

EFT (EMOTIONAL FREEDOM TECHNIQUES) AND RESILIENCY IN VETERANS AT RISK FOR PTSD: A RANDOMIZED CONTROLLED TRIAL

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Prior research indicates elevated but subclinical posttraumatic stress disorder (PTSD) symptoms as a risk factor for a later diagnosis of PTSD. This study examined the progression of symptoms in 21 subclinical veterans. Participants were randomized into a treatment as usual (TAU) wait-list group and an experimental group, which received TAU plus six sessions of clinical emotional freedom techniques (EFT). Symptoms were assessed using the PCL-M (Posttraumatic Checklist—Military) on which a score of 35 or higher indicates increased risk for PTSD. The mean pretreatment score of participants was 39 ± 8.7 , with no significant difference between groups. No change was found in the TAU group during the wait period. Afterward, the TAU group received an identical clinical EFT protocol. Posttreatment groups were combined for analysis. Scores declined to a mean of 25 (–64%, $P < .0001$). Participants maintained their

gains, with mean three-month and six-month follow-up PCL-M scores of 27 ($P < .0001$). Similar reductions were noted in the depth and breadth of psychological conditions such as anxiety. A Cohen's $d = 1.99$ indicates a large treatment effect. Reductions in traumatic brain injury symptoms ($P = .045$) and insomnia ($P = .004$) were also noted. Symptom improvements were similar to those assessed in studies of PTSD-positive veterans. EFT may thus be protective against an increase in symptoms and a later PTSD diagnosis. As a simple and quickly learned self-help method, EFT may be a clinically useful element of a resiliency program for veterans and active-duty warriors.

Key words: veterans, PTSD, resiliency, EFT, emotional freedom techniques

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Among a group of therapies collectively known as energy psychology (EP), emotional freedom techniques (EFT) are most widely practiced. A recent critical review of EP surveyed licensed psychotherapists using Listservs such as acceptance and commitment therapy, the society for the science of clinical psychology, and the association of behavioral and cognitive therapies, and found 42% of therapists using these techniques.¹ The reasons cited for the rapid and widespread

acceptance of EP include speed, efficacy, ease of use, safety, and reliability.²

A number of studies have examined the use of EFT for posttraumatic stress disorder (PTSD). Many of these have used the PTSD Checklist (PCL)³ or the military variant (PCL-M)⁴ to assess symptom levels in participants. Both checklists contain 17 items corresponding to the PTSD diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*⁵ scored from 1 to 5. Scores on this assessment range from 17 to 85, and a score of 50 or more is considered indicative of a clinical diagnosis of PTSD.²

The results of a randomized controlled trial with 59 veterans are typical of results obtained with EFT.⁶ The mean pretest PCL-M score of participants in that study was 64 [standard error (SE) ± 2.1]. After six treatment sessions, 86% of participants were subclinical (mean score 37, $P < .0001$). After three months, mean PCL-M value was 37 ($P < .0001$), and after six months, 36 ($P < .0001$), as participants maintained their gains over time. A replication of this study reported similar results, as did an earlier pilot study.^{7,8}

A randomized controlled trial of patients diagnosed with PTSD was performed by a hospital in Britain's National Health Service (NHS).⁹ It compared EFT and eye movement reprocessing and desensitization (EMDR) to a wait-list, and also used the PCL to assess symptom levels. Both EFT and

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EMDR were found to remediate PTSD in a mean time frame of four sessions ($P < .001$). Another randomized controlled trial showed similar PTSD symptom reductions in abused adolescents confined to a group home.¹⁰ The NHS has performed a number of studies of EFT and found significant reductions in both psychological and physical symptoms, as well as acceptance by patients.^{9,11,12} A systematic review compared energy psychology studies against the standards published by the Task Force on Empirically Validated Treatments of APA's (American Psychological Association) Division 12, and found that these techniques met the criteria for evidence-based treatments "for a number of conditions, including PTSD."²

EFT is often used for group therapy, with numerous studies demonstrating its efficacy in this setting.¹³⁻¹⁸ One study examined the PTSD symptom levels of 218 veterans and their spouses who attended a seven-day retreat.¹⁹ They received EFT and other EP interventions for PTSD. Pretest showed 83% of veterans and 29% of spouses with PCL symptom levels indicative of PTSD. A six-week follow-up showed that PTSD symptoms had declined significantly, with only 28% of veterans ($P < .001$) and 4% of spouses ($P < .001$) still scoring 50 or higher on the PCL. Another outcome study examined the PTSD levels of participants traumatized by the 2010 earthquake in Haiti.¹⁷ Before two days of treatment, 62% had PCL scores of 50 or more, while after treatment, 0% met this criterion ($P < .001$).

Studies have examined the prevalence of depression, anxiety, and other psychological conditions in participants receiving EFT treatment for PTSD, and found that both the breadth and depth of symptoms decline significantly.^{6,9,8} Comorbid physical conditions such as pain and headaches also improve.^{13,19-21}

The physiological mechanisms of action of EFT have been explored in a number of studies. A triple-blind randomized controlled trial of 83 normal subjects examined levels of the stress hormone cortisol, as well as psychological symptoms.²² The intervention consisted of an hour-long session of EFT, talk therapy, or no treatment. The results showed that psychological conditions such as anxiety and depression declined by more than twice as much in the EFT group compared to the other two groups ($P < .001$), along with a deeper decline in cortisol ($P < .03$). Similar regulation of stress physiology has been found in electroencephalogram (EEG) studies.^{23,24} Two single-subject case reports also found substantial drops in cortisol after EFT.^{2,25}

EFT is described in *The EFT Manual*.^{26,27} It consists of a verbal and a somatic component. Drawing from exposure therapies, the client is instructed to vividly remember and name a traumatic event. Simultaneously, the client repeats an affirmation of self-acceptance, in order to provide a cognitive reframe. While using phrases designed to keep attention focused on the event, the client taps a series of acupuncture points or "acupoints" on the hand, head, and torso.

