

# Study reveals genetic overlap between schizophrenia and depression

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University of Queensland researchers are at the forefront of a ground-breaking study that has found people susceptible to psychiatric disorders such as depression, schizophrenia and bipolar disorder have underlying genetic similarities.

The study, by a worldwide consortium of more than 300 medical researchers in more than 250 institutions, is the first to demonstrate such a link.

The research was led by UQ's Queensland Brain Institute (QBI) researchers Dr Sang Hong Lee and Associate Professor Naomi Wray, and Professor Kenneth Kendler from the Virginia Commonwealth University in the USA.

" We studied the genetic information of more than 75,000 people, using a type of genetic variation called single nucleotide polymorphisms (SNPs)," Associate Professor Wray said.

" A SNP is one of the most common genetic changes and involves the replacement of a single unit that makes up our DNA with another.

" Using about a million SNPs measured on each person, we found evidence of increased genetic similarities between people with the same disorder.

" We also found significant similarities between people suffering from depression, schizophrenia and bipolar disorder."

Associate Professor Wray said the study supported the hypothesis that mental illnesses could lie along a spectrum, possibly resulting from shared risk factors.

The study is published in the latest issue of *Nature Genetics*.

" Psychiatric disorders account for about one-third of disability worldwide and cause enormous personal and societal burdens, affecting almost everyone, either directly or through friends and family," Associate Professor Wray said.

" Despite the impact of these disorders, the underlying causes are mostly unknown.

" Major depression has been a particularly complex challenge, partly because it is so common, but our results now provide clear guidance on what we need to do next to help unravel it," she said.

" We are now working toward generating a large body of information that will involve assessment of people with and without depression, to further identify genetic risk factors and differences in responses to treatment."

" Understanding these differences may contribute to personalising treatment options in the long term," she said.

Associate Professor Wray will work in collaboration with researchers from the Queensland Institute of Medical Research, the University of Sydney Brain and Mind Research Institute, and the South Australia Medical and Health Research Institute to tease apart the genetics of depression.

More information on the study can be found at: [www.qbi.uq.edu.au/group-leader-wray](http://www.qbi.uq.edu.au/group-leader-wray).

" Our research is a long way from impacting those affected by psychiatric disorders in terms of diagnosis, prognosis or treatment, but we are glimpsing the potential that advances in genomic technology could have for our understanding of common mental illnesses," she said.

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Queensland Brain Institute

The Queensland Brain Institute (QBI) at the University of Queensland (UQ) is a world-leading research facility focused on discovering the fundamental mechanisms that regulate brain function. Unlike research institutes that focus on a specific disease or condition, QBI is structured to study the brain's fundamental molecular and physiological mechanisms. QBI researchers are working to unlock the mysteries the neurodegenerative disease and mental health disorders which currently account for a staggering 45 per cent of the burden of disease in Australia. [www.qbi.uq.edu.au](http://www.qbi.uq.edu.au)

Further reading

A study published in *Nature* in 2009 by the International Schizophrenia Consortium, demonstrated that schizophrenia is highly

polygenic and demonstrated an overlap with bipolar disorder. The current study quantifies that relationship. " Common polygenic variation contributes to risk of schizophrenia and bipolar disorder" Nature 460: 748-52. PMID: 19571811

The methods used in this paper were first applied to schizophrenia. " Estimating the proportion of variation in susceptibility to schizophrenia captured by common SNPs." Nature Genetics 2012 44:247-50. PMID: 22344220

The current study uses the same data as a study published by the same consortium earlier this year in the Lancet. The aim of the Lancet study was to identify individual risk loci associated across multiple psychiatric disorders. Four individual risk loci surpassed the stringent threshold for significance. " Identification of risk loci with shared effects on five major psychiatric disorders: a genome-wide analysis" . Lancet 381: 1371-9. PMID: 23453885

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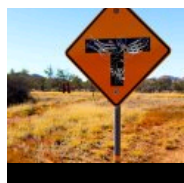
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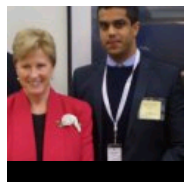


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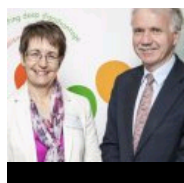
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



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