

Psychological Trauma Symptom Improvement in Veterans Using Emotional Freedom Techniques

A Randomized Controlled Trial

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Abstract: This study examined the effect of Emotional Freedom Techniques (EFT), a brief exposure therapy combining cognitive and somatic elements, on posttraumatic stress disorder (PTSD) and psychological distress symptoms in veterans receiving mental health services. Veterans meeting the clinical criteria for PTSD were randomized to EFT ($n = 30$) or standard of care wait list (SOC/WL; $n = 29$). The EFT intervention consisted of 6-hour-long EFT coaching sessions concurrent with standard care. The SOC/WL and EFT groups were compared before and after the intervention (at 1 month for the SOC/WL group and after six sessions for the EFT group). The EFT subjects had significantly reduced psychological distress ($p < 0.0012$) and PTSD symptom levels ($p < 0.0001$) after the test. In addition, 90% of the EFT group no longer met PTSD clinical criteria, compared with 4% in the SOC/WL group. After the wait period, the SOC/WL subjects received EFT. In a within-subjects longitudinal analysis, 60% no longer met the PTSD clinical criteria after three sessions. This increased to 86% after six sessions for the 49 subjects who ultimately received EFT and remained at 86% at 3 months and at 80% at 6 months. The results are consistent with that of other published reports showing EFT's efficacy in treating PTSD and comorbid symptoms and its long-term effects.

Key Words: Veterans, PTSD, exposure therapy, trauma, EFT (Emotional Freedom Techniques).

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Some 300,000 US military personnel returning from the conflicts in Iraq and Afghanistan are estimated to be positive for posttraumatic stress disorder (PTSD; Institute of Medicine, 2006). PTSD is associated with co-occurring conditions such as depression, anxiety, and other mental health issues that occur subsequent to deployment (Defense Health Board Task Force on Mental Health, 2007). More than 80% of those who have PTSD meet diagnostic criteria for other psychological disorders (Breslau et al., 1991; Clancy et al., 2006).

In examining studies of PTSD for efficacious treatments, researchers at the Institute of Medicine cited a study by Monson et al. (2006) as one of the most encouraging for those with long-term PTSD (Institute of Medicine, Committee on Treatment of Posttraumatic Stress Disorder, 2007). The study by Monson et al. (2006) examined

24 combat veterans diagnosed with PTSD who received 12 sessions of cognitive restructuring and exposure. This sample size is similar to that of the intervention group in the present study ($n = 30$ in the Emotional Freedom Techniques [EFT] treatment group). After treatment, 40% of the subjects in the study by Monson et al. (2006) no longer met the criteria for PTSD. Half showed no improvement, and comorbid symptoms such as behavioral avoidance did not improve significantly. Exposure therapy has also been judged efficacious in other examinations of PTSD, such as one conducted by the American Psychiatric Association (Benedek et al., 2009). A meta-analysis by Bradley et al. (2005) found cognitive behavioral therapy (CBT), eye movement desensitization and reprocessing (EMDR), and exposure therapies to be efficacious.

EFT are a brief exposure therapy with a somatic and a cognitive component. It borrows elements from established cognitive and exposure protocols but adds the novel element of somatic stimulation. EFT were developed by Craig (2010) and are described in *The EFT Manual*, which has been available as a free online download since the mid-1990s, leading to a standardized Clinical EFT treatment protocol (downloadable at www.EFTuniverse.com). *EFT for PTSD* (Craig, 2009) reviewed the clinical and research evidence applicable to this condition. After recalling a traumatic incident, the subject identifies a distress score on a Likert-type scale ranging from 0 (minimum) to 10 (maximum), referred to as subjective units of distress (SUDs; Wolpe, 1973). The subject pairs the traumatic memory with a self-acceptance statement, for example, "Even though I had to shoot the kid who ran toward my Humvee wearing an explosive vest ..." (memory), "I deeply and completely accept myself" (self-acceptance statement). The subject then taps on a sequence of points on the body. Repeated sequences of EFT tapping may be performed until the subject's self-reported SUD goes to a 0, indicating no emotional intensity associated with the traumatic memory. EFT are 1 of about 30 similar techniques collectively referred to as "energy psychology" methods, treatment methods that incorporate the human electromagnetic energy system as an intervention point in addition to intervening on the emotional and cognitive systems.

A randomized controlled trial performed in a hospital within Britain's National Health Service compared EFT to EMDR for the treatment of clinical PTSD. It found that both therapies produced comparable subclinical symptom levels in four sessions (Karatzias et al., 2011). A pilot study of war veterans using a within-subjects, repeated-measures design found that six sessions of EFT produced significant reductions across the range of psychological symptoms, as well as reductions in PTSD scores from clinical to subclinical levels (Church et al., 2009). Gains were maintained on a 90-day follow-up. A second pilot study examined the effects of a 1-week EFT coaching intensive with 10 to 15 sessions. This longer protocol was also found to reduce the severity of PTSD and co-occurring conditions (Church, 2010). These veterans were followed at 1 month, 3 months, and 12 months, and PTSD and other symptom scores remained reliably and significantly subclinical. EFT have also been found efficacious for treating PTSD in nonmilitary populations (Church et al., in

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2012a; Swingle et al., 2004), and similar forms of energy psychology have been used for survivors of human-caused and natural disasters (Feinstein, 2008a). Studies using electroencephalogram (EEG) to record brain states during the recall of traumatic incidents have also found energy psychology to result in downregulation of the stress response, with gains maintained on follow-up (Diepold and Goldstein, 2008; Lambrou et al., 2003; Swingle et al., 2004).