EFT as compliant with the research standards of the APA Division 12 Task Force is referred to as "clinical EFT."²⁸ EFT is regarded as one of the most popular self-help techniques in history,² with some six million visitors a month to the five

most-visited EFT web sites.²⁷ Over the past decade, the online EFT manuals have been downloaded by more than two million individuals, while over a million have been treated following disasters.²⁷

Therapists report a rapid decrease in affect when combining acupoint tapping with these established therapeutic techniques.²⁹ A systematic review of published EP research with reference to its physiological mechanisms of action in cases of PTSD suggested that it "quickly and permanently reduces maladaptive fear responses to traumatic memories and related cues."³⁰ The published scientific literature on EFT includes more than 100 papers in peer-reviewed journals (Research.EFTuniverse.com). These include meta-analyses, reviews, outcome studies, and randomized controlled trials. They demonstrate the efficacy of the method for anxiety, depression, PTSD, and phobias, as well as a variety of physical symptoms such as pain, psoriasis, and traumatic brain injury. Several studies using fMRI to measure the effects of acupuncture (not EFT) on the brain's limbic system find that it regulates fear.³¹⁻³³ A review found "encouraging" evidence for the effectiveness of acupuncture for PTSD when compared to psychotherapy and SSRIs, though determining that more research is needed for a definitive conclusion.³⁴ A pain study comparing acupuncture to pressure on the points found the latter form of acupoint stimulation as effective as needling.³⁵

In 1988, the National Vietnam Veterans Readjustment Study (NVVRS) first drew attention to the high prevalence of subclinical and delayed-onset PTSD.^{36,37} Delayed-onset PTSD is defined as the onset of symptoms six months or more after exposure to traumatic events.⁵ According to a review article, delayed-onset PTSD is usually associated with prior PTSD symptoms.³⁸

A recent large-scale study using a sample of U.K. veterans with subclinical PTSD examined the changes between early symptom scores and later diagnostic assessments.³⁹ It found that mean PCL-M scores doubled between the two assessment points for the delayed-onset PTSD group. Veterans with lower PCL-M scores remained stable. Half of the veterans later diagnosed with PTSD had delayed-onset PTSD. These results are similar to those of a longitudinal study of 5656 World Trade Center disaster fire fighters, which showed that 45% of PTSD cases were of the delayed-onset type, with a mean onset period of three years after the event.⁴⁰ Unlike psychiatric diagnoses with courses of limited duration, PTSD often becomes more pronounced over time.⁴¹ This change is not only psychological, it is also physiological, as the brain changes in ways that make the condition treatment-resistant.^{42,43}

Is subclinical PTSD an indicator of resilience, since the patient has not developed full-blown symptoms, or an indicator of risk? An evaluation of the relationship between the two finds that "partial PTSD appears to confer greater risk than resilience."⁴⁴ Subclinical PTSD is associated with an 11-fold increase in the likelihood of a later PTSD diagnosis, according to a meta-analysis.⁴⁵

Critics and scholars have debated the role of functional impairment in a PTSD diagnosis, but a review of the evidence finds elevated levels of functional impairment in this

population.⁴⁶ This extends to patients suffering from subclinical PTSD, which is also associated with both psychiatric and medical comorbidity.⁴² The fire fighters study found PTSD to be associated with heightened risk of functional impairment. The U.K. veterans study also found depression and other psychological conditions, as well as physical symptoms, to be associated with delayed-onset PTSD. Other research shows that depression may increase the risk of PTSD.⁴⁷ EFT may also protect against the development of PTSD by reducing depressive symptoms, which drop in veterans as well as other demographic groups receiving EFT.^{8,11,14,20,48}

Research into resilience, as well as into posttraumatic growth, is in its early stages. However, initial studies indicate an inverse relationship between resilience and PTSD, with high levels of resilience associated with low levels of PTSD.^{49,50} The early literature suggests that the development of resilience might reduce the incidence of PTSD after traumatic events. Connor states that, "In patients with posttraumatic stress disorder, resilience can be used as a measure of treatment outcome, with improved resilience improving the likelihood of a favorable outcome"^{51(p46)} A study of resilience in high school students taught EFT showed significantly higher resilience scores post-intervention, with durable gains on follow-up.⁵²

The rationale for the present study is that since EFT has demonstrated efficacy for PTSD, it might be protective against later PTSD diagnoses in patients with subclinical symptom levels. EFT reduces symptoms of a complex of comorbid psychological conditions such as depression, anxiety, and phobias, as well as physiological symptoms of pain and traumatic brain injury.^{20,53} We hypothesized that veterans with subclinical PTSD symptoms would show similar broad improvements, and thus included these as secondary outcome measures. We gathered information on the era of military service in order to determine if time elapsed since deployment resulted in differential outcomes.

In addition to the estimated 479,000 Vietnam veterans with PTSD, a significant percentage of the 2.4 million American troops deployed in Iraq and Afghanistan are estimated to be PTSD-positive.⁵⁴ In the past decade, the Veterans Administration (VA) diagnosed with PTSD almost 30% of the 834,463 veterans of Middle East wars that it treated.⁵⁵ Many of those not diagnosed immediately after deployment may develop symptoms later. If EFT is taught to veterans as well as active-duty warriors as a self-help technique to induce resilience, might this be a proactive means of protecting against the development of later PTSD symptoms?

