Epidemiology and Social Psychiatry

O101

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

O101

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

based on a cohort study with a longer follow-up period, offering a higher level of evidence than previous studies. The consistency of our findings across different developmental stages strengthens the validity of our results and suggests that any potential effects of hypertensive disorders during pregnancy on cognitive function may be limited or transient.

Disclosure of Interest: None Declared

O102

ADOLESCENCE IN THE DIGITAL AGE THE INFLUENCES OF SMARTPHONE AND SOCIAL MEDIA USE ON A COHORT OF IRISH TEENAGERS

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Introduction: The aim of this study was to investigate the associations between smartphone and social media use and mental health outcomes among adolescents in Ireland.

Objectives: This study aimed to fill a gap in the existing literature by examining specific types of online activity, such as cyberbullying and "sexting" (sending sexually explicit messages), and the independent associations of these activities with worse mental health.

Methods: This study is a cross-sectional analysis of secondary data from the 2023 Planet Youth Partner survey. The study population was 4,544 mostly 15- and 16-year olds from Cavan, Monaghan and North County Dublin. The dependent variable was the total Strengths and Difficulties Questionnaire (SDQ) score, a tool commonly used to assess mental health status. Independent variables included hours of social media use, experiences of cyberbullying, body image perceptions, and involvement in sexting. Multivariable logistic regression models were employed to determine the associations between these variables and mental health outcomes, controlling for potential confounders such as gender, sleep duration, and maternal education level.

Results: The study found significant associations between several online activities and worse mental health. High use of social media (4 hours per day or more) was associated with a 62% greater risk compared to those who used it for about 1 hour or less.

Cyberbullying was a also strong predictor of poor mental health, with victims nearly twice as likely to have a high SDQ score. Negative perceptions of one's own body image and participating in sexting were also significantly associated with worse mental health outcomes.

Gender differences were observed, with females more likely to be victims of cyberbullying, to be asked for and to send sexually explicit messages, and to have worse mental health outcomes when compared to males. Insufficient sleep was also a significant predictor, with those sleeping for 6 hours or less per night having more than twice the risk compared to those who slept for the recommended 8 hours or more.

Conclusions: The findings of this study suggest that specific aspects of smartphone and social media use, particularly high usage and negative online experiences, are independently associated with poorer mental health outcomes in adolescents. These results are consistent with international evidence and highlight the need for targeted public health interventions to mitigate the risks associated with this technology. The study recommends developing evidence-based guidelines for parents and teachers to promote healthier online behaviours among adolescents in Ireland. It also calls for a national Public Health campaign and policy measures to enforce stricter regulations on social media companies and protect young people from harmful online experiences.

Disclosure of Interest: None Declared

O103

The Workplace Mental Health Paradox - Why is mental ill health at work rising yet we have never spent more to prevent it?

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Introduction: There is a prevailing paradox in workplace mental health. Never has so much been spent on prevention, intervention, and regulatory programs yet the prevalence of employee mental ill-health has not only not improved, but rates are seemingly on the increase.

Objectives: Two evaluate 2 explanations (a) has the reported prevalence of specific psychosocial workplace risk and protective factors changed over the last two decades (e.g., is work getting more stressful), and (b) are there trends, and generational differences, in the impact of these factors on worsening or buffering mental health (e.g., are employees becoming less resilient).

Methods: We use a 20 year population based cohort study (n=19,744).

(a) We estimated the linear trend over time (2001 to 2020), to determine the population-trends of reporting higher levels of job demands, control and complexity.

(b) To assess cohort differences in resilience to job stressors we estimated regression models predicting mental health (MHI-5 scores) by each psychosocial risk and birth cohort. Each model included the interaction between the self-reported psychosocial risk factor (independent variable) and birth-cohort (moderator variable) to estimate the dependency for each cohort. The marginal slope between the level of the risk factor and mental health for each cohort was estimated by the delta method (see below). Differences between the marginal slopes of adjacent cohorts were tested with adjustment for pairwise comparisons.

Results: From 2000 to 2020 employees report trends of increased perceived job demands and decreasing autonomy in deciding how work was completed, but increasing control over when work is carried out and greater skill use(fig 1). High levels of demands have a stronger negative impact on the mental health of Millenailas than older cohorts at a similar age, and this younger cohort benefits less from the buffering effect of autonomy at work imporving mentla health (fig2).