Researchers and clinicians have faced a clinical dilemma in that evoking combat memories during treatment risks retraumatizing clients. Subjects asked to recall a traumatic incident may be retraumatized rather than desensitized by the experience (van der Kolk et al., 1996). This safety issue is typically minimized with energy psychology techniques (Flint et al., 2005; Mollon, 2007; Schulz, 2009). In a review of the clinical application of EFT, Bullough (2012) summarized clinical experience and research evidence indicating that “EFT appears to offer much reduced risk of retraumatization in cases of PTSD” and noted that, worldwide, psychologists, psychotherapists, and physicians are increasingly integrating EFT into their work, “often with startling improvements in the speed, efficacy and durability of treatment.”

The proposed mechanisms of action of EFT and other energy psychology techniques, such as increased regulation of the hypothalamus-pituitary-adrenal axis, have been reviewed by several researchers (Church, 2009; Gallo, 1999; Lane, 2009). LeDoux (2002) described the threat-assessment systems of the brain and how traumatic memories may condition the amygdala to respond as though an objective threat was present, resulting in the “hostile takeover of consciousness by emotion.” Sabban and Kvetnansky (2001) described the regulatory functions of the immediate early genes, especially genes such as *c-fos* and *EGRI*, which reach peak expression during stress. Church (2009) summarized the evidence for the silencing of these and other stress-specific genes during EFT and other effective behavioral interventions for PTSD; as conditioned responses to stressful memories are interrupted, the secretion of stress hormones such as cortisol and epinephrine is downregulated by these genes. A randomized controlled trial comparing an EFT session with talk therapy and relaxation found that EFT reduced cortisol significantly compared with the other two conditions (Church et al., 2012b). It also noted a significant correlation between the reduction in psychological symptoms and reduced cortisol, associating clinical EFT treatment with the simultaneous reduction of psychological and physiological stress.

When successful counterconditioning occurs, old traumatic memories are reconsolidated in the neuroplastic structures of the mid-brain, but these are now newly paired with proximate nonstressful cues (Davis et al., 2003). Successful psychotherapy produces measurable changes in these brain structures (Felmingham et al., 2006). Diepold and Goldstein (2008) used EEG to measure brain states and found that, as the subjective emotional intensity of traumatic memories was reduced after energy psychology treatment, the brain wave patterns associated with stress were also reduced (*i.e.*, normalization of the subject’s quantitative EEG [QEEG] measures of coherence, phase, asymmetry, and power). Swingle (2010) presented a series of 13 QEEG cases and found that EFT treatment increased two brain wave amplitudes associated with mental and physical relaxation.

Craig (2010), Gallo (1999), and other originators of energy psychology have suggested that EFT are effective because the prescribed tapping points of EFT correspond to the end points of the acupuncture meridians. Acupuncture stimulation has been found to regulate the amygdala and other midbrain studies in several functional magnetic resonance imaging studies (Dhond et al., 2007; Fang et al., 2009; Hui et al., 2005). A randomized controlled trial of acupuncture for PTSD (Hollifield et al., 2007) compared it with CBT and a wait list. The study found “large treatment effects” for both acupuncture and CBT. Taken together, these studies provide evidence for the

efficacy of acupoints in downregulating affect and regulating stress neurophysiology. Acupressure (without needles) has been found to produce the same benefits as needling (Cherkin et al., 2009). A review of eight studies examining the effect of energy psychology techniques on PTSD suggested that “(a) tapping on selected acupoints (b) during imaginal exposure (c) quickly and permanently reduces maladaptive fear responses to traumatic memories and related cues” (Feinstein, 2010). Somatic stimulation has been demonstrated to reduce affect more than interventions that do not include a somatic component (Baker et al., 2009; Waite and Holder, 2003).

Because of EFT’s utility in reducing affect during the recall of traumatic events such as the flashbacks, nightmares, and intrusive thoughts typical of PTSD, these are used in many outpatient facilities treating veterans, as well as in some Veterans Administration (VA) hospitals and VA centers (Iraq Vets Stress Project, 2009). The efficacy of EFT in reducing symptoms that are often comorbid with PTSD, such as anxiety, depression, and phobias, has been demonstrated in several studies (Church and Brooks, 2010; Rowe, 2005; Wells et al., 2003). The brevity of treatment time frames in these studies, ranging from one to six sessions, as well as their general effect on psychological and physical symptoms, provides a rationale for a randomized controlled trial of EFT for PTSD.

