Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Background: FKBP5 methylation levels are among the most studied epigenetic modifications related to psychiatric disorder vulnerability, however there are contradictory findings. We aimed to investigate the role of FKBP5 methylation in psychiatric disorders, in addition to its association with stress exposure (either life adversities, traumatic events or acute stress).

Methods: In accordance with PRISMA guidelines, ‘FKBPS’ and ‘methylation’ were searched in PubMed and Web of Science in March 2021. 330 studies were identified. Studies on non-psychiatric disorders, animal or cell lines were excluded. Type of study, sample size, sociodemographic properties of the participants, type of stress exposure, type of psychiatric disorder, CPG loci at FKBP5, and other related methods and covariates were extracted from 53 studies found to be eligible based on the inclusion criteria.

Results: Preliminary analysis showed that 19 studies investigated FKBP5 methylation in psychiatric disorders, 32 studies investigated the effects of stress types on FKBP5 methylation. Among the 197 CpG sites investigated, CpG at chr6:35,590,711 (intron 7), chr6:35,689,425 (promoter region), and chr6:35,590,736 (intron 7/GRE) sites were investigated by 26, 24, and 22 studies, respectively. CpG sites at chr6:35,590,736 and chr6:35,590,711 were reported to be linked to psychiatric disorder; CpG site at chr6:35,590,711, were reported to be linked to types of stress by more than half of the studies that investigated this region.

Conclusions: The studies on FKBP5 methylation and psychiatric disorder vulnerability are highly heterogeneous and most significant associations are found in intron 7. However, a great percentage of literature report insignificant associations of FKBP5 methylation sites with psychiatric disorder vulnerability.

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Keywords: FKBP5, Methylation, Acute Stress Response, Psychiatric Genetics

P269. Functional Connectivity Changes Between the sgACC and Meso-Cortico-Limbic Reward Network Following Deep Brain Stimulation Versus Magnetic Resonance-Guided Focused Ultrasound Capsulotomy in Depression

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Background: Functional network connectivity between the subgenual anterior cingulate cortex (sgACC) and the mesocortico-limbic reward network (Biswal et al. 2010, Resting State Network number 17) selectively increases following DLPFC neuromodulation with transcranial magnetic stimulation (TMS) compared to other functional networks (Tik et al. 2017). Here we examined whether a similar connectivity change occurs between the sgACC and RSN-17 in patients with treatment-resistant depression (TRD) who underwent direct and constant stimulation to this region with deep brain stimulation (DBS) of the subcallosal cingulum versus magnetic resonance-guided focused ultrasound (MRgFUS) capsulotomy.

Methods: Four patients (3/1 M/F; age median/range 56, 41-64) who participated in a trial to assess DBS in TRD (NCT04009928), and 9 patients with TRD (5/4 M/F; age median/range 44 30-71) who were treated with MRgFUS capsulotomy (NCT03421574) had 3.0 Tesla resting-state functional MRI acquired pre- and six-months post-treatment. Data were pre-processed and analyzed using the CONN Toolbox. An ROI-based connectivity analysis was performed by assessing the correlation between RSN-17 derived from Biswal et al. 2010, and a sphere centred over the sgACC network. Changes in resting-state connectivity were compared between RSN-17 and the sgACC, using a two-sided paired t-test.

Results: A significant reduction in connectivity was found between the sgACC and RSN-17 for DBS (p=.004) but not MRgFUS capsulotomy.

Conclusions: Post-treatment functional connectivity changes differed between patients with TRD that were treated with DBS compared to MRgFUS. These findings suggest differential mechanisms of circuit-based modulation in DBS versus MRgFUS and other non-invasive neuromodulation techniques reported in the literature.

Supported By: CIHR, Sunnybrook Research Foundation

Keywords: Deep Brain Stimulation, High Intensity Focused Ultrasound, Functional Magnetic Resonance Imaging, Functional Brain Connectivity, Treatment Resistant Depression

P270. Coping During the COVID-19 Pandemic: Maternal Mental Health and Infant Temperament

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Background: The COVID-19 pandemic has led to increased psychological distress on a global scale, particularly for vulnerable people, including new and expecting mothers. We are still determining the magnitude of the toll on parents and their children.

Methods: 516 pregnant people completed online questionnaires during the spring of 2020 (T1); 296 of these people completed additional questionnaires approximately one year postpartum (T2). Participants reported on mental health, coping behaviors, and infant temperament. A principal
components analysis (PCA) was conducted to identify coping factors. Linear regression analyses were conducted to evaluate associations among coping factors, maternal depressive symptoms, and infant temperament.