METHOD

Participants were 21 veterans who scored below the <50 cutoff on the PCL-M. The study was approved by the Institutional Review Board (IRB) of the American Association for Acupuncture and Bioenergetic Medicine (AAABEM). The study was funded by private individual donations to the nonprofit National Institute for Integrative Healthcare. Randomization was performed by permuted block allocation

(randomizer.org), with each practitioner receiving a list of 10 random numbers from the study coordinator.

Participants were recruited via referrals and social media. All signed informed consent forms. All participants, whether in the Treatment As Usual (TAU) or EFT + TAU group, were required to remain under the care of a licensed medical professional for the duration of the study. Clinical EFT was provided as peer-to-peer self-help coaching, explicitly supportive of the therapeutic alliance established in TAU. Participants did not receive compensation for participation in the study.

Psychological symptoms were assessed using the Symptom Assessment 45 (SA-45).⁵⁶ The SA-45 has subscales measuring nine conditions: anxiety, depression, hostility, interpersonal sensitivity, obsessive-compulsive behavior, paranoia, phobic anxiety, psychoticism, and somatization. T-scores based on normed data for nonclinical populations are calculated. Scores higher than 60 are considered in the clinical range. The assessment also has two global scales: Global Severity Index (GSI) and Positive Symptom Total (PST). These measure the severity of psychological symptoms (GSI) and the breadth of symptoms across the nine domains (PST).

Insomnia was assessed using the Insomnia Severity Index (ISI).⁵⁷ Pain was measured on an 11 point Likert scale ranging from 0 (no pain) to 10 (the worst pain imaginable). traumatic brain injury (TBI) was measured using a list of 17 symptoms commonly associated with TBI in the literature and used in two earlier studies that employed a similar design.^{7,52} To make the results as generalizable as possible, the study's only exclusion criterion was a high score on two SA-45 items indicative of the potential for violence. Participants completed assessments before the first session, after the third and sixth session, and at the three- and six-month follow-up intervals. Participants randomized into the TAU group ($n = 9$) completed an additional assessment six weeks prior to the commencement of treatment.

Clinical EFT was administered according to *The EFT Manual*.^{25,26} Fidelity to the method was assessed via structured written session notes provided by practitioners to investigators. All practitioners were certified in EFT, and had passed the Collaborative Institutional Training Initiative (CITI) research subject protection examination.

Participants were asked to compile lists of traumatic emotional events, and use EFT on each. Emotional intensity was self-rated on a Likert scale from 0 to 10, with 10 being maximal emotional intensity and 0 minimal.⁵⁸ The session notes forms used to check fidelity are structured to reflect adherence to EFT's basic method as defined in *The EFT Manual*.^{25,26} Participants received six one-hour sessions, one session per week. Data from the TAU group after the start of treatment were combined with data from the EFT group, and the two groups analyzed in combination, in order to lend maximum statistical strength to the analysis.

An assessment of the quality and nature of TAU received by participants was beyond the scope of this study, as was a clinical evaluation for PTSD using an observer-rated measure such as the Clinician-Administered PTSD Scale (CAPS).⁵⁹ The study instead intentionally utilized a patient-centered approach, by assessing self-rated symptom levels using the

PCL-M. Practitioners presented Clinical EFT to participants as a self-help method, demonstrating it during sessions, and encouraging them to use EFT between sessions to address emotionally triggering events and PTSD symptoms.

No adverse events were reported. There was one dropout in the TAU group (after the wait period was complete but prior to treatment) and two further dropouts in the TAU group after they began treatment, after their third EFT session. The reasons provided by the participants were shortage of time and lack of interest in continuing treatment. Investigators were unable to contact one participant for six-month follow-up and three additional participants for both the three- and six-month follow-up. This reduced the posttreatment n to 18, and the ultimate follow-up n to 14. A CONSORT flowchart is attached as [Figure 1](#).

RESULTS

Subject Characteristics

Demographics and baseline outcome scores are summarized in [Table 1](#). Baseline differences between EFT and TAU groups on demographic variables and primary outcome

measures (GSI, PST, and PCL-M) were assessed using Welch's unequal variance t -tests for continuous variables and chi-square analyses for categorical variables. In Welch's t -test, the Welch-Satterthwaite method is used to generate a correction factor for the degrees of freedom. There were no significant differences between the groups on sociodemographic characteristics or primary outcome measures on intake. The sample ($N = 21$) had more males (67%) than females, with a mean age of 56 years (range: 28–68 years). There were no significant differences between the EFT and TAU groups in the number of tours of duty (EFT: 1.8 tours vs. TAU: 1.2 tours, $P = ns$).

All participants scored below the clinical range (<50) on the PCL-M at screening, and on baseline testing the mean score was 39 (range: 26–49). A score of 35 or greater represents heightened PTSD risk in a military population.⁶⁰ One participant in the TAU group scored in the subclinical range on intake but 52 at the end of the wait period. Symptom severity (GSI) scores ranged between 43 and 76, with a mean of 61, whereas symptom breadth (PST) ranged between 43 and 75, with a mean of 61. For all SA-45 subscales and general scales, 60 indicates clinical symptom levels.

