

Origins of depression brought into focus in large-scale gene study

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Hundreds of genes have been newly linked to depression, shedding light on the origins of the condition and highlighting personality types that could be at risk.

The international study, involving more than two million people, is the largest of its kind. It could inform treatments for the condition, which affects one in five people in the UK and is the leading cause of disability worldwide.

Scientists led by the University of Edinburgh studied information pooled from three large datasets of anonymised health and DNA records and pinpointed 269 genes that were linked to [depression](#). They also used an innovative statistical method to identify sections of DNA that were common in people with depression and in those who adopted lifestyle behaviours such as smoking.

The findings suggest that depression could be a driving factor leading some people to smoke, but more research is needed to explain why, the team says.

Results also show that neuroticism – a tendency to be worried or fearful – could lead people to become depressed, which could shed light on personality factors that put people at risk. The [statistical approach](#) – known as Mendelian randomisation – allows scientists to look at how a condition impacts on behaviour, while ruling out other influences such as age or income.

Anonymised data, used with donor consent, is held by UK Biobank, the personal genetics and research company 23andMe and the Psychiatry

Genomics Consortium.

Experts say that the study reflects the importance of data science in understanding mental health.

The study, published in *Nature Neuroscience*, was funded by the MRC and Wellcome.

Professor Andrew McIntosh, of the University of Edinburgh's Centre for Clinical Brain Sciences, who led the research, said: "These findings are further evidence that depression is partly down to our genetics.

"We hope the findings will help us understand why some people are more at risk of depression than others, and how we might help people living with depression and anxiety more effectively in future."

Sophie Dix, Director of Research at [mental health](#) charity MQ, who was not involved in the research, said: "This study adds to the weight of evidence that genes are one of the key risk factors in depression, which is also impacted by life events such as social environment and trauma. The value of this could really be seen when looking into the development of personalised treatments—a welcome step given the dearth of innovation in identifying new approaches. We have seen very little advancement in nearly 50 years for people living with depression and right now the avenues available are not working for everyone.

"The power of this big genetic study is that it can point to systems in the brain which adds to our currently limited understanding in this area. By increasing our understanding of these systems, and how the [social environment](#) affects biological risk factors, we can begin to identify new targets for treatments that could help the millions of people worldwide affected by depression."

More information: undefined undefined et al. Genome-wide meta-analysis of depression identifies 102 independent variants and highlights the importance of the prefrontal brain regions, *Nature Neuroscience* (2019). [DOI: 10.1038/s41593-018-0326-7](https://doi.org/10.1038/s41593-018-0326-7)

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