Self-Care Mindfulness Approaches for Refractory Posttraumatic Stress Disorder

Marina Khusid, MD, ND, MSA

Current first-line posttraumatic stress disorder (PTSD) therapies include trauma-focused cognitive behavioral psychotherapies, stress inoculation training such as prolonged exposure, and pharmacotherapies.1 In recent years, however, the evidence base for mindfulness interventions has been rapidly expanding, as reflected in the 2010 Veterans Administration (VA)/Department of Defense (DoD) Clinical Practice Guideline for Management of PTSD, and the 2011 systematic review by the VA evidence-based synthesis program.1

Although the guidelines do not recommend any mindfulness approaches as first-line treatments for PTSD, they are known to facilitate the patient’s engagement in care, address hyperarousal symptoms, and comorbid conditions. Mindfulness-based approaches are increasingly employed to treat a variety of psychological, psychiatric, and physical problems, including anxiety, depression, PTSD, sleep difficulties, and chronic pain.2 A 2012 survey of 125 VA-specialized PTSD treatment programs indicated that 88% offered mindfulness practices including yoga and meditation.3,4

Deployment to a war zone in Iraq or Afghanistan is associated with a three-fold increase in new-onset PTSD.5 Since PTSD appears to be a risk factor for suicidal behavior, and often co-occurs with depression, anxiety, substance use disorders, and chronic pain, associated long-term personal and societal costs are high.6-8 Considering the high prevalence, and chronic debilitating nature of PTSD among US service members and veterans, the development of cost-effective self-management of this condition carries great public health importance.9

Engaging patients in collaborative care and educating them on how to self-manage their chronic diseases has been shown to lead to increased levels of functioning, reduced pain, improved health outcomes, and decreased health care costs.10 Additionally, it supports the patient-centered partnership model of care, where responsibility shifts from the physician to the patient. Recent meta-analysis and efficacy data suggest that self-help interventions are accepted and effective for patients with PTSD and anxiety disorders.11 They are useful in decreasing avoidance behavior, frequency of intrusive symptoms, anxiety, and depressive symptoms; they also have been shown to increase coping and self-efficacy skills.12

On Aug. 31, 2012, President Obama signed an executive order that directs the DoD, the VA, the Department of Health and Human Services, and the Department of Education to develop strategies...
for the improved prevention and treatment of PTSD.\textsuperscript{13} Because mindfulness approaches are safe, portable, affordable, and easy to learn, with increasing evidence of effectiveness as adjunctive PTSD treatment, they may help optimize standard PTSD treatment and prevent comorbidities, in accordance with the executive order.

To help primary care and behavioral health providers to care for veterans, service members, and military families facing PTSD-related sequelae, this article reviews mindfulness from several aspects: how it is defined, its mechanism, key research findings, and the clinical applications of mindfulness for PTSD.

**MINDFULNESS DEFINED**

Mindfulness is described as the ability to maintain moment by moment, open, acceptant, non-judgmental awareness.\textsuperscript{14,15} Segal et al\textsuperscript{16} define four characteristics of this type of attention to present experience as curiosity, openness, acceptance, and love (COAL). Several mind-body practices have been developed to create mindfulness in order to impact physical and psychological functioning, and improve overall health:\textsuperscript{2} ancient Buddhist Vipassana and Zen meditations; modern, group-based standardized meditations, such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT); movement meditations such as yoga and tai chi, and further psychological interventions like relaxation training. We will focus on a selected few with the most evidence for PTSD to-date.

**SUGGESTED MECHANISMS**

The neural mechanisms show that mindfulness training appears to enhance focused attention, supported by the anterior cingulate cortex and the lateral prefrontal cortex (PFC). Mindfulness has also been shown to improve emotion regulation through PFC inhibition of the amygdala, which promotes the stable recruitment of a nonconceptual sensory pathway. Thus, mindfulness training provides an alternative to cognitive efforts to control negative emotion, instead directing attention toward the transitory nature of momentary experience. This redirection of awareness helps people with chronic dysphoria to reduce automatic negative self-evaluation, increase tolerance for negative affect and pain, and engage in self-compassion.\textsuperscript{17} One study showed that MBSR may influence the hypothalamic-pituitary-adrenocortical (HPA) axis, resulting in adjustment of cortisol levels.\textsuperscript{18}

Neuroimaging findings by Creswell,\textsuperscript{19} in his 2007 functional magnetic resonance imaging study, support this described mechanism by demonstrating that dispositional mindfulness was associated with greater PFC activation and reduced amygdala activity during affect labeling, resulting in reduction of negative affect. Many PTSD symptoms and comorbidities, including painful reexperiencing, phobic avoidance, fear, hyperarousal, poor impulse control in aggression and addiction, and depression, result from dysfunction in the PFC-amygdala neuro-circuit. This mechanism makes mindfulness approaches a research priority in exploring new PTSD therapies.