METHODS

Subjects

The subjects were recruited through online announcements and referrals from individual clinicians throughout the United States. To be eligible for this study, the subjects were required to meet the clinical criterion for PTSD (≥ 50) on the PTSD Checklist–Military (PCL-M; National Center for PTSD, 2008). All subjects were also required to be under the care of a clinician from a VA or another licensed health care facility because the EFT coaching intervention was delivered as a complementary and supportive supplement to the standard of care (SOC). However, the type and frequency of standard care the participant was receiving was not tracked not only, in part, to limit subject burden but also because of the difficulty of tracking and standardizing a variety of treatments the subjects might have been receiving from different VA treatment programs. Subjects were excluded if they scored 4 or higher on a 5-point scale on two questions on the Symptom Assessment–45 (SA-45) related to physical violence. The participants in all military deployments were eligible for this study, from World War II to Operation Enduring Freedom (Afghanistan). The subjects were randomly assigned to a wait list (standard of care wait list [SOC/WL]) or experimental (EFT) group, using permuted block randomization (see www.randomizer.org). EFT providers received a block of 10 random assignment designations from a masked off-site biostatistician. The subjects completed an informed consent form. This study was reviewed for human subject protections, was approved by Copernicus institutional review board, and was posted on ClinicalTrials.gov (registration number NCT00743041).

The investigators monitored treatment fidelity by reviewing written session descriptions for each subject along with the assessments and by conducting monthly teleconferences with the EFT providers. The investigator reviewing the session descriptions was certified in EFT by Gary Craig and was licensed by the Association for Comprehensive Energy Psychology. This study was funded by private donations to the nonprofit Veterans Stress Project (www.StressProject.org).

A total of 149 veterans were initially recruited for study participation. Of these, 74 were not interested in participating in this study and 16 were found ineligible at screening. Fifty-nine subjects were randomized to either SOC/WL ($n = 29$) or EFT ($n = 30$). Four subjects in the SOC/WL group dropped out before the second

assessment, and one EFT subject dropped out after three EFT sessions. There were 55 participants in the combined-groups longitudinal sample (including the SOC/WL subjects who received all six EFT sessions after the waiting period, $n = 20$); post-three-session data were available for 55 subjects, 30 in the EFT group and 25 in the SOC/WL group. Forty-nine subjects completed the assessments after the six EFT coaching sessions, 29 in the EFT group and 20 in the SOC/WL group. Three-month follow-up data were obtained for 42 subjects, 17 in the SOC/WL group and 25 in the EFT group. Six-month follow-up data were available for 26 EFT group participants and 13 SOC/WL group participants. The Consolidated Standards of Reporting Trials (CONSORT) flow chart is presented in Figure 1. The reasons given by the subjects for dropping out included (a) uncomfortable levels of emotion when being asked to recall old memories; (b) unwillingness to fill out forms, such as the PCL-M (which is also used by the VA), which require recalling potentially retraumatizing incidents; and (c) not having enough time. No adverse events or increase in subject distress was reported.

Measures

The subjects completed a set of assessments at baseline, during the intervention after three sessions, and at the end of the intervention after six sessions. The SOC/WL group completed the assessments at the end of the 30-day wait period. Follow-up assessments were obtained at 3 and 6 months. The following assessments were used.

Symptom Assessment–45

The SA-45 is a short form of the Symptom Checklist (Davison et al., 1997; Maruish, 1999). It has two global scales that assess symptom severity (Global Severity Index [GSI]) and symptom breadth (Positive Symptom Total [PST]). There are nine subscales: 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.

PTSD Checklist–Military

The PCL-M self-assessment (Weathers et al., 1993) is used by the military as a PTSD assessment tool. It has 17 items corresponding to the PTSD diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV*; fourth edition; American Psychiatric Association, 1994) scored from 1 to 5.

Background Information

A health history form was used to obtain background demographic information as well as exercise, smoking, and alcohol and drug use in the past month. Insomnia frequently co-occurs with PTSD (Lamarche and De Koninck, 2007) and was assessed using the five-item Insomnia Severity Index (ISI; Bastien et al., 2001). Severe clinical insomnia is defined as a score of 22 or higher. Scores

