

ARE AUTISM AND PSYCHOSIS POLAR OPPOSITES?

A comprehensive analysis of research in the areas of genetics, physiology, neurology and psychology suggests that autism spectrum disorders and psychotic disorders reflect opposites in the continuum of how individuals function within a social environment. These findings have implications both for treatment and for how these disorders will be viewed and studied in the future.

DISRUPTED GENETIC IMPRINTING

Everyone inherits one set of genes from their mother and another from their father. In most cases, both pairs of genes are expressed to produce specific traits, such as the exact shape and size of your nose, but in a few cases, only the mother's or father's gene is active when it is passed onto their offspring. A genetic "tug-of-war" during development helps determine which of the mother's and father's genes are expressed and suppressed. This process is known as genomic imprinting.

A disruption in genomic imprinting and other genetic processes may be at the heart of psychiatric disorders such as autism spectrum disorders and psychosis. Research by Bernard J. Crespi and his team from Simon Fraser University suggests that autism spectrum disorders come about when expression of the father's genes is favoured, while psychotic conditions (including schizophrenia, bipolar disorder and major depression) come about when the mother's genes are favoured. Exactly how this unbalanced expression of genes occurs is still a mystery.

OPPOSITES IN SOCIAL COGNITION

For these conditions, the key disruption appears to be in the area of social cognition, or the way in which we think and feel about ourselves in relation to the people around us. *"Our research provides broad and deep forms of evidence, from genetics through physiology and morphology to psychology, that autism represents a mental condition that is 'opposite' to psychotic-affective conditions, with normality in*

the centre," says Crespi. *"Thus, in autism, social-cognition traits are under-developed, and in psychotic-affective conditions, social-cognition traits are hyper-developed to dysfunction."*

Examples of these opposite effects, he says, *"include a lack of speech in severe autism vs. auditory hallucination in schizophrenia, and a reduced sense of self in autism vs. megalomania (delusions of grandeur) in schizophrenia."*

IMPLICATIONS

These findings have important implications for treatment. If a certain drug helps treat psychotic disorders, then a drug with an opposite effect might help those with autism disorders. Research in this area is already ongoing.

Another important component of this research is the way it encourages clinical experts in autism and psychotic disorders to look at these conditions in a new light, says Lisa Goos, an expert on the influence of genomic imprinting on cognition and behaviour at Baycrest

in Toronto. *"This study combines evolutionary theory, novel genetic mechanisms and cognitive psychology in the study of autism and psychosis,"* she says. *"This combined approach is necessary to really understand what is going on in these conditions."*

"In psychiatric conditions such as autism or psychosis, looking for a single gene or set of genes that always cause the condition will not be successful due to the complexity of the disorder and the wide variety of contributing factors," says Goos. *"The lesson of genomic imprinting is that genes from your mother and father aren't equivalent—they don't necessarily function the same when they combine in a new human body. Crespi's study is valuable because it attempts to take this novel process into account, which most people interested in the biological bases (including genetic bases) of disorders often do not do."* 🐾

BY ALISON PALKHIVALA



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