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PSYCHOLOGICAL SYMPTOM CHANGE IN VETERANS AFTER SIX SESSIONS OF EMOTIONAL FREEDOM TECHNIQUES (EFT): AN OBSERVATIONAL STUDY

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Abstract

Protocols to treat veterans with brief courses of therapy are required, in light of the large numbers returning from Iraq and Afghanistan with depression, anxiety, PTSD and other psychological problems. This observational study examined the effects of six sessions of EFT on seven veterans, using a within-subjects, time-series, repeated measures design. Participants were assessed using a well-validated instrument, the SA-45, which has general scales measuring the depth and severity of psychological symptoms. It also contains subscales for anxiety, depression, obsessive-compulsive behavior, phobic anxiety, hostility, interpersonal sensitivity, paranoia, psychosis, and somatization. Participants were assessed before and after treatment, and again after 90 days. Interventions were done by two different practitioners using a standardized form of EFT to address traumatic combat memories. Symptom severity decreased significantly by 40% ($p < .001$), anxiety decreased 46% ($p < .001$), depression 49% ($p < .001$), and PTSD 50% ($p < .016$). These gains were maintained at the 90-day follow-up.³

Keywords: veterans, exposure therapy, depression, PTSD, anxiety, Iraq, Vietnam, Emotional Freedom Techniques (EFT).

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Introduction

Large numbers of troops are returning from deployment in Iraq and Afghanistan with psychological symptoms. Repeated deployments are compounding the problem (Shanker, 2008), and military hospitals and veterans' facilities have had difficulty treating this population because of its size, the scarcity of available treatments, and the length of time required for effective treatment. Subsequent to deployment, 49% of National Guard troops report psychological symptoms, as well as 38% of Army troops and 31% of Marines (Defense Health Board Task Force on Mental Health, 2007). Antidepressants are currently prescribed for 12.5 percent of active duty personnel in Iraq and 17% of those deployed in Afghanistan, according to the Army's Military Health Advisory Team (MHAT-V). The MHAT-V report also notes that 17.9% screen positive for acute stress, depression or anxiety (Office of the Command Surgeon, 2008). Treatment difficulties are compounded by a host of co-occurring conditions, including depression, anxiety, posttraumatic stress disorder (PTSD), and addictions (Boston University, 2008). Breslau (1990) found anxiety and depression to co-occur with PTSD in 83% of cases. The data that raise most concern are media assessments indicating that approximately 120 veterans suicide every week (CBS, 2008a, 2008b). For these reasons, therapies that can effectively treat all of these conditions simultaneously, and do so in a brief time period, are of interest to researchers (Tanielian, et. al. 2008).

The therapy used in this study, EFT, has been found useful in treating anxiety-based disorders of various kinds. EFT is one of a family of therapies collectively known as energy psychology; other therapies in this field include Thought Field Therapy (TFT), Wholistic Hybrid derived from EFT and EMDR (WHEE), and Tapas Acupressure Technique (TAT). A study of 102 individuals in the general population by Rowe (2005), found that a three-day EFT workshop produced statistically significant decreases in depression, anxiety, and other psychological disorders, as well as reductions in the severity and breadth of symptoms. These gains were maintained at three- and six-month follow-up. A limited replication of Rowe with 25 subjects (Church, 2008a) found similar drops in symptoms for co-occurring conditions, and a study of 28 subjects at an EFT addiction workshop also found decreases in anxiety, depression, phobias, paranoia and other conditions (Church, 2008b). Because of clinical observations of efficacy in treating combat veterans, EFT is the subject of trials in Britain's National Health Service (Brown, 2008; Deady, 2008). A pilot study of veterans who were treated for PTSD with EFT showed statistically significant improvements in depression, anxiety, PTSD and sleep scores after a weeklong intensive with two to three sessions per day (Church, 2008c).