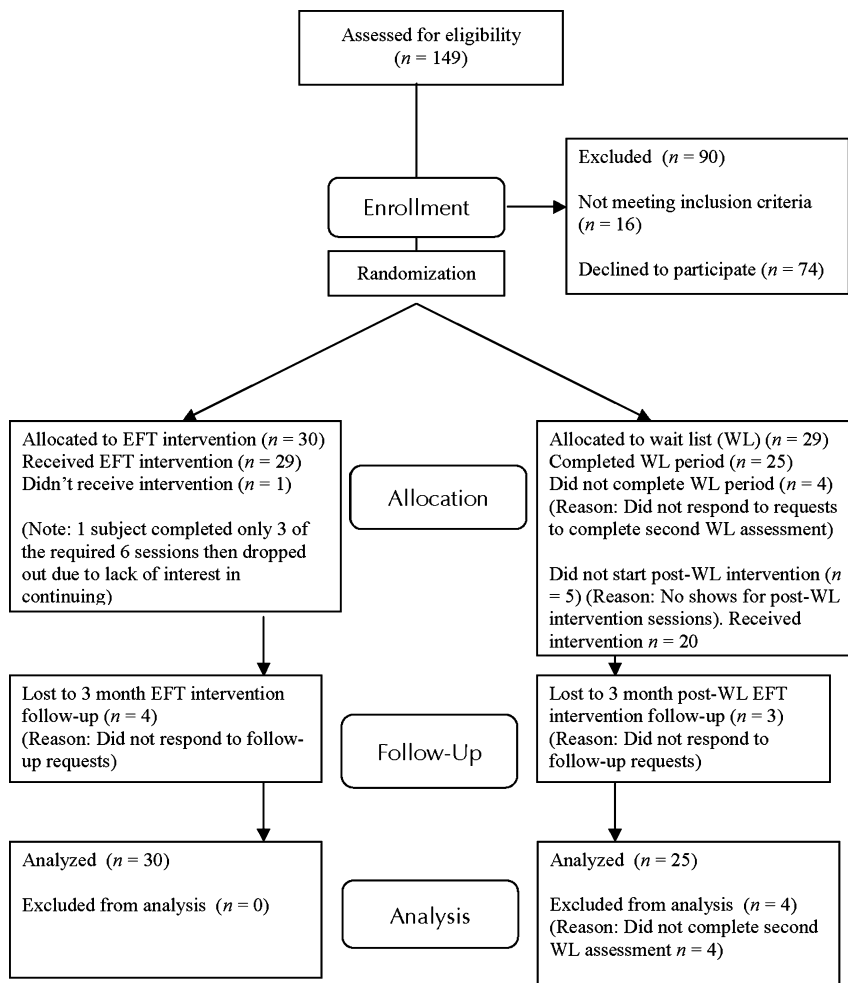


FIGURE 1. CONSORT flow chart.

ranging between 15 and 21 are defined as moderately severe clinical insomnia, whereas scores between 8 and 14 are considered sub-threshold, and scores lower than 8 are not considered as clinically significant insomnia.

EFT Intervention

EFT coaching was performed by 15 providers, who each coached between 1 and 12 veterans, with a mean of four veterans. The providers were required to possess EFT certification obtained from one of three recognized EFT training organizations (Pace Educational Systems, Emofree, and the Association for Comprehensive Energy Psychology) to complete human subjects’ protection training provided by the investigators and to pass the Collaborative Institutional Training Initiative research subject protection examination. Five practitioners were licensed mental health practitioners, three had professional counseling licenses, and two were in the process of completing their licensure hours when this study began. Half of the study coaches had a master’s level degree (*n* = 8), two had doctoral level degrees (J. D. and D. C.), two had bachelor’s degrees, two had associates degrees, and one had some college but no degree. Three practitioners were also registered nurses. Six of the providers (40%) had more than 5 years’ experience in EFT. There were no statistically significant differences between the licensed and unlicensed practitioners on any of the background characteristics. Thirty-three participants received the EFT intervention from a coach, whereas 26 participants received EFT from a licensed mental health practitioner. There was no difference between the two provider groups on the number of participants randomized to the EFT or SOC/WL groups.

The providers were required to deliver EFT as peer-to-peer coaching and to support the therapeutic alliance between the client and their existing SOC health care provider. The experimental subjects received six 1-hour sessions of EFT during the course of a month. After the waiting period, the subjects in the SOC/WL group received the intervention.

The subjects were asked to compile lists of traumatic combat memories before or at the first session. Coaching took the form of the subjects being taught and subsequently performing one or more

sequences of EFT tapping on themselves until the SUD emotional intensity of each memory was 0, or as close to 0 as could be obtained during an individual session. The participants were also instructed on how to apply EFT for use between sessions.

RESULTS

Subject Characteristics

The sample (*N* = 59) was predominantly male (90%), who had a mean age of 52 years (range, 24–86 years). All subjects scored in the clinical range on the SA-45 global scales, and all but two EFT subjects scored in the clinical range on the PCL-M. These two subjects had met the clinical criteria on the PCL-M at screening but improved slightly at the pretreatment assessment. Symptom severity (GSI) scores ranged between 62 and 85, with a mean of 73, whereas symptom breadth (PST) ranged between 60 and 81, with a mean of 71.4. The PCL-M mean score was 63.7 (range, 46–85).

t-Tests and chi-square analyses were conducted to examine baseline differences between the SOC/WL and EFT groups on baseline characteristics and primary outcome measures. There were no significant differences between the groups on the primary outcome measures (GSI, PST, and PCL-M). In terms of baseline characteristics, there were no differences in sociodemographic characteristics; however, the groups differed significantly on smoking, number of prescription medications, and insomnia. The SOC/WL group participants were more likely to smoke, meet the moderate and severe insomnia criteria, and use a greater number of prescription medications (see Table 1).

