

Emotional Freedom Techniques for Anxiety

A Systematic Review With Meta-analysis

Morgan Clond, PhD

Abstract: Emotional Freedom Technique (EFT) combines elements of exposure and cognitive therapies with acupressure for the treatment of psychological distress. Randomized controlled trials retrieved by literature search were assessed for quality using the criteria developed by the American Psychological Association's Division 12 Task Force on Empirically Validated Treatments. As of December 2015, 14 studies ($n = 658$) met inclusion criteria. Results were analyzed using an inverse variance weighted meta-analysis. The pre-post effect size for the EFT treatment group was 1.23 (95% confidence interval, 0.82–1.64; $p < 0.001$), whereas the effect size for combined controls was 0.41 (95% confidence interval, 0.17–0.67; $p = 0.001$). Emotional freedom technique treatment demonstrated a significant decrease in anxiety scores, even when accounting for the effect size of control treatment. However, there were too few data available comparing EFT to standard-of-care treatments such as cognitive behavioral therapy, and further research is needed to establish the relative efficacy of EFT to established protocols.

Key Words: Anxiety, emotional freedom techniques, energy psychology, PTSD, tapping

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The last 5 years have seen a surge of randomized controlled trials (RCTs) studying emotional freedom techniques (EFT) as a treatment for emotional distress (Church, 2013a; Feinstein, 2012). Although several reviews exist, no previous work has presented a quantitative meta-analysis of the effect of EFT treatment on anxiety. This analysis applies the most stringent study selection criteria compared with other EFT analyses by using the American Psychological Association (APA) Division 12's 7 essential criteria (Chambless et al., 1998; Chambless and Hollon, 1998) as detailed in Methods. Critical analysis of the findings of these studies is both clinically important and timely, as the practice of EFT continues to gain adoption in the psychotherapy community. In an Internet-based survey that used professional forums to recruit 149 licensed psychotherapy professionals, 42.3% of respondents reported using EFT or related energy meridian therapies (Gaudiano et al., 2012).

History and Development of the EFT

Emotional freedom technique is a psychophysiological intervention that combines elements of cognitive behavioral therapy (CBT), exposure therapy, and somatic stimulation using acupressure points. Because of this acupressure element, EFT is often simply called "tapping." The basic EFT protocol was published in 1995 by Craig and Fowlie (1995) as a simplified form of thought field therapy (Callahan, 1985). The fundamental EFT protocol, called the "Basic Recipe," is described in either of 2 comprehensive treatment manuals (Church, 2013c; Craig and Fowlie, 1995). Subjects are asked to select

a distressing memory or event (as in exposure therapy), which is verbally acknowledged and paired with a reframing self-acceptance statement (as in CBT). A simplified example of this pairing is: "Even though I have (stated problem), I fully and completely accept myself." The statement, as well as a shorter "reminder phrase," keeps the client's attention on the presenting problem and is repeated while tapping 5 to 10 times with the fingertips on 12 acupressure points. Five of the acupressure points are on the head, 5 are on the hand, and 2 are on the torso. Emotional freedom technique can be used as an adjunct to clinician-guided therapy or as a self-help technique when deemed appropriate by a psychotherapy practitioner. The technique can usually be mastered in a single session (Church, 2013b), and several of the articles in this meta-analysis report significant results using only 1 guided session. Although the result is likely highly individualized, a pilot study suggested that EFT generally achieved effective results in an average of 2 sessions, whereas CBT required an average of 5 sessions (Benor et al., 2009).

Three studies have investigated whether acupoint tapping adds to the treatment effect. The study entitled "Is Acupoint Tapping an Active Ingredient or an Inert Placebo in EFT?" was a small ($n = 20$) study of university students in which the control group performed the EFT protocol without acupoint tapping but also without the cognitive reframing affirmation statements (Fox, 2013). Thus, tapping was not actually an isolated variable in the control group. A second study ($n = 35$) used diaphragmatic breathing (DB) with a reminder phrase about the specific phobia as a control and thus also lacked a cognitive reframing component in its control group (Wells et al., 2003). In contrast, Waite and Holder (2003) conducted a large ($n = 119$) randomized study that compared EFT to EFT with "nonmeridian" tapping locations, tapping on a doll instead, or not tapping at all. Interestingly, all 3 groups that included tapping showed similarly effective treatment effects (classic EFT, $p = 0.003$; nonmeridian, $p < 0.001$; and doll, $p < 0.001$) in contrast to a nonsignificant ($p = 0.255$) effect in the group that did not perform tapping at all. Those interested in further speculation about the possible mechanisms and confounding factors of acupoints in EFT and thought field therapy are directed to an extensive review by Feinstein (2012).

