

# Yoga: A Complementary Treatment of Mental Health Concerns

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Yoga is a broad umbrella term for a variety of philosophical tenets and lifestyle practices, the most common of which in biomedical cultures is hatha yoga. Yoga has been tested mostly as a complementary treatment to standard psychiatric and psychotherapeutic approaches. Findings from efficacy trials largely support the notion that yoga is helpful in reducing symptoms of many psychiatric conditions, including anxiety, depression, and posttraumatic stress disorder (PTSD) symptoms, above and beyond the effects achieved by standard pharmacological treatments alone.

Keywords: yoga ; anxiety disorders ; depressive disorders ; PTSD

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## 1. Introduction

One recently-emerging approach to treating mental health is drawn from a very old Eastern tradition: Yoga. Yoga is a broad umbrella term for a variety of philosophical tenets and lifestyle practices, the most common of which in biomedical cultures is hatha yoga. Hatha yoga comprises physical postures, regulation of breathing, and meditation (see <sup>[1]</sup> for an overview).

While hatha yoga is often practiced as a form of physical exercise, it is now frequently studied as a treatment for a variety of mental and physical health conditions. The prevalence of yoga practice has increased significantly in recent years. In the US, for example, approximately 13.2% of adults report having practiced yoga, almost 163% more in 2012 than in 1998 <sup>[2]</sup>. Many individuals report practicing yoga to improve their mental health, reduce stress, or bolster their mood <sup>[3]</sup>. Because many people already practice yoga to manage mental health concerns and because many others may benefit, mental health professionals may want to be conversant with this expanding body of research and may consider integrating yoga into their treatment approaches.

In biomedicine, yoga is usually considered a complementary treatment; that is, a practice that can be integrated into a larger treatment plan that is based primarily on pharmacological treatment or psychotherapy. Earlier, yoga was sometimes considered part of “alternative” medicine, a broad body of treatments that attempt to provide alternatives to standard biomedicine. In the past few decades, many so-called alternative medical modalities have been subjected to scientific scrutiny to determine their value in treating a variety of health conditions. Those shown in clinical research to be of some value are often integrated into standard psychiatric and psychotherapeutic approaches to provide additional potential therapeutic benefit.

## 2. Anxiety Disorders

Yoga has demonstrated substantial effects on anxiety in nearly all studies reviewed <sup>[4]</sup>. These studies cover a broad range of samples, types of yoga, and study designs. Although some of the studies focused on diagnosed anxiety disorders, the majority were conducted with people who self-identified as having high levels of anxiety symptoms. Despite this heterogeneity, yoga interventions were almost always efficacious, suggesting a robust effect.

Yoga’s anxiolytic effects may be due to a number of different physiological, psychological, and behavioral mechanisms. Yoga may promote emotion regulation through integrating bottom-up physiological and top-down psychological processes that facilitate bidirectional communication between mind and body <sup>[5]</sup>. Yogic breathing and movement enhance autonomic nervous system (ANS) regulation. Through practicing yoga, individuals develop skills in remaining calm in times of challenge through deep breathing, mindful awareness, and attention. Yoga practices can stimulate the vagus nerve, helping to increase the balance of the ANS through the proportions of GABA and glutamate <sup>[6]</sup>. Practicing yoga also facilitates autonomic balance by increasing heart rate variability (HRV). Increased HRV is also associated with improved

adaptation to changing environmental stimuli and physiological reactions to stress [7][8][9], while higher HRV promotes recovery following stressful situations [10]. Other potential top-down processes include attention control, emotional balance, coping abilities, and perspective and wisdom [5].

Although these studies are fairly consistent in demonstrating that yoga as an adjunct to standard first-line therapies may bring about additional relief from anxiety, caution must be taken in drawing firm conclusions. The studies reviewed were generally of fairly weak design, often using waitlist or treatment as usual (TAU) controls, which do not permit separating the effects of yoga from non-specific factors such as expectancies and attention. Further, the clinical trials reported here are prone to many types of biases that are pervasive in nearly all clinical trials [11]. Thus, yoga may be considered a complementary option in treating a range of anxiety disorders given its potential effectiveness and minimal disadvantages, although stronger clinical trials are needed to build a firmer evidence base.

### **3. Major Depressive Disorder and Depressive Symptoms**

Multiple studies suggest that yoga interventions reduce the psychological and physical symptoms of depression in populations with clinical levels of depression and in those with subclinical symptoms (cf. [12][13][14][15]). Participants with depression find yoga interventions acceptable and beneficial (cf. [16][17][18]). In their meta-analysis, Haller et al. [13] concluded that yoga's effect on treating major depressive disorder was of a "large size" relative to TAU and "medium size" relative to standard interventions. This conclusion was consistent with that of a review by Cramer, Anheyer, Lauche, and Dobos [12].

Park and Slattery [4] included more articles than did the review by Cramer et al. [12], but also concluded that yoga is a promising intervention for MDD. Relative to an active control, two of the four study groups performed significantly better than the control group [17][19]. When compared with active controls (e.g., walking or social support), they performed as well [18][20][21]. Both studies that looked at changes in rumination reported significant decreases in symptoms [17][20]. Studies of complementary interventions (interventions plus TAU) were more mixed in outcomes. Some supported the use of yoga as a treatment for major depressive disorder [22][23]; others did not see any additional advantage compared to TAU or an attention control [16][24].

Nonetheless, similarly to Haller and colleagues [13], we conclude that the data in these studies were often of very low quality, as there were often very low doses of yoga, no active control groups, considerable dropouts from the study, insufficient blinding of participants and researchers, and other biasing factors [4].

