

The Future of Yoga for Mental Health Care

Abstract

Yoga is an integrated holistic system originating in India that provides a path to alleviate physical, mental, and emotional suffering. Interest in the application of yoga in health care to manage and treat psychiatric conditions has grown. While research and clinical interventions using yoga show promising results for improving mental and emotional well-being, more data are needed. This perspective article summarizes the current evidence on yoga as a treatment for mental health conditions, potential mechanisms of action, future directions, and a call to action for proactive clinical and research agendas for yoga-based interventions in mental health care.

Keywords: *Mental health, psychiatry, psychology, yoga*

Introduction

Mental health conditions remain among the leading causes of disease burden worldwide. According to the World Health Organization, one in eight people worldwide live with a mental disorder.^[1] People with mental health conditions die 10–20 years sooner than the general population, often due to concomitant physical illness.^[1] Suicide is also a significant risk associated with mental illness. Unfortunately, many barriers limit access to care for people with mental health conditions.^[1] In addition, there are limitations to current treatments for mental health disorders. Although psychopharmacology has made substantial advances since the mid-twentieth century, many people with mental health conditions continue to have symptoms despite adequate treatment, or lack access.^[1] Psychotherapy, an effective treatment option, has limitations related to access and cost. Urgent needs exist for novel, innovative, and adjunctive treatments in mental health care. Accordingly, interest has grown in novel therapies, such as yoga-based interventions and their application not only to promote wellness but also to treat clinical conditions.

Yoga

Yoga is an ancient practice originating in India. In the Western world, yoga is often perceived as a physical activity with the

focus primarily on the “*asana*” or posture component of the practice. In eastern traditions, yoga is a comprehensive science and psychology that aims to unite body, mind, and spirit. Yoga is secular and does not require one to prescribe to a religion for practice. The eight-limbed path of yoga includes ethical practices (*yamas*), disciplines (*niyamas*), physical postures (*asana*), breathing practices (*pranayama*), sensory awareness and control (*pratyahara*), concentration (*dharana*), meditation (*dhyana*), and absorption (*samadhi*).^[2] Yoga is an integrated holistic system that provides a path to alleviate suffering physically, mentally, and emotionally, and as such may be a useful tool in the treatment of mental health conditions.^[2]

Mechanism of Action and Rationale for Mental Health Applications

Yoga is proposed to exert its benefits through a variety of mechanisms. One well-accepted mechanism is that yoga confers its benefit to mental health through regulation of the autonomic nervous system. Yoga may work by integrating top-down and bottom-up processes creating bidirectional pathways between brain and body. Top-down processes initiated consciously at the level of the cerebral cortex such as attention regulation and intention setting, decrease stress, and regulate hypothalamic–pituitary axis (HPA) and sympathetic

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nervous system (SNS) activity. This has downstream effects on factors such as heart rate variability, immune function, and inflammation.^[3-5] Bottom-up processes, stimulated by breathing and movement practices, and largely mediated by the vagus nerve, influence central neural processing through ascending pathways and also affect HPA and SNS activity.^[3-5] Stress is often a common pathway, both precipitating and perpetuating risk for the development of mental health disorders. Studies have demonstrated normalization of physiological markers of stress following yoga practice including heart rate variability, inflammatory cytokines, and cortisol.^[5,6] Inflammation and oxidative stress are biological pathways that are also associated with psychiatric disorders, and thus, yoga may confer neuroprotective benefits.^[5] Research also shows normalization of neurotransmitters implicated in psychiatric disorders, such as γ -Aminobutyric acid (GABA) and oxytocin, through the practice of yoga.^[5,7] Studies have also demonstrated the impact of yoga practice on brain structure and function through neuroimaging studies in both novice and seasoned yoga practitioners. Changes in yoga practitioners include greater volume of the hippocampus which is involved in learning and memory and known to atrophy with age, and improved connectivity of the default mode network, which is associated with self-referential processing and implicated in the pathology of various neuropsychiatric disorders.^[5,8] With respect to its application to mental health care, yoga has many parallels to psychotherapy. The goal of yoga is to facilitate deeper insight and self-understanding, as well as the emergence of self-regulation and resilience individually and socially.^[4] Yoga may promote adaptive thinking and behavioral activation that could improve lifestyle components that affect mental health, such as sleep and nutrition. The physical activity component of yoga may also have direct benefits for mental health.

