Yoga for Depression

Yoga Alliance Webinar
April 21, 2020

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Major Depressive Disorder (MDD)  
DSMV Criteria  
(Diagnostic & Statistical Manual of Mental Disorders, 5th Ed)  

5 or more symptoms for 2-weeks including symptom #1 or #2 below and clinically significant distress/impairment in overall functioning  

1. Depressed mood (sad, empty, hopeless)  
2. Loss of interest/pleasure in daily activities  
3. Weight or appetite change  
4. Sleep disturbance  
5. Psychomotor agitation or retardation  
6. Fatigue or loss of energy  
7. Feelings of worthlessness or guilt  
8. Difficulty with concentration or indecisiveness  
9. Suicidal ideation
Sadness or Depressed Mood

- Short term or temporary
- Specific to a life event or circumstance
- There is still interest/pleasure in other activities
- No serious disruption of sleeping and eating patterns
- No self-diminishing negative thought patterns
- No suicidal ideation
Etiology of Depression

- biological
- genetic
- environmental
- childhood or developmental events
- stressful life events
- severe and prolonged stress
Stress and Depression

“Research has supported a strong association between stress and depression…

…higher levels of significant stressors prior to the onset of major depressive episodes in patients…

…stressors were 2.5 times more likely in depressed patients…

…in community samples, 80% of depressed cases were preceded by major life events…most episodes of major depression are preceded by stressful life events”

Stress and Depression

“…chronic stress (defined as stress ongoing for more than 12 months) is a stronger predictor of depressive symptoms than acute stressors.”

“Other research has found that continuing adverse conditions, such as poverty, medical disabilities, and lasting marital discord, are associated with risk for depression.”

Treatments for Depression

- Pharmaceuticals
- Psychotherapy
- Cognitive Behavioral Therapy
- Exercise
- Relaxation Therapy
- Meditation
- Yoga
Yoga Practices
Postures, Breathing, Relaxation, Meditation

Fitness
↑Flexibility
↑Strength
↑Coordination/Balance
↑Respiratory Function
↑Self-Efficacy

Self-Regulation
↑Stress Regulation
↑Emotion Regulation
↑Resilience
↑Equanimity
↑Self-Efficacy

Awareness
↑Attention
↑Mindfulness
↑Concentration
↑Cognition
↑Meta-cognition

Spirituality
↑Unitive State
↑Transcendence
↑Flow
↑Transformation
↑Life Meaning/Purpose

Global Human Functionality
↑Physical & Mental Health, ↑Physical Performance
↑Stress & Emotion Regulation, ↑Awareness/Mindfulness, ↑Meta-cognition
↑Positive Behavior, ↑Wellbeing, ↑Values, ↑Life Purpose & Meaning, ↑Spirituality
Yoga Treatment of Depression
Mechanisms of Action

- Decreasing rumination
- Promoting decrease in stress reactivity
- Regulating neurotransmitters
- Promoting more adaptive thinking
- Promoting behavioral activation
- Increasing sleep regulation

Yoga on our minds: a systematic review of yoga for neuropsychiatric disorders

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Background: The demand for clinically efficacious, safe, patient acceptable, and cost-effective forms of treatment for mental illness is growing. Several studies have demonstrated benefit from yoga in specific psychiatric symptoms and a general sense of well-being.

Objective: To systematically examine the evidence for efficacy of yoga in the treatment of selected major psychiatric disorders.

Methods: Electronic searches of The Cochrane Central Register of Controlled Trials and the standard bibliographic databases, MEDLINE, EMBASE, and PsycINFO, were performed through April 2011 and an updated in June 2011 using the keywords yoga AND psychiatry OR depression OR anxiety OR schizophrenia OR cognition OR memory OR attention AND randomized controlled trial (RCT). Studies with yoga as the independent variable and one of the above mentioned terms as the dependent variable were included and exclusion criteria were applied.

Results: The search yielded a total of 124 trials, of which 16 met rigorous criteria for the final review. Grade B evidence supporting a potential acute benefit for yoga exists in depression (four RCTs), as an adjunct to pharmacotherapy in schizophrenia (three RCTs), in children with ADHD (two RCTs), and Grade C evidence in sleep complaints (three RCTs). RCTs in cognitive disorders and eating disorders yielded conflicting results. No studies looked at primary prevention, relapse prevention, or comparative effectiveness versus pharmacotherapy.

Conclusion: There is emerging evidence from randomized trials to support popular beliefs about yoga for depression, sleep disorders, and as an augmentation therapy. Limitations of literature include inability to do double-blind studies, multiplicity of comparisons within small studies, and lack of replication. Biomarker and neuroimaging studies, those comparing yoga with standard pharmaco- and psychotherapies, and studies of long-term efficacy are needed to fully translate the promise of yoga for enhancing mental health.
CHAPTER FIVE
YOGA THERAPY FOR DEPRESSION
L. UEBELACKER • H. LAVRETSKY • G. TREMONT

Pathophysiology, etiology, and prevalence of depression

Definition and prevalence

Major depressive disorder (MDD) is defined as a period of 2 weeks or longer in which there is depressed mood or loss of interest or pleasure and at least four other symptoms involving changes in weight/appetite, sleep, activity level, energy, self-image, concentration, or suicidality. To meet diagnostic criteria, these symptoms must significantly impair social, occupational, or other functioning. MDD is one of the most common psychiatric conditions, estimated to affect 350 million individuals worldwide (World Health Organization, 2010). In 2012, 16 million adults in the United States had at least one depressive episode within the past year (Substance Abuse and Mental Health Services Administration, 2012). It is estimated that 20% of women and 12% of men will experience major depression in their lifetime.