EFT has been successfully used to treat problems such as fibromyalgia (Brattberg, 2008) by focusing on the emotional traumas that might be associated with symptoms, as well as to address a wide variety of other physical complaints (Feinstein, et. al. 2005). Energy psychology has also been used to treat the victims of wars and natural disasters, and has been found to effectively alleviate the emotional impact of traumatic memories (Feinstein, 2008b). Diepold and Goldstein (2008) showed that the recall of trauma produces changes in electroencephalogram (EEG) readings, and that these readings normalize after TFT treatment. Diepold and Goldstein found that gains were maintained on 18-month follow-up, and that EEGs correlated with subjective self-assessments of stress by the clients. Reductions in cortisol, a primary stress hormone, occur after EFT treatment, and are accompanied by improvements in heart rate variability (HRV). HRV and cortisol are primary stress markers for a wide variety of genetic, hormonal, and neurological effects of stress. They both correlate with significant changes in the conditions measured on the SA-45 questionnaire (Church, 2008c).

A general risk is that having clients talking about trauma will lead not to desensitization, but to retraumatization (van der Kolk, et. al., 1996). This safety issue is minimized with EFT, as clinicians note an absence of abreactions and client distress when using EFT (Mollon, 2007). A survey of psychotherapists who use both Energy Psychology and other methods such as EMDR and Cognitive Behavioral Therapy found that clinicians preferred the use of Energy Psychology in cases where clients were asked to recall traumatic memories in order to resolve these core clinical dilemmas (Schultz, 2007).

EFT combines elements of cognitive therapy, somatic intervention, and brief exposure therapy. Once a traumatic memory is identified, the subject assesses its emotional intensity on a Likert-type scale from 0 to 10, with 0 being no distress, and 10 being maximum distress. This is known as Subjective Units of Distress, popularly called the "SUD" (Wolpe, 1973).

An individualized, brief, two-part affirmation is then developed, to combine the painful incident with a statement of self-acceptance. A specific example is: "Even though I had to shoot the kid as he ran toward my platoon pulling the pin from the grenade, I deeply and completely accept myself."

While repeating the affirmation three times, the client taps with the fingertips of one hand on various points on the body. These points are ones that are often unconsciously tapped or rubbed by many people during times of stress, such as the temples, bridge of the nose, or collarbones. EFT organizes these natural stress reduction points into a brief, structured protocol. The points tapped are the outside fleshy edge of the hand, the inside end of the eyebrows, the outside of the eye socket, below the pupil of the eye, the middle of the upper lip just below the nose, the center of the chin just below the lower lip, the inside end of the collarbone, under the arms. Points on the inside edge of the cuticles of the thumb and fingers are then tapped. This series is referred to as a "round" of "tapping." The subject then reassesses the SUD level. If it has not decreased, the procedure is repeated again, till the number is low.

EFT was developed by Gary Craig as a simplified form of TFT (Callahan, 2000). There is much speculation about mechanisms to explain its effectiveness. While the rapid therapeutic shifts observed have led clinicians to ascribe its effects to shifts in "energy," the following authors point out that there are biomedical and psychological processes that could explain the immediate relief of strong emotional memories. Some authorities attribute its efficacy to the location of the tapping points, which are on the endpoints of the "energy meridians" identified in Traditional Chinese Medicine (Gallo, 1999). However, others suggest more conventional biological mechanisms, such as increased regulation of sympathetic-parasympathetic interaction, and of the HPA hypothalamus-pituitary-adrenal (Lane, 2006); decreased hyperarousal of the limbic system and other brain structures involved in the fight or flight response generated by exposure to trauma (Feinstein, 2008a), changes in the amygdala and anterior cingulate areas of the brain (Felmingham, et. al. 2006); the semiconductive properties of the connective tissue on which the tapping points are located (Oschman, 2005); down-regulation and increased reuptake rates of cortisol and other stress hormones (Church, 2008d); and increased expression of the stress-regulatory Immediate Early Genes (Church, 2007). Mollon (2008) has argued that the term "energy" may be inappropriate for this group of therapies, given its basis in such well-understood physiological mechanisms and the therapeutic traditions from which it draws, such as cognitive behavioral therapy and exposure therapy.