Mechanism of Action and Physiologic Biomarkers for EFT Treatment Efficacy

Emotional freedom technique and acupoint tapping are thought to down-regulate the activity of the limbic system in a way that is similar to acupuncture. In a functional magnetic resonance imaging investigation of subjects undergoing acupuncture of the hand, reduced blood flow (indicating reduced activity) was detected in several brain areas associated with memory and stress response, including the amygdala, hippocampus, and nucleus accumbens (Fang et al., 2009; Hui et al., 2000; Hui et al., 2005). In a similar way, electroencephalographic recordings of subjects performing EFT show decreased right frontal cortex arousal, which is a pattern that is also observed in other forms of neurotherapy (Swingle et al., 2004).

Cortisol is a stress hormone that mediates limbic arousal. A study that measured salivary cortisol after EFT showed that EFT reduces cortisol levels by 24% ($p < 0.05$ compared with controls). This reduction correlated with a statistically significant ($p < 0.05$) 58%

Ben Gurion University, Medical School for International Health, Beersheva, Israel. Send reprint requests to Morgan Clond, PhD, Ben-Gurion University of the Negev, Medical School for International Health, Faculty of Health Sciences, Caroline House, 3rd Floor, PO Box 653, Beersheva, Israel 8410500. E-mail: clond@post.bgu.ac.il.

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reduction in anxiety scores. Control subjects receiving an interview or no treatment showed a 14% reduction in cortisol, which is consistent with physiologic decreases in cortisol that occur throughout the day (Church et al., 2012). However, a subsequent study of patients suffering from tension headaches showed that while EFT treatment was associated with fewer ($p < 0.001$) and less severe headaches ($p < 0.001$), it did not reduce morning or evening cortisol measurements between the 2 groups ($p = 0.791$ and 0.196) (Bougea et al., 2013).

The Application of EFT in Anxiety

Data from the US National Comorbidity Survey Replication found that the lifetime risk of any type of anxiety disorder is as high as 37.3% in females and 25.6% in males (Kessler et al., 2012). Although EFT can also be used to address other psychological issues such as depression and addiction, it appears to be particularly well suited to anxiety, possibly because of the exposure element of the technique (Church et al., 2009; Fox, 2013; Wells et al., 2003).

When a variant of EFT called matrix reimprinting was made available on a trial basis within the United Kingdom's National Health Service (NHS), 59% of the patients who enrolled in the therapy reported that they were seeking help with anxiety-related issues (Stewart et al., 2013). At the end of the trial, the anxiety scores of the NHS patients were indeed significantly reduced compared with baseline ($p = 0.007$). Similarly, in a cohort of EFT workshop attendees, significant and durable reductions in anxiety were achieved after 3 days of treatment with follow-ups at 1 and 6 months ($p < 0.0005$) (Rowe, 2005). Considering the heterogeneity of the sample, which included many participants without clinically significant anxiety, it is noteworthy that a significant treatment effect was observed. Rowe's (2005) findings were replicated in a larger sample, this time in a demographic of health care professionals (Church and Brooks, 2010). Follow-up showed that greater use of EFT was correlated with a greater decrease in anxiety symptoms ($p = 0.034$, $r = 0.199$).

The Application of EFT in Posttraumatic Stress Disorder

Certain populations are at particularly high risk of posttraumatic stress disorder (PTSD), including veterans (Lazar, 2014), survivors of natural disasters (Feinstein, 2008), and refugees fleeing violence in their home country (Betancourt et al., 2012; Taylor et al., 2013). In many of these settings, access to extended personalized therapy sessions with highly qualified professionals is not feasible because of constraints on time and resources. For such underserved populations, EFT may be a more approachable option, as the techniques are readily teachable to community volunteers and health care workers with minimal professional training (Stein and Brooks, 2011). Eye movement desensitization and reprocessing (EMDR) was added in 2005 to the United Kingdom's National Institute for Clinical Excellence guidelines as an effective alternative to CBT in the treatment of PTSD. In a study of civilian PTSD patients in the NHS system in Scotland, both EFT and EMDR were effective at reducing anxiety ($p = 0.002$ and 0.014 , respectively) to a similar degree ($p = 0.603$) (Karatzias et al., 2011). Vicarious traumatization can also occur in family members and caretakers of individuals with PTSD, and promising preliminary results have been shown regarding the use of EFT in this frequently overlooked population (Church and Brooks, 2014).

Health care systems for military personnel and veterans have, for a variety of reasons, an enormous challenge in meeting the mental health needs of this population. These reasons include exceptionally high need/demand, the fact that even established treatments are not always adequate, an environment of stigma about seeking care, and because the most effective treatments often require substantial time, effort, and client willingness to endure aversive clinical interventions (Burnam et al., 2009). A significant number of active-duty personnel

express fears that seeking mental health treatment could make them appear less fit for duty and have a negative impact on their careers (Zinzow et al., 2012). After deployment, 49% of National Guard troops, 38% of Army troops, and 31% of Marines report psychological symptoms (Milliken et al., 2007). However, a survey of military personnel returning from deployment found that among patients who met strict criteria for mental health problems, only 23% to 40% of them had received professional help for their issue in the previous year (Lazar, 2014).