Comparison of the SOC/WL 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. Group, time (SOC/WL: pretreatment, 30-day wait assessment; EFT: pretreatment, after six sessions), and their interaction were independent variables. Given the significant difference between the groups for insomnia, cigarette

TABLE 1. Participant Characteristics by Group Before Intervention

| Variable | SOC/WL (<i>n</i> = 29) | EFT (<i>n</i> = 30) | Total (<i>N</i> = 59) | Statistic | <i>p</i> |
|----------------------------------|-------------------------|----------------------|------------------------|-------------------------|----------|
| Age, mean (SD), yrs | 54.1 (11.1) | 49.4 (16.2) | 51.7 (14.0) | <i>t</i> (51.6) = 1.31 | 0.20 |
| Men, <i>n</i> (%) | 25 (86.2) | 28 (93.3) | 53 (89.8) | $\chi^2(1)$ = 0.82 | 0.37 |
| Deployment | | | | | |
| Gulf War era, <i>n</i> (%) | 9 (32.1) | 15 (50.0) | 24 (41.4) | $\chi^2(1)$ = 1.90 | 0.17 |
| Other deployments, <i>n</i> (%) | 19 (67.9) | 15 (50.0) | | | |
| Tours, mean (SD) | 1.1 (0.3) | 1.2 (0.5) | 1.2 (0.4) | <i>t</i> (44.3) = -1.55 | 0.13 |
| PCL-M, mean (SD) | 65.1 (9.3) | 62.3 (8.8) | 63.7 (9.1) | <i>t</i> (57) = 1.19 | 0.24 |
| GSI, mean (SD) | 72.5 (5.2) | 73.4 (5.6) | 73.0 (5.4) | <i>t</i> (57) = -0.66 | 0.52 |
| PST, mean (SD) | 71.4 (4.6) | 71.4 (4.6) | 71.4 (4.5) | <i>t</i> (57) = -0.02 | 0.99 |
| Any exercise, <i>n</i> (%) | 20 (71.4) | 23 (82.1) | 43 (76.8) | $\chi^2(1)$ = 0.90 | 0.34 |
| Any smoking, <i>n</i> (%) | 13 (46.4) | 5 (17.9) | 18 (32.1) | $\chi^2(1)$ = 5.24 | 0.02 |
| Any alcohol, <i>n</i> (%) | 16 (57.1) | 10 (35.7) | 26 (46.4) | $\chi^2(1)$ = 2.59 | 0.11 |
| Any drug use, <i>n</i> (%) | 3 (10.7) | 5 (17.9) | 8 (14.3) | $\chi^2(1)$ = 0.58 | 0.45 |
| Insomnia | | | | | |
| Severe, <i>n</i> (%) | 15 (51.7) | 10 (33.3) | 25 (42.4) | $\chi^2(3)$ = 10.08 | 0.02 |
| Moderately severe, <i>n</i> (%) | 13 (44.8) | 9 (30.0) | 22 (37.3) | | |
| Subthreshold, <i>n</i> (%) | 1 (3.4) | 10 (33.3) | 11 (18.6) | | |
| None, <i>n</i> (%) | 0 (0) | 1 (3.3) | 1 (1.7) | | |
| Treatment medications, mean (SD) | 4.7 (3.9) | 1.4 (2.0) | 3.0 (3.4) | <i>t</i> (36.6) = 3.79 | 0.01 |

smoking, and number of prescription medications, the correlations between these variables and the SA-45 and PCL-M variables were examined. Significant correlations ($p < 0.03$) were found between insomnia and anxiety ($r = 0.40$), depression ($r = 0.41$), interpersonal sensitivity ($r = 0.29$), and GSI ($r = 0.32$). Cigarette smoking was correlated with depression ($r = 0.31$) only. Number of prescription medications was not correlated with any of the outcome variables. Therefore, insomnia and cigarette smoking were included in the significant models (described above). There was a significant difference between the groups on the number of days between the two assessment points, ($t[33.3] = -5.93, p < 0.001$; SOC/WL, mean [SD], 28.8 [7.4]; EFT, mean [SD], 58.6 [25.8]). Therefore, all analyses controlled for time between the initial assessment and follow-up. Because of the number of SA-45 scales, we used a Bonferroni correction for multiple tests to calculate an adjusted alpha level ($p < 0.0045$) for the group \times time interaction in each model. To adjust for three planned pairwise comparisons (SOC/WL pretreatment versus posttreatment, EFT pretreatment versus posttreatment, and SOC/WL posttreatment versus EFT posttreatment) in the models with significant group \times time interactions, an adjusted alpha level of $p < 0.017$ was used. A chi-square analysis was conducted on the PCL-M dichotomized as clinical versus nonclinical at follow-up by group. The results are based on the subjects with complete data ($N = 54$; SOC/WL, $n = 25$; EFT, $n = 29$).

Results

The group \times time interaction was significant ($p < 0.0012$) for the PCL-M total score, the SA-45 global scales (GSI and PST), and all SA-45 symptom scales. Both the SOC/WL versus EFT posttest comparisons and the EFT pretreatment to posttreatment comparisons were significant in all models, with the exception of interpersonal sensitivity, where the SOC/WL versus EFT posttest comparison was nonsignificant. The pretreatment to posttreatment comparison for the SOC/WL group was significant in one model, psychoticism. The results are presented in Table 2.

In the chi-square analysis of the dichotomous PCL-M clinical criteria, a significant difference was found ($\chi^2[1] = 39.40, p < 0.001$). Twenty-six (89.7%) of the EFT subjects no longer met the clinical criteria for PTSD, whereas only one (4%) of the SOC/WL subjects no longer met the clinical criteria.