**Results:** PCA revealed three factors explaining 40.53% of the variance in coping behaviors. The first factor included self-care behaviors (e.g., exercise, mediation); the second, numbing behaviors (e.g., increased screen time, eating comfort foods); and the third, reaching out for help behaviors (e.g., talking to a therapist or other parents). Engaging in reaching out for help coping behaviors was associated with a decrease in depressive symptoms from T1 to T2 (adjusted $R^2 = .03$, $p = .02$). This was most pronounced in participants who reported greater emotion regulation difficulties ($R^2 = .07$, $p = .04$). Further, increases in depressive symptoms from T1 to T2 were associated with higher levels of infant negative affect ($R^2 = .08$, $p = .004$).

**Conclusions:** These findings underscore the importance of providing socially focused coping and mental health services for pregnant people to ensure the well-being of new mothers and their children. Future work should evaluate trajectories of emotional development of children who were in utero during the pandemic.

**Supported By:** R37MH101495

**Keywords:** COVID-19 pandemic, Prenatal Depression, Infant Temperament

**P271. Risk Factors Associated With SARS-CoV-2 Infection and COVID-19 Related Depression Among Immigrant Latino Essential Workers in Suffolk County, New York**

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**Background:** Coronavirus disease (COVID-19) cases and deaths remain substantially higher among Latino populations in the United States. Risk of infection may be associated with occupational exposures and a greater burden of depression. This study sought to identify factors associated with COVID-19 infection and COVID-19 related depression among immigrant Latino essential workers.

**Methods:** A cross-sectional telephone survey to assess the prevalence of infection and COVID-19 related needs and concerns was administered. Depression was assessed with the Patient Health Questionnaire (PHQ-9). Comparisons by essential worker group: Indoor (i.e. supermarket)/Outdoor (i.e. construction) were determined using Nonparametric Mann Whitney U test, X$^2$, and Fisher tests. Multivariable logistic regression models were estimated to determine factors associated with the probability of prior infection and COVID-19 related depression (PHQ9 score $\geq 10$).

**Results:** 227 essential workers (median IQR 39.9 [32.7-47.6] years; 130 [57.3%] male; 213 [93.8%] foreign born) completed the survey. Seventy (30.0%) reported prior COVID-19 infection. Outdoor workers were more likely to be male, report higher housing density, and were less likely to be insured. Outdoor worker status was associated with higher odds of COVID-19 infection. Odds of depression was higher for respondents reporting prior infection, increased with the number of needs reported, and was nearly five times higher for uninsured workers.

**Conclusions:** Data from Latino essential workers in regions with high rates of infection indicate the need for occupational precautions to mitigate risks of reinfection. Results further underscore the need for clinical screenings to identify the burden of COVID-19 related depression in at risk populations.

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**Keywords:** Depression, COVID-19 pandemic, Disparities

**P272. Diminished ‘Punishment Learning’ in Patients with Treatment-Resistant Depression**

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**Background:** Human neuroimaging studies demonstrate diminished reward learning in dopaminergic regions known to encode prediction errors between expected and experienced rewards in patients with depression. However, differences in punishment learning and how these may vary in patients responsive or not to antidepressants is unclear. We utilized a novel valence-partitioned reinforcement learning model to examine cohort-specific differences in punishment learning.

**Methods:** In an ongoing study, we have recruited patients with treatment-resistant depression (n=11), patients on antidepressants (n=13), and healthy controls (n=24) to complete a probabilistic reward and punishment task inside a functional magnetic resonance imaging scanner. We fit the valence-partitioned model on participant choice behavior and conducted a one-way ANOVA with Bonferroni post-hoc to test for cohort differences in punishment learning rate. We then correlated depression severity scores for all participants with punishment learning rates and with group-level punishment prediction error contrast estimates.

**Results:** Punishment learning rates were similar between depression cohorts yet lower overall compared to healthy controls (F2,45=121.5, p<7.3e-19); this also showed a strong negative correlation with depression severity scores (R=-0.69, p<0.001). Punishment prediction error contrast estimates correlated negatively with depression severity scores in the habenula and right dorsal striatum (p<0.001 uncorrected).

**Conclusions:** Our results demonstrate that patients diagnosed with depression learn slower from punishments than healthy controls regardless of antidepressant responsiveness. Reduced brain and behavioral measures of punishment learning may be indicative of severe depression.

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**Poster Abstracts**