



**Application number/Title: 44858** - Data-integrative approaches to comorbidity in mental disorders

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**Keywords provided by the Applicant PI to describe the research project:**  
Comorbidity, Genetic architecture, Precision Medicine, Psychiatry

**Application Lay Summary:**

One challenge in studying the causes of psychiatric disorders is that the disorders themselves are difficult to define. Patients may present varying, overlapping and evolving symptom profiles, making it difficult to pinpoint the nature of the disease and limiting the effectiveness of treatments. Hidden in the complexity, however, are immense opportunities. It has long been noted that secondary features, comorbid disorders and varying life outcomes, may define important subgroups of patients within and across traditional diagnostic boundaries. And such subgroups may display much more homogeneity, both in etiology and in response to medicine.

However, identifying and studying these subgroups requires large patient cohorts with extensive and diverse behavioral, disease, and sociodemographic measures that may not at first glance seem intuitively related to psychiatric outcomes. This important and unique advantage of the UK Biobank will allow us to use next generation data-integrative analytics to compliment traditional psychiatric diagnoses with an unprecedented wealth of secondary information. Over a three-year period, we aim to develop and apply new analytic approaches to better identify groups of patients that may share specific identifiable causes for their outcomes. The promise of the research is that it can provide a better framework for understanding the specific causes of mental disorders, be they genetic, environmental or evolutionary, and improve our ability to predict outcomes and target interventions.