EFT Treatment of Combined SOC/WL and EFT Groups—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 3-month follow-up, and at 6-month follow-up). Time between sequential assessments was controlled for in the model to adjust for the possible effect of time caused by the intervention delay in the SOC/WL group. Group, and the interaction between group and period, was also included in the model to identify any changes in outcome caused by the delayed intervention in the SOC/WL group. Because of the number of SA-45 scales, a Bonferroni correction for multiple tests was used to calculate an adjusted alpha level ($p < 0.0045$) for the main effects (group and time) and interaction (group \times time) in each model. To adjust for 10 planned pairwise comparisons among the time points in the models with time effects, an adjusted alpha level of $p < 0.005$ was used. The frequency of the subjects no longer meeting the PCL-M clinical cutoff at each time point is also presented. All subjects with at least two data points were included in the analyses ($n = 55$).

Results

The results of the EFT change analyses are presented in Table 3. There was a significant main effect for time ($p < 0.0001$) in all of the SA-45 models, the PCL-M total model, and the ISI total model. Group

TABLE 2. Subject Symptom Means and Standard Errors Before the Test and After Six Sessions for EFT Completers ($n = 29$) and at Baseline and After 30 Days for SOL/WL Completers ($n = 25$)

| Variable | SOC/WL | | EFT | | F(1,51) | p |
|-----------------------|--------------------------|----------------------------|----------------------|---------------------------------|---------|---------|
| | Pretest | After 30 Days ^a | Pretest ^b | After 6 Sessions ^{a,b} | | |
| | Mean (SE) | Mean (SE) | Mean (SE) | Mean (SE) | | |
| PCL-M total | 62.71 (2.3) | 63.23 (2.0) | 62.01 (2.1) | 39.41 (2.7) | 67.78 | <0.0001 |
| SA-45 global scales | | | | | | |
| GSI | 72.39 (1.6) | 69.98 (1.4) | 74.79 (1.4) | 58.51 (1.9) | 46.56 | <0.0001 |
| PST | 72.72 (1.5) | 70.42 (1.3) | 72.74 (1.5) | 57.61 (1.9) | 34.48 | <0.0001 |
| SA-45 symptom domains | | | | | | |
| Anxiety | 72.78 (1.9) | 72.31 (1.7) | 73.92 (1.8) | 59.44 (2.4) | 30.26 | <0.0001 |
| Depression | 71.49 (1.5) | 69.77 (1.3) | 71.10 (1.4) | 57.71 (1.9) | 32.16 | <0.0001 |
| Hostility | 65.13 (1.6) | 62.85 (1.4) | 67.31 (1.6) | 55.22 (2.0) | 24.18 | <0.0001 |
| IS | 66.40 (1.7) | 64.49 (1.5) ^c | 70.08 (1.6) | 58.58 (2.1) ^c | 19.47 | <0.0001 |
| OC | 73.76 (1.8) | 70.68 (1.6) | 77.16 (1.8) | 60.51 (2.3) | 27.49 | <0.0001 |
| Paranoia | 63.79 (1.8) | 63.11 (1.6) | 64.20 (1.8) | 55.07 (2.2) | 13.99 | 0.0005 |
| PA | 76.06 (1.8) | 76.71 (1.5) | 75.74 (1.7) | 65.51 (2.2) | 22.88 | <0.0001 |
| Psychoticism | 66.20 (1.3) ^d | 62.91 (1.2) ^d | 66.40 (1.3) | 57.85 (1.6) | 11.80 | 0.0012 |
| Somatization | 71.02 (1.8) | 67.72 (1.6) | 70.61 (1.7) | 57.78 (2.1) | 20.20 | <0.0001 |

IS indicates interpersonal sensitivity; OC, obsessive-compulsive behavior; PA, phobic anxiety.

^aEFT posttest lower than SOC/WL posttest, $p < 0.008$.

^bEFT posttest lower than EFT pretest, $p < 0.003$.

^cEFT posttest versus SOC/WL posttest, nonsignificant.

^dSOC/WL posttest lower than SOC/WL pretest, $p < 0.003$

TABLE 3. Time Main Effects, Mean (Standard Error), for Both EFT and Posttest SOC/WL Combined

