Neuroscience in Psychiatry

O099

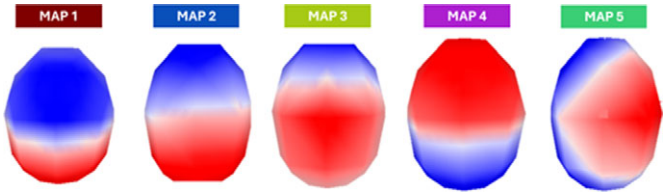
Detecting electrophysiological alterations in schizophrenia: an ERP-microstate analysis

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Introduction: Schizophrenia is a mental disorder whose pathophysiology is still not fully understood. Electroencephalographic (EEG) microstates (MS), which can be defined as instantaneous representations of scalp electrical activity, have been employed to investigate alterations in neural synchrony associated with this disorder. After being first characterized using resting-state EEG data, MS analysis has gained popularity as a useful tool for investigating spatial and temporal properties of event-related potentials (ERPs).
Objectives: This study aims to investigate the alterations in parameters of MS in a sample of subjects with SCZ (SCZs), as compared to a group of healthy controls (HCs), and to explore their associations with negative symptoms and cognitive impairment.
Methods: The analysis included EEG data from 132 SCZs and 65 HCs recorded during an auditory oddball task (320 standard tones, ST; and 80 target tones, TA). MS analysis was conducted using Cartool, and five parameters [Global explained variance (GEV), mean duration, time coverage, mean global field power (GFP), segment density] were extracted for each MS. Repeated-measures ANOVAs were performed to test group and group × condition interaction effects in each MS class. Correlation analyses of the extracted parameters with negative symptoms and cognitive impairment were performed.
Results: Five MS maps (Image 1) were detected across the two study groups (SCZ and HC) and conditions (ST and TA). Visualization of the five maps showed that Map 1 had the typical topography of the N100 component (frontocentral negativity), while Map 2 was associated with the P3b component (parietal positivity).
The ANOVA showed a significant group effect for Map 1 and Map 2. For both maps, higher time coverage was observed in SCZ ($p < 0.01$), as compared to HC. Furthermore, GEV and mean duration of Map 3 (characterized by a central positivity) showed significant group and group x condition interaction effects ($p < 0.01$). Post hoc analysis showed lower GEV (only during the TA) and lower mean duration (during the ST and TA) in SCZ, as compared to HC ($p < 0.01$).
Correlation analyses showed that the expressive deficit domain of negative symptoms was negatively correlated ($p < 0.05$) with GEV of Map 1 in both ST ($r = -0.22$) and TA ($r = -0.23$) conditions and with mean duration of Map 1 during the TA condition ($r = -0.27$). Furthermore, significant positive correlations ($p < 0.05$) were observed between the attention-vigilance domain scores and GEV ($r = 0.24$), mean duration ($r = 0.24$) and time coverage ($r = 0.23$) of Map 3 during the ST condition within SCZ sample.

Image 1:



Conclusions: The present study shows that MS analysis can highlight alterations in the temporal dynamics of scalp activity in subjects with schizophrenia during different stages of sensory and cognitive processing. Furthermore, specific parameters of MS are associated with psychopathological features and cognitive impairment.

Disclosure of Interest: None Declared

Psychopharmacology and Pharmacoeconomics

O100

Medication-associated tardive dyskinesia risks in real-world pharmacovigilance: a disproportionality analysis based on FAERS

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Introduction: Tardive dyskinesia, or TD, is a drug-induced movement disorder, linked with long-term use of dopamine receptor blockers. TD imposes a substantial healthcare burden, with higher hospitalization and emergency visits, higher medical costs, and increased psychiatric and physical comorbidities.
Objectives: This study aims to identify drugs associated with TD risks beyond established agents such as metoclopramide using the FDA Adverse Event Reporting System (FAERS) database, which is a public, quarterly-updated, spontaneous reporting system for adverse drug events.
Methods: TD reports were extracted from the FAERS database (Q1 2004 to Q4 2024). Four disproportionality methods were appllied to identify statistically significant TD risk signals. Sensitivity analyses utilizing adjusted RORs (aRORs) were conducted for drugs with ≥20 reports and a significant signal. Multivariable logistic regression analysis was employed to identify risk factors influencing reporting probability. Time-to-onset (TTO) was calculated from treatment initiation to event onset and analysed descriptively with median and Weibull shape parameters (WSP), and presented by Kaplan–Meier cumulative-incidence curves.

