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Introduction: The variety and efficacy of biomarkers available that may be used objectively to diagnose Major Depressive Disorder (MDD) in adults are unclear. This systematic review aims to identify and evaluate the variety of objective markers used to diagnose MDD in adults.
Objectives: This systematic review aims to identify and evaluate the variety of objective markers used to diagnose MDD in adults.
Methods: The search strategy was applied via PubMed and PsycINFO over the past 10 years (2013-2023) to capture the latest available evidence supporting the use of biomarkers to diagnose MDD. Papers were excluded if they were published in a non-peer-reviewed journal and/or not published in English; featured non-primary study designs (e.g. systematic review, meta-analysis, literature review); included children or adolescents in the study population; featured participants without a clinical diagnosis of MDD; featured participants with a diagnosis of other forms of MDD such as treatment resistant depression, vascular depression, remitted depression. Data was reported through narrative synthesis.
Results: 42 studies were included in the review. Findings were synthesised based on the following measures: blood, neuroimaging/neurophysiology, urine, dermatological, auditory, vocal, cerebrospinal fluid and combinatory – and evaluated based on its sensitivity/specificity and area under the curve (AUC) values. The best predictors of blood (MYT1 gene), neuroimaging/neurophysiological (5-HT1A auto-receptor binding in the dorsal and median raphe), urinary (combined albumin, AMBP, HSPB, APOA1), cerebrospinal fluid-based (neuron specific enolase, microRNA) biomarkers were found to be closely linked to the pathophysiology of MDD.
Conclusions: A large variety of biomarkers were available to diagnose MDD, with the best performing biomarkers intrinsically related to the pathophysiology of MDD. Potential for future research lies in investigating the joint sensitivity of the best performing biomarkers identified via machine learning methods and establishing the causal effect between these biomarkers and MDD.

Disclosure of Interest: None Declared

EPP558

Intermittent white light at 60Hz, a novel non invasive brain stimulation (NIBS), modulates neuroplasticity and ameliorates depressive-like symptoms in animal models - preliminary preclinical and in human data

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Introduction: Non-invasive brain stimulation (NIBS) is emerging as a promising option for the treatment of psychiatric diseases, including major depressive disorder (MDD). In this context intermittent white light at a specified frequency holds high promise. We have previously shown that 60Hz stimulation in mice induces selective brain entrainment associated with microglia-mediated remodeling of the perineuronal nets (Venturino et al., Cell Reports 2021).
Objectives: Here, we extend our previous findings with 60Hz stimulation to assess behavioral effects in mice and EEG response in healthy volunteers.
Methods: For the preclinical data, we exposed C57Bl6/J mice to a battery of behavioral tests to assess anxiety level, learning capability, and response to various stress paradigms after 60Hz light (2h per day/5 days) compared to constant light. Weight change, water and food intake were recorded. For human studies, a cohort of 12 healthy volunteers (6M, 6F) was recruited; their EEG response was investigated with an 8-channel EEG setup following acute (same day), short (5 days), and intermediate (3 weeks) stimulation with 60Hz entrainment (n=6) or sham light (n=6).
Results: Preliminary data from the preclinical behavior studies indicate that 60Hz treatment improves the social interaction of socially defeated mice compared to sham light stimulation. Furthermore, the animals showed less anxiety-related behavior when exposed to the elevated plus maze. No differences were noticed in weight change, water and food intake following 60Hz stimulation.
In healthy volunteers, we observed robust and widespread entrainment at 60Hz after acute 60Hz stimulation; the entrainment spread beyond the visual cortex and reached the frontal cortex. The normalized power of the 60Hz component slightly declined over time but remained significant as compared to sham stimulation at three weeks, indicating sustained EEG response. The stimulation was very well tolerated overall, without major side effects.
Conclusions: 60Hz intermittent light induces strong and sustained neuronal response in mice and humans, is well tolerated, and ameliorates depressive-like symptoms in the social defeat model in mice. 60Hz might represent a novel NIBS for the treatment of psychiatric disorders, including MMD.

Disclosure of Interest: None Declared

EPP559

Effectiveness of Psychotherapy vs Antidepressants for Depression in Primary Care in India: A Randomized Pilot Trial

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Introduction: Depression is commonly treated with psychotherapy or antidepressants, but predicting which intervention will work best for a given patient remains a challenge. This pilot trial compared the feasibility, acceptability, and effectiveness of psychotherapy based on behavioral activation (Healthy Activity Program, HAP) and antidepressant medication (fluoxetine) in a primary care setting in India.

