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Yoga for Psychiatric Disorders: A Review

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Abstract: ***In today's world, people suffer from psychiatric or mental disorders more than physical illnesses. Peoples of different ages, socioeconomic backgrounds, and genders are affected with psychiatric disorders. No definition of the term "psychiatric disorder" provides enough exact restrictions. Depression, schizophrenia, bipolar disorder, dementia, and developmental disorders such as autism are forms of psychiatric or mental disorders, according to the World Health Organization. Yoga has positive impacts on both somatic and mental health factors, making it an effective therapy for preventing and treating mental illness. Various researches shown that yoga is beneficial for treating psychiatric disorder or mental disorders. The purpose of this study is to review the effects of yoga on psychiatric disorders in previous studies. This review includes 18 research articles that focus on the effect of yoga on psychiatric disorders. The studies considered in this review were quality research papers, written in English, that were published between 2010 and 2022. The studies were discovered using the databases PubMed and Google Scholar. Out of 18 studies, 7 studies for depression, 5 for schizophrenia, and 6 studies for autism spectrum disorder were included in this review. Out of 7 studies, 6 studies showed significantly decreased depression. Out of 5 studies, 4 studies showed improvement in many markers in patients with schizophrenia; all 6 studies showed improvement in children with autism spectrum disorder (ASD). Through the various research papers, this review concludes that various yoga techniques are helpful in treating psychiatric or mental disorders.***

Keywords: Depression, Schizophrenia, Autism spectrum disorder, and Yoga

1. Introduction

Psychiatric disorders or mental disorders are becoming more common in today's scenario. Mental/psychiatric disorders affect 18.57 % of adults, or 45 million people in the United States (MHA, 2020). Psychiatric disorders, such as schizophrenia, major depression, and attention deficit hyperactivity disorder (ADHD), have a major role in children's, adolescent, and adult psychiatric problems (Trebaticka & Ďuračková, 2015). The term "mental" connotes a cartesian approach to the mind - body dilemma, in which the brain and mind are different and separate domains, which is at conflict with present philosophical and neuroscience perspectives (Fulford et al., 2006). The term "psychiatric disorder" may be chosen insofar as it emphasises that these issues are not totally "mental" and that the demarcation between "psychiatric disorder" and "other medical conditions" is not apparent. However, it has been claimed that the term "psychiatric" does not effectively communicate the psychobiological nature of occurrences. Other mental health professionals have also criticised the phrase, claiming that it implies inaccurately that only psychologists are trained in diagnosis and treating these problems **(**Spitzer & Williams, 1982). Depression, schizophrenia, bipolar disorder, dementia, and developmental disorders such as autism are forms of psychiatric or mental disorders, according to the World Health Organization. Depression is a prevalent psychiatric illness described by chronic sadness and a loss of interest in previously enjoyed activities. It is a psychiatric disorder that is the world's fourth greatest cause of disability. Antidepressants represent 20% of total CNS (Central Nervous System) drug sales in Western countries, making depression one of the most expensive disorders (Scapagnini et al., 2012). It is attributed to a combination of genetic, environmental, psychological, and biological factors. These elements are commonly used together in the genesis of depression, and their effects on the disease's status and severity are mutually interwoven (Trebaticka & Ďuračková, 2015). In 2020, an estimated 21.0 million adults will have experienced at least one major depressive episode. This equated to 8.4% of all adults in the United States (NIMH, 2020). In India, depressive disorders affect around 45.7 million people and actively contribute to disability - adjusted life - years (Sagar et al., 2020). Schizophrenia is a life - threatening psychiatric disorder marked by aberrant mental functioning and erratic behaviour. It affects about 1% of the world's population over the course of their lives. Increased oxidative stress is thought to contribute to the pathophysiology of schizophrenia (Do, 2013; Boskovic et al., 2011). Up to 50% of people with schizophrenia are addicted to alcohol or illegal drugs, and more than 70% are addicted to nicotine (Brady & Sinha, 2005). With a lifetime diagnosis of schizophrenia, 47% of the participants fulfilled the criteria for substance abuse in some aspect. The odds of getting a substance abuse diagnosis were found to be 4.6 times greater in those with schizophrenia than in the general population (Winklbaur et al., 2022). Schizophrenia affects about 24 million individuals globally, or 0.3% of the population (WHO, 2022). Autism Spectrum Disorder (ASD) is a type of developmental condition that can lead to a wide range of social, communication, and behavioural issues. The DSM - 5 (The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) defines ASD as the presence of confined, repetitive patterns of behaviour, interests, or activities, as well as persistent difficulties in social interaction (Arlington, 2013). In surveillance years 2000 and 2002, ASD prevalence estimates at Autism and Developmental Disabilities Monitoring (ADDM) network sites increased from 6.7 (1 in 150) per 1, 000 children with an age range of 8 years to 18.5 (1 in 54) in surveillance year 2016 (Maenner et al., 2021).

