

CAM AND ENERGY PSYCHOLOGY TECHNIQUES REMEDIATE PTSD SYMPTOMS IN VETERANS AND SPOUSES

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Male veterans and their spouses ($N = 218$) attending one of six-week-long retreats were assessed for posttraumatic stress disorder (PTSD) symptoms pre- and postintervention. Participants were evaluated using the PTSD checklist (PCL), on which, a score of >49 indicates clinical symptom levels. The mean pretest score was 61.1 ($SD \pm 12.5$) for veterans and 42.6 ($SD \pm 16.5$) for spouses; 83% of veterans and 29% of spouses met clinical criteria. The multimodal intervention used Emotional Freedom Techniques and other energy psychology (EP) methods to address PTSD symptoms and a variety of complementary and alternative medicine (CAM) modalities for stress reduction and resource building. Interventions were delivered in group format as well as individual counseling sessions. Data were analyzed for each retreat, as well as for the six retreats as a whole. Mean post-test PCL scores decreased to 41.8 ($SE \pm 1.2$; $p < .001$) for veterans, with 28% still clinical. Spouses demonstrated

substantial symptom reductions ($M = 28.7$, $SE \pm 1.0$; $p < .001$), with 4% still clinical. A follow-up assessment ($n = 63$) found PTSD symptom levels dropping even further for spouses ($p < .003$), whereas gains were maintained for veterans. The significant reduction in PTSD symptoms is consistent with other published reports of EP treatment, though counter to the usual long-term course of the condition. The results indicate that a multimodal CAM intervention incorporating EP may offer benefits to family members as well as veterans suffering from PTSD symptoms. Recommendations are made for further research to answer the questions posed by this study.

Key words: Veterans, spouses, PTSD, CAM, energy psychology, EFT (emotional freedom techniques)

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Understanding of posttraumatic stress disorder (PTSD) has increased greatly in the past half century. An estimated 479,000 U.S. veterans returned from Vietnam with PTSD, contributing to the inclusion of this diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* and increased research into the condition.^{1,2} The cohort of veterans returning from the conflicts in Iraq and Afghanistan has spurred the search for efficacious and effective therapies to remediate this condition. According to a September 2012 report from the Department of Veterans Affairs, almost 30% of the 834,463 Iraq and Afghanistan war veterans treated at VA hospitals and clinics over the course of the previous decade have been diagnosed with PTSD.³

As various facets of the lives of postconflict veterans have been studied in an effort to elucidate the characteristics and course of PTSD, a surprising finding has emerged: their domestic partners and other family members are often

affected as well. Studies have found that the spouses of men with PTSD also exhibit symptoms of traumatization.⁴ Veteran spouses exhibit a higher incidence of psychiatric disorders, and spouses of veterans with PTSD exhibit high levels of emotional distress.^{5,6} The wives of husbands on active duty also exhibit elevated stress levels, with the incidence of stress rising with the length of deployment.⁷ The phenomenon of secondary traumatization was first noted by investigators studying the families of Vietnam veterans⁸; veteran spouses have been found to suffer from transferred PTSD,⁹ as have other family members.^{10,11}

The sequelae of postcombat PTSD have been found to extend beyond the immediate family to implicate the entire community.¹² Further evidence for the long-term social effects of PTSD comes from the overrepresentation of veterans in the prison population and the association of PTSD with increased levels of domestic violence.^{13,14} Spouses and children of Vietnam veterans with PTSD have been found to experience higher levels of violent behavior, as well as problems with parenting and marital skills.¹⁵ Veterans who adjust poorly to social integration are at increased risk of suicide.¹⁶ Time is not "the great healer"; even 30 years after military service, PTSD was associated with increased risk of organic disease and all-cause mortality.^{17,18} This matrix of personal, family, and social risks makes the effective treatment of PTSD a high priority for the veterans themselves, for their spouses, and for society as a whole.

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Unlike psychiatric diagnoses such as depression and anxiety whose symptoms may decrease with the passage of time, PTSD is associated with a progressive worsening of the condition.¹⁹ Vasterling and Brewin²⁰ found that PTSD produces neurological alterations in brain physiology that render it treatment resistant. The same neural plasticity that allows brains to learn new skills and develop new synaptic pathways may be implicated in the increase of PTSD symptoms over time. Three of the symptoms described in the DSM-V are flashbacks, nightmares, and intrusive thoughts.²¹ A common biological characteristic of all three symptoms is that they utilize neural pathways to carry signals that activate the amygdala, hippocampus, and other fear centers in the brain.^{22,23} When these pathways are activated, the number of synaptic connections in the neural bundles increases. With repeat stimulation, the number of connections can double in an hour.²⁴

When an episode of one of these three PTSD symptoms produces emotions such as fear, the amygdala and other midbrain structures responsible for assessing threats are activated, and the executive functions of the forebrain are inhibited.²⁵ LeDoux²⁶ referred to this as the “hostile takeover of consciousness by emotion.” Dysregulation of the autonomic nervous system by traumatic experiences and memories is associated with pervasive physiological changes, including an increase in stress hormones such as cortisol.²³

