

applications (part of the U-PGx consortium, a Horizon2020 funded project on clinical relevant PGx in the EU).

**Results:** Imputed data contains over 11 million SNPs of 77,639 individuals.

**Conclusions:** We expect results in the end of 2020.

**Disclosure:** We thank the iPSYCH consortium, in specific the iPSYCH PTs (Merete Nordentoft, Anders Borglum, Preben B. Mortensen, Ole Mors, Thomas Werge and David M. Hougaard). The iPSYCH project is funded by the Lundbeck Foundation Denmark and the universities and un

**Keywords:** genotype; phenotype; Pharmacogenetics

## O215

### Identification of robust and interpretable brain signatures of autism and clinical symptom severity using a dynamic time-series deep neural network

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**Introduction:** Autism spectrum disorder (ASD) is among the most common and pervasive neurodevelopmental disorders. Yet, despite decades of research, the neurobiology of ASD is still poorly understood, as inconsistent findings preclude the identification of robust and interpretable neurobiological markers and predictors of clinical symptoms.

**Objectives:** Identify robust and interpretable dynamic brain markers that distinguish children with ASD from typically-developing (TD) children and predict clinical symptom severity.

**Methods:** We leverage multiple functional brain imaging cohorts (ABIDE, Stanford; N = 1004) and exciting recent advances in explainable artificial intelligence (xAI), to develop a novel multivariate time series deep neural network model that extracts informative brain dynamics features that accurately distinguish between ASD and TD children, and predict clinical symptom severity.

**Results:** Our model achieved consistently high classification accuracies in cross-validation analysis of data from the ABIDE cohort. Crucially, despite the differences in symptom profiles, age, and data acquisition protocols, our model also accurately classified data from an independent Stanford cohort without additional training. xAI analyses revealed that brain features associated with the default mode network, and the human voice/face processing and communication systems, most clearly distinguished ASD from TD children in both cohorts. Furthermore, the posterior cingulate cortex emerged as robust predictor of the severity of social and communication deficits in ASD in both cohorts.

**Conclusions:** Our findings, replicated across two independent cohorts, reveal robust and neurobiologically interpretable brain features that detect ASD and predict core phenotypic features of ASD, and have the potential to transform our understanding of the etiology and treatment of the disorder.

**Disclosure:** No significant relationships.

**Keywords:** autism; biomarkers; brain dynamics; fMRI

## O216

### One treatment fits all: Effectiveness of a multicomponent cognitive behavioral therapy program in data-driven subtypes of perinatal depression

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**Introduction:** It has been well established that depressive disorders including perinatal depression are very heterogeneous, which partly explain the ineffectiveness of available treatments for many patients. Recent innovations in data science can help elucidate the nature of perinatal depression especially the heterogeneity in its presentation.

**Objectives:** The present study aims to elucidate heterogeneous subtypes of PND and assess the effectiveness of a multicomponent cognitive behavioral therapy (CBT) across heterogeneous subtypes of PND.

**Methods:** This study was conducted in 2005 in two rural areas of Rawalpindi, Pakistan. Out of a total of 3,898 women, 903 pregnant women were identified with PND (using DSM-IV) and randomly assigned to intervention and control group. Baseline assessments included interviewer administered Hamilton Depression Scale (HDS) and social risk factors. Follow-up assessments were conducted at 6 months and 12 months post-intervention. Principle component analysis was run to reduce dimensionality of the HDS. Two step cluster analysis was then run to elucidate subtypes of PND using the dimensional scores. Thereafter, effectiveness of CBT was compared across these subtypes of PND using multilevel modelling.

**Results:** Principle component analysis revealed a four component solution for the Hamilton depression rating scale. Using these dimensional scores, cluster analysis (average silhouette= 0.5) revealed a parsimonious four cluster solution of participants with mild PND symptoms (n=326); predominant sleep problems (n=311) c) predominant atypical symptoms (n=80) and d) comorbid depressive and anxiety symptoms (n=186). CBT yielded moderate effect sizes across all these subtypes of PND (Cohen's d > 0.8).

