Issues in Yoga Therapy

The Use of Yoga in Specialized VA PTSD Treatment Programs

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Abstract

Background: Posttraumatic stress disorder (PTSD) is a chronic, debilitating anxiety disorder that is highly prevalent among U.S. military veterans. Yoga, defined to include physical postures (asana) and mindfulness and meditation, is being increasingly used as an adjunctive treatment for PTSD and other psychological disorders. No research or administrative data have detailed the use of these services in Department of Veterans Affairs' (VA) 170 PTSD treatment programs. **Methods:** One hundred twenty-five program coordinators or designated staff completed an 81-item survey of their program's use of complementary and alternative medicine modalities in the past year. This report describes data from a subset of 30 questions used to assess the prevalence, nature, and context of the use of yoga, mindfulness, and meditation other than mindfulness practices. **Results:** Results revealed that these practices are widely offered in VA specialized PTSD treatment programs and that there is great variability in the context and nature of how they are delivered. **Conclusions:** Understanding how yoga is used by these programs may inform ongoing efforts to define and distinguish yoga therapy as a respected therapeutic discipline and to create patient-centered care models that mindfully fulfill the unmet needs of individuals with mental health issues, including veterans with PTSD.

Key Words: Yoga, PTSD, yoga therapy, mental health

Introduction

Posttraumatic stress disorder (PTSD) is a chronic, debilitating anxiety disorder associated with significant disability and functional impairment and a host of comorbid physical and mental health conditions.[1-4] PTSD is characterized by a prolonged psychophysiological response to 1 or more traumatic events and manifests in 3 clusters of symptoms, including reexperiencing (e.g., intrusive thoughts and memories, nightmares, flashbacks), avoidance (e.g., avoiding thoughts, feelings, people, places associated with the trauma, emotional numbing) and hyperarousal (e.g., hypervigilance, exaggerated startle response, difficulty sleeping).[1] PTSD often co-occurs with major depression, anger and impulsive aggression, chronic pain, insomnia, addiction, and suicide.[5-9]

War veterans comprise a large percentage of the population with PTSD. The prevalence of PTSD among returning Afghanistan War and Iraq War veterans in the United States is increasing,[3] with estimates as high as 20%[10] and even higher rates reported among those seeking services from the Department of Veterans Affairs (VA).[6] Although several empirically supported interventions are known to be successful for reducing symptoms of PTSD, a substantial number of veterans fail to complete these treatment programs and others complete treatment without experiencing significant relief from symptoms.[11-12] Furthermore, the efficacy of many of these treatments for veterans with multiple comorbid mental health diagnoses and prolonged, complex trauma histories has not been established.

Yoga as a Treatment for PTSD

Yoga may provide an effective integrative treatment option for veterans with PTSD.[13] Yoga practices may directly address symptoms of PTSD and may provide coping skills to decrease their negative impact on quality of life. The present-focused breathing and concentration used in many yoga traditions may reduce worry and anxiety and decrease fears involving people and events out of an individual's control. The cultivation of acceptance and nonjudgment may directly address avoidance behaviors,[14] and modulation of the breath may directly ameliorate hyperarousal. In addition, yoga asana may help release trauma that has been physically instantiated in the body, which may facilitate behavioral activation through regulation of interoceptive and sensorimotor neural pathways.[15-17]

A number of studies have demonstrated the beneficial effects of yoga practices on the regulation of the autonomic nervous system.[18] Several randomized controlled trials (RCTs) have provided preliminary support for the use of yoga in the treatment of depressive and anxiety disorders in civilian populations [19-20] and for the treatment of chronic pain in veterans.[21] No RCTs have examined the efficacy of yoga therapy for war veterans with PTSD, however. To date, published studies include pilot reports with small samples, ill-defined treatment protocols, and insufficient assessment at follow-up.[15, 22-23] Research on the efficacy of mindfulness and other types of meditation for the treatment of PTSD is hampered by similar limitations.

Mindfulness and Meditation Practices as a Treatment for PTSD

Several investigations have revealed a significant inverse relationship between mindfulness and PTSD symptoms.[24-26] No RCTs have explicitly examined the use of mindfulness as a treatment for PTSD. Two studies of Transcendental Meditation,[27-28] 2 examining mantra repetition, [29-30] and 1 assessing iRest Yoga Nidra[31] suggest that these practices offer a promising intervention for PTSD.[32] Longitudinal RCTs with large samples are needed to build an evidence base supporting yoga, meditation, and mindfulness practices as valid and reliable treatments for PTSD.[33-35]

Use of Yoga Therapy to Treat PTSD

Those in the field of yoga therapy are working to delineate its role in healthcare service delivery.[36-38] The role of yoga therapy in mental health treatment has received increased attention, and a wide variety of opinions and perspectives from members of the yoga community have been presented. The International Association of Yoga Therapists (IAYT) recently published guidelines for the training of yoga therapists. Although comprehensive, these guidelines may not adequately address training needs for those offering yoga therapy as part of mental health treatment. This is particularly crucial when working with individuals with chronic or severe psychological illness, including PTSD.[39] To understand how yoga therapy may be most effectively integrated into mental health systems in the future, it is important to understand how it is used.

