychiatry, calling for investment in larger cohorts for genetic studies of psychiatric disorders.

“Larger cohorts will allow us to identify biological pathways contributing to risk of schizophrenia and to identify patterns in genomic profiles in different groups of affected people, which is the key to personalizing

treatments,” she said.

Schizophrenia is a common, chronic and often devastating brain disorder characterized by persistent delusions and hallucinations.

It affects about 1 person in 100 at some point in their lives and usually strikes in late adolescence or early adulthood.

Despite the availability of effective treatments, the course of the illness is usually chronic, and response to treatments is often limited, leading to prolonged disability and personal suffering.

Family history, which signifies genetic inheritance, is a strong risk factor for [schizophrenia](#).

Provided by University of Queensland

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