EFT is taught and delivered in a standard manner; *The EFT Manual* (Craig, 2008) has been available as a free download for over ten years, and EFT researchers have used a consensus standard for all research, including the current study (www.SoulMedicineInstitute.org/EFT.pdf). In addition, clinical accounts and case histories have led to the publication of *EFT for PTSD* (Craig, 2009), which summarizes the lessons learned in treating military personnel suffering from anxiety and depression as well as PTSD.

Method

The seven subjects ranged in age from 25 to 61. Three were female and four were male. Four were Iraq veterans (two females and two males), two were Vietnam veterans (both males), and the remaining female veteran had not deployed overseas but had high scores for posttraumatic stress disorder, anxiety and depression, and suffered from Military Sexual Trauma (MST). One Vietnam veteran had been diagnosed with Parkinson's disease, and reported insomnia every night since the war. All other participants also reported insomnia. Three subjects were recruited at Marshall University, West Virginia, through announcements in classes, and treated on campus by a licensed clinical psychologist. Four subjects were recruited by a life coach via online announcements and treated at the coach's office, with some sessions occurring by telephone. All data analysis was done blind and offsite. All subjects signed informed consent forms. Permission for the Marshall University portion of the study was obtained from the university's human subjects review board.

Subjects were assessed using the Symptom Assessment-45, (SA-45), a 45-item questionnaire that measures the degree of distress for each item on a 5-point Likert scale. It is a short form of the Symptom Checklist-90 (SCL-90) and uses the same symptom domains. The SA-45 is useful for this population because, besides two general measures of the breadth and severity of symptoms, it has nine subscales that assess anxiety, depression, obsessive-compulsive behavior, phobic anxiety, hostility, interpersonal sensitivity, paranoia, psychosis, and somatization. It is therefore well suited to assessing the complex of conditions typically exhibited by post-deployment military personnel. Its brevity enables subjects to complete it in about 5 minutes, which increases compliance. Numerous studies have validated the reliability of the SA-45 (Davison, M L, et. al. 1997; Maruish, M E 1999). Subjects completed the SA-45 before treatment, after six sessions, and 90 days later. The Marshall University psychotherapist also obtained a before and after stress treatment hormone panel from one subject. The life coach also obtained pre, post and follow-up data using the PTSD Symptom Checklist-Military (PCL-M) for her four subjects (Weathers, 1993). This 17-item instrument is used by the military as part of a PTSD assessment, with a score of 50 or greater indicating PTSD-positive. All four subjects were above this level, with an average score of 66.

Treatments focused on specific combat memories. One Vietnam veteran, for instance, had a particularly troubling memory. He usually went on patrol with his best friend, who would walk on his left. This particular time, his friend was on his right, and was killed by a sniper's bullet in his right side. This veteran had blamed himself for decades for not "taking the bullet" and saving his friend's life. After EFT, his cognitions about the event shifted to include the recognition that his friend would willingly have died for him.

Practitioners reported that over the course of six sessions, most such emotionally troubling combat memories went to a SUD value of zero, or close to zero. However, this length of treatment did not allow them to begin working on many other emotional events from prior years, such as childhood traumas, that might also contribute to the participants' symptoms. Participants were given an EFT use "homework sheet," but their very limited compliance with this assignment did not provide data to assess their EFT use between sessions.