However, this course of ever-increasing neural capacity devoted to re-experiencing traumatic memories is not inevitable. Recent work has shown that when traumatic events are recalled, they are not reinstated in the same form. Instead, they are combined with cues from the current environment.^{26,27} Thus, an emotionally neutral environment such as a therapist’s office, or a physical relaxation routine, may mitigate the intensity of emotional recall by introducing neutral cues with which the memory is reconsolidated. When neural pathways remain unused, they begin to decay within two weeks.²⁴ Effective therapy may thus rewire the brain for long-term rehabilitation. Psychotherapy may also regulate the levels of neurotransmitters such as serotonin and dopamine and lower levels of stress hormones such as cortisol and norepinephrine.²⁸

Multimodality complementary and alternative medicine (CAM) approaches have been used successfully with veterans. A study in which participants were offered biofeedback and similar CAM interventions in a veterans administration (VA) setting found reductions in pain and anxiety as well as improved sleep and emotional wellbeing.²⁹ A review of studies in which veteran participants received CAM interventions such as Reiki, qigong, therapeutic touch, meditation, and yoga for pain found some to have “a solid track record of efficacy, while other are promising but require additional research.”^{30(p195)} A 2011 VA report examined the evidence supporting CAM for PTSD and found the highest quality of evidence was for acupuncture, with promising evidence for meditation.³¹ It found that 89% of VA facilities offer one or more forms of CAM, up from 84% in 2002. A study at one such VA clinic found CAM to be effective for PTSD, anxiety, depression, and chronic pain.³²

Energy psychology (EP) has emerged in the past 3 decades as a distinct therapeutic field. Some 30 EP protocols have been described. The most widely used is Emotional Freedom Techniques (EFT), which was the primary EP method used in this study. EFT was developed in the 1990s and has been the subject of several clinical trials.³³ A research bibliography is maintained at Research.EFTuniverse.com. The two secondary EP methods used in this study were Tapas acupressure technique (TAT) and wholistic hybrid of EMDR and EFT (WHEE).

EFT uses elements of two established treatments: cognitive therapy and exposure therapy. These have been found to be efficacious in the treatment of PTSD by the US Government’s Institute of Medicine.^{34,35} The third element of EFT is drawn from acupuncture and involves the stimulation by fingertip pressure or percussion of 12 acupuncture points (acupoints). This somatic element is believed to reduce affect, mitigate exposure to traumatic memories, and enhance cognitive reprocessing.³⁶ The acupuncture literature contains numerous studies showing its efficacy in regulating the fear centers of the brain.^{37,38} A dismantling study examining the contribution of acupoint tapping to the EFT protocol found that the inclusion of tapping produced a treatment effect significantly greater than that obtained using only the cognitive and exposure components of EFT.³⁹

EFT uses a “Setup Statement” that instructs participants to pair the memory of a traumatic event (exposure) with a statement of self-acceptance (cognitive reframing).⁴⁰ While focusing intently on the traumatic memory (exposure), the subject taps lightly with the fingertips on the prescribed acupoints (somatic self-soothing). An example of a Setup Statement is, “Even though my buddy Bill was shot by the sniper when we were on patrol [exposure], I deeply and completely accept myself [cognitive reframe].” Both TAT and WHEE share similar cognitive and exposure elements with EFT, while incorporating them in protocols that employ fewer acupoints. The clinical experiences of practitioners and researchers are summarized in the book *EFT for PTSD*.⁴¹

The use of EP for PTSD has been studied in a number of traumatized populations, including veterans, Rwandan orphans, institutionalized adolescents, accident victims, and refugees.⁴² A recent summary of research evidence was published in the American Psychological Association (APA) journal *Review of General Psychology*.⁴³ It states

The 18 randomized controlled trials in this sample were critically evaluated for design quality, leading to the conclusion that they consistently demonstrated strong effect sizes and other positive statistical results that far exceed chance after relatively few treatment sessions. Criteria for evidence-based treatments proposed by Division 12 of the American Psychological Association were also applied and found to be met for a number of conditions, including PTSD.

These APA Division 12 criteria⁴⁴ have provided a benchmark for evaluating novel therapies such as EP using randomized controlled trials. A randomized controlled trial of EFT for PTSD in veterans found that 86% were subclinical after treatment ($p < .0001$) and remained so on six-month

follow-up.⁴⁵ This study evaluated PTSD symptoms using the PTSD checklist–military (PCL-M).⁴⁶ It compared a six-session EFT protocol with a six-week wait list, and required participants to present for treatment with written lists of adverse life events such as injuries and traumatic combat memories. After applying EFT to each event, PTSD symptom levels were reassessed on posttest and found to be significantly reduced.