Yoga is an ancient science of training one's mind and body through various techniques like asana, pranayama, meditation, etc. In several studies, yoga has shown significant improvement in psychiatric disorders. The first study of yoga in a population with psychological illnesses appeared in the Journal of the Yoga Institute in 1971 and reported on improvements in symptoms of individuals with anxiety, depression, and schizophrenia (Khalsa, 2013).

The objective that guided this study was to evaluate the effectiveness of yoga on psychiatric disorder such as depression, schizophrenia and autism spectrum disorder.

2. Methods and Materials

The present review used electronic database searches with PubMed and Google Scholar. The search expression used for the search strategy was "Yoga and Depression", "Yoga and Schizophrenia", "Yoga and Autism". The review includes 18 studies published in English with full text articles, easily assessable, quality research papers, and if they involved at least one asana and/or one pranayama. The summary of the studies is shown in Table 1. The review excludes books, reviews, single - case studies, editorials, surveys, theses, dissertations, and published before 2010.

Out of 18 studies, 7 studies for depression, 5 for schizophrenia, 6 studies for autism were included in this review (Table 1).

Table 1: Table for included studies

S. N.	Study	Design	Sample size (Age in years)	Intervention	Outcomes Measures	Results
	Yoga for Depression					
1	Naveen *et al.*, 2013	A three - group, single - blind comparative trial design	n=137 (18 - 55)	Yoga, 12 - week (Daily - 60 minutes)	Hamilton Depression Rating Scale (HDRS), Clinical Global Impression (CGI)	Decreased HDRS and increased Brain derived neurotrophic factor (BDNF)
2	Newham *et al.*, 2014	Factorial design	n=59 (18+)	Antenatal yoga, 8 - week (8 sessions)	State Trait Anxiety Inventory (STAI - State), STAI - Trait, Wijma Delivery Expectancy Questionnaire (WDEQ), Edinburgh Postnatal Depression Scale (EPDS)	Reduced women's anxiety about childbirth and preventing rises in depression symptomatology
3	Davis *et al.*, 2015	Pre - post experimental study	n=46 (18 - 45)	Prenatal Yoga, 8 - week (Weekly 75 minutes)	Structured Clinical Interview for DSM Disorders Research Version (SCID - RV), International Physical Activity Questionnaire (IPAQ), Client Satisfaction Questionnaire (CSQ - 8), Credibility scale, The Edinburgh Perinatal Depression Scale (EPDS), The state - trait anxiety, The Positive and Negative affect schedule - negative subscale (PANAS - N), State Trait Anxiety Inventory (STAI)	Improved depression and anxiety symptoms
4	Shohani *et al.*, 2018	Quasi - experimental study with pre - post test	n=52 (33.5 ± 6.5)	Hatha yoga, 4 - week (3 days/week - 60 - 70 minutes)	Depression Anxiety Stress Scale - 21 (DASS - 21)	Decreased depression, anxiety, and stress levels significantly
5	Schuver and Lewis, 2016	Prospective, randomized, controlled pilot study	n=40	Mindfulness - based yoga, 12 - week (60–75 minutes twice a week)	The Beck Depression Inventory (BDI), Ruminative Responses Scale (RRS)	No significant differences in depression, significantly lower levels of rumination
6	Rani *et al.*, 2021	A single - arm pre - post design	n=38 (20 - 50)	Integrated yoga intervention, 3 - month (5 days/week - 60 minutes)	Immunometric assays of thyrotropin, DASS - 21 questionnaire, The fatigue severity scale	Depression, serum thyroid - stimulating hormone (sTSH), Body Mass Index (BMI), fatigue, anxiety, and stress levels decreased
7	Field *et al.*, 2013	Pre - post experimental controlled study	n=92 (20 - 40)	Yoga, 12 weeks (once/week - 20 minutes)	Structured Clinical Interview Depression (SCID), The Center for Epidemiological Studies Depression Scale (CES - D), Edinburgh Postnatal Depression Scale (EPDS), Profile of Mood States (POMS), State Anxiety Inventory (STAI), State Anger Inventory (STAXI), The Relationship	Decreases depression, anxiety, anger, back and leg pain