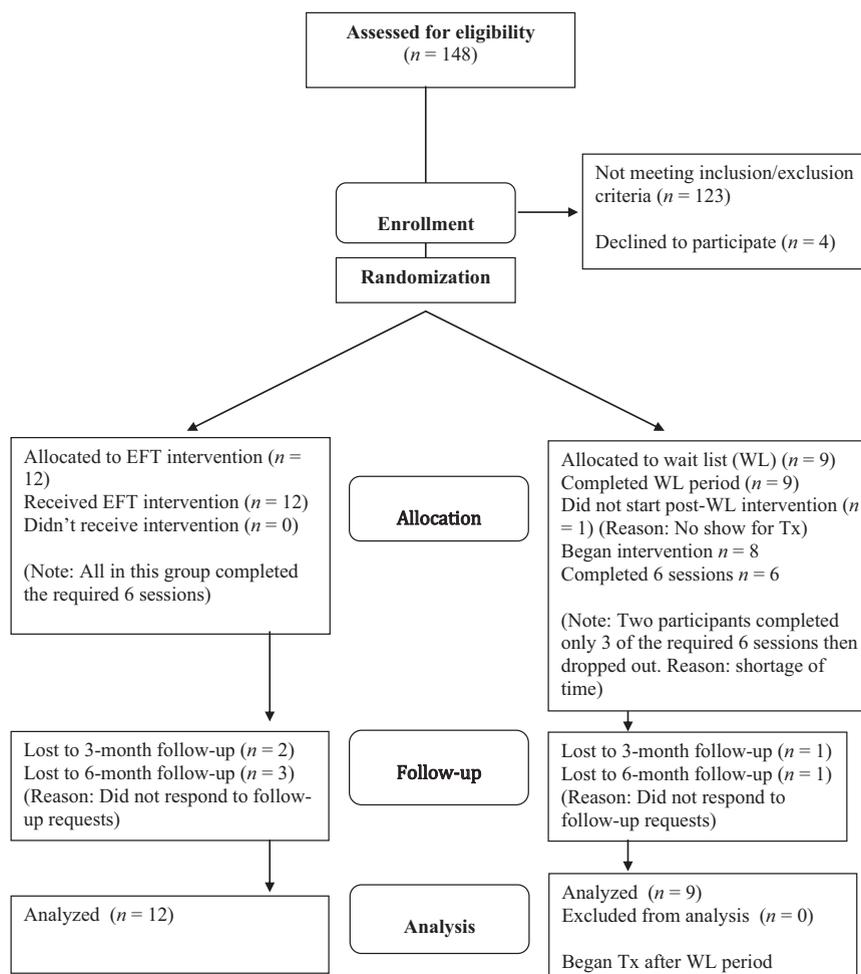


Figure 1. Consort flowchart.

Table 1. Participant Characteristics by Group Before Intervention

Variable	EFT (<i>n</i> = 12)	TAU (<i>n</i> = 9)	Total (<i>n</i> = 21)	Statistic	<i>P</i> Value
Age, mean (SD), <i>y</i>	56 (11.0)	57 (11.9)	56 (11.1)	$t(16.60) = -0.19$.851
Men, <i>n</i> (%)	7 (58)	7 (78)	14 (67)	$\chi^2(1) = 0.87$.350
Deployment				$\chi^2(3) = 1.61$.205
OIF/OEF, <i>n</i> (%)	3 (33)	4 (44)	7 (39)		
Vietnam, <i>n</i> (%)	8 (67)	3 (33)	11 (52)		
Europe, <i>n</i> (%)	0 (0)	1 (11)	1 (6)		
None, <i>n</i> (%)	0 (0)	1 (11)	1 (6)		
Tours, mean (SD)	1.8 (1.8)	1.2 (0.8)	1.6 (1.5)	$t(14.53) = 0.96$.351
Insomnia				$\chi^2(3) = 3.65$.302
Severe, <i>n</i> (%)	2 (17)	0 (0)	2 (10)		
Moderately severe, <i>n</i> (%)	6 (50)	3 (33)	9 (43)		
Subthreshold, <i>n</i> (%)	3 (25)	3 (33)	6 (29)		
None, <i>n</i> (%)	1 (8)	3 (33)	4 (19)		
PCL-M, mean (SD)	41 (8.0)	36 (6.0)	39 (7.5)	$t(19.00) = 1.66$	0.113
GSI, mean (SD)	60 (11.8)	62 (6.5)	61 (9.8)	$t(17.69) = -0.54$	0.599
PST, mean (SD)	59 (12.5)	63 (5.9)	61 (10.2)	$t(14.53) = -0.86$	0.401

GSI, Global Severity Index; OIF, Operation Iraqi Freedom; OEF, Operation Enduring Freedom; PCL-M, Posttraumatic Checklist—Military; PST, positive symptom total.

COMPARISON OF THE TAU VS. THE EFT GROUP BEFORE AND AFTER TREATMENT

Statistical Approach

Linear mixed-effects models were conducted on the PCL-M total score and SA-45 global scales and symptom domains, with patient-specific intercepts modeled over time. Patient groups were compared at two time points (TAU: pretreatment, 30-day wait assessment; EFT: pretreatment, after six sessions). Variables considered for inclusion in the model were age, gender, war [Vietnam vs. Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF)], number of deployments, traumatic brain injury (TBI) symptom score, pain score, insomnia score, medications, cigarette smoking, and alcohol use. Additionally, time between pretreatment and 30 days (TAU) or six sessions (EFT) and the interaction between group \times time were considered for inclusion in the model. Based on log likelihood ratio tests, only TBI and insomnia scores were significant independent variables, and these were included in the models. Increased TBI and insomnia scores correlated with higher outcome scores. Because of the number of SA-45 scales, we used a Bonferroni correction for multiple tests to calculate an adjusted alpha level ($P = .0045$). Statistics were calculated using SPSS version 17.0.