A randomized controlled trial comparing EFT with EMDR was conducted in a hospital in Britain's National Health Service.⁴⁷ The NHS (National Health Service) study found both EFT and EMDR to remediate clinical PTSD in a mean treatment time frame of four sessions. An earlier pilot study also found that six EFT sessions were efficacious for clinical PTSD symptoms.⁴⁸ A study of Rwandan genocide orphans using a mixed-modality EP protocol that included EFT and TAT found significant reductions in PTSD symptoms (-37.3% , $p < .009$).⁴⁹

This body of evidence for EP's efficacy in treating PTSD makes it a suitable candidate for evaluation in studies of veteran and family populations. Roth and Parry^{50(p370)} characterize randomized controlled trials such as those recommended by Division 12 criteria, and cited above, as "one part of a research cycle." Once a therapeutic method has demonstrated efficacy using the stringent design of the randomized controlled trial, the focus of research can shift to effectiveness studies and outcome studies in which the clinical benefits to clients take precedence over experimental design.⁵¹ In an earlier pilot outcome study of veterans and their families utilizing a five-day group retreat design similar to the present study, significant reductions in PTSD symptoms were found after EFT treatment.⁵²

Physiological correlates of EP have been identified in a number of studies. Church et al.⁵³ examined cortisol levels in 83 subjects randomly assigned to a single session of EFT, talk therapy, or rest. Cortisol is the "master hormone" regulating many aspects of the body's stress response mechanisms, especially those associated with the autonomic nervous system. The authors therefore hypothesized that successful therapy would lower stress—resulting in reduced levels of anxiety, depression, and other psychological conditions—and that this would be reflected biochemically in a reduced level of salivary cortisol. Their investigation found that cortisol levels in the rest and therapy groups declined at approximately the same rate, but that cortisol in the EFT group declined significantly more. The decline in this physiological marker of stress was also significantly correlated with a decline in anxiety, depression, and other psychological conditions.

Other studies have used EEG to examine the brain states of traumatized subjects before and after EP interventions. Lambrou et al.⁵⁴ demonstrated a reduction in the frequencies associated with fear. Swingle et al.⁵⁵ examined the brain states of auto-accident victims with PTSD who learned EFT and found similar positive improvements in brain states. A single-subject case study by Diepold and Goldstein⁵⁶ in which a subject recalled a fearful memory, similarly found normalization of EEG after EP treatment, with gains maintained on follow-up. Feinstein⁵⁷ reviewed the studies of the physiological mechanisms of action of EP, especially its

effects on the threat-assessment centers of the brain's limbic system, and suggested that EP "quickly and permanently reduces maladaptive fear responses to traumatic memories and related cues." EP treatment may provide environmental cues that reconsolidate traumatic memories without their past ability to trigger hyperarousal of the amygdala.⁵⁸

Various forms of CAM show promise as a treatment for PTSD.^{59,30,32} The hypothesis of the present study was that a suite of CAM interventions aimed at resource-building and interpersonal bonding, allied with an EP-based PTSD symptom-reduction program, delivered in a context of family and social support, would provide clinical benefits to participants. A variety of CAM techniques were available to participants and they selected those they most preferred.

METHOD

The study utilized a convenience sample of 219 veterans and spouses attending one of six week-long retreats. Of these, 218 were recruited into the study. Due to concerns about the vulnerability of the population by the organization conducting the retreats, data collection was limited to a single instrument, the civilian and military versions of the PTSD checklist (PCL). Spouses completed the civilian PCL⁶⁰; veterans completed the military form of the questionnaire, the PTSD checklist–military (PCL-M). Both have 17 items corresponding to the PTSD diagnostic criteria of the DSM-IV, which are scored on a scale from 1 to 5. Scores 50 and above are considered indicative of a clinical diagnosis of PTSD.⁴⁶ The PCL-M is widely used by the Veterans Administration and other organizations for PTSD screening and diagnosis; psychometric analysis reveals that the assessment possesses good diagnostic utility, high test–retest reliability, and convergent validity with observer-rated measures of PTSD.

Ethics review was provided by Association for Acupuncture and Bio Energy Medicine (AAABEM) IRB, and the study was posted on ClinicalTrials.gov (NCT01327690). All participants signed informed consent forms. Inclusion criteria were participation at a retreat and the ability to read and write English and complete assessments. In order to make the results as generalizable as possible, there were no exclusion criteria. Sixty-three participants completed the follow-up reunion assessment.

Completing psychological assessments such as the PCL requires participants to recall specific traumatic events. Van der Kolk et al.⁶¹ argue that such recall presents the danger of retraumatization, though other evidence indicates that retraumatization through repeated assessment is an unfounded concern.^{62,63} Others have found that retraumatization is minimized by EP, and a study of therapists found that when treating traumatic memories, most preferred EP methods.^{64–66}

Setting and procedures

The setting was a rural retreat center in the southwest United States. It is incorporated as a nonprofit organization and was founded after an evaluation by the local government and the Department of Veterans Affairs indicated a need among

veterans for creative therapies that fostered emotional and physical healing. The programs are a collaboration by local businesses and coaching organizations and the Native American community.