In addition to neurobiological mechanisms, a recent literature review of 92 articles illustrates therapeutic effects of mind-body practices for PTSD, including reductions in anxiety, depression, and anger, and increases in pain tolerance, self-esteem, energy levels, ability to relax, and ability to cope with stressful situations.\textsuperscript{17} Such mindfulness-based approaches were found to be a viable intervention to improve the constellation of PTSD symptoms such as intrusive memories, avoidance, and increased emotional arousal.\textsuperscript{20}

**MINDFULNESS MEDITATION FOR PTSD**

Mindfulness meditation is designed to increase awareness of the present moment by focusing the person’s attention on the breath. There are several types of mindfulness meditation that originated from different Buddhist monastic traditions. They differ slightly in posture, hand or leg positions, and eyes being open or closed, but all universally involve the person sitting still and observing the breath. When thoughts arise, the meditator is instructed to nonjudgmentally acknowledge their thoughts as they come and go, but to always bring attention back to the simple process of air going in and out, in a natural and relaxed way.

This process of repeatedly returning one’s attention back to the essential automatic process of respiration gradually trains the brain to stay in the present, and offers significant benefits of controlling one’s otherwise automatic stress response to thoughts, negative emotions, and memories of PTSD.

Two random controlled trials (RCTs) of an 8-week mindfulness-based stress reduction (MBSR) training course offered to cancer patients, illustrated significantly decreased perceived stress and posttraumatic avoidance symptoms and increased positive states of mind. With continued practice, these effects were maintained immediately post-treatment and at 6-month follow-up.\textsuperscript{21,22} In both studies, patients with a previous cancer diagnosis (n = 71) were recruited and randomized into an intervention or a waiting-list control group. In his 2012 and 2013 trials, Kearney\textsuperscript{22,23} randomized...
veterans with PTSD to treatment as usual (TAU) or MBSPR plus TAU. Veterans in the MBSPR group demonstrated significant improvements in PTSD symptoms, depression, acceptance, mindfulness skills, and mental health-related quality of life, that were maintained at 4 and 6 months of follow-up.22,23

MBCT incorporates elements of cognitive-behavioral therapy (CBT) with mindfulness-based stress reduction into an eight-session group program. Research findings from several RCTs show substantial efficacy of MBCT in prevention of relapse in patients with recurrent treatment-resistant depression, equal to maintenance antidepressants.24 A recent pilot study suggests that group MBCT is an acceptable adjunctive therapy for combat-related PTSD, with good treatment compliance, and the potential for a reduction in the avoidance and numbing symptom cluster and PTSD cognitions, such as self-blame.25

A mindfulness meditation intervention was used in a pilot study of mental health workers with PTSD who, 10 weeks after Hurricane Katrina, received 4 hours of mindfulness training, followed by an 8-week home study. Participants reported good treatment adherence, significant improvements in well-being, and a decrease in PTSD and anxiety symptoms; the improved results were correlative with the total number of minutes of daily meditation practice.26

A small Vipassana meditation study among incarcerated individuals showed no significant difference in PTSD symptom severity between Vipassana and treatment as usual groups; however, participation in the Vipassana course was associated with significantly greater reductions in comorbid substance use.27

MANTRAM REPEITION FOR PTSD

Mantram (not to be confused with “mantra”) repetition is a portable practice of meditation where the individual silently repeats a word or phrase that carries a spiritual significance for him/her.28 A mantram is chosen by the individual, and can be used throughout the day or night, when symptoms arise, to interrupt unwanted thoughts and elicit the relaxation response. It has been shown to reduce the severity of PTSD symptoms in veterans with combat-related trauma. It is thought that this intervention redirects the person’s attention from their symptoms, initiates relaxation to decrease symptom severity, and increases existential spiritual well-being.29 This corresponds with several clinical trials demonstrating that mantram repetition has medium to large effect for reducing PTSD symptom severity and psychological distress as well as improving PTSD checklist scores and increasing quality of life and spiritual well-being.28-30

MINDFULNESS AND YOGA FOR PTSD

The practice of yoga synthesizes meditation, breathing exercises, and postures (asanas) to balance body, mind, and spirit and calm the nervous system. It is usually taught in 45- to 90-minute group classes, and once learned, can be practiced independently at home.

In his 2012 review, Telles et al31 covers 11 studies in which mental health disorders resulting from trauma were managed through yoga. Although most studies were limited by small size and methodological challenges, most showed yoga’s positive effect on trauma-related depression, anxiety, PTSD and physiological stress following exposure to natural calamities, war, interpersonal violence, and incarceration in a correctional facility.

One week of yoga training given to flood survivors in Bihar, India, 1 month after the event showed reduced PTSD symptoms, specifically sadness and anxiety, compared with wait-list controls.32 The effect of yoga breath intervention versus control also was significant at 6 weeks for PTSD and depression in survivors of the 2004 Asian tsunami.33 It has also been shown that yogic breathing alone and combined with giving testimony significantly reduces feelings of depression in battered women.34

RELAXATION TECHNIQUES

Another mindfulness intervention uses relaxation techniques to affect the autonomic nerve system, helping to slow breathing, lower blood pressure, and promote feelings of calm and well-being. Relaxation training may combine several practices, including progressive muscle relaxation, guided imagery, breathing exercises, and mantra repetition.

