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N-acetyl-cysteine administration during foetal life improves social behaviour and restores hippocampal bdnf levels in adolescent mice prenatally exposed to a high-fat diet

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Introduction: Maternal obesity may affect foetal programming representing a risk for adult mental health. Oxidative stress and inflammation associated with maternal obesity can alter the maturation of neuronal circuits affecting behaviour and mood.

Objectives: We investigated the emotional phenotype of male and female mouse offspring born from a high-fat diet (HFD) fed dams. We also tested the efficacy of N-acetyl-cysteine (NAC – an antioxidant) in preventing the negative effects of HFD. We focused on adolescence, an age of main vulnerability for the onset of psychopathology.

Methods: Female C57BL/6N mice were fed HFD for 13 weeks and, after 5 weeks, were also exposed to NAC (1 g/kg b.w.) via drinking water, until delivery. The neurodevelopment of offspring was assessed through the homing test. Emotionality was assessed in 35-45-day-old adolescent mice through elevated-plus-maze (EPM) and social interaction tests (SIT). Transcriptomic analysis of hippocampal tissue were performed to identify mechanisms of action of both HFD and NAC.

Results: NAC was effective in moderating body weight gain in HFD-fed dams. Neither HFD or NAC affected offspring development. Regardless of sex, prenatal HFD reduced exploration and decreased sociability, in EPM and SIT respectively. Prenatal HFD decreased hippocampal levels of BDNF in female offspring. Prenatal NAC administration prevented social anxiety and restored BDNF levels in the HFD group.

Conclusions: Data indicate long-term effects of maternal obesity on dams' weight, offspring's behaviour and hippocampal BDNF levels. These effects may be mediated by changes in oxidative stress as NAC was effective as a preventive agent. ERANET-NEURON-JTC 2018 (Mental Disorders) Project "EMBED".

Keywords: foetal programming; social anxiety; N-acetyl-cysteine; maternal obesity

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Emotional eating as a risk factor for body image and life satisfaction

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Introduction: Previous studies have shown that emotional eating is associated with binge eating disorder, body image disturbances and depression.

Objectives: In this study we wanted to find out if there is a relationship between emotional eating and body image and life satisfaction in non-clinical sample.

Methods: The study involved 182 normal participants (153 Female, 29 Male, mean age $22,6 \pm 7,3$), which were recruited in Moscow, Russia. Emotional eating was measured by the opposite pole of Eating for Physical Rather Than Emotional Reasons subscale of Intuitive Eating Scale-2 (IES-2), body image was measured by Multidimensional Body-Self Relations Questionnaire (MBSRQ), Satisfaction with Life Scale (SWLS) was used to measure the corresponding construct. Correlation analysis was performed in IBM SPSS Statistics 22.0.

Results: Emotional eating was associated with the following MBSRQ subscales: lower appearance evaluation ($-0,431$, $p<0,0001$), lower body areas satisfaction ($-0,335$, $p<0,0001$), as well as lower fitness evaluation ($-0,208$, $p=0,005$) and lower health evaluation ($-0,182$, $p=0,014$), but higher overweight preoccupation ($0,279$, $p=0,0001$) and overestimation of body weight ($0,362$, $p<0,0001$). It was also connected to lower satisfaction with life ($-0,195$, $p=0,008$).

Conclusions: The results of the study allow us to conclude that emotional eating may pose risks to psychological health of a normal individual. It was shown that emotional eating is connected to negative evaluation of one's body appearance, fitness and health state, weight and shape concerns, and even to the lower level of satisfaction with one's life.

Keywords: body image; satisfaction with life; emotional eating

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Disordered eating and BMI predict negative body image

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Introduction: It is known that negative body image can cause significant emotional distress for an individual and thus lead to lower subjective well-being. Previous research has shown that both disordered eating and body mass are connected to negative body image.

Objectives: To examine how disordered eating and BMI can predict different aspects of body image.

Methods: A sample of 180 healthy respondents (152 Female, 28 Male, mean age $22,62 \pm 7,35$) were recruited in Moscow. Disordered eating was measured by Eating Attitude Test (EAT-26; Garner D. et al., 1982), body image was measured by Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash T. F., 1990). Body mass index (BMI) was calculated on the basis of self-reported data (height and weight). Multiple linear regression analysis was performed in IBM SPSS Statistics 22.0.

Results: Regression model with both predictors determined self-classified weight (SCW; $R^2=0,569$, $p<0,0001$), overweight preoccupation (OWP; $R^2=0,497$, $p<0,0001$), body areas satisfaction (BASS; $R^2=0,259$, $p<0,0001$), and appearance evaluation ($R^2 = 0,229$, $p<0,0001$), but only disordered eating symptoms predicted appearance ($R^2 = 0,193$, $p<0,0001$) and health ($R^2 = 0,036$, $p<0,05$) orientation, and none of the predictors affected fitness or health evaluation and fitness orientation.

Conclusions: Symptoms of disordered eating and body mass index in normal population can predict self-evaluation of one's