| Variable | Pretest ^a | 3 Sessions ^c | 6 Sessions | 3 Months | 6 Months | F(4, 171) | p |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------|-----------|---------|
| | Mean (SE) | Mean (SE) | Mean (SE) | Mean (SE) | Mean (SE) | | |
| PCL-M total | 64.40 (2.1) | 47.38 (2.0) | 37.31 (2.0) | 36.70 (2.5) | 36.34 (2.3) | 64.00 | <0.0001 |
| ISI total | 19.20 (1.0) | 14.91 (0.9) | 10.59 (0.9) | 11.77 (1.2) | 10.78 (1.1) | 28.01 | <0.0001 |
| SA-45 global scales | | | | | | | |
| GSI | 71.79 (1.3) | 65.98 (1.2) | 60.10 (1.2) | 61.84 (1.5) | 60.29 (1.5) | 32.94 | <0.0001 |
| PST | 70.30 (1.3) | 65.72 (1.2) | 60.91 (1.2) | 61.49 (1.5) | 60.48 (1.5) | 19.54 | <0.0001 |
| SA-45 symptom domains | | | | | | | |
| Anxiety | 72.99 (1.6) | 66.67 (1.5) | 60.28 (1.5) | 62.94 (1.9) | 61.60 (1.8) | 25.01 | <0.0001 |
| Depression | 69.74 (1.2) | 64.33 (1.1) | 60.04 (1.1) | 61.74 (1.4) | 60.94 (1.3) | 22.63 | <0.0001 |
| Hostility | 64.41 (1.1) | 59.04 (1.0) | 55.74 (1.0) | 57.79 (1.4) | 56.70 (1.3) | 18.04 | <0.0001 |
| IS | 67.40 (1.2) | 64.17 (1.1) | 60.64 (1.1) | 59.73 (1.4) | 58.65 (1.3) | 16.28 | <0.0001 |
| OC | 72.24 (1.5) | 67.69 (1.4) | 63.39 (1.4) | 65.43 (1.8) | 64.18 (1.7) | 14.11 | <0.0001 |
| Paranoia | 62.86 (1.3) | 59.94 (1.2) | 56.06 (1.2) | 57.13 (1.5) | 56.63 (1.4) | 11.68 | <0.0001 |
| PA | 75.48 (1.3) | 71.36 (1.2) | 66.96 (1.2) | 68.62 (1.4) | 68.04 (1.4) | 22.87 | <0.0001 |
| Psychoticism | 63.87 (0.8) ^b | 62.03 (0.8) ^d | 60.40 (0.8) ^d | 60.57 (1.0) ^b | 60.35 (0.9) | 7.22 | <0.0001 |
| Somatization | 69.33 (1.4) | 64.92 (1.2) | 59.92 (1.2) | 60.34 (1.6) | 60.73 (1.5) | 18.23 | <0.0001 |

IS indicates interpersonal sensitivity; OC, obsessive-compulsive behavior; PA, phobic anxiety.

^aPretest higher than three-session assessment, $p < 0.005$; pretest higher than six-session assessment, $p < 0.0001$; pretest higher than 3-month assessment, $p < 0.0022$.

^bExcept psychoticism, pretest higher than 6-month assessment, $p < 0.0016$.

^c3-session assessment higher than 3-month assessment, $p = .0015$ IS and PCL-M only.

^d3-session assessment higher than 6-month assessment, $p < .0009$ for GSI, PST, IS, PCL-M, ISI only.

and the group \times time interaction were nonsignificant in all models. Significant improvements between the pretreatment assessment and each subsequent assessment were found in each significant model ($p < 0.005$), with the exception of psychoticism, where the pretreatment assessment was not significantly different from the 3-month follow-up ($p = 0.0061$). Differences between the three-session and six-session ratings were significant in all models ($p < 0.0011$), with the exception of psychoticism ($p = 0.0086$). The difference between the three-session assessment and the 3-month follow-up was significant in the interpersonal sensitivity and PCL-M total models only ($p < 0.0015$). The difference between the three-session assessment and the 6-month follow-up was significant in the SA-45 global scales, interpersonal sensitivity, PCL-M total, and ISI total models ($p < 0.0009$). No significant differences were found between the six-session assessment and the 3- and 6-month follow-ups or between the 3- and 6-month follow-ups. All significant comparisons indicate a decrease in symptom severity over time. These results indicate ongoing improvement in symptoms through the end of the EFT intervention, which was maintained at the 3- and 6-month follow-ups.

The PCL-M clinical symptom scores showed that after three sessions, 60% of the combined SOC/WL and EFT sample (30 of 50) no longer met the cutoff for PTSD. At the end of the intervention, 85.7% (42 of 49) no longer met the PTSD clinical diagnostic cutoff. This remained stable at the 3-month follow-up, with 85.7% (36 of 42) no longer meeting the criteria for PTSD. At the 6-month follow-up, 79.5% (31 of 39) no longer met the criteria.

Besides the reduction in PTSD symptoms noted, subject values for the cluster of psychological distress symptoms observed to co-occur with PTSD, such as anxiety and depression, also dropped. Insomnia also improved significantly. Subject gains were noted to remain reliably stable over time for the conditions assessed in this study.

DISCUSSION

A six-session protocol of EFT, as well as other brief courses of intervention, has been efficacious in previous trials with veteran populations (Church, 2010; Church et al., 2009). The present study

extended these findings by testing them against a randomized SOC/WL control group, with a larger population of subjects, in a wider variety of settings, and with a diversity of EFT providers. The inclusion criteria were deliberately set to be as broad as possible to permit greater generalizability of the results.

