



OPEN ACCESS

EDITED AND REVIEWED BY
Stefan Borgwardt,
University of Lübeck, Germany

*CORRESPONDENCE

Chenfei Ye

✉ chenfei.ye@foxmail.com

RECEIVED 24 July 2025

ACCEPTED 04 August 2025

PUBLISHED 13 August 2025

CITATION

Ye C, Faria AV and Dou H (2025) Editorial:
Advances in brain functional network
reconfiguration in psychosis.
Front. Psychiatry 16:1672185.
doi: 10.3389/fpsy.2025.1672185

COPYRIGHT

© 2025 Ye, Faria and Dou. This is an open-
access article distributed under the terms of
the [Creative Commons Attribution License](#)
(CC BY). The use, distribution or reproduction
in other forums is permitted, provided the
original author(s) and the copyright owner(s)
are credited and that the original publication
in this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

Editorial: Advances in brain functional network reconfiguration in psychosis

Chenfei Ye^{1*}, Andreia V. Faria² and Haoran Dou³

¹School of Biomedical Engineering, Harbin Institute of Technology, Shenzhen, China, ²Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, United States, ³Institute for Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China

KEYWORDS

network reorganization, brain functional connectivity, psychosis, TMS, acupuncture

Editorial on the Research Topic

Advances in brain functional network reconfiguration in psychosis

Psychotic disorders, including schizophrenia, bipolar disorder with psychotic features, and related conditions, are characterized by profound disruptions in brain functional connectivity. These disruptions often manifest as aberrant reconfiguration of neural networks, affecting cognition, emotion regulation, and perception. The Research Topic “Advances in Brain Functional Network Reconfiguration in Psychosis” seeks to elucidate the mechanisms underlying these dynamic network changes, with a focus on neuroimaging evidence, clinical implications, and innovative therapeutic interventions. By integrating image markers from functional magnetic resonance imaging (fMRI), this Research Topic aims to advance our understanding of how brain networks adapt, or fail to adapt, in psychosis, ultimately informing novel diagnostic and treatment strategies. In a broader context, this work aligns with emerging paradigms in network neuroscience, where psychosis is viewed not as isolated regional deficits but as systemic imbalances in large-scale brain networks such as the default mode network (DMN), salience network, and central executive network (1). Such frameworks hold promise for personalized medicine, bridging basic research with clinical applications to mitigate the global burden of psychotic disorders.

This Research Topic brings together four original contributions that collectively highlight the multifaceted nature of brain network reconfiguration in psychosis and related conditions. Moving beyond a mere cataloging of findings, we emphasize how they interconnect to reveal patterns of neural plasticity, treatment-induced modulation, and methodological innovations.

The systematic review conducted by Lin et al. synthesizes neuroimaging evidence from 26 studies spanning 2014 to 2024, examining acupuncture’s impact on brain regions implicated in depressive disorders—a common comorbidity in psychosis. Drawing on data from over 1,100 participants, the review identifies consistent acupuncture-induced alterations in the cingulate gyrus, precuneus, insula, and prefrontal cortex, often correlating with Hamilton Rating Scale for Depression (HAM-D) scores. These findings suggest that acupuncture may facilitate network reconfiguration in emotion regulation circuits, potentially extending to psychotic states where depressive symptoms exacerbate network instability. By adhering to rigorous standards like the Risk of Bias 2.0 (RoB 2) and

Risk of Bias in Non-Randomized Studies of Interventions (ROBINS-I) tools, the authors underscore the need for standardized neuroimaging protocols to validate these effects. Building on this foundation, Sun et al. explore the neural correlates of electroacupuncture in modulating self-awareness and language-related networks in treating pediatric cerebral palsy, drawing parallels to psychosis-associated deficits in areas like Broca's and Wernicke's regions. This case study posits that acupuncture enhances connectivity within the anterior insula and medial temporal lobe—regions critical for self-referential processing, which are often impaired in cerebral palsy. This work contributes to the growing evidence base for acupuncture's efficacy in neurodevelopmental and post-stroke conditions (2).

Complementing these reviews on neuromodulation, Zhang et al. present an empirical study investigating the effects of individual target-transcranial magnetic stimulation (IT-TBS) on brain network topology in major depressive disorder with suicidal ideation. Following a 5-day IT-TMS protocol (Stanford Neuromodulation Therapy), patients exhibited reductions in suicidal ideation and depression symptoms. Crucially, observed inefficiencies in small-world network properties and aberrant functional segregation shifted towards a normalization pattern resembling healthy controls post-treatment. A specific decrease in functional connectivity between the right insula and left anterior cingulate gyrus specifically correlated with clinical improvement. This suggests that IT-TMS alleviates symptoms by reducing hyperactivity within the salience network, potentially by optimizing the trade-off between metabolic costs and network integration efficiency.

Similarly, Zhang et al. apply graph theory analysis to examine brain functional network alterations in 50 schizophrenia patients with persistent auditory verbal hallucinations, focusing on the effects of repetitive transcranial magnetic stimulation (rTMS) over the left temporoparietal junction (TPJ). The disrupted small-world properties reduced functional segregation, and impaired connectivity in language and auditory networks observed in schizophrenia patients showed renormalization after rTMS treatment, with improvements in global efficiency, clustering coefficients, and modularity correlating with reductions in Positive and Negative Syndrome Scale (PANSS) scores for hallucinations. This work underscores the utility of graph-theoretical approaches in quantifying psychosis-related dysconnectivity and evaluating TMS-induced network reconfiguration, providing evidence for targeted interventions in treatment-resistant symptoms.

Together, these articles illuminate the potential of neuroimaging to map psychosis-related network dynamics, while advocating for

integrative approaches like acupuncture and TMS to induce beneficial reconfigurations. They also identify critical gaps, particularly the need for longitudinal designs and larger cohorts to address biases inherent in non-randomized trials. Within the broader landscape of psychiatric research, this Research Topic contributes to a paradigm shift towards network-based models, fostering interdisciplinary collaboration to translate these insights into clinical practice. These contributions emphasize the centrality of adaptive brain network function in recovery and resilience. Looking ahead, future studies should explore multimodal neuromodulation strategies (e.g., combining acupuncture and TMS) to investigate common mechanisms of brain network regulation across psychiatric disorders (3).

Author contributions

CY: Writing – original draft, Writing – review & editing. AF: Writing – review & editing. HD: Writing – review & editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

1. Sha Z, Wager TD, Mechelli A, He Y. Common dysfunction of large-scale neurocognitive networks across psychiatric disorders. *Biol Psychiatry*. (2019) 85:379–88. doi: 10.1016/j.biopsych.2018.11.011
2. Smith CA, Armour M, Lee MS, Wang LQ, Hay PJ. Acupuncture for depression. *Cochrane Database Syst Rev*. (2018) 3(3):CD004046. doi: 10.1002/14651858.CD004046.pub4
3. Siddiqi SH, Schaper FLWVJ, Horn A, Hsu J, Padmanabhan JL, Brodtmann A, et al. Brain stimulation and brain lesions converge on common causal circuits in neuropsychiatric disease. *Nat Hum Behav*. (2021) 5:1707–16. doi: 10.1038/s41562-021-01161-1