Epidemiology and Social Psychiatry

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Mapping the exposome of mental health: exposome-wide association study of mental health outcomes among UK Biobank participants

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Introduction: Mental disorders result from a complex interplay of genetic and environmental factors. However, the multiplicity of exposures and the complexity of mental health phenotypes pose a major challenge. The 'exposome' paradigm offers a holistic view of the environment that contrasts traditional hypothesis-driven approach in psychiatry. Within this framework, exposome-wide studies provide a novel tool to systematically identify phenotype-exposure relationships, offering an innovative perspective to map the exposome of mental health.
Objectives: To map environmental factors associated with psychiatric diagnostic domains and symptom dimensions in the UK Biobank cohort. In this study, we aim to identify exposures unique to specific mental health outcomes, as well as those shared across conditions.
Methods: We analysed UK Biobank participants with complete Mental Health Questionnaire data (N = 157,298). Outcomes were classified as either psychiatric domains or symptom dimensions. After quality control, 294 environmental, lifestyle, behavioral, and economic variables were included. An Exposome-Wide Association Study (ExWAS) was conducted per outcome in two equally split datasets, applying Bonferroni correction for multiple testing (P < 1.70 x 10^-4). Missing exposure data was imputed using Multiple Imputation by Chained Equations. Variables associated with each outcome were then tested in a multivariable model.
Results: In diagnostic domains, ExWAS analyses identified 26 to 165 significant factors. Multivariable analysis revealed 10 to 65 significant associations, with traumatic events, physical complaints, and sleep disturbances emerging across domains. Cannabis use was associated with common psychiatric disorders (ORs: 1.10-1.79), while computer use was uniquely linked to neurodevelopmental disorders (OR = 1.23). Eating disorders showed stronger correlations with food-related exposures. In symptom dimensions, ExWAS identified 46 to 180 significant factors. Multivariable analysis revealed similar exposure groups to those in diagnostic domains. Notably, self-harm was uniquely associated with childhood adoption (OR = 1.39).
Conclusions: This comprehensive mapping of exposome revealed that several factors, particularly in the domains of those previously well-studied were shared across mental health phenotypes, providing further support for transdiagnostic pathoetiology. Our findings also showed that distinct relations might exist. Continued exposome research through multimodal mechanistic studies guided by the transdiagnostic mental health framework is required to better inform public health policies.

Disclosure of Interest: None Declared

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Cognitive Development in Children of Mothers with Hypertensive Disorders During Pregnancy: Findings from the ALSPAC Study

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Introduction: While the immediate physical health consequences of hypertensive disorders during pregnancy are well-documented, their potential impact on children's mental health and cognitive outcomes remains relatively under-investigated. Research exploring the link between hypertensive disorders during pregnancy and cognitive function has yielded conflicting findings. Some studies report associations, while others fail to establish a link or even suggest a protective effect. Many of these studies have focused on children with intrauterine growth restriction, low birth weight, small for gestational age, and/or preterm births—factors already known to influence cognitive development. Furthermore, almost all of this research focuses on early childhood, leaving a critical gap in our understanding of the long-term effects into adolescence, a period characterised by rapid cognitive development and academic achievement.
Objectives: This study aimed to examine the associations between hypertensive disorders during pregnancy and intelligence quotient (IQ) in children at the ages of 8 and 16 years.
Methods: Our study sample comprised participants in the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort, an ongoing population-based longitudinal birth cohort in Bristol, Avon, United Kingdom. Children's IQ was measured using the Wechsler Intelligence Scale for Children (WISC-III). This study included over 4900 and 3300 mother-child pairs at ages 8 and 16, respectively. Binary and multinomial logistic regression analyses were used to estimate odds ratios for the associations.
Results: Hypertensive disorders of pregnancy (gestational hypertension and/or pre-eclampsia) were not found to be associated with lower IQ scores in children at ages 8 and 16. In the multinomial logistic model, we found children born to mothers with gestational hypertension but not pre-eclampsia were more likely to have above-average IQ at age 16 compared to average IQ children born to mothers without gestational hypertension (OR = 1.42; 95% CI: 1.03 – 1.94). This association did not persist when children with below-average IQ were used as the reference category in the analysis, and no such associations were also observed at the age of 8 years.
Conclusions: Our findings revealed no evidence of associations between hypertensive disorders during pregnancy and lower IQ scores in children ages 8 and 16. The observed association between gestational hypertension and higher odds of having an above-average IQ at age 16 needs further investigation. Our findings were