Etiology and pathophysiology

Major depression is a complex biopsychosocial disorder, frequently co-occurs with anxiety disorders and substance use disorders (Kessler et al., 2003), and is likely clinically and etiologically heterogeneous (Hasler, 2010). Thus, many etiological hypotheses have been proposed. Considerable evidence suggests that alterations in metabolism of neurotransmitters such as serotonin, norepinephrine, or dopamine in the brain underlie the pathophysiology of depression (Belmaker & Agam, 2008). There is also evidence that acute depression is associated with decreased total gamma-aminobutyric acid (GABA) in the prefrontal and occipital cortex (Hasler et al., 2007). GABA is the primary inhibitory neurotransmitter in the brain.

Chronic stress (Roy & Campbell, 2013) and impaired emotion regulation (Compare, Zarbo, Shonin, Van Gordon, & Marconi, 2014)—which affects how one copes with stress—are risk factors for MDD. Thus, MDD is considered to be a stress-related disorder, and some individuals show dysfunction of the hypothalamic–pituitary–adrenal (HPA) axis and have heightened levels of the stress hormone cortisol (Pariante & Lightman, 2008). High levels of cortisol release and abnormalities in the stress response are hypothesized to account for associations between volume loss in the hippocampus (an important brain structure for learning and memory) and longer durations of episodes of depression (Sheline, Gado, & Kraemer, 2003). Relatedly, inflammatory-response activation has been implicated in depression. Elevated levels of proinflammatory cytokines, such as interleukin-1, interleukin-6, and tumor necrosis factor alpha, are seen in depression and associated with activation of the HPA axis and disruption of the central serotonin system (Dantzer, O’Connor, Freund, Johnson, & Kelley, 2008).

Genetic factors and heritability are implicated in depression. Estimates suggest that genes account for 30–40% of the variance in susceptibility to MDD, although there is little evidence for specific genes or gene-by-environment interactions (Donnelly, 2008; Kendler, Gardner, & Prescott, 2006). Environmental factors are also likely to increase susceptibility to or precipitate MDD. Specific environmental factors may include childhood traumatic events, interpersonal difficulties, interpersonal loss, isolation, and ongoing stressors. Psychological factors, such as increased anxiety and tendency to interpret events in negative ways, may also be related to depression. Similarly, cognitive biases and deficits in cognitive control may be associated with poor emotion regulation and are common in depressive disorders, and therefore could have implications for treatment strategies (Joormann & Quinn, 2014).
The Efficacy of Yoga as a Form of Treatment for Depression

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Abstract
The purpose of this article was to systematically review yoga interventions aimed at improving depressive symptoms. A total of 23 interventions published between 2011 and May 2016 were evaluated in this review. Three study designs were used: randomized control trials, quasi-experimental, and pretest/posttest, with majority being randomized control trials. Most of the studies were in the United States. Various yoga schools were used, with the most common being Hatha yoga. The number of participants participating in the studies ranged from 14 to 136, implying that most studies had a small sample. The duration of the intervention period varied greatly, with the majority being 6 weeks or longer. Limitations of the interventions involved the small sample sizes used by the majority of the studies, most studies examining the short-term effect of yoga for depression, and the nonutilization of behavioral theories. Despite the limitations, it can be concluded that the yoga interventions were effective in reducing depression.

“…it can be concluded that the yoga interventions were effective in reducing depression.”

“This review found some evidence for positive effects beyond placebo and comparable effects compared to evidence-based interventions.”
Yoga Treatment of Depression

“...meditative movements may have positive effects on the treatment of MDD, and importantly, with no occurrence of significant adverse events.”


Yoga Treatment of Chronic Depression

“...data of thirteen RCTs...”
“...a comparison of yoga to psychoeducation control showed that hatha yoga led to reductions of symptoms of depression...”

https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0204925&type=printable
"...comments reinforced the importance of aspects of mindfulness, such as attention to the present moment and acceptance of one's self and one's experience..."

"Practicing mindfulness in class is likely associated with some of the notable effects of yoga cited by our participants, including learning to focus, concentrate, or be in the present moment; learning self-acceptance; and learning self-awareness."

"Many participants discussed the use of breathing techniques in the context of their life outside of yoga class, and particularly to cope with stressful situations."

"...not only did participants report engaging in home practice, but they found they found breathing practices in particular to be helpful."

