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Associations between placental DNA methylation and emotional and behavioral outcomes in preschoolers: insights from the EDEN Mother-Child Cohort study

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Objectives: To explore the association of continued above-recommendation screen use for one year since May 2020 with behaviour problems in the summer of 2021 in children aged 3 to 14 years.

Methods: Data came from the French EpiCov cohort study, and were collected in May 2020 and at first (Autumn 2020) and second follow-up (Summer 2021) among 1,089 participants with children aged 3 to 14. Children had a 1-year above-recommendation screen use if their daily mean time exceeded recommendations at the three follow-up times (one hour, for children aged 3-5, two for the older ones). Behaviour problems were assessed using the Strengths and Difficulties Questionnaire (SDQ) and valid cut-offs for Internalizing (emotional or peer problems) and Externalizing (conduct problems or hyperactivity/inattention) problems completed in summer 2021. Data were analysed using adjusted logistic regression.

Results: 1-year above-recommendation screen use was not associated with internalizing problems (OR [95% CI]: 1.20 [0.90-1.59]). Regarding the subscales, it was associated with a higher risk of peer problems (1.42 [1.04-1.95]). A higher risk of externalizing problems was found only in 11-14-year-olds (1.63 [1.01-2.63]), especially conduct problems in 11-14-year-olds (1.91 [1.15-3.22]) but not in other age groups.

Conclusions: This study found that maintaining screen time beyond recommendations for 1 year since the onset of the pandemic was associated with peer problems in children aged 3-14 years and externalizing and conduct problems in 11-14 years. Despite this very specific context, exposure to screens is not trivial. If this situation were to occur again, we would have to anticipate, with prevention messages, by keeping schools open.

Disclosure of Interest: None Declared

EPP0842

Smoking status trajectories, intergenerational socioeconomic mobility and depression: Preliminary results from 107,734 French adults (18 to 75 years) of the CONSTANCES cohort

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Introduction: Cigarette smoking prevalence is significantly higher among people with mental health problems than among the general population. Smoking accounts for much of the reduction in life expectancy associated with mental illness, why the high co-occurrence of smoking and mental health illness is a major public health concern. Persons belonging to socioeconomical disadvantaged groups have higher risk of mental health conditions and also higher smoking rates.

Objectives: In this study we aim to examine smoking trajectories among adult smokers between 2012 and 2020. Furthermore, we aim to investigate differences in smoking trajectories by adult depression by taking into consideration participants intergenerational socioeconomic mobility (ISEM).

Methods: Analyses were based on data from CONSTANCES, a French general population cohort conducted from 2012 to 2020. In total were 107,734 participants included after exclusion of never smokers. Depression was measured by the CES-D scale, and

depression was classified with a score ≥ 16 . ISEM is based on childhood (maternal and parental occupational grade) and adult socioeconomic position (SEP), and low ISEM includes those with low SEP as child and adult and high ISEM those with consistent high SEP. Group-based trajectories modelling (GBTM) was used to determine smoking status trajectories. To address the association between ISEM and smoking trajectory class we used multinomial logistic regression with former smokers as reference class adjusted for depression, household income, sex and age.

Results: We identified five smoking trajectories 1) Former smokers (56.6%), 2) Long-term smokers (26.4%), 3) Intermediate smokers (3.3%), 4) Early quitters (5.0%) and 5) Late quitters (8.7%). Preliminary results from multinomial logistic regression showed that persons with low ISEM had higher odds of depression (OR [95%CI] =1.91 [1.77;2.06]) than those with high ISEM. Participants with low ISEM had higher odds of being long-term smoking than former smokers compared to those with high ISEM (ORa [95%CI]=1.55 [1.43;1.67]). Furthermore, those with low ISEM had lower odds of being in any of the other smoking trajectory groups vs. former smokers compared to those with high ISEM (ORa [95%CI]=0.82 [0.69;0.97]) for intermediate smokers, ORa [95%CI]=0.75 [0.66;0.85] for early quitters, and ORa [95%CI]=0.78 [0.70;0.87] for late quitters).

Conclusions: Preliminary results showed an association between ISEM and smoking trajectories in our study. Persons with low ISEM are more likely to be long-term smokers. Future analysis should consider the effect of depression as a mediating factor on the association between ISEM and smoking trajectories.

Disclosure of Interest: None Declared

EPP0843

Associations between placental DNA methylation and emotional and behavioral outcomes in preschoolers: insights from the EDEN Mother-Child Cohort study

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Introduction: Behavioral (externalizing) and emotional (internalizing) problems were showed to be associated with the prenatal environment. Changes in placental DNA methylation was identified as a relevant potential mechanism of such association.

