

**Conclusions:** The present project could allow the creation of a new operative platform for a better health management system correlating real-time Big Data to specific clinical features of BD.

**Disclosure:** No significant relationships.

**Keywords:** bipolar disorder; environment; Big Data; urbanisation

## S0003

### Climate change and mental health: An overview

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According to the UN Environment Programme “climate change is one of the most pervasive and threatening issues of our time”. “In many places, temperature changes and sea-level rise are already putting ecosystems under stress and affecting human well-being” (1). The presentation wants to give an overview on how climate change can affect mental health. A search was performed on PubMed for the combination of “climate change” and “mental health”. 281 publications were identified, the first being from 2007 (the only one in that year). In 2020, until Dec 22<sup>nd</sup>, 76 publications were found. The somehow prophetic 2007 publication reviews “natural disasters, climate change and mental health considerations for rural Australia” (2) and pinpoints central aspects of today’s debate, namely anxiety and depression, vulnerability and resilience. In addition to problems of rural areas (2), the impact of urbanicity (3) will be discussed as well as the role of air pollution on psychiatric disorders (4). (1) UN Environment Programme. <https://www.unenvironment.org/explore-topics/climate-change/about-climate-change> Dec 22<sup>nd</sup>, 2020. (2) Morissey SA, Reser JP. *Aust J Rural Health.* 2007 Apr;15(2):120-5. doi: 10.1111/j.1440-1584.2007.00865.x. (3) Krabbendam L et al. *Psychol Med.* 2020 Mar 11:1-12. doi: 10.1017/S0033291720000355. (4) Kim SY et al. *Sci Total Environ.* 2020 Dec 8;757:143960. doi: 10.1016/j.scitotenv.2020.143960.

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**Keywords:** air pollution; climate change; mental health; Urbanicity

### Genomic and transcriptome signatures of endophenotypes of major depressive disorder: Recent insights, current challenges and future prospects

## S0007

### The effect of childhood trauma and trauma-focused psychotherapy on blood expression in patients with major depressive disorder

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The only available genome-wide study (Minelli et al., 2018) indicated an association between the neglect CT and MED22, a transcriptional factor gene. To verify how the dysregulation of MED22 could be affected by environmental and genetic factors, we carried out an analysis on these components and a longitudinal study concerning the effect of trauma-focused psychotherapy in MDD patients that experienced CT. On a large mRNA sequencing dataset including 368 MDD patients we computed the genetic (GReX) and the environmental (EReX) components affecting gene expression in relation to CT. Furthermore, we measured the expression of MED22 in 22 MDD patients treated with trauma-focused psychotherapy. The dissection of MED22 expression profiles revealed an association of neglect with environmental and genetic components ( $p=6 \times 10^{-3}$   $p=2.6 \times 10^{-4}$ ). Furthermore, in an independent cohort of 177 controls, we also observed a significant association between cis-eSNPs of MED22 and higher neuroticism scores (best p-value: 0.00848) that are usually associated with a decreased amount of resilience to stress events. Finally, the results of psychotherapy revealed a reduction of depressive symptomatology ( $p<0.001$ ) and 73% of patients resulted responders at the follow-up visit. MED22 expression during psychotherapy showed a change trend ( $p=0.057$ ) with an interaction effect with response ( $p=0.035$ ). Responder and non-responder patients showed MED22 expression differences at different trauma-focused psychotherapy timepoints ( $p=0.15$ ;  $p=0.012$ ) and at the follow-up ( $p=0.021$ ). Our results provide insights suggesting that some biological and clinical consequences of CT depend on genetic background and environmental factors that could induce vulnerability or resilience to stressful life events.

**Disclosure:** No significant relationships.

**Keywords:** Blood Expression; childhood trauma; major depressive disorder; psychotherapy

## S0008

### Telomere attrition and inflammatory load in major depressive disorder

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Patients with major depressive disorder (MDD) present features that suggest the involvement of accelerated aging, such as increased circulating inflammatory markers and shorter telomere length (TL). Here we measured T-lymphocytes TL with quantitative fluorescent in situ hybridization (Q-FISH) and plasma levels of inflammatory markers in a cohort of 37 patients with MDD and 36 non-psychiatric controls (C). TL was shorter in MDD compared to C ( $F=8.52$ ,  $p=0.005$ ). Patients with treatment resistant (TR) MDD