The VA Healthcare System provides an ideal platform for a comprehensive analysis of yoga and the use of yoga therapy for PTSD. Understanding how yoga is being used as part of PTSD treatment in the nation's largest healthcare system may provide an important first step in optimizing its integration into traditional mental health models. This report describes the prevalence, nature, and context of the use of yoga, mindfulness, and meditation other than mindfulness in VA specialized PTSD treatment programs.

The VA system has increased its mental health budget and workforce considerably in recent years to reduce the prevalence of PTSD among U.S. veterans.[40] Training and dissemination of evidence-based interventions for PTSD are a top priority, and multiple forms of cognitive and behavioral psychotherapy have been widely implemented.[41] Complementary and alternative medicine (CAM) is widely offered at the VA.[42-43] To date, no research or administrative data have documented the prevalence of CAM usage for treatment of PTSD at the VA.

An exploratory survey was designed and implemented to investigate the prevalence of the use of 32 types of CAM in VA specialized PTSD treatment programs. Results of the full survey are available elsewhere.[44] This report presents data from a subset of 30 questions used specifically to examine (a) how yoga, mindfulness, and meditation other than mindfulness instruction is offered, including programmatic logistics and mechanisms; (b) the credentials of those who provide this instruction to veterans with PTSD participating in specialized PTSD treatment programs; and (c) the types of yoga, mindfulness, and meditation instruction provided.

Methods

Data for this study were derived from a subset of 30 questions from the original survey[44] that was designed based on interviews with program coordinators from 8 VA specialized PTSD treatment programs that offer CAM treatments. The full survey consisted of 81 mixed-format questions that included a skip pattern to decrease respondent burden. It was estimated to require less than 30 minutes to complete. The survey assessed the use of 32 types of CAM within the past year and the context and nature of 6 CAM treatments (yoga, mindfulness, and meditation other than mindfulness, tai chi, qi gong, and massage and bodywork) that were identified by the coordinators as highly prevalent. Thirty questions are used to assess the prevalence, context, and nature of yoga, mindfulness, and meditation other than mindfulness within the specialized PTSD treatment programs.

Mindfulness and meditation are often, but not always, considered to be a part of yoga. There are practical and theoretical limitations in differentiating yoga, mindfulness, and meditation.[13] Given that there is no single agreed-upon definition of these practices, we designed our survey to assess these practices as mutually exclusive categories. Consequently, the survey questions and results refer to yoga, mindfulness, and meditation other than mindfulness as distinct constructs.

Study procedures were approved by the Human Subject Subcommittee of the VA Connecticut Healthcare System, West Haven. Surveys were mailed to program coordinators from each of the 170 specialized PTSD programs in the VA Healthcare System between September 2010 and March 2011. Although PTSD treatment is offered in VA mental health facilities outside of these specialized programs, the designation of "specialized PTSD program" is used for the 170 programs that are staffed by experts who have concentrated their clinical work in the area of PTSD treatment and meet specific staffing and reporting requirements as determined by the Northeast Program Evaluation Center (NEPEC).[1] Each program coordinator identified in the NEPEC directory was asked to complete, or have a designated staff member complete, the survey and return it in a provided postage-paid envelope. Two follow-up emails were sent to the identified coordinators of each of the programs who had not returned the survey. In the event of continued nonresponse, we attempted to contact program coordinators by telephone.

Data were entered into SAS version 9.2 for descriptive analyses. Of the 170 surveys sent, 125 were completed, representing a 73.5% response rate. Twenty of 125 completed surveys were administered via the telephone; each of the survey questions were read verbatim and responses were recorded. The specialized PTSD programs include outpatient, inpatient, and residential programs.[42]

Results

Table 1 illustrates the use of yoga, mindfulness, and meditation other than mindfulness by program type (inpatient, outpatient, and residential).

Table 1. *Survey Response by Type of Treatment Program*

Type of Treatment Program	Programs Offering Yoga *n* (%)	Programs Offering Mindfulness *n* (%)	Programs Offering Meditation (other) *n* (%)
Inpatient programs (*n* = 8)	5 (62.5)	7 (87.5)	3 (37.5)
Outpatient programs (*n* = 98)	26 (26.5)	75 (76.5)	27 (27.6)
Residential programs (*n* = 19)	5 (26.3)	14 (73.7)	2 (10.5)
All programs (*n* = 125)	36 (28.8)	96 (76.8)	32 (25.6)

When a respondent indicated that one or more of these services was not offered, he or she was asked to identify barriers to their implementation (Table 2). "Lack of trained staff" and "lack of funding" were most often endorsed as barriers to the provision of yoga, mindfulness, and meditation instruction. "Lack of veteran interest" was infrequently cited as justification.