Objectives: We aimed to explore the associations between placental DNA methylation and child behavior in order to explore pathways that could link prenatal exposures to child behavior.

Methods: Data including 441 children of 3 years of age from the EDEN mother-child cohort. Child behavior assessed using the Strengths and Difficulties Questionnaire (SDQ). Both hypotheses-driven and exploratory analyses (including epigenome-wide association studies (EWAS) and differentially methylated regions (DMR) analyses) were conducted. The analyses were adjusted for confounding and technical factors and estimated placental cell composition. All the p-values were corrected using a false discovery rate (FDR) procedure for multiple tests.

Results: In the hypothesis-driven analysis, *cg26703534* (*AHRR*), was significantly associated with emotional problems ($p_{FDR} = 0.03$). In the exploratory analyses, *cg09126090* ($p_{FDR} = 0.04$) and *cg10305789* (*PPP1R16B*; $p_{FDR} < 0.01$) were significantly associated with peer-relationship problems and 33 DMRs were significantly associated with at least one of the SDQ subscales. Placental DNA methylation showed more associations with internalizing than externalizing symptoms, especially among girls. DMRs tented to include highly methylated CpGs.

Conclusions: This study investigated for the first time the associations between placental DNA methylation and internalizing and externalizing symptoms in preschoolers. Further analyses, such as consortium meta-analyses would be necessary to confirm and extend our results.

Disclosure of Interest: None Declared

EPP0844

Is childhood trauma associated with loneliness, mental health symptoms and social exclusion in adulthood? A UK Biobank Study

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Introduction: Childhood trauma has been linked to adult psychosocial outcomes including social exclusion, loneliness, and psychological distress.

Objectives: To explore the associations between childhood trauma and social exclusion in adulthood with consideration of loneliness and symptoms of anxiety and depression in the UKBiobank database.

Methods: Hierarchical multiple regression analysis of 87,545 participants (mean age=55.68[7.78], 55.0% female, 97.4% white) enrolled in the UK Biobank. The main predictor variable was occurrences of traumatic childhood experiences. Current loneliness and symptoms of anxiety (GAD-7) and depression (PHQ-9) were included as secondary predictors. The outcome variables were 'limited social participation', 'area deprivation', 'individual deprivation' and (combined) 'social exclusion'.

Results: We found small associations between childhood trauma and social exclusion, explaining between 1.5% and 5.0% of the variance. Associations remained significant when loneliness, anxiety, and depression were entered in the models. These findings

support a relationship between early-life adversity and socioeconomic deprivation including heightened risks of homelessness, antisocial behaviour and lower social mobility in adulthood.

Loneliness was the strongest predictor of 'limited social participation.'

Depression was the strongest predictor of 'individual deprivation,' 'area deprivation' and 'social exclusion,' closely followed by childhood trauma.

Anxiety symptoms protected against 'individual deprivation' and 'social exclusion' in adulthood. Given the composition of the 'individual deprivation' dimension (i.e. employment, education, income) this may tentatively suggest that low levels of anxiety could have a positive impact on individuals' pursuit of education and employment, potentially in line with the theory that the Yerkes and Dodson law (i.e., there is an inverted U-shaped relationship between arousal and cognitive performance; Yerkes & Dodson, 1908) may apply to anxiety symptoms. In other words, higher vigilance may help seeking a way out of childhood adversity and increase cognitive performance if anxiety is low level, thus possibly playing a role in resilience. This may particularly be the case given that average levels of anxiety were low in the current sample (only 5% had a clinically significant GAD-7 score of above 10).

Conclusions: Trauma and neglect in childhood are associated with an increase of social exclusion in adulthood.

Loneliness and depression make this association stronger.

Anxiety symptoms may lead to better performance in education and employment and hence play a protective role against individual level social deprivation - higher vigilance and cognitive performance can occur in low level anxiety and may increase resilience in adulthood.

Disclosure of Interest: None Declared

EPP0845

Torsade de Pointes: are psychotropic drugs at the heart of the matter? A retrospective case-control study led at the Montreal Heart Institute

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Introduction: Psychotropic drugs are the first-line medications in the treatment of psychosis, bipolar, anxiety and depressive disorders. Some of these psychoactive agents are suspected to be linked to rare, but lethal, ventricular arrhythmias, known as Torsade de Pointes (TdP). Most of the studies found an association between these classes of psychiatric agents and a prolongation of the corrected QT interval. However, QTc prolongation remains an imperfect, though well-established marker of risk for TdP and little is known about the relation between psychotropic drugs and TdP. Some physicians hence refrain from prescribing psychotropic medications to their patients for fear of cardiac adverse events, which can severely undermine the management of underlying