Results

Univariate General Linear Model (GLM) repeated measures analysis of variance were conducted on each of the SA-45 subscales, as well as on the General Symptom Index (GSI) and Positive Symptom Total (PST) for the pretest, posttest, and 90-day follow-up. Statistically significant effects for time were found for the global scales, the GSI and PST, and all subscales with the exception of phobic anxiety (see Table 1). However, the phobic anxiety subscale showed a trend ($p < 0.1$) toward significance. Given the statistical significance of the univariate models, posthoc paired t-tests were conducted for all of the statistically significant subscales and the two global indices comparing the pretest with the posttest and pretest with the 90-day follow-up. Given the number of posthoc comparisons, the Bonferroni correction was applied setting the alpha level at $p < 0.005$. Anxiety, depression, and the GSI showed statistically significant decreases from the pretest to posttest with the improvements maintained at the 90-day follow-up. The difference between the pretest and 90-day follow-up was statistically significant for the interpersonal sensitivity and paranoid ideation subscales. The remaining comparisons were not statistically significant, based on the Bonferroni-corrected alpha level. Subject score decreases on the two general scales of the SA-45 can be seen in Figure 1 below. Scores decreases on the nine subscales are shown as Figure 2.

Table 1. Means, Standard Deviation, and Significance Tests for SA-45 & PCL-M

Variable	Pretest	Posttest	90-day Follow-up	F(2,12)	Sig
	Mean \pm SD	Mean \pm SD	Mean \pm SD		
Anxiety	74.43 \pm 4.28 ^a	60.86 \pm 7.80 ^b	61.71 \pm 10.4 ^c	18.43	.001
Depression	68.86 \pm 7.06 ^a	61.86 \pm 5.61 ^b	58.71 \pm 9.20 ^c	14.28	.001
Obsessive-compulsive	70.86 \pm 6.77	64.71 \pm 7.85	63.00 \pm 11.68	6.63	.012
Somatization	67.86 \pm 5.83	59.57 \pm 6.21	57.14 \pm 8.53	8.37	.005
Phobic anxiety	76.00 \pm 9.27	69.57 \pm 5.62	68.86 \pm 6.59	3.26	.074
Hostility	67.43 \pm 8.66	59.71 \pm 6.70	59.43 \pm 5.29	6.45	.013
Interpersonal sensitivity	70.00 \pm 9.43 ^a	63.57 \pm 6.48	59.00 \pm 9.49 ^c	13.71	.001
Paranoid ideation	64.71 \pm 5.41 ^a	56.14 \pm 7.82	55.86 \pm 9.08 ^c	14.12	.001
Psychoticism	68.86 \pm 5.08	62.86 \pm 5.31	60.86 \pm 4.63	6.19	.014
General Severity Index	73.00 \pm 6.93 ^a	63.00 \pm 6.53 ^b	59.14 \pm 12.34 ^c	18.85	.001
Positive Symptom Total	71.29 \pm 5.59	64.71 \pm 7.95	61.00 \pm 14.18	5.13	.025
PTSD Checklist-M	65.75 \pm 5.38 ^d	39.50 \pm 5.45 ^e	41.50 \pm 17.60	8.83*	.016

*F(2,6)

Posthoc paired t-tests t(6) pretest-posttest a > b, $p < .005$; Posthoc paired t-tests pretest-90-day follow-up a > c, $p < .005$