### **4. Posttraumatic Stress Disorder**

Many people experience posttraumatic stress symptoms after experiencing or witnessing a traumatic event such as a natural disaster, a serious accident, a terrorist act, combat, or rape, or after being threatened with death, sexual violence, or serious injury [25]. These symptoms include intrusive thoughts of the trauma, avoidance, hyperarousal, and disturbances in cognition and mood [26]. When symptoms are severe and last at least one month, a diagnosis of posttraumatic stress disorder (PTSD) is applied. The annual prevalence of PTSD in the US is 3.5% and the lifetime prevalence is 9% [25]. Women are twice as likely as men to be diagnosed with PTSD [27].

Psychiatric treatment of PTSD typically consists of antidepressants such as SSRIs and SNRIs, which are used either alone or in combination with psychotherapy or other treatments. Recent meta-analyses reported small differences in outcomes between most pharmacological treatments for PTSD and placebos; nonetheless, medication may be helpful in controlling symptoms of PTSD, which may in turn help those with PTSD to engage in psychotherapy more effectively [28][29].

Psychotherapy, especially trauma-specific therapies such as prolonged exposure therapy or cognitive processing therapy, appear to be superior to medication as first-line treatments for PTSD [30]. These therapies typically focus on extinguishing conditioned fear responses, requiring patients to manage intense emotions while focusing on conditioned stimuli, such as sensations from the environment or one's memories [31]. Rates of premature termination from psychotherapeutic treatments for PTSD can be high. These high rates of attrition have been attributed to difficulties that many patients experience in tolerating these treatments [31].

Given these treatment difficulties, complementary therapy approaches for individuals with diagnosed PTSD or high levels of posttraumatic stress symptoms have received increasing interest by both mental healthcare providers and patients themselves. In particular, mind-body approaches may decrease trauma-related symptoms and improve emotion regulation [5], meaning they could help patients tolerate psychotherapy. Only a small number of studies have yet examined

the efficacy of yoga for treating PTSD. We were unable to identify any articles directly comparing yoga to psychopharmacological approaches. All of the reviewed studies either allowed participants to continue with their other treatments as usual or did not mention other treatments at all in their published articles.

Several yoga clinical trials have been conducted specifically with veterans with PTSD. A quasi-experimental pilot study examined veterans diagnosed with PTSD who completed a yoga intervention in gender-specific groups [32]. Improvements between baseline and postintervention were statistically significant for PTSD symptoms as well as for depression, sleep, quality of life, and subjective neurocognitive complaints.

Adding yoga practice to standard treatments for PTSD is based on a solid theoretical rationale. Although the specific mechanisms by which yoga improves outcomes for people with PTSD have yet to be empirically established, several theories have been put forward. Yoga, with its combination of controlled breathing, relaxation, meditation, and movement, can shift autonomic balance towards the parasympathetic branch of the autonomic nervous system, thereby reducing the hyperactivation of the amygdala and elevated cortisol levels that often accompany PTSD [33]. Yoga can alleviate PTSD via psychological pathways as well. As noted above, yoga can promote better emotion regulation, helping individuals tolerate and persist in psychotherapy [5], and may increase mindfulness, which helps reduce the avoidance that is characteristic of PTSD [34].

## **5. Eating Disorders**

Yoga appears to be a promising adjunct for treating people with eating disorders and may be an efficacious prevention strategy in reducing risk factors and symptoms when used in the community (e.g., [35][36][37]). Although the studies we reviewed generally drew positive conclusions about yoga's efficacy with these populations and make sense from a theoretical standpoint, the research evidence is weak, as many studies lacked a control group and studies that did employ a control group often used waitlist controls rather than active control groups [4]. In a meta-analysis, however, effect sizes for global eating disorder psychopathology and body image concerns were small but significant, and for binge eating and bulimia were moderate to large [38]. Effect sizes for dietary restraint and eating concerns were not significant.

## **6. Conclusions**

Unfortunately, this body of research on yoga as a complementary treatment lacks the level of rigor we prefer; however, the extant studies have fairly consistently yielded findings suggesting that yoga may be a helpful addition to first-line therapies for people diagnosed with anxiety, depression, and other psychiatric disorders. Yoga may be an appealing option for people who are hesitant about psychiatric medications or psychotherapy. Yoga is widely available and can be made affordable [39]. Further, although occasional injuries were described in the research reported here, yoga has few negative side effects, mostly musculoskeletal issues such as strains and sprains [4]; nonetheless, some studies of people with eating disorders have reported problems with social comparisons or negative self-talk [38].

Many plausible mechanisms by which yoga may be efficacious have been identified, although their function as the link between yoga practice and symptom reduction remains to be tested. Importantly, many of these mechanisms are transdiagnostic. For example, stress is known to exacerbate virtually every mental health symptom [39] and yoga's stress-reducing properties have been well-documented [4]. Yoga helps to shift autonomic balance towards the parasympathetic nervous system, which provides a cascade of benefits (increased frequency of heart rate variability, decreased GABA), manifesting as reductions in many types of symptoms [4][6][40][41]. Stress reduction through yoga also provides myriad psychological benefits that may reduce mental health symptoms, including increased emotion regulation capability, improved health behaviors, better social connections and support, and deeper spirituality [42].

Based on the available research, we conclude yoga appears to be a viable complementary intervention approach for a range of mental health concerns. The research evidence in support of its beneficial effects is not yet strong but is becoming more robust as researchers implement more rigorous trials. It is appealing to many people and is inexpensive and has few risks. Further, there are many different types of yoga, meaning that people have options regarding different styles and intensities and may be able to find a good fit from among these options that helps them achieve and maintain better mental health.

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