Clinical Evidence on Yoga in Mental Health Disorders

We searched PubMed, EMBASE, and Google Scholar for articles published between January 2013 and January 2023 for contemporary literature on yoga and psychiatric disorders. Guidelines, systematic reviews and meta-analyses, and recent high-quality randomized control trials that reviewed the evidence of yoga for common mental health disorders, such as depression, anxiety, and schizophrenia, was preferred for inclusion in this perspective article.

A meta-review of 17 meta-analyses showed that mindfulness and yoga may be efficacious adjunctive treatments that may complement existing psychotherapy and pharmacotherapy for people with mental health disorders.^[9]

A review examining eight randomized controlled trials (RCT) of yoga for people with anxiety disorders or elevated levels of anxiety showed evidence for small,

short-term effects of yoga on anxiety severity compared to no treatment (standardized mean difference [SMD] = -0.43 ; 95% confidence interval [CI] = $-0.74, -0.11$; $P = 0.008$), and large effects compared to active comparators such as relaxation therapy or treatment as usual (SMD = -0.86 ; 95% CI = $-1.56, -0.15$; $P = 0.02$). Short-term effects were defined as outcome measures taken up to 12 weeks after randomization. The effect did not achieve significance in a subgroup analysis of those with anxiety disorders diagnosed using standardized diagnostic criteria, but the N was smaller. Yoga interventions were not associated with a worsening of anxiety symptoms or physical injuries, but only three studies reported safety-related outcomes. The yoga interventions included in the study were heterogeneous giving little information about the primary change agent within the practice.^[10] A study randomized over 200 participants with a diagnosis of generalized anxiety disorder to 12 weeks of treatment with either Kundalini yoga, cognitive behavioral therapy (CBT), or stress education. Kundalini yoga was found to be more effective than stress education, but the noninferiority test did not find Kundalini yoga to be as effective as CBT.^[11]

A systematic review of 12 RCTs on yoga for depression that included participants with symptoms of depression as well as those with a diagnosed disorder, evaluated improvements in symptoms and severity of depression based on self- and clinician-reported scales. Results showed that yoga was comparable to exercise and meditation in reducing symptoms of depression. Moderate evidence emerged for the short-term effects of yoga compared to usual care (SMD = -0.69 ; 95% CI = $-0.99, -0.39$; $P < 0.001$), and limited evidence compared to relaxation (SMD = -0.62 ; 95% CI = $-1.03, -0.22$; $P = 0.003$), and aerobic exercise (SMD = -0.59 ; 95% CI = $-0.99, -0.18$; $P = 0.004$). Most studies reported on short-term effects, none reported on safety, and only three studies had a low risk of bias. Yoga interventions ranged from exercise based to more comprehensive protocols, again leaving questions about what aspect of the practice created meaningful change. Subgroup analyses showed better evidence for meditation-based yoga interventions.^[12] A recent systematic review and meta-analysis found that yoga showed moderate reductions (SMD = 0.41) in depressive symptoms in a dose-dependent manner for people with depressive symptoms in a variety of psychiatric conditions such as schizophrenia, bipolar, and anxiety.^[13] The Canadian Network for Mood and Anxiety Treatments clinical guidelines for the management of adults with major depressive disorder (MDD) recommend yoga as second-line adjunctive therapy in mild-to-moderate MDD.^[14]

A large body of research on yoga among people with schizophrenia provides evidence that yoga improves positive symptoms (such as hallucinations and delusions), negative symptoms (including cognitive domains), and quality of life. A study by Govindaraj *et al.* showed

that 20 sessions of yoga practice over 6 weeks resulted in improvements in social cognition in people with schizophrenia as an adjunctive treatment.^[15] Another recent large multicenter RCT by Rao *et al.* demonstrated a statistically significant improvement in negative symptoms in people with schizophrenia after 12 weeks of yoga practice compared to treatment as usual.^[16] Yoga is also associated with improvement in markers of metabolic syndrome, a significant concomitant physical health issue for people with schizophrenia.^[17]

A systematic review and meta-analysis of 94 RCTs of yoga found no significant differences in terms of safety risk found between yoga versus comparative exercise in participants across the lifespan.^[18] However, not all studies report adverse events.