Table 2. *Barriers to Providing Yoga, Mindfulness, and Meditation Other Than Mindfulness Instruction For Sites That Do Not Offer These Services**

Barriers to the Provision of Care	Yoga (*n* = 86) *n* (%)	Mindfulness (*n* = 28) *n* (%)	Meditation (*n* = 80) *n* (%)
Lack of research supporting efficacy	23 (26.7)	7 (25.0)	15 (18.8)
Lack of leadership support	22 (25.6)	3 (10.7)	11 (13.8)
Lack of funding	46 (53.5)	9 (32.1)	22 (27.5)
Lack of space	40 (46.5)	3 (10.7)	19 (23.8)
Lack of trained staff	73 (84.9)	19 (67.9)	49 (61.3)
Lack of veteran interest	12 (14.0)	4 (14.3)	8 (10.0)
None	3 (3.5)	3 (10.7)	17 (21.3)

Note. *Participants could select multiple responses.

Yoga

Table 3 lists the characteristics of instructors from the 36 programs offering yoga. Yoga was not defined for the respondents. Not all programs provided responses to every question. Yoga instruction was most frequently offered by program staff (42.9%), followed by other VA staff members (28.6%) or providers from the community (28.6%).

Table 3. *Characteristics of Yoga Instructors (*n *= 36 Programs)**

Yoga Instructors	*n* (%)
Staff within the program	15 (42.9)
VA staff from outside the program	10 (28.6)
Other programs/clinics at this VA	6 (17.1)
Private providers and volunteering professionals come to program	10 (28.6)
Yoga not provided but recommended through referrals to other agencies/providers	1 (2.9)

Note. *Participants could select multiple staffing sources.

Table 4 illustrates the Yoga Alliance registration held by the primary yoga instructor. (Although the question presented on the survey asked about yoga "certification" held by the primary yoga therapist, the yoga industry standard is registration with Yoga Alliance.) Fifty-eight percent of respondents indicated that their program's yoga instructor was registered at the 200-hour (RYT-200) or the 500-hour (RYT-500) level. These data are incomplete, however, because 30% of survey responders indicated they "don't know."

Respondents were asked whether their yoga instructors had special training to work with individuals with PTSD (Table 5). Most respondents were unable to answer this question. Of those trained, Trauma-Sensitive Yoga, Mindful Yoga Therapy for veterans with PTSD, Yoga Warriors Sensory Enhanced Yoga, and iREST Integrative Restoration were most frequently endorsed.

The healthcare credentials of primary yoga instructors are shown in Table 6. Instructors represented a wide variety of professions, with social workers being the most frequently represented.

Table 4. *Primary Yoga Teacher Yoga Alliance Registration (*n *= 35 Programs)*

Certification	*n* (%)
Registered Yoga Teacher-200 hour (RYT-200)	13 (39.4)
Registered Yoga Teacher-500 hour (RYT-500)	6 (18.2)
None	6 (18.2)
Don't know/not sure	10 (30.3)

Table 5. *Specialty Yoga Training Certifications Held by Primary Yoga Instructor (*n *= 28 Programs)**

Specialty Yoga Training	*n* (%)
Trauma-Sensitive Yoga (Trauma Center, Brookline, MA)	2 (8.3)
Mindful Yoga Therapy (Veterans Yoga Project, Newington, CT)‡	3 (12.5)
Yoga Warriors Protocol (Central Mass Yoga, West Boylston, MA)	4 (16.7)
iREST	3 (12.5)
Don't know/not sure	14 (58.3)
Other+	2 (8.3)

Note. *Participants could select multiple responses; +Other responses included "yoga therapist in LHYF tradition" and "IYT through Holy Cow Yoga."

Table 6. *Yoga Instructor Healthcare Credentials (*n *= 34 Programs)*

Credentials	*n* (%)
Psychiatrist	1 (3.1)
Clinical psychologist	2 (6.3)
Master's-level psychologist or counselor	2 (6.3)
Master's-level social worker	7 (21.9)
Nurse practitioner	2 (6.3)
Expressive/creative arts therapist	1 (3.1)
Recreation therapist	3 (9.4)
No formal credentials	7 (21.9)
Other+	9 (28.1)

Note. +"Other" responses included occupational therapist, physical therapist, physical therapy assistant, MS family services, unknown, nephrologist MD, MS/OTR, and psychology trainee.

The survey assessed the types of yoga practices offered (Table 7). Pranayama (breathing) instruction is most frequently provided, followed by asana (physical postures) and meditation. Respondents indicated that there is considerable variability in the types of yoga offered (Table 8).

Table 7. *Yoga Practices Used (*n = *36 Programs)**

Practice	M (SD)
Meditation	7.16 (2.84)
Pranayama (breathing techniques)	8.24 (1.98)
Asana (physical postures)	7.29 (2.65)
Philosophy (yamas and niyamas)	2.63 (2.81)
Other+	3.14 (4.02)

Note. *Responses are scored on a Likert scale (range 0–10 in which 0 = *not at all* and 10 =*very heavily emphasized.*); +"Other" responses included Yoga Nidra, affirmations, guided relaxation.

