During the pandemic period, for all the three cohorts, patients with mental illness had 10% lower probability of being adherent to the recommended drug therapies.

The association between SMI and discontinuation was significant and varied among the three cohorts, with HR (95% CI): 1.27 (1.21; 1.33) for antihypertensives users, 1.16 (1.07; 1.26) for antidiabetics users and 1.08 (1.01; 1.16) for statins users.

Compared with 2019 the gap remained similar, except for discontinuation of antidiabetics, where the gap diminished from 34% in 2019 to 16% in 2020.

No differences between the two mental disorders were found.

Conclusions: Results show that suffering from a mental disorder in people with chronic physical conditions affects their adherence to recommended drug therapies. During the pandemic period, the restrictive measures adopted may have led to a better care by family members, counteracting any increase in the gap.

The healthcare gap in patients suffering from mental illness remains an unsolved problem of primary importance for public health.

Disclosure of Interest: None Declared

Depressive Disorders

O0094

N-acetylcysteine counteracts increased brain excitatory/inhibitory balance following maternal high-fat diet and restores emotional and cognitive profiles in adult mouse offspring

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Introduction: High-fat diet (HFD) consumption during pregnancy can shape fetal brain development, increasing susceptibility to mental disorders. Nevertheless, the mechanisms underlying these negative outcomes remain unclear.

Objectives: We hypothesize that mHFD induces inflammation and oxidative stress (OS) in the fetal brain, disrupting excitatory/inhibitory (E/I) balance in the adult brain. This results in altered hypothalamic-pituitary-adrenal (HPA) axis reactivity, emotional regulation, and cognitive function. We tested the ability of N-acetyl-cysteine (NAC) - a powerful anti-oxidant and anti-inflammatory compound - to counteract mHFD effects.

Methods: Our mHFD model consists of female C57BL/6N mice fed either HFD (fat 58%, carbohydrate 25.5%, and protein 16.4%) or control diet (CD, fat 10.5%, carbohydrate 73.1% and protein 16.4%) before and during pregnancy (13 weeks). After 5 weeks on diets, half of them received NAC (1g/kg) for 8 weeks, until delivery.

Gene expression of *Il-1b*, *Cd68*, *Tmem119*, *iNOS*, and *Arg1* was measured in fetal brains. Cognitive function and emotional phenotype were assessed in adult male and female offspring through the Morris Water Maze (MWM) and the Emergence test, respectively. HPA axis functionality was assessed by measuring plasma corticosterone levels by ELISA following acute stress. Gene expression of vesicular glutamate transporter 1 (*Vglut1*) and vesicular GABA transporter (*Vgat*) were assessed as markers of E/I balance.

Results: Exposure to mHFD induced inflammation and OS in the fetal brain of both sexes, by increasing *Il-1b* and *iNOS/Arg1*. Additionally, *Cd68* and *Tmem119* were specifically increased in females. In adulthood, mHFD reduced latency to emerge from the shelter in the Emergence test in both sexes. In females, mHFD impaired cognitive function, reducing time spent in the MWM target zone, and increased HPA reactivity in response to acute stress. Furthermore, mHFD decreased *Vgat* expression in both sexes, resulting in an imbalanced *Vglut1/Vgat* ratio towards excessive excitatory input. Maternal NAC supplementation rescued this imbalance.

Conclusions: Overall, these data show that mHFD increases inflammation and OS in fetal brains, with greater effects in female offspring, inducing alterations in the E/I neuronal balance with concomitant disruptions of the neuroendocrine system and the emotional and cognitive profiles during adulthood. The supplementation with NAC was effective in rescuing the E/I imbalance as well as the behavioral phenotype.

Disclosure of Interest: None Declared

O0095

Depressive Symptoms and Urbanization - A Cross-Sectional Network Analysis

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Introduction: With increasing urbanization, more people are exposed to mental health risk factors stemming from the urban social or physical environment. However, research on urbanization and depression is not clear.

Objectives: This study aimed to explore environmental and social factors with depression symptoms in view of a network theory of mental health disorders.

Methods: The study was conducted among a representative sample of 3,296 habitants of Metropolis GZM (63% of women)– the most urbanized region in Poland. The measurements used were PHQ-9, UCLA, Neighbourhood Cohesion (Neighbourhood Belonging and Social Cohesion), REAT 2.0 (Quality of architecture in neighborhood area), distance and frequency use of green public areas, Self-Rated Health, Physical Activity, size of place of residence per person.

Results: The prevalence of depression risk in villages (*N*=713), towns under 20,000 (*N*=219), towns (under 99,000; *N*=823), and cities (under 300,000; *N*=1541) was 44.2%, 44.7%, 39.2%, and 34.9% respectively.

The depression nodes with the highest centrality degree and expected influence were PHQ9 (suicidal thoughts), PHQ2 (feeling depressed), and neighborhood belonging. Living in a more urbanized area (UA) had a smaller centrality degree in the network.