Long-Term Effects of EFT

This study has a number of clinical implications. One is the durability of subject gains. In all studies of energy psychology that included long-term follow-up, results have held up over time (Feinstein, 2008a). Long-term improvements were also observed in survivors of trauma in disaster areas (Feinstein, 2008b). Besides the long-term improvements found in the previous PTSD studies noted above, Rowe (2005) found that mental health gains were maintained over time in a general population receiving group EFT. Rowe's (2005) design was replicated in a population of health care workers (Church and Brooks, 2010), with similar results. Wells et al. (2003) found that phobias, after being extinguished by a single EFT treatment, remained extinguished on follow-up. The study by Wells et al. (2003) has been extended in two replications, one by Salas et al. (2011) and the other by Baker and Siegel (2010), and both showed similar immediate results of one session of EFT. Baker and Siegel's (2010) replication of the study by Wells et al. (2003) carefully controlled for non-specific factors, such as therapist attention and client expectancy, which are present in any therapeutic setting. It was also designed to identify whether EFT's purported efficacy was caused by the therapeutic effects of the intervention or by methodological artifacts such as fatigue, the passage of time, practice effects, or regression to the mean. Its findings supported the efficacy of EFT and their long-term effects. The current study replicated the reduction in subject PTSD scores, from clinical to subclinical levels, obtained in the two pilot trials with veterans, as well as the maintenance of these improvements over time, indicating that PTSD rehabilitation may be equally durable.

EFT as Supplementary to Standard Care

In this study, EFT were delivered as a supplement to the care provided to the subjects by their primary caregivers, usually a VA

hospital. EFT coaching was overtly supportive of the therapeutic alliance between the subject and the primary caregiver. The coaches did not diagnose or treat any condition or attempt to diagnose PTSD according to observer-rated *DSM-IV* criteria because this is beyond their scope of practice.

This study found good tolerance and acceptance of EFT by veterans. Other studies have found veterans to be resistant to conventional treatment, with one study finding that only 30% of VA clients complete a recommended treatment regimen within a year of their PTSD diagnosis (Seal et al., 2010). The current study noted improvements after three sessions and further improvements after six, providing veterans with rapid and tangible experience of the relief of troublesome symptoms. The low dropout rate may indicate enhanced acceptance of an affect-reduction technique delivered as peer-to-peer coaching.

Unresolved emotional trauma correlates highly with physical diseases, including cancer, heart disease, diabetes, and hypertension (Felliti et al., 1998). These risk factors are not alleviated by the passage of time. A review of EFT studies by Feinstein and Church (2010) noted that as mental health symptoms improved, physical dysfunctions improved as well. Further research is required to determine whether a correlation exists between successful EFT mental health treatment and the reduction of disease.

Limitations

There are several limitations to this study. Coaching, by its nature, uses client self-rating rather than clinician-rated scales. The absence of an observer-rated measure makes it impossible to make a categorical clinical diagnosis of PTSD for the subjects in this study. In addition, a score of 50 or higher on the PCL-M is regarded as indicative of a probable rather than a definitive diagnosis of PTSD. Although the PCL-M demonstrates convergent validity with clinician-rated assessments of PTSD (Monson et al., 2006), a categorical diagnosis requires confirmation by one or more observer-rated instruments such as the Clinician-Administered PTSD Scale. An extension of the current study that included clinician ratings, coach ratings, and client ratings would determine whether the three types of assessments agree, as well as provide a definitive pretreatment PTSD diagnosis.

Another limitation is that the design did not include an active intervention comparison group because of budgetary constraints. An extension of this study should overcome this limitation by including a group receiving a known efficacious psychotherapy intervention such as prolonged exposure or CBT as a comparative effectiveness study design. Another option would be the addition of a prescription medication group either as a comparison group by itself or in addition to EFT to examine the added benefit of EFT to medication treatment.

Additional limitations concern the inability to definitively attribute the improvement observed in the EFT versus SOC/WL groups solely to the EFT intervention. Although there were no significant differences between the groups in the primary outcome measures at baseline, the SOC/WL group was significantly more likely to smoke, to use prescription medications, and to have insomnia, indicating a possible failure of random assignment. However, these variables were added to the analyses where indicated and the positive finding for EFT remained, suggesting that the effects were attributable to the EFT treatment. The lack of information concerning actual treatment received as SOC by the study participants limits our ability to determine whether EFT impacted the participant's use of and/or benefit from SOC, which may account for or contribute to the observed differences in symptom improvement between the EFT and SOC/WL groups. A final limitation of this study is the high likelihood that sympathetic attention from the EFT coach accounts for the

observed positive effect of EFT. The results should be interpreted with caution until such research questions have been answered.

CONCLUSIONS

The current study used a randomized controlled design, contrasting an SOC/WL control group with a group treated with six sessions of EFT coaching. EFT were applied by life coaches as supplementary care, supportive of the SOC being provided by the subjects' primary care providers. The SOC/WL group's results were unchanged over time, whereas the EFT group demonstrated significant drops in self-reported PTSD symptoms, from clinical to subclinical scores, as well as improvement in the severity and breadth of a range of comorbid psychological problems such as depression and anxiety. The results of the present study are consistent with that of previous trials, showing that brief EFT interventions improve PTSD as well as co-occurring conditions, with gains maintained over time. EFT were applied as coaching to demonstrate their utility as a frontline intervention by occupational categories with very basic levels of clinical training. Taken together with previous research showing EFT's efficacy in treating PTSD symptoms, the results of this study indicate that a six-session protocol of EFT can be a useful adjunctive intervention for veterans. Further research is required to determine whether group EFT interventions produce mental health improvements in veterans similar to those observed in other high-stress occupational populations and whether higher levels of mental health training of providers, or longer courses of EFT, correlate with greater effects.

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The other authors declare no conflict of interest.

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