RESULTS

The results of the before and after treatment comparison analyses are presented in Table 2. Comparing TAU to EFT, there was a significant group time interaction for PCL-M ($P = .0004$). GSI ($P = .021$), PST ($P = .038$), anxiety ($P = .032$), depression ($P = .008$), obsessive-compulsive behavior ($P = .036$), and hostility ($P = .040$) were significant at the level of $\alpha = 0.05$ but were not significant after Bonferroni correction to $\alpha = 0.0045$ to account for multiple testing.

Comparing EFT posttest to TAU posttest ($\alpha = 0.05$), scores were lower in the EFT group in the categories of PCL-M ($P = .016$), GSI ($P = .005$), PST ($P = .011$), anxiety ($P = .001$), depression ($P = .043$), interpersonal sensitivity ($P = .014$), and paranoia ($P = .021$), but these did not withstand Bonferroni correction. Comparing EFT pretest to EFT posttest, the 16-point reduction in PCL-M ($P < .0001$) was significant with Bonferroni correction at a level of $\alpha = 0.0045$, as well as depression ($P = .004$), GSI ($P = .003$), and PST ($P = .003$). Scores for anxiety ($P = .008$), obsessive-compulsive ($P = .008$), somatization ($P = .017$), hostility ($P = .24$), interpersonal sensitivity ($P = .023$), and paranoia ($P = .026$) were significant at the level of $\alpha = 0.05$, while psychotacticism ($P = .052$) was not. Comparing TAU pretest to TAU posttest, there were no significant differences in any measure. Cohen's d was calculated using the mean difference divided by the pooled standard deviation ($d = 1.99$).

COMPARISON OF THE COMBINED TAU AND EFT GROUP AFTER EFT TREATMENT—CHANGE OVER TIME

Statistical Approach

Linear mixed-effects models were conducted on the PCL-M total score, the SA-45 global scales and symptom domains, and the ISI total score with patient-specific intercepts modeled over periods (pretreatment, after three sessions, after six sessions, at three-month follow-up, and at six-month follow-up). Time between sequential assessments and the time \times group interaction was considered for inclusion in the model to adjust for possible effects due to intervention delay in the TAU group; however, it was found to have a nonsignificant effect on outcome scores based on log likelihood tests. Because of the number of SA-45 scales, a Bonferroni correction for multiple tests was used to calculate an adjusted

Table 2. Subject Symptom Means and Standard Errors Before the Test and After Six Sessions for EFT Completers ($n = 12$) and at Baseline and After Six Weeks for TAU Completers ($n = 9$)

Variable	TAU		EFT		$F(1,18)$	P Value
	Pretest	After Six Weeks	Pretest	After Six Sessions		
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)		
PCL-M total	36 (2.0)	36 (3.0)	41 (2.3)	25 (2.4) ^{a,b}	18.73	0.0004 ^c
SA-45 global scales						
GSI	62 (2.2)	61 (2.7)	60 (3.3)	50 (2.4) ^{a,b}	6.29	0.021 ^d
PST	63 (2.0)	61 (2.6)	59 (3.5)	50 (2.6) ^{a,b}	4.99	0.038 ^d
SA-45 symptom domains						
Anxiety	64 (2.2)	64 (2.2)	60 (3.0)	51 (2.3) ^{a,b}	5.35	0.032 ^d
Depression	61 (2.3)	62 (2.2)	64 (2.2)	56 (1.7) ^{a,b}	8.61	0.008 ^d
OC	60 (2.9)	61 (4.5)	60 (3.0)	53 (2.4) ^b	5.13	0.036 ^d
Somatization	68 (3.8)	64 (3.8)	63 (2.8)	55 (2.1) ^b	1.00	0.330
Phobic anxiety	68 (1.5)	66 (2.0)	68 (2.8)	64 (1.9)	1.05	0.318
Hostility	57 (2.1)	57 (2.1)	56 (1.8)	52 (0.5) ^b	4.86	0.040 ^d
IS	61 (1.9)	60 (2.3)	57 (2.3)	52 (1.6) ^{a,b}	2.32	0.145
Paranoia	57 (1.7)	57 (2.3)	55 (2.8)	50 (1.5) ^{a,b}	3.75	0.068
Psychoticism	60 (1.3)	59 (1.3)	60 (1.3)	58 (1.4) ^b	1.74	0.203

IS, interpersonal sensitivity; GSI, Global Severity Index; OC, obsessive-compulsive behavior; PA, phobic anxiety; PCL-M, Posttraumatic Checklist—Military; PST, positive symptom total; SA-45, Symptom Assessment 45.

^aEFT posttest lower than TAU posttest, $P < .05$.

^bEFT posttest lower than EFT pretest, $P < .05$.

^cEFT score change is significantly different from TAU score change $P < .0045$.

^dEFT score change is significantly different from TAU score change $P < .05$.

alpha level ($P = .0045$). All participants with at least two data points were included in the analyses ($N = 20$). Statistics were calculated using SPSS version 17.0.

RESULTS

The results of the EFT change analyses are presented in Table 3. There was a significant main effect for assessment time point in all of the SA-45 models, the PCL-M total model, and the ISI total model. There were no significant effects for variations in the number of days between treatment assessments, or between the two groups. Significant improvements between the pretreatment assessment and each subsequent assessment were found in each significant model ($P < .005$), with the exception of hostility, paranoia, and psychoticism. After three sessions, there was a significant reduction in PTSD symptom scores on the PCL-M ($P < .001$), GSI ($P = .002$) and somatization subscale ($P = .004$) compared to pretreatment scores. After six sessions, in addition to reductions in PCL-M ($P < .0001$) and GSI ($P < .0001$), there were also significant reductions in PST ($P = .0002$), anxiety ($P = .0004$), depression ($P = .001$), obsessive-compulsive disorder ($P = .001$), somatization ($P = .001$), phobic anxiety ($P = .002$), interpersonal sensitivity ($P = .001$), and paranoia ($P = .002$). Changes in scores for hostility and psychoticism were not significant.