Table 8. *School or Tradition of Yoga Instruction (*n = *36 Programs)**

School/Tradition	*n* (%)
Iyengar	2 (5.9)
Ashtanga	2 (5.9)
Viniyoga	1 (2.9)
Bikram	0 (0.0)
Sivananda	0 (0.0)
Integral	1 (2.9)
Kundalini	2 (5.9)
Kripalu	1 (2.9)
Trauma-Sensitive Yoga	0 (0.0)
Yoga Warriors Protocol	2 (5.9)
Mindful Yoga Therapy	3 (8.8)
Chair yoga	3 (8.8)
Yoga Nidra	5 (14.7)
Integrative Restoration (iREST)	3 (8.8)
Don't know/not sure	11 (32.4)
Other+	10 (29.4)

Note. *Participants could select multiple responses; + "Other" responses included Hatha, LHYF, Mindful Yoga + breathwork, Anusara, part of MBSR protocol, most basic beginning stuff, very basic idk, yoga Namaste, and multiple disciplines.

Table 9. *Frequency, Duration, and Format of Yoga Instruction*

Frequency	*n*(%) (*n* = 33 programs)
Daily	0 (0.0)
Twice per week	5 (15.2)
Once per week	20 (60.6)
Once every other week	4 (12.1)
Other	4 (12.1)
Duration	*n* (%) (*n* = 31 programs)
15 minutes	1 (3.2)
30 minutes	2 (6.5)
45 minutes	3 (9.7)
60 minutes	18 (58.1)
75 minutes	4 (12.9)
Other	3 (9.7)
Format	*n* (%) (*n* = 32 programs)
Always in group format	28 (87.5)
Always in individual format	0 (0.0)
Both in individual and group formats	4 (12.5)

Table 9 presents data regarding the logistics of the yoga sessions. The majority of programs offer yoga instruction in a group format, 1 time per week for 60 minutes. The majority of yoga groups (62.5%) are offered specifically for veterans with PTSD, with some provided for veterans with a variety of psychiatric diagnoses and for those with or without any psychiatric illness (Table 10).

Table 10. *Diagnostic Status of Veterans Receiving Yoga Instruction (*n = *32 Programs)*

Participants	*n* (%)
Veterans with PTSD	20 (62.5)
Veterans with various psychiatric diagnoses	40 (12.5)
Veterans with and without psychiatric diagnoses	8 (25)

Mindfulness and Meditation

Because of a lack of clear distinction among meditation styles, the survey treated mindfulness separately from meditation other than mindfulness. Nnety-five programs reported offering mindfulness instruction and 30 taught meditation other than mindfulness.

Most (76.8%) programs endorsed offering mindfulness training (Table 11). Mindfulness was taught either as a stand-alone practice or in the context of therapeutic treatments that included Dialectical Behavior Therapy (DBT), Acceptance and Commitment Therapy (ACT), Mndfulness-Based Stress Reduction (MBSR), and Mindfulness-Based Cognitive Therapy (MBCT).

Table 11. *Context in Which Mindfulness is Offered (*n = *95 Programs)**

Format	*n* (%)
As part of Dialectical Behavior Therapy	33 (34.4)
As part of Acceptance and Commitment Therapy	41 (42.7)
Via the Mindfulness-Based Stress Reduction protocol	19 (19.8)
Via the Mindfulness-Based Cognitive Therapy protocol	11 (11.5)
As a stand-alone practice	35 (36.5)
Integrated into another treatment modality	28 (29.2)

Note. Participants could select multiple responses.

Table 12. *Type of Meditation Instruction Offered (*n = *30 Programs)**

Meditation	*n* (%)
Transcendental meditation	8 (26.7)
Vipassana meditation	6 (20.0)
Meditation as part of another treatment modality	14 (46.7)
+Other*	7 (23.3)

Note. *Participants could select multiple responses; +Other responses included thought stopping, breathing and counting, visualization, diaphragmatic breathing relaxation, mantra repetition (n = 2), and labyrinth.

Of the 30 programs that reported offering meditation other than mindfulness, meditation was "part of another treatment modality" (Table 12). Mindfulness and meditation

other than mindfulness were most often offered 1 time per week and in 60-minute sessions (see Table 13).

Table 13. *Frequency and Duration of Mindfulness and Meditation Other Than Mindfulness Instruction*

Frequency	Mindfulness (*n* = 91)	Meditation (*n* = 30)
Daily	11 (12.1)	2(6.7)
Twice per week	14 (15.4)	6 (20.0)
Once per week	42 (46.2)	12 (40.0)
Once every other week	6 (6.6)	3 (10.0)
Other	18 (19.8)	7 (23.3)
Duration	(*n* = 90)	(*n* = 30)
15 minutes	13 (14.4)	2 (6.7)
30 minutes	8 (8.9)	4 (13.3)
45 minutes	9 (10.0)	1 (3.3)
60 minutes	38 (42.2)	20 (66.7)
75 minutes	5 (5.6)	1 (3.3)
Other	17 (18.9)	2 (6.7)

Table 14. *Characteristics of Mindfulness and Meditation Instruction**

Instruction	Mindfulness (*n* = 95)	Meditation (*n* = 32)
Provided directly by staff at this program	81 (85.3)	25 (80.7)
Provided by VA staff outside this program	21 (22.1)	4 (12.9)
Provided by other programs/clinics at this VA	17 (17.9)	1 (3.2)
Provided in this program via links with other agencies (e.g., private providers, volunteering professionals)	0 (0.0)	1 (3.2)
Not provided, but recommended through referrals to other agencies or providers	0 (0.0)	0 (0.0)
Other	0 (0.0)	0 (0.0)

Note. Participants could select multiple responses.