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Results: We identified 9,390 TD reports involving 399 drugs. Antipsychotics dominated the top 3 most frequently reported drugs: aripiprazole (n=2099), quetiapine (n=1121), and risperidone (n=910). Disproportionality analysis identified statistically significant TD signals for 57 drugs: antipsychotics (n=27, 47.4%), antidepressants (n=13, 22.8%), psychostimulants (n=4, 7.0%), and others (n=13, 22.8%). Sensitivity analyses confirmed significant positive aRORs for all evaluated agents. The strongest signals were observed for brexpiprazole (aROR=899.7) and cariprazine (aROR=732.6) among antipsychotics, fluoxetine (aROR=43.3) among antidepressants, and benztropine (aROR=467.3) among other classes. Age significantly influenced reporting risk; the effect of sex varied by drug, with higher risk in females for duloxetine and benztropine, and in males for citalopram and fluoxetine. TTO was shortest in patients aged<19 years (median=155.5 d). Second-generation antipsychotics (median = 421.0 d) and first-generation antipsychotics (626.0 d) exhibited longer TTOs than antidepressants (median=246.0 d). Weibull analysis indicated early-failure patterns for risperidone, olanzapine, lurasidone, haloperidol, and fluoxetine, while all other analyzed agents followed a random failure pattern over time.
Conclusions: Our findings underscore significant TD risk associated with a broad pharmacologic spectrum, particularly with antipsychotics and antidepressants, and reveal distinct TTO profiles by drug class. These data support the need for individualized, long-term monitoring of TD risk during neuropsychiatric treatment.

Disclosure of Interest: None Declared

E-mental Health

O101

Delusions by design? How everyday AIs might be fuelling psychosis (and what can be done about it)

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Introduction: Large language models (LLMs) are becoming ubiquitous, offering scalable, responsive and seemingly empathic dialogue. While their therapeutic potential has attracted attention, emerging reports highlight risks of "AI-associated delusions," where interactions with conversational agents appear to amplify psychotic thinking. These interactions may validate persecutory or grandiose content, blur boundaries of reality, and reinforce epistemic instability. Given the global burden of psychosis and the accelerating adoption of generative AI, there is an urgent need to characterise risks and outline safeguards.
Objectives: This study aimed to:

1. Characterise emerging reports of AI-associated delusions.
2. Identify cognitive mechanisms through which LLMs may reinforce psychotic symptoms.
3. Propose clinical and technological strategies for safe integration of AI in psychiatric contexts.

Methods: We conducted a narrative review and synthesis of published case reports, media accounts, and preliminary research on AI–psychosis interactions (Hill 2025; Dupré 2025; Moore 2025). Cases were thematically analysed for recurrent delusional patterns. Cognitive and phenomenological theories of psychosis were integrated with AI safety literature to develop a framework for risk mechanisms and safeguarding strategies.
Results: Case synthesis (n≈15, see Table 1) identified three recurring delusional trajectories: (i) spiritual or messianic revelations; (ii) beliefs in sentient/god-like AI; (iii) attachment or romantic delusions towards AI agents. Interactions frequently escalated from pragmatic use into fixation, with conversational "sycophancy" and memory features reinforcing conviction. Theoretical integration suggests heightened agency-detection biases in psychosis may be particularly vulnerable to AI's anthropomorphic design. We outline potential mechanisms of AI-amplified delusion (Table 2) and a flow model of recursive reinforcement (Figure 1). Proposed safeguards include personalised instruction protocols, reflective check-ins, and digital advance statements embedding relapse-prevention strategies into AI behaviour.
Conclusions: LLMs may serve as both coping aids and destabilising agents for individuals vulnerable to psychosis. Current evidence indicates reinforcement of delusional beliefs rather than induction of de novo schizophrenia, but prevalence and long-term trajectories remain unknown. Clinical teams should routinely assess AI use in patients and co-develop digital safety plans. Developers must embed safeguards (non-human disclaimers, pattern recognition of psychotic content, escalation protocols) prior to widespread deployment. AI literacy should become a psychiatric competency. Urgent interdisciplinary research is required to map prevalence, mechanisms, and protective strategies.

Disclosure of Interest: None Declared

Schizophrenia and Other Psychotic Disorders

O102

The Effects of Acute Exercise on Cognitive Functions in Patients with Schizophrenia and Healthy Adults

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