Posthoc paired t-tests t(3) pretest-posttest d > e, $p < .05$

Figure 1. Changes in Severity and Breadth of Psychological Distress

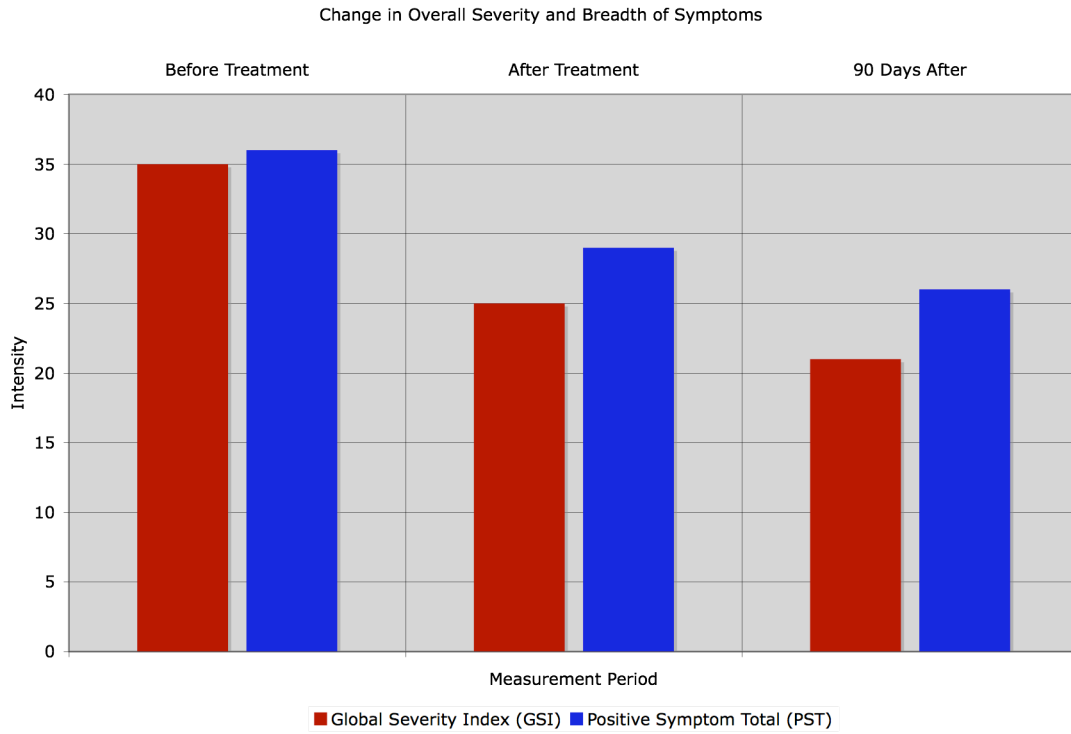
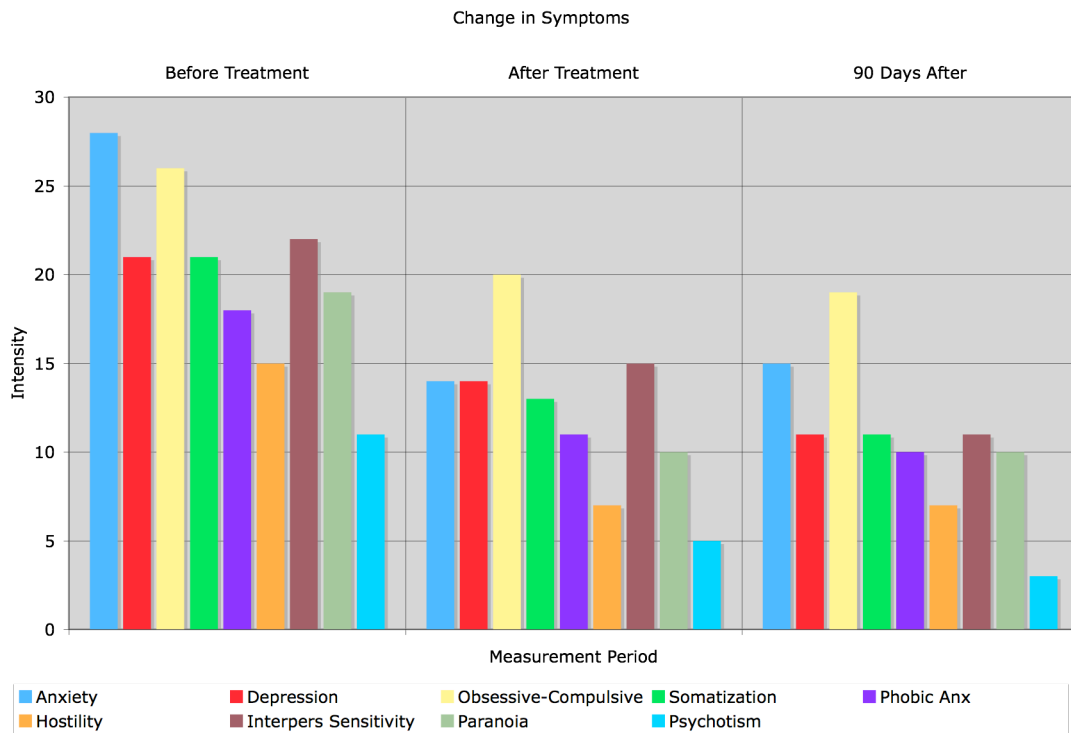
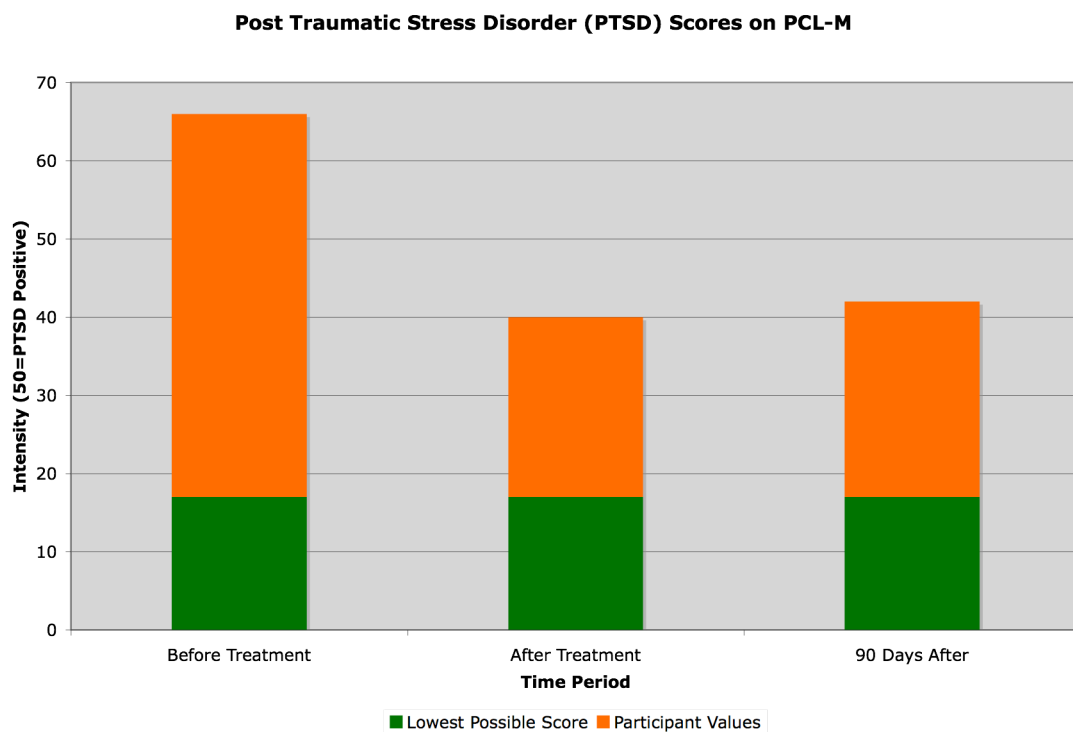