Each retreat lasted 7 days. Retreats encompassed two distinct components: (1) a treatment intensive component designed to remediate PTSD symptoms and (2) a resource-building component designed to create rapport and a sense of community and to integrate life skills into the lives of participants.

The PTSD symptom treatment intensive component conducted by an EFT practitioner was the primary focus for 4 days. Participants provided an initial self-report of emotional distress using an 11-point Likert scale referred to as Subjective Units of Distress (SUD).⁶⁷ Zero indicates no distress and 10 the maximum possible distress. During the treatment intensive component, participants received a four hours EP session in a conference room in the morning as part of a group. The first two sessions were composed exclusively of EFT. EFT was administered with fidelity to *The EFT Manual*.⁶⁸ The most fundamental EFT protocol, called the Full Basic Recipe, was taught to participants on the first day. The full basic recipe includes a protocol for bilateral brain stimulation called the 9 Gamut technique. On the second day, the shortcut basic recipe, which omits the 9 Gamut technique and uses a reduced set of acupoints, was taught. In the second two morning sessions, EFT as well as TAT and WHEE were used. When a participant's emotional distress rose above a SUD level of 7, the entire group used EFT. If SUD levels remained persistently high, the 9 Gamut protocol was used, as advocated in *The EFT Manual*. Veterans and spouses offered each other EFT sessions, as well as doing EFT on themselves. Each participant received a one hour individual session each afternoon. The smallest was the May retreat with 24 participants, and the largest was the September retreat with 60 participants.

The three days of the retreat that were not part of the treatment intensive component focused on other priorities. The initial sessions provided participants with an orientation to the facility, staff, and interventions. The treatment intensive component was followed by training in integrating the skills learned into daily life, goal setting, and making plans for the future. The final day was focused on veteran's benefits information and workforce opportunities.

An EFT practitioner, experienced in PTSD couples' counseling and trained by Gary Craig, the developer of EFT, led all morning sessions. The study was designed by the first author, in association with the EFT practitioner and the retreat staff. The first author possesses certification from Gary Craig and is certified in EP by the Association for Comprehensive Energy Psychology. Data analysis was conducted by the second author.

Afternoon one hour individual sessions were provided by other practitioners with a variety of credentials, including social workers, psychotherapists, life coaches, and psychologists. In the afternoons, participants could also elect optional CAM sessions including Reiki, massage, yoga, guided imagery, art therapy, and acupuncture. These were not required, and participants could elect to utilize other facilities

at the retreat center, such as hiking, fishing, and a hot tub. Participants received an equine-assisted therapy experience off-site for half a day. A Native American ceremony initiated and ended the retreat; each lasted one to two hours, depending on the size of the group.

The initial assessments were provided to participants in the application packets and filled out at the registration table on check-in. The posttests were completed in the individual counseling sessions the last afternoon of the retreat. Follow-ups were completed during a reunion four to six weeks later attended by 63 of the participants (veterans, $n = 32$ and spouses, $n = 31$).

There was one dropout between the first and second assessments. No follow-up data were available for the 155 participants who failed to attend the reunion. The reasons for failure included work schedule conflicts, family issues, and the difficulties of travel from distant locations. No adverse events were reported.

Statistical analyses

One-way analysis of variance and chi-square analyses were conducted to determine if there were baseline differences on participant characteristics and the baseline PTSD scores between the six retreats. Mixed design analyses of variance (ANOVAs) were conducted to examine change over time in the PTSD symptom total scores. Separate analyses were conducted comparing pre- and posttest scores and pre-, post-, and reunion scores for veterans and their spouses. The model examining pre-post changes in PTSD symptoms also included the main effect of retreat and the interaction between time and retreat. Multiple a posteriori contrasts were conducted using a Bonferroni-adjusted alpha ($\alpha_{\beta} = 0.05/6 = 0.0083$). The model including reunion only examined the main effect of time. Multiple a posteriori contrasts were conducted using a Bonferroni-adjusted alpha ($\alpha_{\beta} = 0.05/3 = 0.017$). The percentage meeting criteria for clinical PTSD symptom levels is presented for the posttest and reunion assessments. All analyses were conducted in SPSS 19.0.

RESULTS

Participant characteristics

The sample consisted of 109 veterans and their spouses ($N = 218$). Participant characteristics by retreat are presented in [Table 1](#). The average age of the veterans was 51 years and ranged from 21 to 76 years. Spouses were between 19 and 75 years, with an average age of 49 years. A majority of the veterans (65.3%; $n = 62$) were deployed prior to 1980, with 22% ($n = 21$) deployed after 2000. The average number of deployments was 1.4 (range 1–3), with most serving for one deployment (65.3%; $n = 62$). The number of years deployed averaged 2.3 (range: 1–12), with 66% ($n = 62$) serving for 2 years. Eighty-three percent of the veterans ($n = 90$) and 29% of the spouses ($n = 32$) met the clinical criterion score for PTSD symptoms. Participant characteristics differed between retreats for two of the baseline variables, years deployed and number of deployments. A larger percentage of veterans in the August 13 retreat served one deployment (84.2% vs. 54.4%–64.7%), and veterans serving three deployments were