					Questionnaire, Cortisol, estriol, and progesterone	
	Yoga and Schizophrenia					
8	Jayaram *et al.*, 2013	Randomized controlled study	n=43 (18 - 45)	Yoga therapy, 1 month	Scale for assessment of positive symptoms (SAPS), Scale for Assessment of Negative Symptoms (SANS), Socio Occupational Functioning Scale (SOFS), Tool for recognition of emotions in neuropsychiatric disorders (TRENDS),	Improved socioeconomic functioning, performance on the tool for recognition of emotions in neuropsychiatric disorders (TRENDS), and plasma increase in oxytocin levels
9	Visceglia and Lewis, 2011	Randomized - controlled pilot study	n=18 (42±13.5)	Yoga Therapy programme, 12 - week (twice/week - 45 minutes)	Positive and Negative Syndrome Scale (PANSS), World Health Organization Quality of Life BREF questionnaire (WHOQOL - BREF)	Improved Positive and Negative Syndrome Scale (PANSS) scores, general psychopathology, activation, paranoia and depression subscales and perceived quality of life in all physical and psychological dimensions
10	Ikai *et al.*, 2014	Single - blinded, randomized controlled study	n=50 (50.9±11.3)	Hatha yoga, 8 - week (weekly 1 - hour)	25 - item Resilience Scale (RS), Positive and Negative Syndrome Scale (PANSS), Plasma and salivary BDNF level, SAA activity	No significant differences in changes in any measure
11	Ikai *et al.*, 2013	A single - blind randomised controlled trial	n=49 (53.1±12.3)	Yoga therapy, 8 - week (weekly 60 minutes)	Clinical Stabilometric Platform (CSP), Positive and Negative Syndrome Scale (PANSS), Drug Induced Extrapyramidal Symptoms Scale (DIEPSS), Functional Assessment for Comprehensive Treatment of Schizophrenia (FACT - Sz), EuroQol 5 dimensions (EQ - 5D), Coefficient of variation ReR interval (CVRR)	Improved postural stability, total length of trunk motion, the Romberg ratio, and anteflexion in standing
12	Bhatia *et al.*, 2017	A single - blind RCT	n=286 (18)	Supervised yoga training, physical exercise training, 21 days (daily - 1 hour)	University of Pennsylvania Computerized Neurocognitive Battery (Penn CNB)	Improved attention and additional cognitive domains
	Yoga and Autism Spectrum Disorder					
13	Vidyashree *et al.*, 2019	Pre - post experimental controlled study	n=50 (8–14)	Yoga therapy, 3 months (daily - 40 min)	Electrocardiogram (ECG),	Increased parasympathetic dominance
14	Deorari and Bhardwaj, 2014	Single group pre - post design	n=30 (5 - 16)	Yoga module, 3 months (1 - hour)	The Childhood Autism Rating Scale (CARS)	Reduction in autistic symptoms
15	Litchke *et al.*, 2018	Pre - post - test design	n=5 (8–13)	Multimodal Mandala yoga, 4 - weeks (twice a week - 1 hour)	Treatment and Research Institute for ASD Social Skills Assessment (TSSA)	Multimodal Mandala yoga programme could help children with ASD develop positive social and emotional skills
16	Kaur and Bhat, 2019	Pretest - posttest control group design.	n=24 (5 - 13)	Yoga, 8 - week (3 or 4 times/week)	Bruininks Oseretsky Test of Motor Performance–2nd Edition (BOT - 2)	Yoga is potential methods for improving the motor and imitation skills of children with ASD
17	Rosenblatt *et al.*, 2011	Within - subject analysis comparing pre - to post - treatment	n=24 (3–16)	Multimodal yoga, dance and music therapy program based on the relaxation response (RR), 4 - week	Behavioral Assessment System for Children, Second Edition (BASC - 2), Aberrant Behavioral Checklist (ABC)	Found effective in treating behavioural and some fundamental symptoms of autism, especially in latency - age children

18	Sotoodeh *et al.*, 2017	Pre - post randomized control design	n=29 (7 - 15)	Yoga Training Program (YTP), 8 - week (30 minutes/day 24 - session)	The Autism Treatment Evaluation Checklist (ATEC)	Yoga Training Program can help children with autism have fewer symptoms

Yoga for Depression

Out of 7 studies, 6 studies showed significantly decreased depression.

