

# Is Bipolar Disorder A Genetic Problem?

Trying to understand human beings is a complicated business. Somehow, we all intuitively know that our childhood, family, community and culture are the key factors that make us who we are. The word we use to describe ourselves is 'personality' - meaning the kind of person we think we might be. We also know that life events and situations can trigger different kinds of emotional reactions and feelings. This article examines the genetic aspects for mental illnesses like bipolar disorder.



**PROFESSOR PETER MCGUFFIN**  
**MB PhD FRCP, FRCPsych, FMedSci**  
**Director of the MRC Centre**  
**Institute of Psychiatry**

The Radiant Team is a group of researchers led by Professor Peter McGuffin at the Medical Research Council funded Social Genetic Developmental Psychiatric Centre at the Institute of Psychiatry. The kind of research work done at the Centre includes looking at how mental illness might be inherited, as well as the impact of childhood and social experiences. Genes by themselves don't cause most mental illnesses. For someone to have bipolar disorder it isn't enough to have inherited this condition. We know that there are many other possible factors that make it more likely that some people will develop manic depression. To understand these other factors we need to look at early life history, current social circumstances and other personality traits.

## Bipolar disorder

Bipolar disorder (sometimes known as manic depression) is characterised by episodes of very elevated mood or irritability ('highs') and periods of depression ('lows'). As many as one in 100 people will develop bipolar disorder at some point in their lives, with an average age of onset at 21 years. Mortality rates for bipolar disorder have been estimated to be as high as 20%. Our understanding of and treatment for bipolar disorder is still somewhat limited in terms of medication and therapeutic intervention. We hope that genetic research will provide an enhanced understanding of the causes of this illness, leading to better and more targeted treatments.

## Genetic research

There are many misunderstandings about how genes might influence our mental state. Very few mental and physical problems are caused by one gene that is either switched 'on' or 'off' for that illness; instead, the vast majority of illnesses or personality traits are influenced by many genes, which means that most people will have some genes switched 'on' or 'off' for different mental and physical qualities throughout their lifetimes.

For example, take bipolar disorder: let's assume that there are 10 genes involved. Very few people will have all 10 genes either switched 'on' or 'off' for this disorder - this would be like flipping a coin 10 times and getting 'heads' on every toss, which is extremely rare. The probability is that most people will always have a few genes switched 'on' for bipolar disorder.

This means that the simplistic, categorical view of bipolar disorder - 'you either have it or you don't' - is fast becoming outdated. Given that most people have some tendency to experience highs and lows, it is useful to consider bipolar disorder as being dimensional - stable at one end (i.e., not moving between different mood states) and unstable at the other (i.e., cycling between highs and lows).

This view of having many genes involved in bipolar disorder means that genes don't entirely determine what happens to a person in their life; instead, they suggest what might happen. A genetic predisposition to mental health problems isn't the same as actually experiencing mental illness: becoming ill is often a reaction to life events and situations.

One of the most powerful ideas emanating from this is: genes that predispose a person to experiencing mental health difficulties are entirely normal. Many people think that genetic research is about genes that have gone wrong and have somehow mutated into something abnormal. In reality, the opposite is the case, as nearly everyone has some genetic disposition to having mental health difficulties, including bipolar disorder.

## Why do genetic research?

So what is the purpose of doing genetic research, if having genes for mental illness is a normal occurrence?

The main objective is to improve our knowledge about mental illness in general. However, that knowledge might also be useful in a variety of ways. For example, working out how genes affect what happens in the brain might help us to better understand how mental health difficulties occur. Working out the brain chemistry that underlies mental health problems could be helpful in creating better medication with less intrusive side-effects.

Alternatively, we could better understand how environmental effects interact with specific genes and then use this to help people protect themselves from situations that put them at risk, or have better talking therapy treatments to help them with their mental health difficulties like bipolar disorder.

## Is bipolar disorder a genetic problem?

There is no simple answer to this question - it is not simply nature versus nurture - but rather how they act upon each other that can lead to a person experiencing bipolar disorder. Genes are probably a big part - but it is the environment that triggers the illness.