Figure 2. Changes in Specific Psychological Conditions



There were four subjects with complete data on the PCL-M. A univariate General Linear Model (GLM) repeated measures analysis of variance with posthoc paired t-tests was conducted. Similar to the SA-45, the overall model was significant and posthoc analyses revealed a statistically significant decrease at posttest; however it was not maintained at the 90-day follow-up. These results are included in Table 1. However, given the very small sample size the results should be interpreted with caution. Therefore, an alternate method for examining these findings is to report the number of subjects who were above or below the military criterion score (≥ 50) necessary for a PTSD diagnosis to assess clinical significance. All four subjects met the military criteria for PTSD at pretest (range 59-72). However, all four subjects scored below the criterion score at posttest (range 34-47), indicating a clinically significant improvement. At the 90-day follow-up, three of the four subjects had maintained their gains and were still below the criterion value (range 27-38). Scores can be seen below as Figure 3.

Figure 3. Changes in PTSD Scores



One subject, male, 27, had a cortisol panel before and after treatment (Sabre Sciences). The initial assay showed below-normal cortisol levels in the morning (3.27 ng/ml), and low levels at 8 pm (0.91 ng/ml), with a rise in cortisol at 4 am (1.35 ng/ml). Sabre Sciences norms are 3.5 to 6.3 ng/ml at 8 am, 0.6 to 1.6 ng/ml at 8 pm, and 0.3 to 1.7 ng/ml at 4 am. This pattern is consistent with subject self-reports of low energy in the morning, exhaustion in the evening, and periods of wakefulness during the night. Levels of the subject's DHEA was also low (8 am = 2.9 ng/ml, 8 pm = 5.6 ng/ml, midnight = 3.9 ng/ml). Sabre Sciences defines normal DHEA levels as 2.8 to 12.7 ng/ml at 8 am, 2.7 to 9 ng/ml at 8 pm, and 1.8 to 8.1 ng/ml at midnight. A high cortisol and low DHEA ratio is often found in high-stress and disease-prone patients, since the precursors required by the adrenal gland to synthesize the DHEA molecule are pre-empted by the demand for cortisol. The subject's testosterone was also low, with four diurnal readings all below 100 pg/ml. Sabre Sciences norms are 95 to 650 pg/ml for a male 18 to 39 years old.

After treatment, the subject's waking cortisol level was 4.31 ng/ml. His cortisol level at 8 pm had risen substantially (1.47 ng/ml), while his 4 am level had dropped (1.29 ng/ml). These readings indicate a normalization of the circadian rhythm, and are consistent with self-reports of high energy in the morning, winding down in the evening, and uninterrupted sleep. The subject's DHEA had more than doubled (8 am = 12.6 ng/ml, 8 pm = 4.4 ng/ml, midnight = 9.0 ng/ml), and all testosterone readings were above 100 pg/ml, demonstrating general hormonal normalization following the release of psychological stress.

Discussion

While other research has indicated the utility of EFT in treating psychological symptoms, a reliable protocol for treating EFT in post-combat veterans has not yet been established. As mentioned earlier, another pilot study used a weeklong EFT intensive format to treat veterans (Church 2008c). Participants received 2 or 3 sessions per day, averaging 10 to 15 sessions over the course of the week. Participant scores for anxiety, depression and PTSD were significantly reduced, with gains maintained at six month follow-up.

The six-session format for the present study was developed in a series of teleconferences with clinicians who use EFT to treat veterans (Iraq Vets Stress Project, 2008). It was the consensus of these practitioners, based on clinical experience, that three to five sessions was not long enough, but that all or most combat-related issues could often be resolved in six sessions. They believed that longer courses were rarely necessary unless the intention was to begin addressing non-combat memories. They noted, however, that non-combat memories often surfaced during treatment, and produced similar somatic triggers. For instance, the female veteran subject who suffered Military Sexual Trauma, also had suffered childhood sexual abuse, and the two were treated concurrently.

Besides these two formats for delivering EFT treatment (a one-week intensive, and six sessions), practitioners have also advocated group treatments. These would involve groups of 50 to 200 personnel at a time, self-applying EFT under the guidance of one or more therapists. This technique is called "Borrowing Benefits" by EFT developer Gary Craig. Borrowing Benefits is typically done with one subject receiving treatment in the front of the room, while the rest of the group "taps along" with a focus on their individual issues. Borrowing Benefits DVDs are available, and are being used in an ongoing study of EFT for PTSD in veterans as supplementary homework (Church 2008f). A study of 194 healthcare workers (doctors, nurses, psychologists, chiropractors and alternative medicine practitioners) borrowing benefits for their own problems demonstrated improvements in various SA-45 domains (Church 2008g), and may be replicable in other high-stress occupations such as military personnel. An outcome study comparing these three methods may result in a robust standard method of using EFT for the treatment of combat trauma.