Table 1. Participant Characteristics by Retreat

Variable	May 21	June 4	June 18	July 9	August 13	September 10	Total	Test Statistic
Age vet, M (SD)	47.9 (14.1)	54.8 (8.6)	50.3 (11.7)	48.9 (13.4)	49.2 (13.0)	54.9 (12.5)	51.1 (12.3)	$F(5, 99) = 1.08$
Age spouse, M (SD)	44.9 (13.1)	50.8 (9.4)	46.4 (12.3)	50.3 (13.0)	47.4 (11.3)	51.4 (35.29)	48.8 (11.8)	$F(5, 94) = 0.71$
Years deployment, M (SD)	2.8 (1.0)	2.7 (2.4)	2.6 (1.1)	1.8 (0.9)	2.0 (1.2)	2.1 (0.3)	2.3 (1.4)	$F(5, 88) = 1.4$
Years deployment								$\chi^2(10) = 23.71^b$
1, <i>n</i> (%)	0 (0)	1 (5.6)	1 (9.1)	6 (31.6)	7 (36.8)	0 (0)	15 (16.0)	
2, <i>n</i> (%)	6 (60.0)	13 (72.2)	6 (54.5)	12 (63.2)	10 (52.6)	15 (88.2)	62 (66.0)	
3 or more, <i>n</i> (%)	4 (40.0)	4 (22.2)	4 (36.4)	1 (5.3)	2 (10.5)	2 (11.8)	17 (18.1)	
No. of deployments	1.5 (0.5)	1.4 (0.6)	1.7 (0.9)	1.4 (0.5)	1.2 (0.5)	1.4 (0.5)	1.4 (0.6)	$F(5, 89) = 1.15$
No. of deployments								$\chi^2(10) = 18.47^a$
1, <i>n</i> (%)	6 (54.5)	11 (61.1)	6 (54.4)	12 (63.2)	16 (84.2)	11 (64.7)	62 (65.3)	
2, <i>n</i> (%)	5 (45.5)	6 (33.3)	2 (18.2)	7 (36.8)	2 (10.5)	6 (35.3)	28 (29.5)	
3	0 (0)	1 (5.6)	3 (27.)	0 (0)	1 (5.3)	0 (0)	5 (5.3)	
Deployment decade								$\chi^2(15) = 14.92$
Pre-1980s, <i>n</i> (%)	6 (54.5)	15 (83.3)	7 (63.6)	11 (57.9)	11 (57.9)	12 (70.6)	62 (65.3)	
1980–1989	1 (9.1)	0 (0)	1 (9.1)	3 (15.8)	1 (5.3)	2 (11.8)	8 (8.4)	
1990–1999	0 (0)	0 (0)	1 (9.1)	1 (5.3)	0 (0)	2 (11.8)	4 (4.2)	
2000–2010	4 (36.4)	3 (16.7)	2 (18.2)	4 (21.1)	7 (36.8)	1 (5.9)	21 (22.1)	
PTSD pretest vet	59.3 (14.9)	61.4 (11.4)	62.1 (11.7)	57.3 (15.2)	62.9 (11.4)	63.1 (11.1)	61.1 (12.5)	$F(5, 103) = 0.64$
Meets PTSD clinical, <i>n</i> (%)	9 (75.0)	16 (88.9)	14 (87.5)	16 (76.2)	20 (83.3)	15 (83.3)	90 (82.6)	$\chi^2(5) = 1.86$
PTSD pretest spouse, <i>n</i> (%)	46.3 (15.7)	45.2 (16.5)	44.4 (15.2)	37.1 (18.0)	38.0 (13.9)	48.7 (17.7)	42.6 (16.5)	$F(5, 103) = 1.64$
Meets PTSD clinical, <i>n</i> (%)	5 (41.7)	7 (38.9)	5 (31.3)	3 (14.3)	5 (20.8)	7 (38.9)	32 (29.4)	$\chi^2(5) = 5.62$

Abbreviations: PTSD = posttraumatic stress disorder.

^a $p = .047$.

^b $p = .008$.

more likely to be in the June 18 retreat (27.3% vs. 0%–5.6%). Veterans attending the May 21 and June 18 retreats were more likely to be deployed 3 or more years (40% and 36.4%, respectively, vs. 5.3–22.2%).

Pre–post change in PTSD symptom total scores

In the pre–post analysis of veterans' PTSD symptom scores, both time ($F[1, 103] = 283.33, p < .001$) and Time \times Retreat ($F[5, 103] = 3.72, p = .004$) are significant. All six pre–post comparisons were significant ($p < .001$). PTSD symptom total scores decreased from the pretest to the posttest; however, the significant interaction indicates that the change is not uniform across the six retreats. The greatest improvement occurred in the May 21 and September 10 retreats, and the least improvement occurred in the two June retreats (Table 2 and Figure 1). At pretest, 82.6% ($n = 90$) of the veterans met the clinical PTSD symptom criterion cutoff. This decreased to 28.4% ($n = 31$) at posttest.