Initial assessments of EFT for military-related PTSD began in 2009 when 2 very small pilot studies demonstrated significant reductions in multiple measures, including anxiety ($p < 0.003$) and ($p = 0.001$) in (Church, 2010) and (Church et al., 2009), respectively. These smaller studies were followed by larger RCTs in which veterans received 6 EFT sessions. In the first of these studies (Church et al., 2013), those who received EFT exhibited significantly reduced anxiety when compared with waitlist controls in terms of the group \times time interaction ($p < 0.0001$). At intake, all participants scored above the clinically significant threshold on the Military PTSD Checklist (PCL-M) instrument (Weathers et al., 1991), and after treatment, 90% of the subjects scored below the threshold. These results were replicated in a subsequent study ($p = 0.003$ for group \times time interaction) (Geronilla et al., 2014). Investigators went on to show that similar clinically and statistically significant gains could be demonstrated even in veterans who did not meet the PCL-M threshold for PTSD. Even in this subclinical PTSD group, gains on SA-45 anxiety were achieved after 6 sessions (group \times time interaction $p = 0.032$) and maintained at 6-month follow-up ($p = 0.001$) (Church et al., 2016).

Applicability of EFT to School-Related Anxiety

Around the same time as the EFT trials in veterans, EFT was being investigated for reduction of test anxiety in students. When instructed in EFT, high school students with test anxiety were able to achieve higher scores on university entrance examinations than a control group that was taught a progressive muscular relaxation technique ($p < 0.05$) (Sezgin and Ozcan, 2009). A similar trial was performed for test anxiety in undergraduate students, where EFT was compared with control arms that received either instruction in DB or no intervention. Anxiety was reduced but did not reach significance in the EFT ($p = 0.369$) and DB groups ($p = 0.309$) (Jain and Rubino, 2012).

Class presentations are a common university experience, but they are a challenge for those with public speaking-related anxiety. In a study conducted by Boath et al. (2013b), EFT was offered to university students ($n = 46$) presenting graded presentations. Immediately after learning the technique, participants had reduced Hospital Anxiety and Depression Scale (HADS) anxiety scores ($p < 0.001$) compared with baseline. After training, students were given the option of practicing EFT on their own for their presentation anxiety. The 41% of the students who chose to do so received higher scores on their presentations than did those who did not use the technique ($p < 0.01$). However, results should be interpreted with caution, as participants were not randomized, and the results do not necessarily generalize to individuals with clinical anxiety disorders (Boath et al., 2013b).

Because this study happened to include only females, a follow-up study used the same protocol to investigate EFTs' generalizability to different demographic groups. It enrolled 1 group of students pursuing a degree in sports science (predominantly male and younger) and a second group with a major in complementary medicine (predominantly female and older). The students enrolled in the sports science cohort were younger by an average of 17 years. The study found no differences in anxiety reduction on the basis of either sex or age (Boath et al., 2013a).

Applicability of EFT to Specific Phobia

Three of the studies included in this meta-analysis examine EFT for specific phobias such as spiders, small animals, or heights. The earliest one, published in 2003, showed that the full EFT protocol, including the tapping component, was more successful at reducing anxiety associated with a specific phobia than a control EFT protocol that replaced tapping and the cognitive reframing statement with DB ($p < 0.005$) (Wells et al., 2003). In a replication study, EFT was compared with a supportive interview or no-treatment controls. Again, EFT was found to be more effective at reducing specific anxiety than the control conditions ($p = 0.004$ on analysis of variance) (Baker and Siegel, 2010). The most recent study used a crossover design, comparing EFT to DB. Emotional freedom technique was more effective than DB at reducing specific anxieties regardless of whether it was the first or second treatment given to the group ($p = 0.042$) (Salas et al., 2011).

The Role of EFT in Disorders Where Anxiety Is a Component

The benefit of stress reduction is also clearly applicable to complex disorders involving anxiety as a component. For example, the interplay between pain and psychological distress is well documented. A study of EFT in fibromyalgia patients found that reductions in anxiety ($p = 0.03$) accompanied reductions in pain ($p = 0.02$) (Brattberg, 2008). Promising studies in compulsive eating theorized that EFT could be used to reduce food-related anxiety and control binge eating (Sojcher et al., 2012). A small pilot study of individuals self-identified as contending with addiction showed that EFT significantly decreased anxiety ($p < 0.001$) (Church, 2013b) and hypothesized that EFT could help individuals in recovery to manage distressing memories or emotions in an adaptive manner, thus preventing relapses. This hypothesis was tested in a sample of compulsive or emotional eaters, where anxiety reduction correlated with an average 5.4-kg weight loss during a 6-week EFT treatment program (Church and Wilde, 2013). However, when this study was carried out as a large-scale ($n = 96$) RCT, the change in anxiety did not reach significance ($p = 0.24$) despite achieving comparable weight loss of 5.1 kg (Stapleton et al., 2013).