A three - group, single - blind comparative trial design study was conducted on 137 patients aged 18 to 55 years. The study concluded that both yoga groups performed better than the drug - only group in terms of reducing Hamilton Depression Rating Scale (HDRS) scores after a 12 - week follow - up. In the yoga - only group, there was a significant positive correlation between a decrease in the HDRS and an increase in serum brain derived neurotrophic factor (BDNF) levels, but not in the yoga and antidepressants or antidepressant - only groups (Naveen et al., 2013). A study that included 59 primiparous, low - risk pregnant women (18+ years old) suggested that 8 - week antenatal yoga training showed great promise in lowering women's anxiety about childbirth and preventing rises in depression symptomatology (Newham et al., 2014). Another study included 46 pregnant women with depression and anxiety symptoms who were randomly divided into either an 8 - week yoga intervention (designed for pregnant women) or treatment - as - usual (TAU). Weekly 75 - minute group yoga sessions showed significant improvements in depression and anxiety symptoms over time in both groups, with yoga resulting in a significantly greater reduction in negative affect than TAU (Davis et al., 2015). The study enlisted 52 women who were educated, nonathletic, and not pregnant, as well as those who could execute hatha yoga activities. A professional conducted Hatha yoga exercises and training sessions for eligible samples 3 times per week for 4 weeks, each lasting 60–70 minutes. The study found that regular hatha yoga practise significantly decreased depression, anxiety, and stress levels in women following 12 sessions (Shohani et al., 2018). In a pilot trial, 40 women with depression were randomised to an experimental mindfulness - based yoga condition and a walking control condition. The 12 - week mindfulness - based yoga condition had participants follow a gentle yoga DVD for 60–75 minutes twice a week. The study suggested that depressive symptoms decreased in both groups from baseline to post - intervention as well as from baseline to 1 - month follow - up and showed no significant differences between groups on depression scores at post - intervention. The mindfulness - based yoga condition reported significantly lower levels of rumination (Schuver & Lewis, 2016). A single - arm pre - post design trial included 38 women between the ages of 20 and 50 who had overt hypothyroidism and clinical depression. Participants were provided a 3 - month integrated yoga intervention (3 - IY) for 60 minutes daily, 5 days a week. The study found depression, serum thyroid - stimulating hormone (sTSH), Body Mass Index (BMI), fatigue, anxiety, and stress levels decreased significantly (Rani et al., 2021). In a study, a total of 92 depressed pregnant women were randomised to yoga and a social support group. For 12 weeks, the women in the yoga group practised once a week for 20 minutes (just physical poses). The social support group (a discussion group without a leader) convened on the same day. The study concluded that the yoga group reported less despair, anxiety, anger, back, and leg pain at the end of the first and last sessions compared to the social support group. The yoga group and the support group did not have any differences at the end of the previous session. Both of them had improved relationship scores and reduced CES - D scores for depression, anxiety, and anger. Additionally, both groups' cortisol levels dropped after each session. After the previous session, the levels of estriol and progesterone dropped. At the postpartum follow - up evaluation, both groups' levels of depression and anxiety were decreased (Field et al., 2013).

Yoga for Schizophrenia

Out of 5 studies, 4 studies showed improvement in many markers in patients with schizophrenia.

In a study, 43 schizophrenia patients were randomly assigned to either the yoga or the waitlist groups. Patients in the yoga group received 1 month of training in a particular yoga treatment module for schizophrenia. The study found that the yoga therapy group had shown significantly improved socioeconomic functioning, performance on the tool for recognition of emotions in neuropsychiatric disorders (TRENDS), and plasma increase in oxytocin levels (Jayaram et al., 2013). In a randomized - controlled pilot study, 18 clinically stable schizophrenia patients (12 men and 6 women) were randomly assigned to either an 8 - week Yoga Therapy programme (YT) or a Waitlist group (WL). Yoga therapy was provided to the YT group twice a week for 45 minutes. The study showed significant improvements in the Positive and Negative Syndrome Scale (PANSS) scores, general psychopathology, activation, paranoia and depression subscales in the YT group. YT improved perceived quality of life in all physical and psychological dimensions (Visceglia & Lewis, 2011). A study conducted on 50 patients with schizophrenia was randomly allocated to two groups: yoga therapy or treatment as usual. In addition to usual treatment, individuals in the yoga group had a weekly 1 - hour hathayoga therapy session. Patients in the control group attended a routine weekly day - care programme for 8 weeks. The study has shown no significant differences in changes in any measure between the two groups from baseline to week 8 (Ikai et al., 2014). In a single - blind randomised controlled trial, 49 individuals with schizophrenia or related psychotic disorder (ICD - 10) were randomly allocated to either yoga therapy or a control group in a single - blind randomised controlled trial. For eight weeks, the yoga therapy group had weekly 60 - minute yoga therapy sessions in addition to their regular treatment, while the control group received a weekly routine day - care program. The study showed significant improvements in postural stability in the yoga therapy group, but the control group showed no significant changes. In the yoga group, significant improvements were observed in a total length of trunk motion, the Romberg ratio, and anteflexion in standing at week 8 (Ikai et al., 2013). In a study, 286 outpatients with schizophrenia (SZ) who were consenting and clinically stable were recruited to three groups: therapy as usual (TAU), supervised physical exercise training with TAU (PE), or supervised yoga training with TAU (YT).