Similar results were obtained for the spouses. Both time ($F[1, 103] = 128.04, p < .001$) and Time \times Retreat ($F[5, 103] = 2.62, p = .029$) are significant. All six pre–post comparisons are significant ($p < .002$). As with the veterans, the greatest improvement occurred in the September 10 retreat, and the second least improvement occurred for one of the June retreats (June 18). In contrast to the veterans, the June 4 retreat also had a large improvement, and the least improvement occurred at the July 9 retreat (Table 2 and Figure 2). Although

a much lower percentage of spouses met the clinical cutoff at pretest (29.4%; $n = 32$), this decreased to 3.7% ($n = 4$) at posttest.

Pre–post–reunion change in PTSD symptom total scores

There was a statistically significant time effect for both the veterans ($F[2, 30] = 55.87, p < .001$) and spouses ($F[2, 29] = 24.3, p < .001$). In the comparisons between time points, PTSD symptom scores were significantly lower at posttest and the reunion follow-up than pretest for the veterans ($p < .001$). There was no difference between the posttest and reunion follow-up scores, indicating maintenance of

Table 2. Pretest–Posttest PTSD Total Scores for Veterans and Spouses by Retreat

Retreat	Veteran, M (SD)		Spouse, M (SD)	
	Pretest	Posttest	Pretest	Posttest
May 21	59.3 (3.6)	35.2 (3.5)	46.3 (4.7)	32.4 (2.8)
June 4	61.4 (3.0)	45.2 (2.8)	45.2 (3.9)	28.3 (2.3)
June 18	62.1 (3.2)	50.2 (3.0)	44.4 (4.1)	33.8 (2.5)
July 9	57.3 (2.7)	41.6 (2.6)	37.1 (3.5)	27.7 (2.1)
August 13	62.9 (2.6)	40.4 (2.5)	38.0 (3.3)	24.6 (2.0)
September 10	63.1 (3.0)	37.6 (2.8)	48.7 (3.8)	25.7 (2.3)
Total	61.1 (12.5)	41.8 (12.6)	42.6 (16.5)	28.2 (10.1)

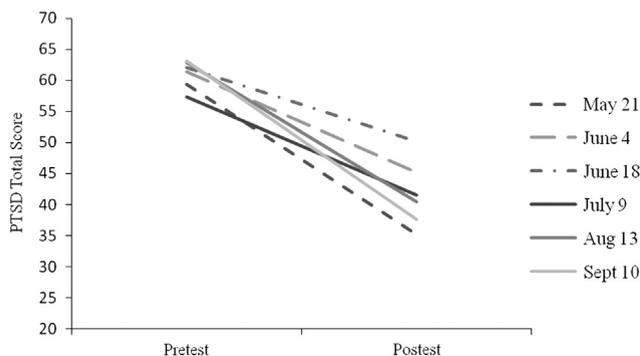


Figure 1. Graph of veterans' pretest–posttest PTSD total scores by retreat.

improvement at follow-up. However, in the analyses for the spouse, PTSD scores continued to improve over time, with significant differences between all three time points ($p < .003$; Table 3 and Figure 3). At the reunion, eight of 32 veterans (7.3%) and one of the 31 spouses (1%) still met the clinical criterion for PTSD. The reductions in PTSD symptom total scores are indicative of a clinically significant treatment result.⁶⁹

DISCUSSION

One finding of this study was a significant reduction in PTSD symptom scores for spouses between the posttest and follow-up, from a score of 30.4 on the PCL to 25.6. For veterans, the gains observed immediately following the retreat were maintained at the reunion follow-up, with PCL-M scores dropping nonsignificantly from 44.3 to 42.4. This trend is opposite to that found in other EFT research. In randomized controlled trials of EFT for PTSD, follow-up scores remained flat or rose slightly though nonsignificantly.^{45,47} While it is impossible to determine what produced this anomalous result, we speculate about several possibilities and the clinical relevance of each.

The first possibility is that these randomized controlled trials used EFT only, whereas this study used a multimodal CAM approach. It is possible that after exposure to a wide range of CAM self-help techniques at the retreat, participants adopted the methods of their choice and continued to use them at home. This may have led to reduced stress levels, and

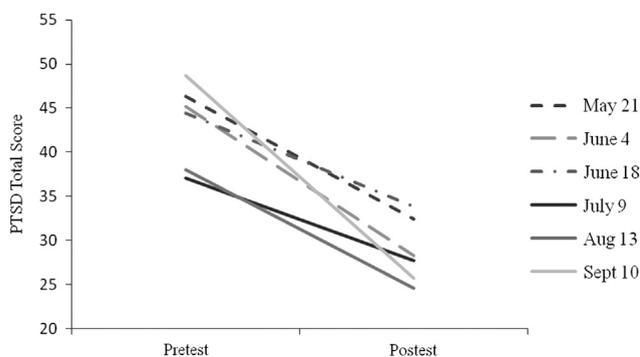


Figure 2. Graph of spouses' pretest–posttest PTSD total scores by retreat.

greater reduction in symptoms, than the use of EFT unsupported by an array of self-treatment options.