Objectives: The trial had three key objectives: (1) assess the feasibility and acceptability of a randomized pilot trial comparing HAP and fluoxetine; (2) collect outcome data to refine study instruments and the baseline assessment; and (3) evaluate the preliminary comparative effectiveness of psychotherapy versus medication.
Methods: The pilot trial was conducted at eight primary health care centres in Madhya Pradesh (India) from August 2023 to February 2024. Eligible participants (aged 18+, PHQ-9 score ≥10) with moderate to severe depression were randomized to receive either HAP or fluoxetine. Feasibility was assessed by recruitment, retention, and adherence to study procedures. Acceptability was measured by adherence to interventions. Preliminary efficacy, as a secondary outcome, was assessed through changes in depressive symptoms (PHQ-9) from baseline to the 3-month follow-up.
Results: 76 participants were randomized, with primary endpoint data available for 63 (83%). Retention rates and study assessment completion were acceptable across both arms. Intervention adherence was high, with 79% (30/38 in HAP and ADM groups) completing the treatment per protocol (≥6 HAP sessions or 70% medication adherence). PHQ-9 scores improved significantly, with an average reduction from 15.02 at baseline to 6.73 at the 3-month follow-up, with no statistically significant differences between treatments. Full remission (PHQ-9 < 5) was achieved by 45.16% (28/62) of participants. Additionally, the pilot study identified logistical challenges and facilitators that will help refine the protocol for the larger trial.
Conclusions: This pilot trial successfully demonstrated the feasibility and acceptability of the study design, procedures, and interventions. The preliminary data suggest that both HAP and Fluoxetine are viable treatments for moderate to severe depression in primary care settings in India. The findings will be instrumental in informing the design and implementation of a larger precision trial.

Disclosure of Interest: None Declared

EPP560

Effect of antidepressants on neurodegeneration and neuroplasticity in patients with depression: A comparison between SSRI and SNRI

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Introduction: Depression affects 57 million people in India and is often linked to neurodegeneration (10-90% of cases). However, there's insufficient evidence comparing the effectiveness of SSRIs and SNRIs in managing neurodegeneration symptoms.
Objectives: This prospective observational study aims to compare the effects of SSRI and SNRI monotherapy on neurodegeneration, neuroplasticity, and social cognition.
Methods: This prospective observational study aims to compare the effects of SSRI and SNRI monotherapy on neurodegeneration, neuroplasticity, and social cognition.
Treatment-naïve patients with unipolar depression were evaluated for treatment response using the Hamilton Depression Rating Scale (HDRS) and neurodegeneration parameters at enrollment and after six weeks of antidepressant treatment. Neurodegenerative serum biomarkers [indoleamine-2,3-dioxygenase (IDO), neurofilament light chain protein (NLCP), brain derived neurotrophic factor (BDNF)] were assessed using ELISA. Social cognition was assessed using Social Cognition Rating tools in Indian setting (SOCRATIS). Neuroplasticity was assessed by resting state MRI.
Results: A total of 150 patients of unipolar depression were enrolled, out of these n=126 patients were prescribed SSRI and 24 patients were prescribed SNRI. Both SSRI and SNRI group have significant reduction in HDRS score at 6-week compared to baseline (both $p<0.001$), but no intergroup difference. Overall treatment responder rate (HDRS score reduction >50%) was 11.33%, but SSRI group has more responder (12.69%) compared to SNRI (4.16%). After 6 weeks of follow-up, serum IDO in SSRI group and NLCP levels in both groups were significantly decreased when compared to baseline ($p<0.001$) and BDNF levels were significantly increased in SSRI group when compared to baseline ($p<0.01$). As per SOCRATIS, after 6 weeks treatment, SSRI and SNRI didn't show any significant difference. fMRI assessment of depression patients showed significant decrease in cortical thickness of inferiortemporal, parsopercularis and precuneus regions of brain ($p<0.05$) in comparison with healthy controls. But there was no significant difference/increase in cortical thickness after 6 weeks of follow-up when compared to baseline.
Conclusions: After six weeks of antidepressant treatment, the treatment responder rate among all depression patients was 11.33%, with better outcomes observed in the SSRI group compared to the SNRI group. Likewise, in the assessment of social cognition and neurodegeneration-related biomarkers, the SSRI group showed superior performance over the SNRI group.

Disclosure of Interest: None Declared

E-mental Health

EPP561

From Instagram to TikTok: How Social Media Fuels Eating Disorders, Anxiety, Depression, and Insomnia in Gen Z

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