Instructors provided YT or PE training to groups of patients in one - hour sessions daily for 21 days. The study revealed that YT or PE improved attention and additional cognitive domains and showed significant benefits in several other cognitive domains when compared to TAU alone (Bhatia et al., 2017).

Yoga for Autism spectrum disorder

All 6 studies showed improvement in children with ASD.

In this study, 50 children with autism spectrum disorder (ASD) aged 8–14 years were recruited. They were categorised into two groups: ASD with yoga intervention and ASD without yoga intervention. The yoga group received 40 minutes of yoga training every day for three months, while the control group received no such training. After 3 months of yoga training, yoga therapy has shown increased parasympathetic dominance in children with ASD (Vidyashree et al., 2019). In another study, 30 children with ASD, ranging in age from 5 to 16, were recruited for the study. For 3 months, children received a 1 - hour yoga intervention. The study concluded that there was a statistically significant reduction in autistic symptoms in children after three months. The findings suggest that regular yoga practise can help children with autism spectrum disorder improve their symptoms (Deorari & Bhardwaj, 2014). In a study, 5, children (8–13 - year - old) with ASD participated in one - hour multimodal mandala yoga twice a week for four weeks. After 8 yoga sessions, young people's Modified Facial Mood Scale (MFMS) scores increased from 80% to 100%, indicating a pleasant or positive mood. The study suggested this multimodal Mandala yoga programme could help children with ASD develop positive social and emotional skills (Litchke et al., 2018). The study included 24 children with ASD aged 5 to 13 years old who were recruited in yoga and academic groups. The children did yoga or academic activities 3 or 4 times per week for 8 weeks. The study concluded that yoga is potential methods for improving the motor and imitation skills of children with ASD (Kaur & Bhat, 2019). A study was conducted on 24 children ages 3 to 16 with ASD. A modified relaxation response (RR) programme that included an 8 - week multimodal yoga and dance and music therapy was found to be effective in treating behavioural and some fundamental symptoms of autism, especially in latency - age children (Rosenblatt et al., 2011). For the study, 29 children with autism ranging in age from 7 to 15 years old were recruited for the study. Children received a yoga training programme (YTP) for 30 minutes a day for 8 weeks. This research supports the use of a yoga training programme and reveals key procedural improvements that can help children with autism have fewer symptoms. Routines and surroundings that are consistent have been shown to benefit autistic children (Sotoodeh et al., 2017).

3. Conclusion

The particular review showed effectiveness of yoga, yogic exercises, mindfulness, antenatal yoga, hatha yoga, traditional ashtanga vinyasa, mindfulness - based yoga, yoga therapy program, multimodal mandala yoga, tai chi, kirtan kriya, mindfulness - based cognitive therapy, Virtual Chair Yoga, and integrated yoga on depression, anxiety, stress in depressive patients including pregnant women; socioeconomic functioning, quality of life, trunk motion, cognitive domains, socio - occupational functioning, socio - occupational functioning, and facial emotion recognition deficits (FERD) in patients with schizophrenia; improved mood and emotional expression, motor and imitation skills, develop positive emotional and social skills of children with ASD.

In conclusion, yoga may be an effective complementary therapy for managing symptoms of psychiatric disorders such as depression, schizophrenia and autism spectrum disorder. The current literature suggests that regular yoga practice can lead to significant reductions in symptoms, and improved overall well - being. It could be a valuable addition to the treatment of psychiatric disorders when used in conjunction with other evidence - based treatments.

Limitations

This review limited to only three psychiatric disorders not all type psychiatric disorders.

Conflict of interest

There are no conflicts interest.

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