METHODS

Search for Included Studies

A literature search for English-language articles was performed using MEDLINE/PubMed, PsycINFO, Google Scholar, and references from the retrieved articles. When possible, articles “in press” were obtained from authors or relevant professional organizations. The search is current through December 2015. Keyword searches included “emotional freedom technique(s)” or “EFT” and “anxiety,” “phobia,” or “post-traumatic stress disorder.” Only RCTs that assessed anxiety as an outcome measure were included.

APA Division 12 Criteria

The APA Division 12 Task Force on Empirically Validated Treatments developed standardized criteria for judging the quality of research studies (Chambless et al., 1998; Chambless and Hollon, 1998). These criteria provide a standardized means of evaluating findings in the literature and comparing studies to one another. In this article, studies considered for inclusion in the meta-analysis were systematically scored using the APA criteria, and those that failed to meet them were rejected.

The APA standards identify 7 essential criteria, including the following:

- (1) Randomized controlled trial—subjects must have been randomly allocated to a treatment group or to 1 or more control conditions.

- (2) Adequate sample size—the study must include a sufficient number of subjects (sufficient power) for statistical analysis to determine a significant difference between the treatment and control conditions ($p < 0.05$).
- (3) Clearly defined treatment sample—the relevant characteristics of the study sample must be clearly defined in order to assess how generalizable the findings in the sample might be. This requires some combination of clinician diagnosis, scores on validated diagnostic questionnaires, and participant interviews.
- (4) Validated assessment tools—the outcome measures used in the study must have demonstrated reliability through standard clinical measures validation techniques.
- (5) Blinding—for any assessment of the subject made by a third party, the rater should not be informed about which subjects were in each group.
- (6) Standardized treatment—the intervention should be clearly described in a treatment manual (or if very simple, in the procedures section of the published article) to ensure that treatments are uniformly applied and replicable between studies.
- (7) Sufficient results reporting—the study must report enough data to support the conclusions of the article, including sample sizes, explanation of the instruments used to detect outcome measure changes, and magnitude of statistical significance.

Excluded Studies

Twelve studies were excluded (Fig. 1) for reasons including not using randomization, not reporting sufficient data to calculate the effect size, and not using anxiety as a primary end point. Notable exclusions include those of Jones et al. (2011) and Waite and Holder (2003), which did not report sufficient statistics to derive an effect size, and Boath et al. (2012), which did not perform randomization.

Meta-analysis

Meta-analysis was conducted using an inverse variance weighted model. The repeated-measures effect size was calculated according to the method of Becker (1988) as given in Equation 1.

$$d_{rm} = \frac{(M_{pre} - M_{post})}{SD_{pre}} \quad 1$$

This method allows the effect size of repeated measures in different treatment groups to be directly compared, as the effect size is not influenced by the treatment condition's effect on posttreatment SD (Becker, 1988). The effect size is coded such that positive values indicate lowering of the anxiety score. The independent group comparison between the treatment condition and control condition was calculated as the difference between the treatment and control effect sizes.

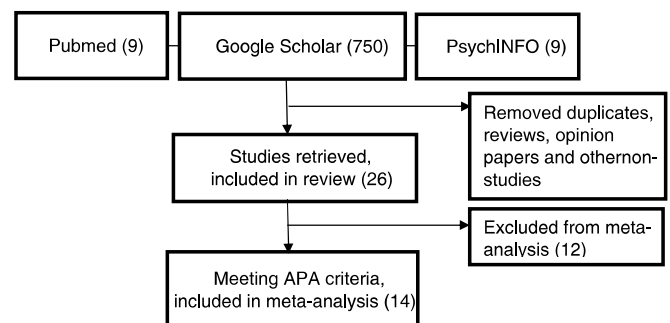


FIGURE 1. Schematic of literature search and study selection.

$$d_{IG} = \frac{(M_{pre,E} - M_{post,E})}{SD_{pre,E}} - \frac{(M_{pre,C} - M_{post,C})}{SD_{pre,C}} \quad 2$$

Thresholds of effect size suggested by Cohen are 0.2, 0.5, and 0.8 for small, medium, and large effects, respectively (Cohen, 1988). Variance was calculated according the generalized method described (Morris and DeShon, 2002), as given in Equation 3.

$$var = \left[\frac{2(1-\rho)}{n} \right] \left(\frac{n-1}{n-3} \right) \left[1 - \frac{n}{2(1-\rho)} d^2 \right] - \frac{d^2}{[c(n-1)]^2} \quad 3$$

Where the bias function is given in Equation 4. Degrees of freedom were calculated as $df = n - 1$ for repeated measures, and $df = n_E + n_C - 2$ for independent group analysis.

$$c(df) = 1 - \frac{3}{4df-1} \quad 4$$

The correlation coefficient was not reported or derivable from the data given and was imputed as 0.5. Data regarding means, SDs, and sample size were complete except for the pretreatment control group data by Stapleton et al. (2013). These data were estimated using the pretreatment experimental group data.

