

Researchers challenge prominent theory on link between psychiatric disorders and genes

An important new study could undermine the concept of ‘endophenotypes’ – and thus derail one of the most promising lines of research in neuroscience and psychiatry.

The findings are out now in *Psychophysiology*. Unusually, [an entire special issue](#) of the journal is devoted to presenting the various results of the study, along with commentary, but here’s the summary paper: [Knowns and unknowns for psychophysiological endophenotypes](#) by Minnesota researchers William Iacono, Uma Vaidyanathan, Scott Vrieze and Stephen Malone.

In a nutshell, the researchers ran seven different genetic studies to try to find the genetic basis of a total of seventeen neurobehavioural traits, also known as ‘endophenotypes’. Endophenotypes are a hot topic in psychiatric neuroscience, although the concept is somewhat vague.

The motivation behind interest in endophenotypes comes mainly from the failure of recent studies to pin down the genetic cause of most psychiatric syndromes

Essentially an endophenotype is some trait, which could be almost anything, which is supposed to be related to (or part of) a psychiatric disorder or symptom, but which is “closer to genetics” or “more biological” than the disorder itself. Rather than thousands of genes all mixed together to determine the risk of a psychiatric disorder, each endophenotype might be controlled by only a handful of genes – which would thus be easier to find.

Endophenotypes therefore offer researchers a “bridge” between biology and psychiatry. That’s the theory, anyway. But despite [lots of talk](#), that theory has never really been tested – until now.

To try to link endophenotypes to genes, the Minnesota team performed a genome-wide association study ([GWAS](#)) analyzing the DNA of [4,900 subjects](#) who underwent neurobehavioural testing, including [EEG](#). That’s a moderate sample size by GWAS standards, but it’s absolutely gargantuan in neuroscience and psychology terms. I can’t think of another EEG study, genetic or otherwise, that had even 500 subjects, let alone nearly 5,000. This study is big.

The results were equally striking – but mainly by their absence.

Read full, original article: [End of the Road for “Endophenotypes”?](#)