At follow-up after three months, changes in PCL-M ($P < .0001$), GSI ($P = .001$), PST ($P = .002$), anxiety ($P = .002$), somatization ($P = .004$), phobic anxiety ($P = .003$),

and interpersonal sensitivity ($P = .001$) remained significant. At follow-up after six months, changes in PCL-M (< 0.0001) and anxiety ($P = .003$) remained significant. The difference between the three-session assessment and the three-month and six-month follow-up was significant for the PCL-M only ($P < .005$). No significant differences were found between the six-session assessment and the three- and six-month follow-ups or between the three- and six-month follow-ups. All significant comparisons indicate a decrease in symptom severity over time. These results indicate progressive improvement in symptoms over the course of the EFT intervention, which was maintained at the three- and six-month follow-ups. Participant gains were noted to remain reliably stable over time for the conditions assessed in this study.

COMPARISON OF PTSD REDUCTIONS BY GENDER AND BY WAR, AND ANALYSIS OF CHANGES IN OTHER SYMPTOMS INCLUDING PAIN, MEDICATIONS, TRAUMATIC BRAIN INJURY SCORE, AND INSOMNIA SCORE

Statistical Approach

To compare differences in score change between genders and veterans of different wars (OIF/OEF vs. Vietnam), two-tailed t -tests were performed on GSI, PST, and PCL-M outcome measures. $P = .05$ was considered significant. No significant changes were noted on any variable and no further analysis such as Bonferroni corrections was performed on this data since these analyses were exploratory in nature.

Table 3. Time Main Effects, Mean (Standard Error), for Combined EFT and Posttest TAU

Variable	Pretest	Three Sessions	Six Sessions	Three Months	Six Months	<i>F</i> (1, 61)	<i>P</i> Value
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)		
PCL-M total	39 (1.9)	30 (1.9)	25 (1.7)	28 (2.5)	27 (2.9)	43.59	< .0001 ^a
SA-45 global scales							
GSI	60 (2.2)	55 (2.1)	50 (2.0)	53 (2.4)	53 (3.1)	22.92	< .0001 ^a
PST	60 (2.2)	56 (2.3)	51 (2.2)	54 (3.2)	53 (3.1)	20.30	< .0001 ^a
SA-45 symptom domains							
Anxiety	62 (2.0)	57 (2.2)	52 (1.8)	54 (2.1)	54 (2.4)	25.58	.001 ^a
Depression	63 (1.5)	59 (1.6)	56 (1.4)	57 (1.8)	56 (2.0)	12.40	.002 ^a
OC	60 (2.8)	57 (2.7)	54 (2.1)	56 (2.5)	56 (2.8)	11.97	.003 ^a
Somatization	64 (2.2)	58 (2.0)	55 (1.9)	58 (2.0)	59 (3.0)	17.37	.001 ^a
Phobic Anxiety	67 (1.8)	64 (1.7)	62 (1.3)	64 (1.8)	65 (2.6)	14.43	.001 ^a
Hostility	56 (1.3)	55 (1.1)	53 (0.8)	55 (1.4)	54 (1.0)	7.86	.012 ^b
IS	58 (1.6)	56 (1.3)	53 (1.3)	53 (1.5)	54 (2.2)	13.43	.002 ^a
Paranoia	56 (1.8)	53 (1.4)	51 (1.3)	51 (1.5)	51 (1.8)	9.62	.006 ^b
Psychoticism	60 (0.9)	59 (0.7)	57 (0.9)	59 (1.1)	59 (1.3)	7.62	.013 ^b

^aEFT score change is significantly different from TAU score change $P < .0045$.

^bEFT score change is significantly different from TAU score change $P < .05$.

To examine the change in insomnia, pain, TBI, and number of medications, linear mixed-effects models were conducted on these four variables, with patient-specific intercepts modeled over time, and time \times group interactions noted. Patient groups were compared at two time points (TAU: pretreatment, six-week wait assessment; EFT: pretreatment, after six sessions).

RESULTS

The results of the gender comparison are presented in Table 4. Males and females had similar outcomes on PCL-M, GSI and PST scales.

The results of the comparison between OIF/OEF and Vietnam veterans are presented in Table 5. Veterans of the more recent OIF/OEF conflicts demonstrated greater reductions than did Vietnam veterans in both the severity of mental health symptoms (GSI) and the breadth of symptoms (PST), but these differences did not reach statistical significance. Veterans with missing data, or those deployed to other locations, or those not deployed were excluded from analysis.

The results of the change in insomnia, pain, TBI, and medications are presented in Table 6. TBI symptoms were significantly reduced in the EFT group from an average of

seven to five ($P = .045$). Insomnia scores decreased significantly in the EFT group ($P = .004$). Changes in pain and the number of prescription medications used were not significant.

DISCUSSION

The most notable clinical finding of this study is that EFT treatment is associated with a reduction in subclinical PTSD symptoms, and that the results hold over time. This treatment effect may reinforce resiliency, protecting against the later development of clinical PTSD. The benefits of treatment extended to both males and females, to Vietnam as well as OIF/OEF veterans, and to veterans with a variety of demographic profiles. This suggests a generalizable effect in a veteran population. It points to the possible utility of EFT as a resilience-building technique pre-deployment, allowing veterans to reduce the emotional impact of subsequent traumatic events.