These data were entered as point estimate and variance into Comprehensive Meta-analysis version 3. Studies that contained multiple control groups were included as independent studies. Based on the presence of significant heterogeneity, a random-effects model is reported. Categorical moderator analysis considered the effects of number of treatments (1 vs ≥6) and the diagnosis of the study sample (PTSD, specific phobia, or other).

RESULTS

The pooled sample included 658 subjects, with 293 in the experimental groups and 365 in the control groups. As shown in the study selection flowchart in Figure 1, 12 studies were excluded, and 14 studies were identified that fulfilled the selection criteria for meta-analysis, as summarized in Table 1. Whereas some studies selected for individuals with anxiety, phobia, or PTSD, others focused on volunteers, student achievement, and those with subclinical anxiety scores. Six of 14 studies used 1 session of EFT as the intervention, whereas the remaining 8 studies used 3 or more sessions. Nine of 18 comparisons (4 studies had 2 control arms) were no-treatment controls, and the remaining controls were various forms of active treatments such as EMDR, supportive interview, and DB. Although clinical diagnosis of anxiety was not an inclusion criterion for this study, analysis of the samples showed that a substantial number of subjects did qualify as clinically anxious based on validated assessment tools such as the Symptom Assessment 45 (Table 1).

EFT Treatment Effect

Effect sizes for each study are reported in Table 2. The overall effect size for EFT treatment was 1.23 (95% confidence interval [CI], 0.82–1.64; $p < 0.001$). This effect size is considered large and is likely to be clinically significant. The study sample (PTSD, specific phobia, or other) was found to be a significant moderator ($p = 0.049$). The greatest effect size occurred in the PTSD group where ($d = 1.75$ [CI, 1.03–2.48; $p < 0.001$]), followed by specific phobia ($d = 1.68$ [CI, 0.60–2.77; $p < 0.001$]). The remaining groups, which did not have selection criteria for an anxiety-related disorder, had an effect size of 0.81 (CI, 0.38–1.24; $p < 0.001$). The number of EFT sessions seemed to have a significant influence ($p = 0.032$) on effect size when comparing 1 session ($d = 1.04$ [CI, 0.44–1.64]) versus 6 or more sessions ($d = 1.59$ [CI, 0.78–2.39]). However, studies with 6 or more sessions included most of the PTSD studies, and studies with 1 session included

TABLE 1. Summary Data of Randomized Controlled Studies Selected for Meta-analysis

Study	Population (Verification Tool)	Anxiety Assessment Tool	EFT Sessions (n = 293)	Control(s) (n = 365)
Baker and Siegel (2010)	Specific phobia (<i>DSM-IV</i>)	FQ	1 Session (n = 11)	(1) NT (n = 10) (2) Interview (n = 10)
Brattberg (2008)	Fibromyalgia, >50% with anxiety (HADS)	HADS anxiety	8 wk (n = 26)	WL (n = 36)
Church et al. (2013)	PTSD (PCL-M)	SA-45 anxiety	6 Sessions (n = 29)	TAU (n = 25)
Church et al. (2016)	Subclinical PTSD (PCL-M)	SA-45 anxiety	6 Sessions (n = 12)	TAU (n = 9)
Church et al. (2012)	Almost 50% with anxiety (SA-45 anx)	SA-45 anxiety	1 Session (n = 28)	(1) WL (n = 27) (2) Interview (n = 28)
Fox (2013)	College students	AEQ	1 Session (n = 10)	Modified EFT ^a (n = 10)
Gaesser (2014)	Gifted children (IQ score)	RCMA2	3 Sessions (n = 20)	(1) WL (n = 21) (2) CBT (n = 21)
Geronilla et al. (2014)	PTSD (PCL-M)	SA-45 anxiety	6 Sessions (n = 29)	TAU (n = 25)
Jain and Rubino (2012)	College students	WTAS	1 Session (n = 11)	(1) WL (n = 23) (2) DB (n = 6)
Karatzias et al. (2011)	PTSD (<i>DSM-IV</i>)	HADS anxiety	4 Sessions (n = 23)	EMDR (n = 23)
Salas et al. (2011)	Specific phobia (SUDS)	BAI	1 Session (n = 11)	DB (n = 11)
Sezgin and Ozcan (2009)	Test anxiety (TAI)	TAI	1 Session (n = 16)	Progressive muscular relaxation (n = 16)
Stapleton et al. (2013)	Overweight, >50% with anxiety (SA-45)	SA-45 anxiety	4 Sessions (n = 49)	WL (n = 47)
Wells (2003)	Specific phobia (<i>DSM-IV</i>)	FQ	1 Session (n = 18)	DB (n = 17)

^aModified EFT means EFT without tapping or cognitive reframing statements.

AEQ indicates Achievement Emotions Questionnaire; BAI, Beck Anxiety Inventory; FQ, Fear Questionnaire; RCMA, Revised Children's Manifest Anxiety Scale; SA-45, Symptom Assessment 45; TAI, Test Anxiety Inventory; TAU, treat as usual; WL, waitlist; WTAS, Westside Test Anxiety Scale.