Limitations and Future Directions for Clinical and Research Work

While research on yoga-based interventions for mental health is evolving and improving, several limitations exist in the current research landscape for yoga as a therapeutic intervention. Many studies have methodological limitations and are noted to have a high risk of bias. Studies often only have short follow-up periods, on the order of weeks to months. There is a lack of robust randomized control studies, and blinding is often difficult due to the nature of the intervention. Further, sample sizes are often small so studies are underpowered to show meaningful effects. Evidence-based and “gold standard” control groups, as well as outcome measures, including biomarkers and validated psychometric scales, are often lacking. Many studies include individuals with subsyndromal mental health symptoms, but most do not include participants with formally diagnosed psychiatric conditions, and few studies conduct standardized diagnostic assessments. This limits the current evidence-based application of yoga for people with psychiatric disorders. In addition, there is significant heterogeneity in yoga interventions. Yoga is a complex intervention with multiple components and many different traditions and adaptations. These features make yoga research difficult to evaluate. The extant literature also gives no clear evidence on the appropriate dose (frequency, duration), component, or type of yoga practice that is most suited for specific psychiatric conditions.

A major consideration in using yoga-based interventions for mental health is making a referral to a yoga resource with proper training to serve individuals with mental health concerns. Community-based studio yoga classes may have limitations due to being more oriented toward fitness and the general population. For a yoga class to be tailored to be a component of mental health treatment, yoga teachers need to have specialized training in working with mental health disorders and yoga practices need to be adapted to meet the needs of the patient population

for whom they are designed.^[2] While yoga is proposed to have originated over 2000–5000 years ago, its integration into modern health-care systems is in its infancy in many parts of the Western world. New yoga training programs with a health-care emphasis are emerging out of medical schools, university settings, and within already-formed yoga training programs, that need more organizational buy-in and support from health-care settings and providers for yoga to be studied and utilized more thoroughly (e.g. Yoga X at Stanford Psychiatry). Education on teaching yoga in health-care settings needs to be disseminated and yoga teachers who work in mental health settings need basic training in psychiatric care to be able to aptly meet the needs of the people they teach. Those who provide general psychiatric care need opportunities to learn yoga-based practices if they wish to integrate yoga interventions into their care in an evidence-based manner. In clinical settings, a need exists for protocols that deliver yoga as an integrated and comprehensive system rather than solely as physical activity. Physical postures or “*asanas*” are only one component of yoga practice. The other components of the eight-limbed path, including ethical and pro-social behaviors, commitments, and disciplines, as well as therapeutic breathing and meditative practices, have significant benefits for mental health. While the comprehensiveness and broad-based nature of yoga interventions make it a practice that can be adapted to meet the needs of a variety of patient populations, this also makes it challenging to standardize and structure protocols (although this can be done; e.g.,^[19]). Thus, ongoing efforts must be made to create and evaluate protocols that are designed with evidence, intention, and integrity. Importantly, it is imperative that yoga interventions be accessible and inclusive from a biopsychosociocultural perspective. Perceived barriers to practicing yoga can prevent individuals from accessing yoga, including time, cost, and perceptions of yoga as a practice for those who are already athletic, flexible, and hold privileged identities (e.g., white, female, thin, and educated).^[20] While adaptations are necessary, colonization of yoga practices must be avoided. Financial barriers can be addressed by offering low-cost yoga programs or through systemic changes in health-care systems, such as insurance coverage for evidence-based yoga interventions. Mental health and physical contraindications and risks need to be elucidated to assure that yoga-based interventions are safe and low-risk. Further, yoga interventions should integrate with other evidence-based treatments, including psychopharmacology and psychotherapy, as well as within the health-care ecosystem at large. Funding is needed to further research, training, and clinical endeavors.

Based on the current evidence, yoga may be considered an adjunctive treatment for conditions such as depression, posttraumatic stress disorder, anxiety, and schizophrenia. More research is needed, including high-quality RCTs,

with adequate sample sizes, active controls, validated outcome measures, longer follow-ups, and clear reporting on intervention details and adverse events. Mental health clinicians should continue to work to establish standardized protocols tailored for specific psychiatric conditions that deliver yoga as a holistic practice in an evidence-based yet accessible and patient-centered manner (e.g. “Yoga for Health and Resilience: A 10-week protocol for stress reduction by Brems, 2015^[19]). The need for novel treatments in psychiatry is imperative, and yoga has the potential to be a beneficial and safe intervention that is low cost and minimally invasive.

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Conflicts of interest

There are no conflicts of interest.

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