Climate change

EPP0648

Psychiatry on fire: Climate change and the role of mental healthcare

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Introduction: What is the psychiatrist's role on a burning planet? As our world faces the existential ramifications of irreversible climate change, clinicians are contending with what purpose a normalizing institution like psychiatry can have in increasingly abnormal times.
Objectives: This presentation investigates the role of the modern mental health clinician by examining psychiatry's current impotence in the face of climate crisis. It will be shown that current approaches are often complicit in psychiatry's historical depoliticization of mental health and subsequent individualization of social concerns. It will be argued that the only way psychiatry can maintain its ethical obligations to its patients is by taking a courageous sociopolitical stance.
Methods: Emerging from a multidisciplinary literature review on the relationship between psychiatry and social crises, this work examines our field's response to climate change in particular. A focus is made on literature that explores psychiatry's political obligations, current trends in climate psychiatry, and proposed social psychiatric approaches to the climate crisis.
Results: It is shown that while ecological collapse tangibly affects our patients, psychiatry often fails to engage socio-politically with the crisis' root causes. Framing intense reactions to climate change as trauma responses and developing neo-diagnoses such as "ecoanxiety" both risk individualizing inherently social experiences. However, Psychiatrists are also uniquely positioned to speak with authority about social crises and to articulate what a more comprehensive medical response to climate change might look like.
Conclusions: Given climate change's disproportionate effects on disenfranchised populations, it is increasingly clear that health is inextricable from social circumstances. As a result, political inaction is incompatible with our ethical duty to serve patients' health, both in the clinic and beyond it.

Disclosure of Interest: None Declared

Depressive Disorders

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Functional connectivity subtypes of MDD and their associations with gene expression profile, neurotransmitter, and cognition

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Introduction: There's large heterogeneity present in major depressive disorder (MDD) and controversial evidence on alterations of brain functional connectivity (FC), making it hard to elucidate the neurobiological basis of MDD. Subtyping is one promising solution to characterize this heterogeneity.
Objectives: To identify neurophysiological subtypes of MDD based on FC derived from resting-state functional magnetic resonance imaging using large multisite data and investigate the differences in genetic mechanisms and neurotransmitter basis of FC alterations, and the differences of FC-related cognition between each subtype.
Methods: Consensus clustering of FC patterns was applied to a population of 829 MDD patients from REST-Meta-MDD database after data cleaning and image quality control. Gene transcriptomic data derived from Allen Human Brain Atlas and neurotransmitter receptor/transporter density data acquired by using neuromap toolbox were used to characterize the molecular mechanism underlying each FC-based subtype by identifying the gene set and neurotransmitters/transporters showing high spatial similarity with the profiles of FC alterations between each subtype and 770 healthy controls. The FC-related cognition in each subtype was also selected by lasso regression.
Results: Two stable neurophysiological MDD subtypes were found and labeled as hypoconnectivity (n=527) and hyperconnectivity (n=299) characterized by the FC differences in each subtype relative to controls, respectively. The two subtypes did not differ in age, sex, and scores of Hamilton Depression/Anxiety Scale.
The genes related to FC alterations were enriched in ion transmembrane transport, synaptic transmission/organization, axon development, and regulation of neurotransmitter level for both subtypes, but specifically enriched in glial cell differentiation for hypoconnectivity subtype, while enriched in regulation of presynaptic membrane and regulation of neuron differentiation for hyperconnectivity subtype.
FC alterations were associated with the density of 5-HT2a receptor in both subtypes. For hyperconnectivity subtype, FC alterations were also correlated with the density of norepinephrine transporter, glutamate receptor, GABA receptor, 5-HT1b receptor, and cannabinoid receptor.
Both subtypes showed correlations between FC and categorization, motor inhibition, and localization. The FC in hypoconnectivity subtype correlated with response inhibition, selective attention, face recognition, sleep, empathy, expertise, uncertainty, and anticipation, while that was related to inference, speech perception, and reward anticipation in hyperconnectivity subtype.
Conclusions: Our findings suggested the presence of two neuroimaging subtypes of MDD characterized by hypo or hyperconnectivity. The two subtypes had both shared and distinct genetic mechanisms, neurotransmitter receptor/transporter profiles, and cognition types.

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Ultrastructural analysis of synapses and mitochondria in the hippocampus of depressed patiens

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Introduction: Major depressive disorder (MDD) is a common multifactorial disorder, but the exact pathophysiology is still unknown. in vivo and post-mortem studies document volumetric and cellular changes in the hippocampus of depressed patients. Chemical synapses are key functional units of the central nervous system and earlier studies found reduced number of synapses in the prefrontal cortex of depressed patients (Kang HJ *et al.* Nature Medicine 2012;18(9):1413-1417). Mitochondria are intracellular powerhouses generating chemical energy for cellular biochemical reactions. Recent findings suggest that individuals with impaired mitochondrial function may be vulnerable to develop psychopathologies.
Objectives: We investigated synapses and mitochondria in post-mortem hippocampal samples from psychiatric patients.
Methods: The three study groups were: 1) MDD patients (n=11); 2) patients with alcohol dependence (n=8) and 3) controls (n=10). Controls were individuals who accidentally deceased and had no neuropsychiatric disorders. Three sub-regions of the hippocampus (dentate gyrus, CA3 and CA1 areas were investigated. Ultrathin sections were examined, and photomicrographs were taken for further analysis using a JEOL JEM 1400 FLASH transmission electron microscope. Systematic quantitative analysis was conducted with the Neurolucida system using unbiased counting principles.
Results: We could not detect any differences in synapse and mitochondria densities between the patients and controls subjects.
Conclusions: Our preliminary data suggest that despite our expectations hippocampal synapse and mitochondrial densities are rather constant parameters which are not easily affected by psychopathology or alcohol consumption. Potential methodical limitations may also explain this negative finding.
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The association between depressive symptoms and medication adherence among polypharmacy older adults

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Introduction: Among many polypharmacy term definitions, the most common definition refers to the concurrent use of five or more medications. Multiple medication administration is highly prevalent in older populations with multimorbidity. Apart from polypharmacy impacts on physical health, it might be detrimental to mental health.
Objectives: The present study aims to evaluate the association between depression and poor adherence in multimorbidity Iraqi older population using five or more medications.
Methods: This cross-sectional study was conducted in Iraq during July and August 2023, involving a sample of 196 older adults recruited from private clinics and hospital clinical medicine wards, all of whom had polypharmacy regimens. The questionnaire includes age, gender, medication regimen adherence and Patient Health Questionnaire-8 (PHQ-8) using a cutoff score of 10. Chi-square and binary logistic regression were performed to determine the association between poor adherence and the presence of depressive symptoms.
Results: A total of 196 respondents, mean age = (61±11.4), 49 (25%) male and 147 (75%) female, 178 (90.8%) good adherence and 18 (9.2%) poor compliance, 81 (41.3%) participants have PHQ-8 score was equal or less than ten while 115 (58.7%) have PHQ-8 score was more than 10. Depressive symptoms and patient adherence showed a significant association (p = 0.02). Moreover, poor adherence polypharmacy participants were more likely to have depression odd ratio (OR) = 3.9, 95% confidence interval (CI = 1.09 – 13.9; p = 0.036).
Conclusions: Our findings suggest that depressive symptoms are associated with poor adherence polypharmacy older adults and, highlighting the importance of addressing medication management and mental health in this population.

Disclosure of Interest: None Declared

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Esketamine nasal spray shows greater improvement in health-related quality of life over 32 weeks versus quetiapine extended release in patients with treatment resistant depression

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