



Brain Sciences
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St Vincent's Hospital

NATURE, NURTURE AND THE RISK OF DEPRESSION

Some people are more than twice as likely to become depressed as others, given similar circumstances, according to landmark research from Brain Sciences UNSW.

The paper, which has just been published in the *British Journal of Psychiatry*, has found more than a fifth of the population has a genetic predisposition to depression, in response to a series of stressful life events.

Brain Sciences UNSW represents researchers from the University of New South Wales (UNSW) and its affiliated research institutes and teaching hospitals including the Prince of Wales Medical Research Institute, Black Dog Institute, Garvan Institute of Medical Research, St Vincent's Hospital and Prince of Wales Hospital.

The researchers based their findings on DNA samples of a group of 128 people who have been monitored for over 25 years for depression onset and major life events. 42 percent met criteria for lifetime major depression.

"We have been following a group of school teachers who graduated in 1978," said the lead author of the paper, UNSW Associate Professor of Psychiatry Kay Wilhelm, who is based at St Vincent's Hospital in Sydney. "We've been catching up with them every five years since, to see if there has been any onset of depression and if there have been any major life events."

"There is an 80 percent chance that those with the genetic predisposition will become depressed, if there are three or more negative life events in a year," said the geneticist on the paper, Professor Peter Schofield, who is Director of the Prince of Wales Medical Research Institute (POWMRI).

"This contrasts with some people who have genetic resilience against depression," said Professor Schofield. "Even in similar situations, there's only a thirty percent chance of them becoming depressed."

There are three different genetic types in the population.

- 21 percent of people have the genotype that predisposes them to depression
- 26 percent of people have the genotype with resilience to depression
- 53 percent of people have a mix of the two genotypes

The research also showed there was a 'tipping point' in regards to environmental factors.

"It's not just one negative life event, such as a health crisis," said Professor Mitchell, Head of the UNSW School of Psychiatry and Convenor of Brain Sciences UNSW. "The critical issue here is when you're exposed to a series of life events during a period of a year. There is a threshold."

"Our research is significant because there are social, psychological and genetic aspects to it," said Professor Schofield. "While there is plenty of evidence surrounding the significance of family history of depression, until now there has been very little idea about the specific genes involved."

"We already had a chart for each individual's life events and whether or not they had had a depressive episode," said Professor Wilhelm, who has tracked the teachers for most of her career with UNSW Professor Gordon Parker, from the Black Dog Institute. "Now the genetic tests back that up. We are the first study to be able to look at the genetics and the five years leading up to the first depressive episode."

"The research has some very significant implications," said Professor Wilhelm. "Perhaps you could reduce the likelihood of depression amongst those with the vulnerable genotype, by training them up in terms of improving their coping styles and stress responses."

"Eventually you might be able to better identify those who are likely to be at risk, suggest psychological treatment at times and even work out the best kind of antidepressant to use, if the need arises," said Professor Wilhelm.

Other authors of the paper *Life events, first depression onset and the serotonin transporter gene* are Heather Niven, Adam Finch, Lucinda Wedgwood, Anna Scimone, Ian Blair and Gordon Parker. The Australian National Health and Medical Research Council has funded the research.

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