A comparative efficacy study of three PTSD treatments showed that relaxation training was equivalent to prolonged exposure and eye movement desensitization in the following PTSD-related symptoms: attrition, numbing and hyperarousal, and reductions in anger and guilt. Relaxation training was shown to mitigate PTSD symptoms both immediately post-treatment and at 3 months of follow-up.35 Prolonged exposure therapy, however, produced significantly larger and faster reduction in avoidance symptoms.

CLINICAL APPLICATIONS

Currently, the level of evidence is insufficient to recommend mindfulness interventions as a primary PTSD treatment; this is based on the low number of published RCTs, their small size, the studies’ methodological challenges, and the lack of reproducible results in military and veteran populations. However, mindfulness practices can be used as vi-
able self-care techniques, in addition to standard care.

Mindfulness practice may encourage a more curious, open, and kind relationship to experience. Through increased self-compassion, it is possible to reduce feelings of anger, shame, and guilt, and focus one’s attention in the present. Collectively, this can help with the successful reintegration into civilian life of a service member with PTSD.

In summary, mindfulness interventions decrease avoidance behaviors, improve emotional regulation and impulse control helpful in prevention of aggression and comorbid substance use disorder. Using mindfulness to train attention is effective in reducing ruminating negative thoughts, and may lead to decreased PTSD symptoms and prevent depression relapses. Supportive evidence exists for MBSR and MBCT for prevalent PTSD comorbidities, including depression, anxiety, chronic pain and stress reduction. They appear acceptable, cost-effective and safe in veterans and service members, are portable and are easy to learn, with encouraging preliminary results in clinical and neuroimaging studies.

CASE STUDY

A 32-year-old service member with a history of two tours in Iraq and a recent diagnosis of combat-related PTSD, and mild depression 1 year prior, presents to a primary care provider. The patient has no other medical or surgical history, and denies history of substance use disorder.

His family history is significant for alcohol abuse in his father and major depressive disorder in his older sister. He has been on fluoxetine 20 mg daily for 6 months, and has been seeing his psychologist every 2 weeks for trauma-focused psychotherapy that includes exposure therapy for a year. The patient reports noticeable improvements in both his PTSD and depression symptoms, but asks if there are techniques he can use on his own to maintain this therapeutic gain. The patient explains that his biweekly psychologist’s visits are challenging to maintain with his work schedule and family life.

He admits to feeling guilty for losing his patience and sometimes responding to his children in a harsh and aggressive manner. The patient’s wife is supportive and eager to help, but also reports being under a lot of stress secondary to family tension resulting from her spouse’s mental state.

Given the range of mindfulness interventions, mindfulness meditation has slightly better evidence for this particular hypothetical patient with a constellation of PTSD, mild depression, impulse and aggression control.

However, if the patient is not open to meditation, but more familiar and open to yoga, the latter would be a more effective self-care option. A description of interventions, related evidence, required training, and time commitment should be discussed. A sample 3-minute mindfulness meditation instruction could be offered to the patient and his wife during this consultation. Also in this case, yoga might be an excellent adjunct self-care option for the patient to practice himself and/or possibly as a family activity.

Patients can usually confirm if this is something they are willing to try or explore further. Additional resources could be offered through appropriate referrals to on-site or local community yoga, meditation, MBSR or MBCT classes. Recommendations for widely available DVDs, books, and online resources on these techniques are also helpful.

If the patient is ready to start a mindfulness self-care intervention, a start date should be determined and documented and a 2- to 4-week follow-up visit should be scheduled. It is important to clarify to the patient that his chosen mindfulness modality is in addition to the current regimen of fluoxetine and psychotherapy, and he is not to discontinue either without discussing with his physician first. The follow-up visit should address continued compliance with psycho and pharmacotherapy, and any questions about the practice of chosen mindfulness technique.

A 15-minute increment of the clinician’s time for this consultation can be billed, in addition to a visit code as lifestyle counseling, when linked to a specific ICD-9 diagnostic code and properly documented in the electronic medical record.

RECOMMENDATIONS FOR FUTURE RESEARCH

There currently are 28 clinical trials of mindfulness interventions for PTSD registered with the government. This is almost triple the number for 2010, indicating the growing interest and evidence base in this field. Twenty of 28 studies were sponsored either through the VA, the DoD, or the National Center for Complementary and Alternative Medicine (NCCAM). Ten of these registered clinical trials include investigations of two forms of meditation, speculated to be the most effective in PTSD care: mindfulness meditation, mantram repetition, and compassion meditation. Yoga and the relaxation response follow meditation in prevalence, with seven and five trials, respectively.

In response to the critique in prior systematic reviews, most of the ongoing trials are being done in military and veteran populations, and are larger, with the numbers of enrolled participants between 100 and 400. To enhance the clinical utility of future research outcomes and to speed the translation of this new knowledge to effective patient care, we propose future formulation of the research questions should consider neurobiological mechanisms of PTSD in accordance with the research domain criteria recently adopted by the National Institute of Mental Health.
REFERENCES


