

NAME OF PRESENTING AUTHOR: Jessica Mundy

EMAIL ADDRESS OF PRESENTING AUTHOR: jessica.mundy@kcl.ac.uk

Understanding the genetics of manic symptoms in the Genetic Links to Anxiety and Depression Study

Jessica Mundy¹, Christopher Hübel^{1,2,3}, Jonathan R I Coleman^{1,2}, Evangelos Vassos^{1,2}, Robin M Murray^{2,4}, and Gerome Breen^{1,2}

¹Social, Genetic and Developmental Psychiatry Centre; Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, United Kingdom

²UK National Institute for Health Research (NIHR) Biomedical Research Centre, South London and Maudsley National Health Service (NHS) Trust, London, United Kingdom

³National Centre for Register-based Research, Aarhus Business and Social Sciences, Aarhus University, Aarhus, Denmark

⁴Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, United Kingdom

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ABSTRACT:

Bipolar disorder is a heritable psychiatric disorder. Individuals with bipolar disorder experience swings from depressed states to mania in bipolar type I and hypomania states in bipolar type II. Mania can be measured using the Mood Disorder Questionnaire (MDQ) which asks about the presence or absence of 13 manic symptoms. The aims of this study were first, to perform factor analysis on the items from the MDQ to understand the underlying latent structure of the mania. Second, to perform genome-wide association studies (GWASs) of a) factors underlying the structure of the MDQ and b) a continuous mania trait to understand their genetic overlap with other psychiatric traits. This study is based on participants in the Genetic Links to Anxiety and Depression Study which is part of the NIHR Bioresource and collects both phenotypic and genetic data. We conduct exploratory and confirmatory factor analysis on the binary answers to the MDQ and compute factor scores based on the underlying factor structure. Based on the participants' genetic data, we perform GWAS of the factor scores, as well as a continuous mania trait (based on the 13 items), controlling for the first 10 ancestry principal components, genotyping batch, sex and age. Using the summary statistics produced by the GWASs, we compute genetic correlations with other psychiatric traits. A three factor model fit the data best. These factors can be broadly defined as: impulsivity, hyperactivity and sociability. GWAS of the factors, as well as a continuous mania trait, are currently being performed. Heritability and genetic correlation results will be available shortly.

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