Table 15. *Healthcare Credentials of Mindfulness and Meditation Instructors**

Credentials of Provider	Mindfulness (*n* = 96)	Meditation (*n* = 31)
Psychiatrist	4 (4.1)	4 (12.9)
Clinical psychologist	70 (72.9)	17 (54.8)
Master's-level psychologist or counselor	8 (8.3)	2 (6.5)
Master's-level social worker	40 (41.7)	11 (35.5)
Nurse practitioner	7 (7.3)	3 (9.7)
Expressive/creative arts therapist	1 (1.0)	1 (3.2)
Recreation therapist	0 (0.0)	0 (0.0)
No formal credentials	4 (4.2)	0 (0.0)
Other	6 (6.3) +	5 (16.1)++

Note. *Participants could select multiple responses; +"Other" responses for mindfulness included C-SAC, occupational therapist (*n* = 2), rehab tech, rehab counselor, LCDC; ++"Other" responses for meditation other than mindfulness included occupational therapist, chaplain, rehab tech, health tech, clin. spec. nurse.

The survey included questions assessing by whom mindfulness and meditation other than mindfulness training was offered (Table 14). Education was most often provided by VA staff, most of whom were clinical psychologists and master's-level social workers (Table 15).

The majority of mindfulness and meditation instruction did not include yoga or other mindful movement exercises (Table 16).

Table 16. *Inclusion of Meditative Movement*

Format	Mindfulness (*n* = 86)	Meditation (*n* = 29)
Mindfulness/meditation instruction includes yoga or other meditative movement exercises	17 (19.8)	9 (31.0)
Mindfulness/meditation instruction does not include yoga or other meditative movement exercises	69 (80.2)	20 (69.0)

Discussion

PTSD is a chronic, debilitating anxiety disorder marked by symptoms of reexperiencing, avoidance, and hyperarousal. It is associated with significant disability and impairment. A growing number of studies suggest that yoga practices may help alleviate many of the psychological, physiological, and behavioral symptoms of PTSD. Yoga is a patient-centered practice that has been implemented in 28.8% of VA specialized PTSD treatment programs. Mindfulness and meditation are also widely used.[44]

Barriers to Implementing Yoga, Mindfulness, and Meditation Programs

In addition to facilitating understanding of the nature and context of yoga provided in VA specialized PTSD treatment programs, the survey was designed to examine barriers to providing yoga in these programs. The most commonly cited obstacle was "lack of trained staff" and "lack of funding." This suggests that program coordinators may be willing to incorporate yoga into their programs if they are provided necessary resources.

Consistent with previous reports demonstrating veterans' interest in CAM treatments,46-47 "lack of veteran interest" was not commonly endorsed as a barrier to providing yoga, mindfulness, or meditation instruction. Yoga and other mind-body practices may be of interest to veterans with PTSD. "Lack of research supporting efficacy" was cited as a barrier by 18%–27% of programs. Empirically rigorous studies examining the efficacy of these practices are needed. Further, mental health clinicians and program coordinators must be educated regarding the growing body of research supporting the use of these practices as an adjunct to conventional PTSD treatment.

Nature of Treatment

A number of survey questions were used to assess the nature of the practices offered. There was great variability in the "schools or traditions" of the yoga represented. RCTs using standardized yoga therapy protocols in VA PSTD programs are needed to identify which aspects of yoga are most beneficial, for whom, and under what conditions. The identification of mechanisms of action will allow researchers, mental health practitioners, and yoga therapists to design and test interventions more specifically targeted to the needs of veterans with PTSD and other related biopsychosocial health problems.

Mindfulness instruction was offered by more than 75% of VA specialized PTSD treatment programs. This was largely due to the presence of mindfulness practices in several conventional psychotherapy treatments, such as MBSR and MBCT. Of the programs that offered mindfulness training, one-third delivered it as a stand-alone practice, separate from these treatments. Of those providing mindfulness and meditation training, 19.8% and 31%, respectively, indicated that yoga or other meditative movement exercises were included. Given research and theory about the instantiation of trauma in the physical body,[15-17, 48-49] more information is needed regarding which forms of asana practice might be therapeutically effective for releasing physical traumatic imprints.

Frequency and Duration of Yoga, Mindfulness, and Meditation Other Than Mindfulness Instruction

Yoga, mindfulness, and meditation other than mindfulness instruction was typically offered 1 time per week for 60 minutes each. Recent evidence suggests that yoga practices are most effective when practiced regularly. In fact, many yoga and meditation traditions encourage daily practice. Although the survey did not assess the frequency of yoga practice among the veterans participating in the treatment programs, future studies should explore the psychological benefits of increased frequency of yoga classes and emphasis on the development of a regular home practice to supplement the structured group classes. Future investigations might also examine the added benefit of individual yoga sessions for veterans with PTSD.