TABLE 2. Effect Sizes and Confidence Intervals for Treatment, Control, and Difference

Study	Sessions/Control	d_{EFT} (95% CI)	d_{ctrl} (95% CI)	$d_{EFT} - d_{ctrl}$ (95% CI)	Weight	p
Baker and Siegel (2010)	1 s/NT	0.95 (0.12 to 1.78)	0.12 (-0.59 to 0.82)	0.83 (-0.26 to 1.92)	4.7%	0.136
	1 s/Interview		0.04 (-0.67 to 0.75)	0.91 (-0.18 to 2.00)	4.7%	0.102
Brattberg (2008)	8 s/WL	0.51 (0.07 to 0.95)	0.02 (-0.32 to 0.36)	0.49 (-0.06 to 1.04)	8.0%	0.083
Church et al. (2013)	6 s/TAU	1.57 (0.98 to 2.16)	0.05 (-0.34 to 0.44)	1.52 (0.81 to 2.23)	6.9%	<0.001*
Church et al. (2016)	6 s/TAU	1.18 (0.33 to 2.03)	0 (-0.76 to 0.76)	1.18 (0.04 to 2.32)	4.4%	0.043*
Church et al. (2012)	1 s/WL	1.42 (0.87 to 1.97)	0.08 (-0.31 to 0.47)	1.34 (0.66 to 2.02)	7.1%	<0.001*
	1 s/Interview		0.71 (0.27 to 1.15)	0.71 (0.00 to 1.42)	6.9%	0.049*
Fox (2013)	1 s/Modified EFT	0.44 (-0.32 to 1.20)	-0.03 (-0.74 to 0.68)	0.47 (-0.55 to 1.49)	5.0%	0.366
Gaesser (2014)	3 s/WL	1.72 (0.96 to 2.48)	0.62 (0.14 to 1.1)	1.1 (0.18 to 2.02)	5.6%	0.019*
	3 s/CBT		1.49 (0.81 to 2.17)	0.23 (-0.79 to 1.25)	5.0%	0.658
Geronilla et al. (2014)	6 s/TAU	2.62 (1.79 to 3.45)	0.32 (-0.12 to 0.76)	2.3 (1.38 to 3.22)	5.6%	<0.001*
Jain and Rubino (2012)	1 s/WL	0.42 (-0.29 to 1.13)	-0.03 (-0.47 to 0.41)	0.45 (-0.36 to 1.26)	6.3%	0.275
	1 s/DB		1.15 (-0.39 to 2.69)	-0.73 (-2.42 to 0.96)	2.6%	0.396
Karatzias et al. (2011)	4 s/EMDR	1.24 (0.65 to 1.83)	1.52 (0.87 to 2.17)	-0.28 (-1.16 to 0.60)	5.8%	0.531
Salas et al. (2011)	10 s/DB	0.62 (-0.11 to 1.35)	0.25 (-0.43 to 0.93)	0.37 (-0.63 to 1.37)	5.1%	0.468
Sezgin and Ozcan (2009)	1 s/PMR	3.39 (1.9 to 4.88)	1.58 (0.75 to 2.41)	1.81 (0.10 to 3.52)	2.6%	0.038*
Stapleton et al. (2013)	4 s/WL	0.27 (-0.01 to 0.55)	0 (-0.28 to 0.28)	0.27 (-0.12 to 0.66)	9.1%	0.177
Wells (2003)	1 s/DB	2.3 (1.30 to 3.30)	0.66 (0.11 to 1.21)	1.64 (0.48 to 2.8)	4.4%	0.006*
Random		1.23 (0.82 to 1.64)	0.41 (0.17 to 0.67)	0.80 (0.49 to 1.12)		<0.001*

Abbreviations are as given in Table 1. P values and weight based on inverse variance are given for the effect size difference.

*Significance <0.05.

specific phobia and other indications, so the results may be due to effects other than the number of treatment sessions.

found between controls designated as *waitlist* and those designated as *treat as usual* ($p = 0.937$).