**Conclusions:** Multicomponent CBT is effective across heterogeneous presentations of PND.

**Disclosure:** No significant relationships.

**Keywords:** cluster analysis; Postpartum depression; phenotypic subtypes; heterogeneity

## Prevention of mental disorders

## O217

### Home environment as a factor in maintaining the mental health of the individual in the family

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**Introduction:** The relevance of studying the characteristics of the home environment of a person with mental health problems is determined by the need to identify the resources of the individual and the family to form multilevel adaptive competencies aimed at maintaining mental health.

**Objectives:** The present study was conducted to obtain standardized assessments of attitudes towards the home environment, towards the home as a place of functioning of the family with mental patients.

**Methods:** The study involved 12 patients aged 21-60 years diagnosed according to ICD-10 F2 with the disease duration of more than 1 year and readmission. Methods used were experimental psychological questionnaire "My home" (Reznichenko, Nartova-Bochaver, Kuznetsova, 2016), mathematical statistics

**Results:** The test results showed that the average score for the "strength of significance of the home for its inhabitants" across the data set was 4.14, which differed from the average value of 3.73.

**Conclusions:** The psychological foundations of attachment can be associated with a variety of facts, including the frequent absence of patients outside the home environment during readmission periods. The home environment can be a complex of positive feelings and experiences in relation to the home as a personally significant place. The study revealed some of the psychological traits of the subjective attitude to home, which can become indicators of psychological adaptation in persons with mental disorders in the future. Reznichenko S.I., Nartova-Bochaver S.K., Kuznetsova V.B. (2016) Home Attachment Assessment Method. Psychology. Journal of the Higher School of Economics. 13(3): 498-518.

**Disclosure:** No significant relationships.

**Keywords:** family; mental patients; readmission

## O218

### Does maternal age or related factors influence the appearance of psychopathology in children?

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**Introduction:** Maternal age and related factors, such as social vulnerability, are associated with neurodevelopmental and behavioral disorders in offspring.

**Objectives:** To examine the influence of maternal age and its related factors on the appearance of autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), alterations in executive functions and behavioral syndromes of the offspring.

**Methods:** A prospective study was conducted, consisting of 131 healthy pregnant women aged 20 to 41 years, recruited at 38 weeks' gestation. Their offspring were followed up to 2 years after birth, when psychopathology was assessed. Maternal age and possible related factors were considered predictors. Bayesian ordinal regression models were performed for each outcome variable.

**Results:** Symptoms of ASD in children were associated with an older maternal age (OR = 0.188; 95% CI[1.062, 1.401]) and a lower educational level of the parents (OR = -0.879; 95% CI[0.202, 0.832]), meanwhile poor social support predicted most ADHD symptoms OR = -0.086; 95% CI[0.838, 1]) and executive dysfunctions OR = -0.661; 95% CI[0.313, 0.845]. Lower parental education predicted both externalizing and internalizing behavior.

**Conclusions:** Maternal age-related factors were the main predictors of neurodevelopmental disorders in offspring, rather than maternal age. The performance of prenatal interventions in pregnant women with advanced age and anxious depressive symptoms or adverse social situation, is crucial to reduce the risk of neurodevelopmental disorders in the offspring. Likewise, being able to carry out an early detection of childhood psychopathology would allow the implementation of resources that improve their long-term prognosis.

**Disclosure:** No significant relationships.

**Keywords:** predictor; PSYCHOPATOLOGY; maternal age

## O219

### The development of depressive symptomatology, burnout and lifestyle in the Czech population – in years 2014-2020

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**Introduction:** It is clear from the literature that depressive disorder is closely related to lifestyle, however the relationship between burnout and lifestyle remains unclear.

**Objectives:** The aim of this study was to present a comprehensive overview of depressive symptoms, burnout and lifestyle over the years. Furthermore, this study looks at the relationship between burnout, depressive symptomatology and lifestyle and seeks to clarify the extent to which burnout can be explained by these variables.

**Methods:** Data collection took place in three waves. The first data collection was in 2014 (October/November), the second in 2017 (March) and the third in 2020 (March). The STEM/MARK agency conducted the data collection and collected answers from a representative sample of respondents using the CAWI method - computer-assisted questioning. These respondents were selected from the European National Panel. Because the target group was adults (18-65 years), an online survey was chosen. Internet penetration in this target population is sufficient and it was not necessary to use a combination of methodologies.

**Results:** All 3 data collections identically show that for the model explaining burnout statistically significant variables are: age, depression and fatigue during the day. Other variables related to healthy lifestyles did not reach statistical significance.