Characteristics of Yoga Instructors

Although mindfulness and meditation other than mindfulness training were most often provided by VA staff, more than 28% of respondents indicated that yoga education was provided by private instructors and volunteering professionals (as opposed to VA staff). Consistent with results regarding barriers to treatment, this suggests that a limited number of VA mental health staff are trained to teach yoga.

Many mental health professionals receive some training in the fundamentals of mindfulness meditation and breathing retraining; however, few are trained in yoga-based breathing exercises (pranayama) or other aspects of yoga therapy. There may be an important role for qualified yoga therapists in PTSD treatment programs. Our data suggest that there are many volunteer yoga therapists in specialized PTSD programs. Additional investigation of the impact of "seva" yoga by volunteering professionals and yoga service organizations (see Reference 50) is warranted.

Yoga Teacher Credentials

The survey investigated the mental health credentials of educators teaching yoga, mindfulness, and meditation other than mindfulness, as well as the yoga registration status and specialty yoga training of primary instructors. The majority of respondents were unaware of the credentials of their yoga instructors. This was likely a consequence of the nature of survey implementation, in that surveys could be completed by program coordinators or designated staff. A need exists for greater education of mental health clinicians and program coordinators regarding the training and credentialing of yoga therapists.

Healthcare credentials. Mindfulness and meditation other than mindfulness instruction was most often provided by mental health professionals. There was more variability in the healthcare credentials of yoga instructors, who included medical doctors, mental health professionals, physical and occupational therapists, and creative arts and recreational therapists. The fact that such a diverse group of healthcare providers was represented speaks to the multidisciplinary, integrative nature of yoga as a treatment modality.

Yoga training. A majority of yoga instructors were registered with Yoga Alliance. Eighteen percent of respondents indicated that the yoga primary instructor was not registered. Although most respondents reported that they did not know if the yoga therapist had specialty training to provide yoga instruction to individuals with trauma and/or PTSD, many instructors were reported to have some training in this area. Ongoing discussion regarding requisite training and qualifications for yoga instructors and therapists working with individuals with serious mental illness, including PTSD, is clearly needed.[39]

Although potentially beneficial, yoga as a treatment for serious mental illness may have inherent risks. A well-intentioned but insufficiently trained yoga therapist might inad-

ve rtently trigger hyperarousal and reexperiencing symptoms by violating a student's personal space while attempting a physical assist in an asana practice. Similarly, although meditation may benefit some individuals with PTSD, [27, 29] it may be intolerable for others. A number of authors caution that mindfulness may be contraindicated for patients lacking a p p ropriate emotion-regulation skills or clinical support.[51-52] Necessary training and skill level required for adequate conceptualization of the risks and benefits of yoga therapy for persons with PTSD are an important area for future inquiry.

In the absence of such information, it is important for yoga teachers and therapists to understand the limits of their scope of practice and to collaborate with qualified mental healthcare professionals. Similarly, there are no standards among mental health professionals regarding the extent of training and experience needed to provide yoga therapy or meditation instruction to individuals with serious mental illness. It is essential that we build bridges and professional partnerships between mental health providers and yoga therapists to ensure an exceptional standard of care.

Limitations

There are several important limitations to this study. First, 125 of 170 programs completed the survey. The prevalence of yoga usage reported here may have been influenced by a response bias, in that programs that submitted a completed survey may systematically differ from those that did not. Programs not offering CAM treatments may have been less likely to respond, resulting in an overestimate of prevalence. Second, although the survey was sent to program coordinators, they may have been completed by a designated staff member, potentially resulting in differential response patterns, depending upon who completed the items. Limiting the survey to program coordinators may have resulted in increased confidence regarding the veracity of responses but may also have led to a lower response rate.

Third, we did not assess the number of veterans with PTSD who are receiving yoga instruction either within or outside the VA system. Finally, respondents were not provided with definitions of yoga, mindfulness, or meditation other than mindfulness. Because a particular yoga-based practice may fall under more than one of these headings, respondents may have endorsed more than one type of instruction when only one was offered (e.g., Yoga Nidra). Practices should be formally operationalized in subsequent investigations.

Conclusions

This is the first study to describe the prevalence, context, and nature of yoga, mindfulness, and meditation other than mindfulness instruction offered to veterans with PTSD in VA specialized PTSD treatment programs across the United States. Yoga, mindfulness, and meditation instruction are widely available, and there is considerable variability in the nature and the context in which instruction is offered. More and better education of mental health clinicians and administrators is needed in terms of training and skills of yoga therapists. Limited funding and lack of trained staff were the most frequently cited barriers to offering yoga, which may create an opportunity for properly trained yoga therapists to volunteer their services to veterans needing treatment. There is a pressing need for scientific research examining the efficacy of yoga practices for veterans with PTSD. Positive findings from empirically rigorous studies of the effectiveness of yoga therapy may stimulate funding for yoga therapists to be included on interdisciplinary teams providing treatment to veterans with PTSD and other mental health disorders.