Yoga Treatment of Depression

- RCT N=15
- severe MDD hospitalized
- SKY – yogic breathing
- 4-week 30’ daily 6/wk

From: Antidepressant efficacy of Sudarshan Kriya Yoga (SKY) in melancholia: a randomized comparison with electroconvulsive therapy (ECT) and imipramine, Janakiramaiah N et al., Journal of Affective Disorders 57:255-259, 2000.
Yoga Treatment of Depression


Fig. 2. Mean unadjusted Quick Inventory of Depression Symptomatology – Clinician Rating (QIDS) scores for yoga and Healthy Living Workshop (HLW) participants across assessments. Shaded areas represent standard errors.

Yoga Treatment of Depression

“Patients who had susceptible polymorphisms and were poor responders to SSRI treatment showed significant improvement of depressive symptoms with yoga therapy.”


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6278208/?report=printable
Yoga Treatment of Depression

Yoga, Thalamic GABA, Mood & Anxiety


“...one of the mechanisms through which yoga improves mood is by increasing the activity of the GABA system. The observed increase in GABA levels following a YI [yoga intervention] that was no longer observed 8 days after a YI suggests that the associated increase in GABA after a YI is time limited such that at least one YI a week may be necessary to maintain the elevated GABA levels.”
“...decrease in depression severity after [yoga and meditation-based lifestyle intervention] YMLI in MDD is associated with improved systemic biomarkers of neuroplasticity. Thus YMLI can be considered as a therapeutic intervention in MDD management.”
Yoga for the treatment of depression: Five questions to move the evidence-base forward

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- Style/content
- Dosing
- Safety
- Treatment interactions
- Barriers to access
Yoga Alliance® is committed to promoting and supporting the integrity and diversity of the teaching of yoga.
Scientific Research on Yoga

Substantial research has been done on many of the populations and parts of the body that COVID-19 preys on most. Use this section of Yoga Alliance's website to learn more about scientific research on the effects of yoga on the elderly, respiratory function, anxiety, and depression, to name a few.

Perhaps more than ever, yoga is being widely studied and evaluated for its positive effects and benefits. At Yoga Alliance, we curate the latest and most relevant research on yoga’s applications in health, wellness, and disease. We have filtered it in a digestible manner for our Registered Yoga Schools and Registered Yoga Teachers as well as for the broader yoga community.

This evidence-based research not only reveals the science of yoga, it also explains its therapeutic efficacy when used in conjunction with conventional medicine. Our goal is that this impactful content will be utilized in a way that highlights even more of yoga’s ancient, multi-faceted ability to improve lives.

Join us! Let us know how research on yoga is important or valuable to you on social media (@YogaAlliance) or by emailing us at research@yogaalliance.org. We honor and value your personal experiences and look forward to featuring your stories.

Our Research Conversation

Our Director of Yoga Research

Our Director of Yoga Research Dr. Satbir Singh Khalsa is a renowned yoga research expert and yoga teacher who has committed his professional life to clinical research surrounding yoga's full spectrum of healing efficacy.

Learn More

Featured Research Video

Learn about the process of aging and how yoga affects (and even slows down) aging.

Watch Now

Featured Health News

Visit our COVID-19 website, YourYA.org, for the most recent and applicable information on the coronavirus and the COVID-19 pandemic.

Learn More
Depression and Anxiety  Major Depressive Disorder, Dysthymia, Bipolar Disorder, Generalized Anxiety Disorder, Social Anxiety Disorders

Our hope is for yoga schools and yoga teachers to utilize this impactful content in their teachings to promote and highlight yoga's evident multi-faceted ability to improve lives. Let us know how research on yoga is important or valuable to you on social media (@YogaAlliance) or by emailing us at research@yogaalliance.org. We honor and value your personal experiences and look forward to featuring your stories.

These citations were curated by Yoga Alliance’s Director of Yoga Research, Dr. Sat Bir Singh Khalsa.

Review Papers (What’s this?)

Body-Centered Interventions for Psychopathological Conditions: A Review.
Tarsha MS, Park S, Tortora S.
Front Psychol. 2020 Jan 24;10:2097.
[full text]

Yoga for the treatment of depression: Five questions to move the evidence-base forward.
Nauphal M, Mischoulon D, Uebelacker L, Streeter G, Nyer M.
[abstract]

Depression and Anxiety Disorders: Benefits of Exercise, Yoga, and Meditation.
Saeed SA, Cunningham K, Bloch RM.
[abstract]

A meta-analysis of the effectiveness of yoga-based interventions for maternal depression during pregnancy.
Ng QX, Venkatanarayanan N, Loko W, Yeo WS, Lim DY, Chan HW, Sim W.
[abstract]

Notable Publications (What’s this?)

Thalamic Gamma Aminobutyric Acid Level Changes in Major Depressive Disorder After a 12-Week Iyengar Yoga and Coherent Breathing Intervention.
[abstract]

Effect of adjunct yoga therapy in depressive disorders: Findings from a randomized controlled study.
Kumar S, Subramaniam E, Bhavanani AB, Sarkar S, Balasundaram S.
[abstract]

Psychological Function, Iyengar Yoga, and Coherent Breathing: A Randomized Controlled Dosing Study.
[abstract]

Cortical inhibition in major depression: Investigating the acute effect of single-dose meditation.
[abstract]