The second possibility is that couples continued to administer EFT or other interventions to each other after posttest, and they supported each other in continuing with those CAM interventions that benefited them the most. The supportive role that spouses play in recovery from PTSD in veterans has been noted in a number of studies.^{70,71} Church and Brooks⁷² examined a population of healthcare workers and analyzed the degree of their self-utilization of the intervention during the period following an EFT workshop and found that greater use of EFT correlated with greater reduction in symptoms of psychological distress ($p < .034$). It is conceivable that spouses and veterans supported each others' use of EFT and other CAM interventions learned at the retreat, enhancing the treatment effect. The reduction in PTSD symptoms might have enhanced the efficacy of other interventions. The maintenance of symptom reductions in veterans might have supported the reduction in symptoms in spouses or vice versa.

The third possibility is that couples might have maintained contact with other couples and supported each other in continued psychological symptom improvement. Retreat staff observed anecdotally that bonding between individuals and couples occurred during the retreats and that many new friendships were formed that might have continued afterward. Veteran peer support has been demonstrated to be associated with lower PTSD symptoms.⁷³ Social support has been found to mediate the effects of PTSD and produce both better psychosocial function and greater resilience.^{74,75} A study examining survivors of recent trauma found that negative posttraumatic cognitions were improved by interpersonal processing and that supportive social environments facilitated trauma rehabilitation.⁷⁶ The social support provided by the retreats might have played a role in the improved follow-up data.

Limitations

The study had a number of limitations. The use of specific CAM techniques during and after the retreat was not tracked. Therefore, it was not possible to isolate the efficacy of the various forms of CAM offered to participants. It is, thus, impossible to claim that any one technique produced the symptom reductions during or following the retreat. It is only possible to note that a suite of CAM techniques was well-tolerated by participants, after which a reduction in PTSD symptoms was noted. The study did not test the CAM intervention against a conventional intervention, such as a drug-based therapy, or against an active control endorsed by the VA, such as cognitive processing therapy. It is therefore unknown to what extent nonspecific treatment effects such as expectancy and sympathetic attention might have influenced the results. However, it should be noted that no literature exists suggesting that such factors can remediate PTSD to the extent found in this study. In a review by the Institute of Medicine, Committee on Treatment of Posttraumatic Stress Disorder,³⁵ the most promising PTSD study cited was by Monson et al.⁷⁷ which used cognitive therapy with veterans. Posttest, 40% of the sample was subclinical, though there was

Table 3. Pre–Posttest–Reunion PTSD Total Scores for Veterans and Spouses

Veteran, M (SD)			Spouse, M (SD)		
Pretest	Posttest	Reunion	Pretest	Posttest	Reunion
64.9 (13.6)	44.3 (14.1)	42.4 (12.4)	45.3 (17.5)	30.4 (10.8)	25.6 (8.9)

no discernable improvement for about 50% of participants. The duration of follow-up by Monson et al. follow-up was similar to that in the present study.

An additional limitation is the small sample completing the follow-up assessment at the reunion, fewer than 30% of the original attendees. It is possible that those participants who formed the strongest bonds with other couples and individuals might have been more motivated to attend the reunion than individuals who did not similarly bond. Alternatively, those couples that experienced the greatest improvements following the retreat may have been more likely to attend. The opposite is also possible, that successful couples did not perceive the need to attend while less-successful couples were motivated to re-engage with the interventions. These possible sources of sampling bias prohibit the generalization of these findings to the remainder of the sample.

The study is further limited by the relatively brief duration between posttest and follow-up; a second follow-up, such as the assessments obtained in the RCTs and outcome studies of EFT for PTSD cited above, could measure the relative durability of participant gains.

Last, the current study relied on self-report rather than the inclusion of observer-rated measures. Though the PCL has been found in other studies to have convergent validity with a clinical diagnosis of PTSD,^{77–79} a follow-up study should include observer-rated measures. A single measure such as the PCL is insufficient for a PTSD diagnosis and should be supported with a comprehensive battery of assessments that can be cross-correlated for a robust analysis.

Clinical implications

Despite these limitations, this study has significant clinical implications. Clinically symptomatic PTSD was demonstrated to be remediated in the majority of veterans after

attendance at a group retreat, gains which were maintained at follow-up. Given the scale of the problem of treating PTSD in a large cohort of veterans returning from Afghanistan and Iraq, in addition to the many PTSD-positive Vietnam veterans under care by the Veterans Administration, the possibility of an effective and efficient treatment makes this intervention a viable treatment option.