References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders.* 4th ed. Washington, DC: American Psychiatric Press; 1994.

2. Schnurr PP, Green BL. Understanding relationships among trauma, posttraumatic stress disorder, and health outcomes. In: Schnurr PP, Green BL, eds. *Trauma and Health: Physical Health Consequences of Exposure to Extreme Stress.* Washington, DC: American Psychological Association; 2004:247-275.

3. Kang HK, Hyams KC. Mental health care needs among recent war veterans. *New Engl J Med.* 2005;352(13):1289-1289.

4. Frayne S, Chiu V, Iqbal S, et al. Medical care needs of returning veterans with PTSD: their other burden. *J Gen Intern Med.* 2011;26(1):33-39.

5. Seal KH, Bertenthal D, Miner CR, Sen S, Marmar C. Bringing the war back home: mental health disorders among 103,788 US veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. *Arch Intern Med.* 2007;167(5):476-482.

6. Seal KH, Metzler TJ, Gima KS, Bertenthal D, Maguen S, Marmar CR. Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002-2008. *Am J Public Health.* 2009;99(9):1651-1658.

7. Milliken CS, Auchterlonie JL, Hoge CW. Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq War. *JAMA.* 2007;298(18):2141-2148.

8. Kramer TL. The comorbidity of post-traumatic stress disorder and suicidality in Vietnam veterans. *Suicide Life Threat Behav.* 1994;24(1):58.

9. Ferrada Noli M. Suicidal behavior after severe trauma. Part 1: PTSD diagnoses, psychiatric comorbidity, and assessments of suicidal behavior. *J Trauma Stress.* 1998;11(1):103.

10. Ramchand R, Schell TL, Karney BR, Osilla KC, Burns RM, Caldarone LB. Disparate prevalence estimates of PTSD among service members who served in Iraq and Afghanistan: possible explanations. *J Trauma Stress.* 2010;23(1):59-68.

11. Bradley R, Greene J, Russ E, Dutra L, Westen D. A multidimensional meta-analysis of psychotherapy for PTSD. *Am J Psychiatry.* 2005;162(2):214-227.

12. Schottenbauer MA, Glass CR, Arnkoff DB, Tendick V, Gray SH. Nonresponse and dropout rates in outcome studies on PTSD: review and methodological considerations. *Psychiatry: Interpers Biol Proc.* 2008;71(2):134-168.

13. Bose BK. Mindfulness, meditation and yoga: competition or collaboration? *Int J Yoga Ther.* 2011;21(1):15-16.

14. Batten SV, Orsillo SM, Walser RD. Acceptance and mindfulness-based approaches to the treatment of posttraumatic stress disorder. In: Orsillo SM, Roemer L, eds. *Acceptance and Mindfulness-Based Approaches to Anxiety.* New York, NY: Springer US; 2005:241-269.

15. Van Der Kolk BA. Clinical implications of neuroscience research in PTSD. *Ann N Y Acad Sci.* 2006;1071:277-293.

16. Ogden P, Minton K, Pain C. *Trauma and the Body: A Sensorimotor Approach to Psychotherapy.* New York, NY: W.W. Norton & Company; 2006.

17. Van Der Kolk BA. Beyond the talking cure: somatic experience and subcortical imprints in the treatment of trauma. In: Shapiro F, ed. *EMDR as an Integrative Psychotherapy Approach: Experts of Diverse Orientations Explore the Paradigm Prism.* Washington, DC: American Psychological Association; 2002:444.

18. Moore M, Brown D, Money N, Bates M. *Mind-Body Skills for Regulating the Autonomic Nervous System.* Arlington, VA: Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury; 2011.

19. Pilkington K, Kirkwood G, Rampes H, Richardson J. Yoga for depression: the research evidence. *J Affect Disord.* 2005;89(1-3):13-24.

20. da Silva TL, Ravindran LN, Ravindran AV. Yoga in the treatment of mood and anxiety disorders: a review. *Asian J Psychiatry.* 2009;2(1):6-16.

21. Groessl EJ, Weingart KR, Aschbacher K, Pada L, Baxi S. Yoga for veterans with chronic low-back pain. *J Altern Complement Med.* 2008;14:1123-1129.

22. Carter J, Byrne G. A two year study of the use of yoga in a series of pilot studies as an adjunct to ordinary psychiatric treatment in a group of Vietnam War veterans suffering from post traumatic stress disorder. *www.Therapywithyoga.com.* 2004. Accessed September 10, 2009.

23. Brown RP, Gerbarg PL. Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression: part II-clinical applications and guidelines. *J Altern Complement Med.* 2005;11(4):711-717.

24. Owens GP, Walter KH, Chard KM, Davis PA. Changes in mindfulness skills and treatment response among veterans in residential PTSD treatment. *Psychol Trauma: Theory, Res, Prac, Policy.* 2011;4(2):221-228.

25. Thompson BL, Waltz J. Mindfulness and experiential avoidance as predictors of posttraumatic stress disorder avoidance symptom severity. *J Anxiety Disord.* 2010;24(4):409-415.

