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Efficacy of Yoga in Treating Positive and Negative Symptoms of Schizophrenia and Enhancing Social Functioning: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

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Introduction: Schizophrenia is a chronic mental disorder marked by positive symptoms such as hallucinations and delusions, and negative symptoms such as social withdrawal and apathy. While traditional pharmacological treatments effectively manage positive symptoms, they often fall short in addressing negative symptoms and social functioning. Yoga has emerged as a complementary therapy that may help improve both. However, its overall impact remains uncertain.
Objectives: This review aims to synthesize evidence on yoga's effectiveness in reducing positive and negative symptoms of schizophrenia and enhancing social functioning.
Methods: A systematic search was conducted in Scopus, Web of Science, and PsycINFO in September 2024, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Included studies were peer-reviewed randomized controlled trials (RCTs) assessing yoga's effects on symptom severity and social functioning in schizophrenia. A fixed-effects or random-effects model was applied, with subgroup analyses performed. Standard mean differences (SMDs) and mean differences (MDs) were used for effect size estimation.
Results: Sixteen RCTs were included, involving 862 participants. Yoga (n = 393) was compared to three control groups: treatment-as-usual (n = 152), other physical activities (n = 124), and waitlist (n = 193). Yoga significantly reduced overall symptom severity relative to control, as shown by a decrease in PANSS scores (MD = -6.61, 95% CI -13.21 to -0.0, p = 0.05, I^2 = 82%). It significantly improved positive symptoms relative to waitlist (SMD = -0.87 [-1.70, -0.03]) and treatment-as-usual (SMD = -0.65 [-1.21, -0.09]), with effects comparable to those observed with physical activity (MD = -1.30 [-3.09, 0.49]). There were no significant effects on negative symptoms, with SMDs of -1.59 [-4.18, 1.01] for the waitlist and -1.16 [-2.41, 0.09] for treatment-as-usual, and a MD of -1.32 [-3.60, 0.97] when compared to physical activity outcomes. Additionally, yoga did not significantly impact social functioning, showing SMDs of -0.44 [-1.56, 0.68] for the waitlist and -0.44 [-2.29, 1.41] for treatment-as-usual, and a MD of 2.30 [-0.74, 5.34] for physical activity.
Conclusions: This review shows that yoga is effective in reducing overall symptom severity compared to controls and improves positive symptoms relative to treatment-as-usual or waitlist, but not compared to physical activity. There were no significant differences in alleviating negative symptoms or enhancing social functioning. These findings suggest yoga may be a promising adjunctive treatment for positive symptoms of schizophrenia, especially when traditional treatments are insufficient. Further high-quality RCTs with standardized protocols are needed to confirm these results and establish optimal treatment parameters.

Disclosure of Interest: None Declared

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INVESTIGATION OF DRD2, NRG1 AND PI3K/AKT/MTOR EXPRESSION LEVELS BEFORE AND AFTER ANTIPSYCHOTIC TREATMENT IN FEMALE PATIENTS WITH SCHIZOPHRENIA

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Introduction: Schizophrenia, affecting about 1% of the global population, is marked by positive, negative, and cognitive symptoms, leading to significant disability and a shortened lifespan due to physical health issues. Early intervention is crucial, as untreated psychosis can persist. This study examines changes in mRNA expression in the NRG-1/PI3K-AKT and DRD2 pathways in treated and untreated patients, hypothesizing that expression decreases and varies with treatment.
Objectives: We aim to assess the impact of antipsychotic treatment on the expression levels of the PI3K/AKT/m-TOR signaling pathway, linked to the neurodevelopmental hypothesis of schizophrenia, and associated with the dopaminergic DRD-2 and glutamatergic NRG-1 systems. This study will examine mRNA expression of DRD-2, NRG-1, and PI3K/AKT/m-TOR in leukocytes from female schizophrenia patients before and after treatment. The findings may enhance our understanding of schizophrenia's pathogenesis, identify potential genetic markers, and clarify the molecular effects of antipsychotic drugs.
Methods: Our study includes 25 healthy female volunteers and 25 female schizophrenia inpatients from Bakırkoy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital. These inpatients met the experiment criteria, had not received treatment in the last 3 months, and were diagnosed with schizophrenia spectrum disorder according to DSM V criteria. After obtaining written consent, a sociodemographic form was completed. The Positive and Negative Symptom Scale (PANSS) was administered to eligible patients. Blood samples for DRD-2, NRG-1, and PI3K/AKT-1/mTOR mRNA expression analysis were collected from patients with PANSS scores of 95 or above before treatment and after scores decreased to 58 or below. Expression levels were determined by RT-PCR.
Results: In untreated schizophrenia patients, NRG-1 mRNA expression was significantly lower, while PI3K and mTOR mRNA expressions were significantly higher compared to the healthy control group, with no change in AKT-1 mRNA expression as shown in **Table 1**. Compared to healthy controls, treated patients