Both insomnia and TBI symptoms also improved significantly, paralleling the findings of the two earlier RCTs of veterans with clinical PTSD.^{6,7} Insomnia is one of the most frequently reported sources of distress among veterans, and the 50% improvement was both clinically and statistically significant.

Table 4. Average Score Reduction by Gender

Variable	Males	Females	Statistic	<i>P</i> Value
	(<i>n</i> = 11)	(<i>n</i> = 7)		
	Mean (SE)	Mean (SE)		
PCL-M	-14.2 (3.3)	-17.6 (1.8)	$t(14.75) = 0.91$	0.380
GSI	-10.4 (2.9)	-10.3 (2.7)	$t(15.40) = -0.02$	0.985
PST	-9.1 (2.9)	-9.6 (2.3)	$t(15.99) = 0.13$	0.898

Table 5. Average Score Reduction by War

Variable	Vietnam	OIF/OEF	Statistic	<i>P</i> Value
	(<i>n</i> = 10)	(<i>n</i> = 5)		
	Mean (SE)	Mean (SE)		
PCL-M	-14.2 (3.2)	-16.0 (3.4)	$t(10.28) = -0.39$	0.708
GSI	-7.0 (2.2)	-12.8 (4.0)	$t(6.59) = -1.27$	0.247
PST	-5.7 (2.1)	-12.6 (3.5)	$t(6.84) = -1.69$	0.136

Table 6. Changes in Insomnia, Pain, Traumatic Brain Injury Symptoms, and Number of Medications

Variable	TAU		EFT		F (1,15)	P Value
	Pretest	After 30 Days	Pretest	After Six Sessions		
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)		
Insomnia (ISI)	10 (1.8)	10 (2.2)	16 (1.9)	8 (1.8)	10.66	0.004 ^a
Pain	5 (1.1)	4 (1.1)	4 (0.9)	2 (0.7)	0.04	0.835
TBI	5 (1.2)	6 (1.2)	7 (1.8)	5 (1.7)	4.69	0.045 ^a
Medications	2 (0.8)	3 (0.9)	5 (1.0)	4 (0.9)	0.73	0.406

^aReduction in EFT group is greater than that in TAU group ($P < .05$).

As well as being effective in individual counseling sessions, EFT can be successfully delivered as group therapy. This has been demonstrated in a number of studies with demographically diverse populations.^{13–17} A typical example of EFT's efficacy with large groups of veterans and their family members comes from the pre-post outcome study of 218 participants attending a seven-day retreat cited previously.¹⁹ In this study, 83% of veterans and 29% of their spouses scored PTSD-positive on the PCL/PCL-M on pretest. On follow-up six weeks after the retreat, only 28% of veterans and 4% of spouses met the clinical cutoff. Taken together with the present study, these findings argue for the delivery of EFT as group therapy to veterans post deployment, before the risk of full-blown PTSD develops.

Other research has shown that EFT is effective when delivered via telephone, as well as office sessions, though the latter are significantly more effective.⁶¹ EFT is effective when delivered by trained life coaches as well as licensed mental health professionals, indicating that personnel with a limited degree of training such as medics and physician assistants can be successfully trained to offer EFT.⁶² The use of unlicensed life coaches and veteran volunteers might lighten the burden on the VA's overstretched mental health professionals. EFT has been offered to over 7,000 veterans and family members through the Veterans Stress Project (www.StressProject.org), and worldwide more than a million individuals have received emergency help with EFT after natural and human-caused disasters.²⁷

In clinical practice, EFT is sometimes used alone but more often as part of a suite of therapies. The second author of this paper has served as a staff chaplain in the VA system since 1997. She has worked with several patients with PTSD over the years, using EFT and other complementary medicine modalities, including healing touch and guided imagery in addition to the traditional resources of chaplaincy. Neither method requires that the patient verbalize distressing events, which in her experience may be a deterrent to seeking treatment. However, after healing touch and guided imagery, a patient may choose to deal with specific traumatic incidents cognitively, putting words to the experience. At that point, she either uses EFT with the patient, or refers him or her to the resources in the EFT case history database (www.EFTUniverse.com) for further instruction. She finds that many veterans prefer control over when and how they work with trauma, so the ability to work on their own is an important

feature of EFT. The ones who choose to self-apply EFT report that it empowers them to do their own healing work, both with their PTSD symptoms and with other pain issues. The following is a typical case history reported by this author:

A female veteran who has PTSD from an incident in Operation Just Cause also has fibromyalgia, low back injuries, Bell's palsy, and other issues. She was in significant pain, and both emotionally and physically debilitated when I began doing Healing Touch with her. During that time, she also began using guided imagery on her own. After about six sessions, she expressed interest in learning EFT. She began working with EFT, some with me, but mostly on her own. She said her PTSD symptoms improved, and she began using EFT to help with other situations in her life. A few months later, she began learning Healing Touch for self-use. At one point, her Bell's palsy came out of remission. She went to her physician and received appropriate medication, but she also began using EFT and Healing Touch aggressively to counter the symptoms before they became deeply activated again. The veteran reports that this combination approach helped her get back into remission quickly. She reports that EFT has been particularly helpful because she can work with a specific memory or physical issue, and be creative in how she approaches it. She also reports that she has much greater control over her life now, and that she is coming to a new place of personal fulfillment and productivity.