26. Bernstein A. Concurrent relations between mindful attention and awareness and psychopathology among trauma-exposed adults: preliminary evidence of transdiagnostic resilience. *J Cogn Psychother.* 2011;25(2):99.

27. Rosenthal JZ, Grosswald S, Ross R, Rosenthal N. Effects of Transcendental Meditation in veterans of Operation Enduring Freedom and Operation Iraqi Freedom with posttraumatic stress disorder: a pilot study. *Mil Med.* 2011;176(6):626-630.

28. Brooks JS, Scarano T. Transcendental Meditation in the treatment of post-Vietnam adjustment. *J Couns Dev.* 1985;64(3):212.

29. Bormann JE, Thorp SR, Wetherell JL, Golshan S, Lang AJ. Meditation-based mantram intervention for veterans with posttraumatic stress disorder: a randomized trial. *Psychol Trauma: Theory, Res, Pract, Policy.* 2012:No Pagination Specified.

30. Bormann JE, Smith TL, Becker S, et al. Efficacy of frequent mantram repetition on stress, quality of life, and spiritual well-being in veterans. *J Holist Nurs.* 2005;23(4):395-414.

31. Stankovic L. Transforming trauma: a qualitative feasibility study of Integrative Restoration (iRest) Yoga Nidra on combat-related post-traumatic stress disorder. *Int J Yoga Ther.* 2011;21(1):23-37.

32. Strauss JL, Coeytaux R, McDuffie J, Nagi A, Williams JW, Jr. *Efficacy of Complementary and Alternative Medicine Therapies for Posttraumatic Stress Disorder:* VA-ESP Project #09-101; 2011.

33. Schnurr PP. The rocks and hard places in psychotherapy outcome research. *J Trauma Stress.* 2007;20(5):779-792.

34. Leon AC, Davis LL. Enhancing clinical trial design of interventions for post-traumatic stress disorder. *J Trauma Stress.* 2009;22(6):603-611.

35. Schulz K. CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *BMC Med.* 2010;8(1):18.

36. Khalsa SSK. When did yoga therapy become a "field"? *Int J Yoga Ther.* 2010;1(1):11-12.

37. Kraftsow G. Defining yoga therapy: a call to action. *Int J Yoga Ther.* 2010;1(1):27-29.

38. Lasater JH. Down the road: yoga therapy in the future. *Int J Yoga Ther.* 2010;1(1):13.

39. Forbes B, Akhtar F, Douglass L. Training issues in yoga therapy and mental health treatment. *Int J Yoga Ther.* 2011;21(1):7-11.

40. Rosenheck RA, Fontana AF. Recent trends In VA treatment of post-traumatic stress disorder and other mental disorders. *Health Aff.* 2007;26(6):1720-1727.

41. Karlin BE, Ruzek JI, Chard KM, et al. Dissemination of evidence-based psychological treatments for posttraumatic stress disorder in the Veterans Health Administration. *J Trauma Stress.* 2010;23(6):663-673.

42. Healthcare Analysis & Information Group. *Complementary and Alternative Medicine.* Washington, DC: Department of Veterans Affairs, Veterans Health Administration, Office of Policy and Planning; 2011.

43. Healthcare Analysis & Information Group. Complementary and Alternative Medicine. Washington, DC: Department of Veterans Affairs, Veterans Health Administration, Office of Policy and Planning; 2002.

44. Libby DJ, Pilver CE, Desai R. Complementary and alternative medicine (CAM) in specialized VA PTSD treatment programs. *Psychiatr Serv.* In Press.

45. Department of Veterans Affairs. Programs for Veterans with Post-traumatic Stress Disorder (PTSD). 2010; http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2174. Accessed July 24, 2012.

46. McPherson F, Schwenka MA. Use of complementary and alternative therapies among active duty soldiers, military retirees, and family members at a military hospital. *Mil Med.* 2004;169:354-357.

47. McEachrane-Gross F, Liebschutz J, Berlowitz D. Use of selected complementary and alternative medicine (CAM) treatments in veterans with cancer or chronic pain: a cross-sectional survey. *BMC Complement Altern Med.* 2006;6(1):34.

48. Rothschild B. *The Body Remembers: The Psychophysiology of Trauma and Trauma Treatment.* London, UK: W. W. Norton & Co.; 2000.

49. Streeter CC, Gerbarg PL, Saper RB, Ciraulo DA, Brown RP. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Med Hypotheses.* 2012;78(5):571-579.

50. Schware R. Sharing the gift of yoga with our veterans: the next big opportunity for yoga therapists. *Yoga Ther Today.* Prescott, AZ: International Association of Yoga Therapists; 2012:13-15.

51. Vujanovic AA, Niles B, Pietrefesa A, Schmertz SK, Potter CM. Mindfulness in the treatment of posttraumatic stress disorder among military veterans. *Prof Psychol: Res Pract.* 2011;42(1):24-31.

52. Libby DJ, Pilver CE, Desai R. Complementary and alternative medicine use among individuals with PTSD. *Psychol Trauma: Theory, Res, Pract, Policy.* In Press.

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