Second, the group format of the intervention suggests that it can be administered to a large number of participants simultaneously, rehabilitating PTSD symptoms in an efficient and low-cost format. The largest of the six groups comprised 60 individuals. An extension of this study would evaluate its effects in progressively larger cohorts. Studies comparing the effectiveness of group therapy versus individual therapy for other conditions have produced conflicting results; however, a meta-analysis for PTSD found efficacy for both individual and group treatments.⁸⁰

Third, significant symptom reductions were noted in veteran spouses, alleviating the symptoms of secondary PTSD. McFarlane and van der Kolk¹² found that the benefits of successful PTSD treatment extend beyond the individual to benefit the family and community. This finding supports the development of a structured EFT/CAM family group therapy program in VA settings. The utilization of each of the CAM options by veterans and spouses should be recorded to assess which interventions are favored by participants. Data regarding quality of life, pain, physical functioning, and social interactions would provide a detailed picture of the clinical outcomes of such a program. It could also investigate whether an increased dose, such as a two-week retreat, or two week-long retreats separated by a period of time, produced larger symptom reductions. While the follow-up veteran PCL-M symptom score of 42.4 represents a sharp reduction, it is still far from the baseline value of 17, and 28% of veterans were still PTSD-positive. *The EFT Manual* specifies the application of EFT to specific traumatic memories, and clients frequently present with hundreds of these memories.⁴⁰ An extended workshop might therefore produce better results by providing the time to treat a larger number of these memories. Workshops could also be supported by long-distance counseling via telephone or video conferencing services such as Skype or Google Hangouts. This counseling need not require the services of a licensed mental health professional; EFT delivered to veterans by life coaches has been found to remediate PTSD, while a study comparing telephone with office sessions found that 61% of veterans were subclinical after six EFT sessions.^{81,82} This evidence suggests that long-distance “booster treatments” delivered by life coaches with limited mental health training might reinforce treatment effects in the weeks and months following a retreat, or EFT groups in a VA setting.

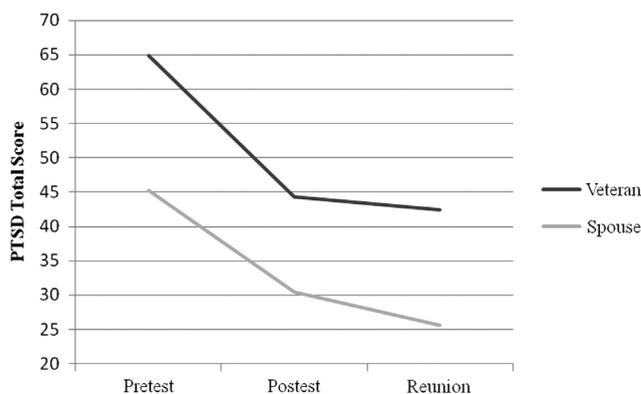


Figure 3. Graph of veterans and spouses' pretest–posttest–reunion PTSD total scores.

Fourth, the intervention appears to present a low probability of risk. Reviews of EFT have found a general absence of adverse events and a reduction of participant self-reports of distress.^{64,65} A study of therapists offering EP and other methods to adult survivors of childhood sexual abuse found that EP interventions were preferred in part due to the low incidence of adverse events.⁶⁶ CAM interventions are generally considered low-risk and safe.^{83,84} Compared with the risks of conventional and especially pharmacological interventions, CAM interventions may present a low-risk alternative treatment for PTSD.

Fifth, the evidence presented in this article is stronger than most uncontrolled trials due to the analysis of data from six different retreats, each of which was in effect a small study. All six retreats, when analyzed separately, showed similar trends in symptom reduction, with a similar data distribution and relatively small differences in clinical effect. We therefore present this analysis in Figures 1 and 2. If the intervention produced good results at a single retreat, the anomaly would become apparent when compared with the others. The striking similarity in the symptom-reduction curve in all six retreats supports a stronger conclusion than can usually be drawn from uncontrolled trials. Other studies that have compared a series of small group workshops using EFT have found the same pattern of efficacy across the data spectrum, suggesting a similar degree of efficacy for such interventions.^{72,85} This characteristic was also noted when the data for all veterans and all spouses in the present study were analyzed separately (Figure 3), further confirming the results obtained in the analysis of the six individual retreats.

Finally, the cost of such an intervention is small when compared with the cost of conventional treatment (with modest outcomes) using conventional methods. Two recent reports estimate the cost of treating a single veteran diagnosed with PTSD as over \$1,400,000.^{86,87} For that same sum, about two thousand veterans could attend retreats such as the one described in this study.

Future research studies should include an observer-rated clinical diagnosis of PTSD and other standardized measures assessing psychological distress, multiple long-term follow-up assessments, and in-depth analysis of EP and CAM utilization. The development of a standard manualized protocol for a multimodal CAM and EP intervention would allow for a comparative effectiveness study with a VA-approved active control, such as cognitive processing therapy. Cost-effectiveness studies are also indicated. Lastly, the improvements observed in the spouses suggest future studies should more closely examine the effect of transferred PTSD in spouses and the role of social support in recovery.

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