The current study has several limitations. One is the absence of an active control group receiving an intervention of proven efficacy such as cognitive processing therapy. Another limitation is the self-report nature of the PCL-M; an observer-rated assessment such as the CAPS is required for a categorical diagnosis of PTSD.⁵⁶ The degree to which EFT improved compliance with TAU in participants is also unknown; it is possible that the reduced affect noted in the EFT group improved compliance with TAU therapies such as PTSD counseling offered by primary care providers. There is also a possibility that the dose of sympathetic attention and other nonspecific benefits of therapy added by EFT played a role in the improvement seen in this group. In a further limitation, practitioners, participants, and study coordinator were unblinded as to group assignment. Further, resiliency itself was not measured using an assessment designed for this purpose; the reduction in PTSD scores suggests but does not prove increased resiliency. The small N may limit the

generalizability of these results. It is highly likely that the exposure and cognitive portions of EFT contribute to its effects, however, acupoint tapping is also an essential ingredient; three dismantling studies in which a control group received an active non-tapping intervention all showed that tapping produced greater effects.^{63–65}

Results from other studies that may partially mitigate these limitations are as follows: A study compared EFT provided to two cohorts of university students with widely differing demographic profiles and found no significant difference between the groups.⁶⁶ It found that both older females and younger males benefited equally from EFT. Populations in which EFT has been studied include university students, Haitian earthquake victims, elite athletes, auto accident victims, Rwandan orphans, healthcare workers, alternative medicine practitioners, fibromyalgia sufferers, high school students, hospital patients, weight loss program participants, abused institutionalized teenagers, geriatric patients, and psoriasis sufferers. EFT's efficacy in these widely disparate groups suggests that treatment effects are generalizable.

Though the PCL-M is by itself insufficient for a definitive diagnosis, the instrument has convergent validity with other measures of PTSD.⁶⁷ While no intervention beyond TAU was received by the wait-list, no widely practiced conventional treatment has so far demonstrated the reduction in symptoms evidenced by EFT.² There is no evidence in the literature that six sessions of sympathetic attention and nonspecific therapeutic factors can ameliorate PTSD.

While veterans of the more recent OIF/OEF conflicts demonstrated substantially greater mental health improvement than did Vietnam veterans, the difference was not statistically significant. A study with a greater *N* might detect significant differences. Neural plasticity, conditioning, and epigenetic change are all factors that reinforce repeated behaviors such as those identified in PTSD symptom clusters, and have been cited by other authorities as reasons why PTSD often gets more pronounced over time.⁴¹

A striking finding is that the percentage decrease in PTSD symptoms (–64%) was virtually identical to that found in the two RCTs of PTSD-positive veterans (–59%, $P < .0001$ and –62%, $P < .008$).^{6,7} This provides preliminary support for the hypothesis that EFT reliably reduces symptoms whether participants fall above the PCL-M clinical cutoff or below. Cutoffs are useful in psychological assessment though they may yield confounding clinical results: even within these three RCTs, some veterans in the wait-list scored above or below the cutoff on their second assessment, perhaps indicating that symptoms are more troubling on some days than others.

The parsimony of time frames required by EFT for successful PTSD treatment is noteworthy. Participants in this study received six sessions, as did clinical veterans in the two previous RCTs.^{6,7} Patients in the NHS PTSD study responded after an average of four EFT sessions.⁹ Outcome studies demonstrated remediation in 6 to 15 sessions.^{8,19,68} Similar brief treatment time frames have been demonstrated for anxiety, depression, and other mental health conditions.

This picture of brief and efficacious treatment is painted against the backdrop of existing treatments at a time when

about 1000 OIF/OEF veterans a week are being diagnosed with PTSD. A recent panel convened by the Institute of Medicine examined military mental health efforts, and found that they were expensive and ineffective.⁶⁹ One panelist said, “There’s no substantive indication of effectiveness, and most importantly, there’s no evidence of an enduring impact.”⁷⁰

Practitioners believe that EFT and other EP methods may be changing the basic assumptions of medicine and psychology.^{71,72} Conditions previously considered intractable, like PTSD, are rapidly remediated. Comorbid conditions, whether psychological such as anxiety and depression, or physiological such as TBI and pain, improve simultaneously. Current research measures common genetic pathways in what were previously assumed to be disparate conditions. In 2013 this led the National Institutes of Health to abandon research targets based on narrowly defined diagnostic categories. Perceiving patients as whole human beings, rather than collections of symptoms, is central to the paradigms of both integrated medicine and EP. EFT is explicitly identified as an epigenetic treatment, changing gene expression even as it rehabilitates psychological conditions like PTSD, anxiety and depression.^{73,74} Large-scale application of EFT has been recommended—as the equivalent to contemporary mental health—of the public health campaigns of a century ago that eradicated infectious diseases such as typhoid, diphtheria and cholera.⁷⁵

Further research should build upon the findings of this study. Future studies should compare EFT to an active treatment supplementary to TAU, use multiple PTSD assessments, include an observer-rated diagnosis of PTSD, assess whether veterans of recent wars have greater or less risk of PTSD than Vietnam-era veterans, determine whether lower symptom loads present an obstacle to completing a course of treatment, and measure possible differentials between female and male participants. Ideally, the trajectory of PTSD symptoms from the point of traumatic exposure should be assessed; longitudinal observation of participants would map the course of delayed-onset PTSD. A study comparing the resilience of veterans taught EFT prior to deployment with that of a naïve sample would provide data on the value of a proactive approach. Despite its limitations, however, this study points to the utility of clinical EFT as a simple self-help technique that may aid in the development of resilience and protect against the later development of PTSD in veterans.

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