It is important to note that in these seven cases no formal diagnosis was made of depression, PTSD, anxiety, or any other condition. Diagnosis requires more than a high score on a standardized test, and involves a structured interview with a clinician, assessments such as the CAPS, BDI, or PSS-I. It should also be noted that no formal

treatment occurred; further study might include formal diagnoses and treatment as well as diagnostic assessment.

EFT sessions resemble coaching more than psychotherapy in that issues are client-identified, goals are set by the client, and results are assessed by the client using a SUD score. EFT cannot be used with global issues, such as "sexual abuse," but only on specific memories. These memories need not even be revealed by the client to the practitioner. In cases where recall is traumatic for the client, EFT practitioners are trained in techniques such as one called "tearless trauma" in which the event is tapped on without being remembered.

Practitioners in this study noted the same absence of client distress reported by Mollon (2007), with the intensity of feelings subsiding even though memories remained vivid. Subjects also tended to begin applying EFT in other, non-combat related areas of their lives once they experienced its potency for reducing stress during sessions.

Despite the small sample in the current study, the size of the effect produced by EFT was so great that statistical significance was achieved for several psychological measures, with highly significant results for depression and symptom severity. This suggests that the six session format may be an effective means for treating combat trauma. A larger study with this format could determine if these results can be replicated. In addition, homework compliance by subjects could be tracked, and results cross-validated using other instruments such as the BDI and BAI. This was a study in which the minimal possible intervention was employed. In a clinical setting, it would be expected that related issues of earlier traumas and abuse would be addressed in several further sessions.

The physical correlates of emotional trauma release might also be studied. In a study of 212 Vietnam veterans with high levels of anger, Boyle et. al. (2007) found elevated protein risk markers for cardiovascular disease. Such factors may not decrease due to the passage of time. Felitti et. al. (1998) found that childhood emotional trauma correlated with higher levels of heart disease, cancer, diabetes and hypertension even fifty years later. Relieving emotional distress might have the opposite effect, and might reduce physical symptoms. The shifts in cortisol measures reported here are consistent with such changes, and a cortisol study of a large sample of veterans would indicate if such results are typical. If so, this would support the use of cortisol levels as supportive evidence of efficacy of therapeutic interventions in treating stress.

Some of the elements of EFT, such as exposure and cognitive restructuring, have been found effective in treating combat stress, as shown in a meta-analysis by Bradley (2005). It is unknown what portion the affirmation, tapping or other psychosomatic elements of EFT contributes to its effectiveness. More study is required to determine the mechanisms by which EFT and other energy psychology methods have their effects.

The results of the current study are not generalizable due to its small sample size and lack of a control group. It is possible that the results were due to placebo effects, regression to the mean, therapist expectancy, the novelty effect of EFT, or implicit pressure on subjects to report improvements. Larger studies that are properly randomized and controlled are required to determine if the effects found in these seven veterans hold up. A longer follow-up period is also required.

However, the current results are consistent with other published research. Other studies of EFT have shown that the results hold over time (Wells, et. al. 2003), and that subjects may continue to show improvement over baseline scores six months after treatment (Rowe, 2005). A recent analysis of all studies of energy psychology (Feinstein, 2008a) showed participant gains held in studies that report a longterm follow-up.

There are social as well as individual benefits to finding effective short-term treatments for returning veterans. Tanielian et. al. (2008) found that treating Iraq war veterans with PTSD would pay for itself in under two years, in the form of reduced mortality costs and medical costs, not to mention the unmeasurable losses involved in suicides.

Conclusions

This pilot study of Iraq and Vietnam veterans found that six sessions of EFT treatment resulted in statistically significant drops in participants' levels of anxiety, depression, posttraumatic stress syndrome, and overall psychological distress. Ninety day follow-up showed that participants maintained their gains on these measures, and also showed improvement in paranoid ideation and interpersonal sensitivity. A six-session protocol for delivering EFT to returning veterans may be an effective method of reducing this entire group of co-occurring psychological traumas. EFT warrants further study in a large, randomized, double blind clinical trial, to determine if the results of this protocol are consistently maintained under rigorous experimental conditions.

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