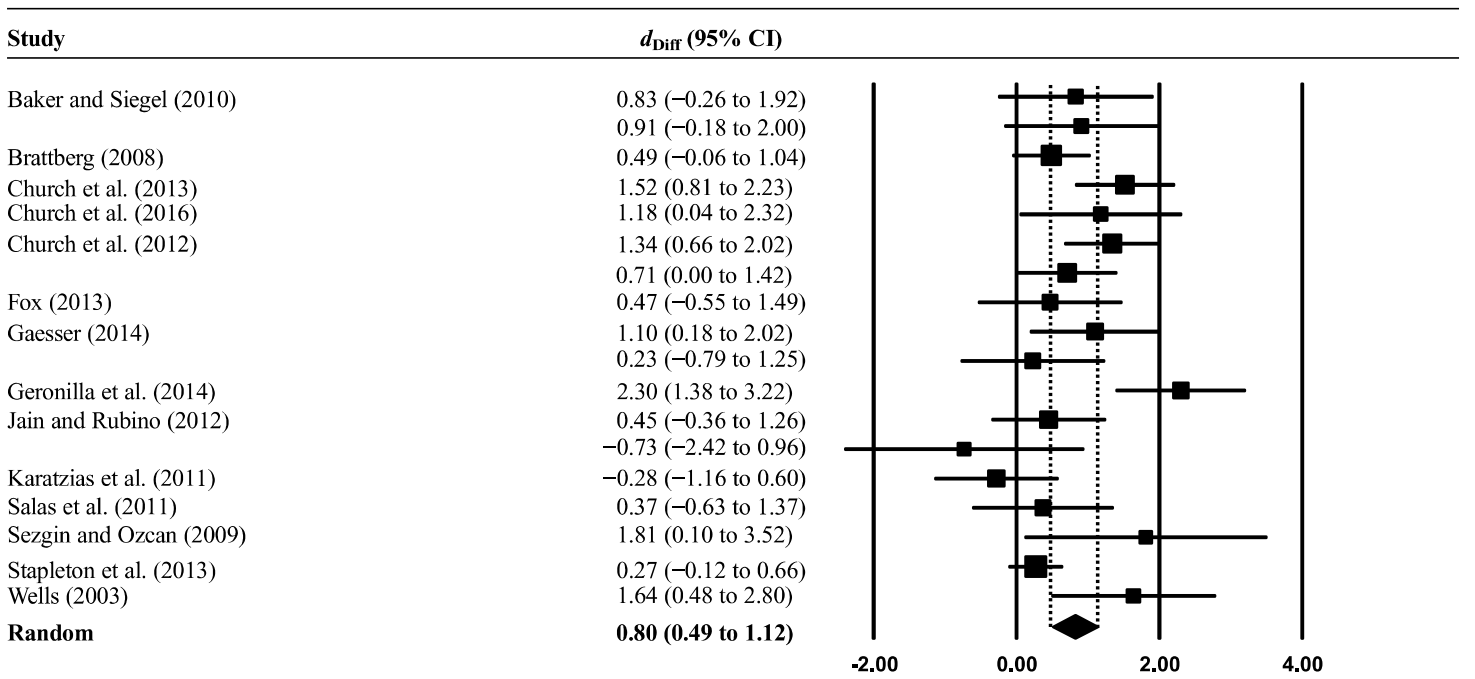
Control Treatment Effect

The effect size for combined control groups was 0.41 (95% CI, 0.17–0.67; $p < 0.001$). Separating active treatments ($n = 9$) from waitlist treatments ($n = 9$), the effect sizes were 0.79 (CI, 0.38–1.19; $p < 0.001$) and 0.10 (CI, 0.03–0.24; $p = 0.142$), respectively. No difference was

Comparison of EFT and Control

When control effect sizes were subtracted from experimental effect sizes, the effect size of the difference was still large at 0.80 (CI, 0.49–1.12; $p < 0.001$). This effect size reflects comparison with heterogeneous controls, and the true effect size is expected to be larger

TABLE 3. Forest Plot of the Effect Size Differences



compared with inactive controls and smaller when compared with active treatments. Subtracting the effect size of inactive controls from the pre-post effect size of EFT yields a corrected effect size of $d = 1.13$ (CI, 0.69–1.56; $p < 0.001$). Relative to active controls, the effect size of EFT was $d = 0.44$ (CI, –0.13 to 1.02; $p = 0.13$). The smallest difference was when EFT was compared with CBT in the Gaesser (2014) study, where CBT had an effect size of 1.49 (CI, 0.81–2.17), whereas EFT had an effect size of 1.72 (CI, 0.96–2.48), making the difference 0.23 (CI, –0.79 to 1.25; $p = 0.658$). The forest plot in Table 3 illustrates the effect size differences between control and EFT. Box size is inversely related to variance, such that studies with smaller variance have larger boxes.

DISCUSSION

This study found very high effect sizes for EFT treatment ($d = 1.23$ [95% CI, 0.82–1.64; $p < 0.001$]), even when corrected by the effect size of inactive controls ($d = 1.13$ [CI, 0.69–1.56; $p < 0.001$]). However, compared with active controls, the medium-size effect ($d = 0.44$ [CI, –0.13 to 1.02; $p = 0.13$]) did not reach statistical significance. The effect size for EFT compared with inactive treatment is higher than those reported in meta-analyses of CBT versus inactive treatment for anxiety ($d = 0.82$ [CI, 0.62–1.01], Mitte, 2005; and $d = 0.73$ [CI, 0.56–0.90], Hofmann and Smits, 2008). Even so, only 1 study in this analysis compared EFT and CBT, and additional replications are needed to estimate their relative efficacies. On moderator analysis, samples with PTSD and specific phobia had greater treatment response than did groups that were not specifically selected for an anxiety-related diagnosis. Although a difference in the effect size was detected when subjects receiving 1 session of EFT were compared with those receiving 6 or more sessions, 3 of the 4 studies in the group with 6 or more sessions were PTSD samples, whereas the 1-session studies were composed of specific phobia (3/7 studies) and nonpsychiatric indications such as test performance. Further investigation is needed to determine effect size in indications besides PTSD and specific phobia, such as generalized anxiety disorder, social phobia, and obsessive-compulsive disorder.

