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Psychotherapy as Epigenetic Medicine: A Commentary on Emerging Evidence

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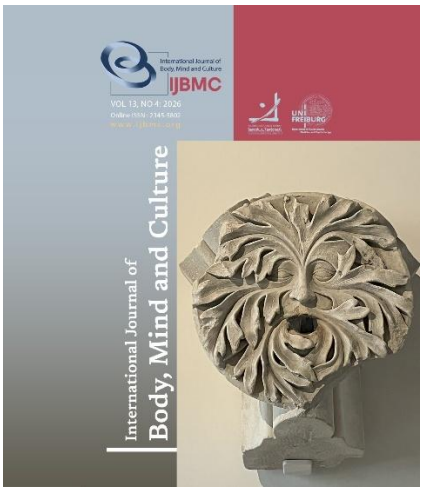

ABSTRACT

Farzanegan's (2022) editorial introduces the concept of psychotherapy as "epigenetic medicine," proposing that therapeutic interventions can modify underlying mental and cultural patterns ("memes") with potential biological effects. This commentary contextualizes the editorial within current research on epigenetic mechanisms and neuroplasticity in mental health treatment. Evidence indicates that epigenetic processes influence gene expression and neuroplasticity, contributing to recovery from mood disorders and major depression. Psychotherapy has also been associated with measurable epigenetic changes, although variability across therapeutic modalities presents challenges for empirical investigation. While preliminary findings are promising, further research is needed to identify specific epigenetic biomarkers corresponding to distinct psychotherapeutic interventions. Bridging psychotherapy, neuroscience, and molecular biology could advance mechanistic understanding and improve clinical outcomes.

Keywords: Psychotherapy, epigenetics, mental health.

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Farzanegan's (2022) editorial proposes an innovative conceptualization of psychotherapy as a form of "epigenetic medicine," suggesting that therapeutic interventions may alter underlying mental and cultural patterns, or "memes," with potential biological consequences. This perspective aligns with emerging research highlighting the intersection between psychotherapy, neuroplasticity, and epigenetic mechanisms in mental health treatment.

Recent studies have underscored the critical role of epigenetic processes in psychological disorders. McGowan & Kato (2008) demonstrated that epigenetic mechanisms, by altering chromatin structure and regulating gene expression, are vital in the treatment of mood disorders. These mechanisms contribute to neuroplasticity—the brain's capacity to remodel through processes such as synapse formation, dendritic remodeling, axonal sprouting, pruning, and neurogenesis—which in turn facilitates recovery from mental illness (DeCarolis & Eisch, 2010; Kays et al., 2012). Moreover, epigenetic modifications have been implicated in major depression, particularly through genes associated with the hypothalamic-pituitary-adrenal axis and the neurotrophin system, influencing both etiopathogenesis and treatment outcomes (Czarny et al., 2021; Menke, 2013).

Psychotherapy itself has been investigated in the context of epigenetic change. Syed & Zannas (2021) reported that measurable epigenetic modifications in peripheral blood sometimes accompany symptom reduction following psychotherapy. Stahl (2019), as cited in Kroflin & Zannas (2024), conceptualized psychotherapy as an "epigenetic drug," capable of influencing neurobiological circuits that manifest clinically. However, the heterogeneity of psychotherapeutic approaches presents a challenge for research in this domain. Interventions differ in theoretical background, methods, and treatment plans—ranging from Cognitive Behavioral Therapy, exposure therapy, and mindfulness-based interventions to disorder-specific approaches such as Dialectical Behavior Therapy. Evidence for epigenetic changes in other psychotherapies, including psychodynamic, systemic, schema, and newer approaches such as Acceptance and Commitment Therapy and interpersonal therapy, remains limited (Cuijpers et al., 2014; Hayes et al., 2011; Kroflin & Zannas, 2024; Wells, 2002).

Farzanegan's (2022) editorial is timely and thought-provoking, highlighting a conceptual bridge between psychotherapy and epigenetics. To advance the field, future research should focus on empirical validation, identifying specific epigenetic biomarkers associated with distinct psychotherapeutic interventions and examining their clinical relevance. Integrating neuroscience, molecular biology, and psychotherapy could not only refine treatment approaches but also provide mechanistic insights into mental health recovery.

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