The effects observed in this meta-analysis can reasonably be expected to be generalizable because of the variety of samples included and because of the use of a random-effects model, which usually makes a more conservative effect size estimate. A previous analysis noted no significant effect differences when men are compared with women or younger subjects compared with older subjects (Boath et al., 2013a). Subjects range from children and adolescents (Gaesser, 2014), to university students (Benor et al., 2009; Sezgin and Ozcan, 2009), to adults (Brattberg, 2008; Rowe, 2005; Wells et al., 2003). Studies also cover a variety of issues including test anxiety (Benor et al., 2009; Sezgin and Ozcan, 2009), specific phobias (Salas et al., 2011), and posttraumatic stress syndrome (Church et al., 2013; Karatzias et al., 2011).

Many of the studies even enroll subjects who fail to meet cutoff thresholds on standardized tests and would therefore be unlikely to receive treatment in traditional health care systems (Boath et al., 2013b; Church et al., 2016). Emotional freedom technique may be capable of reducing barriers to care in 3 primary ways: (1) EFT reduces the time required for treatment because it requires fewer sessions to achieve an effect; (2) it does not require a highly trained professional and can even be self-administered; and (3) it circumvents the stigma attached to seeking treatment for psychiatric disorders. Traditional psychotherapy methods such as CBT often require a series of more than 10 sessions to be effective (Aaronson et al., 2008). Emotional freedom technique may present a very effective, low-risk, and economic adjunct to current practice.

Limitations

This study has several limitations. Significant heterogeneity was present in EFT treatment groups ($Q = 75.8$, $I^2 = 82.8$), which may reflect variation in the samples studied and variation in the conduct of the studies themselves. It is possible that the various effects combined in the analysis were not strictly comparable to one another, such as military PTSD and nonpathological presentation anxiety. However, the validity is improved by the fact that many of the studies used similar anxiety assessment scales such as the SA-45 and the HADS scale. Control subjects were also heterogeneous ($Q = 41.2$, $I^2 = 68.4$) and represented a variety of designs but unfortunately did not include a sufficient number of studies using standard-of-care therapies to analyze the relative efficacy of traditional treatments. Many of the studies had very small sample sizes, which increases the uncertainty of the overall effect size estimate. Larger studies are needed to establish a better estimate of the true effect size. There are many opportunities for possible bias in the studies analyzed, such as demand characteristics, therapist allegiance, novelty or placebo effects, and expectancy effects. The quality of a meta-analysis is limited by the quality of the original studies, and unfortunately the data from the thesis dissertation by Fox (2013) and the presentation data from Geronilla et al. (2014) never reached peer review, but were included in the interest of using all available data. This analysis is subject to the “file drawer problem” that any negative studies were less likely to be published and could not be included. In this case, the results reported may overestimate the true effect size. Any of the studies may have been subject to either observer or subject expectancy bias. In observer expectancy bias, also called Pygmalion bias, the preconceived expectations of the experimenters unconsciously influence the behavior of the study subjects. Likewise, subject expectancy bias may influence subjects to report an improvement in symptoms because of their expectation that treatment should improve their condition.

Implications for Clinical Practice and Future Research

Additional studies are warranted to compare EFT directly to standard-of-care therapies. Beyond the efficacy of the treatment, consideration should be given to investigating how EFT changes access to care and cost of treatment. Cognitive behavioral therapy is resource intensive in terms of time and cost of many sessions with a highly trained professional. Emotional freedom technique can be taught by lower-level or nonspecialist health care providers and can be performed by the client as needed. Systematic reviews and meta-analyses indicate that self-help interventions for stress reduction are often effective and empowering for individuals dealing with any of a variety of chronic health problems (Beatty and Lambert, 2013; Matcham et al., 2014). Although there are many limitations to this analysis, the large effect sizes of the treatment groups imply that investigation should be continued. In particular, investigations should consider a broader range of psychological populations, such as generalized anxiety disorder, social phobia, and obsessive-compulsive disorder. Studies comparing EFT and standard of care in terms of outcomes, patient satisfaction, cost of treatment, and time required to achieve results are necessary to establish whether there is a role for EFT in modern health care systems.

CONCLUSIONS

These data demonstrate that EFT therapy is associated with a significant treatment effect when patients are compared with baseline or compared with control conditions. There are insufficient data to demonstrate equivalence or superiority to traditional psychotherapy techniques such as CBT. However, because of its efficacy and ease of use, EFT may possess significant practical advantages to public health outcomes compared with resource-intensive approaches including CBT. Based on the positive outcomes, further studies are

needed on patient satisfaction, patient preference, accessibility, cost saving, and comparison to standard of care.

DISCLOSURES

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