Cogent Psychology

ISSN: 2331-1908 (Online) Journal homepage: www.tandfonline.com/journals/oaps20

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To cite this article: Peta Stapleton, Kyra Le Sech, Loren L. Toussaint & Hui Kuang Hsieh (2025) Effectiveness of a single emotional freedom techniques session on facilitating forgiveness and mental health: a randomized clinical trial, Cogent Psychology, 12:1, 2538740, DOI: 10.1080/23311908.2025.2538740

To link to this article: https://doi.org/10.1080/23311908.2025.2538740

Published online: 14 Aug 2025.

COGENT PSYCHOLOGY
2025, VOL. 12, NO. 1, 2538740
https://doi.org/10.1080/23311908.2025.2538740

CLINICAL PSYCHOLOGY | RESEARCH ARTICLE

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Effectiveness of a single emotional freedom techniques session on facilitating forgiveness and mental health: a randomized clinical trial

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ABSTRACT

Interpersonal transgressions can cause emotional distress and harm victims' mental and physical health. This pre-registered clinical trial investigated the effectiveness of Emotional Freedom Techniques (EFT) in promoting forgiveness and mental health. A sample of 98 adults (91% female, aged 28–72) from Australia and the U.S. self-selected and were randomly allocated to an online EFT intervention or control task. Pre- and post-intervention measures assessed forgiveness, empathy, rumination, mood, and anxiety. Results revealed moderate improvements in most outcomes for the EFT group, suggesting its potential role in fostering forgiveness and psychological recovery. Findings suggest EFT may aid emotional reintegration, reduce stress, and enhance mental wellbeing after interpersonal offenses.

ARTICLE HISTORY
Received 25 February 2025
Revised 13 May 2025
Accepted 17 July 2025

KEYWORDS
Interpersonal transgression; forgiveness; Emotional Freedom Techniques; mental health; clinical trial

SUBJECTS
Social Sciences; Behavioral Sciences; Health Psychology; Social Sciences; Behavioral Sciences; Biopsychology

Interpersonal transgressions can happen in all kinds of relationships. Individuals can experience hurt because of marital discord, violation of social norms and rules, and feeling betrayed in the interpersonal relationship (Vismaya et al., 2024; Worthington, 2005). They can also feel hurt and harmed as a result of overt discrimination, hostility and hatred causing conflict within and between races, ethnicities, and nations (Akhtar & Barlow, 2018; Vismaya et al., 2024). Most interpersonal transgression occurs due to moral wrongdoings and acts of violence in everyday life (Krug et al., 2002; Vismaya et al., 2024). Infidelity, extramarital affairs, bullying, child and elder abuse, intimate partner violence, sexual assault and rape are the most common interpersonal transgressions causing enormous emotional pain in millions of victims' lives on a day-to-day basis (Krug et al., 2002). While unforgiving responses due to the hurt can cause excessive stress to victims and adversely affect their health, forgiving responses ameliorate stress and distress and decrease allostatic load, leading to better health outcomes (Lee & Enright, 2019; Rasmussen et al., 2019; Toussaint et al., 2015). Consequently, helping individuals forgive when they have been harmed may help to protect and improve their health and well-being (Enright & Fitzgibbons, 2015; Kim et al., 2022; Toussaint et al., 2016). The present study examined a single Emotional Freedom Techniques (EFT) session to evaluate its efficacy as an efficacious method to facilitate forgiveness.

Unforgiving outcomes

Interpersonal transgressions, such as trauma or abuse, often trigger strong negative emotional, cognitive, and behavioral reactions towards the offender, which can impede recovery and deteriorate general well-being (Connolly & Alloy, 2018; Lee & Enright, 2019; McCullough et al., 2006; Rasmussen et al., 2019; Toussaint et al., 2015; Witvliet et al., 2001). Persistent unforgiving responses can lead to elevated blood pressure, increased heart rate, and heightened susceptibility to cardiovascular diseases, while also

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exacerbating existing health conditions (Karner-Huţuleac et al., 2020; Witvliet et al., 2001). Chronic stress from unforgiveness can cause excessive release of stress hormones, altering brain functions and structures, thus highlighting the importance of reducing stress and cultivating forgiveness to protect mental and physical health (Duque et al., 2022; Karner-Huţuleac et al., 2020; Lee & Enright, 2019; Toussaint et al., 2015). Additionally, rumination, characterized by repetitive negative thinking, can intensify these unforgiving responses and perpetuate mental distress (Uzun & Arslan, 2024; Watkins & Roberts, 2020). Therefore, fostering forgiveness is crucial in mitigating the harmful effects of chronic stress and promoting overall well-being.

Forgiveness

In the history of mankind, the ability to forgive has moved human beings forward despite harm (Benard et al., 2022; Fehr et al., 2010). Although transgression causes enormous pain to the victim, forgiveness can be a path toward recovering from emotional wounds, restoring a sense of inner peace, and rebuilding damaged relationships (Toussaint & Worthington, 2023). Many scholars have agreed that the concept of forgiveness involves letting go of anger, bitterness, hatred, resentment and revenge, relinquishing the right to justice and records of wrongdoings, developing goodwill, and acting mercifully towards the offender (Vismaya et al., 2024; Worthington, 2020). This positive change can happen from within the victim despite the attitude of the offender not being apologetic or repentant (Kim & Enright, 2024). It is important to note that forgiveness does not necessarily involve reconciliation and reestablishing the relationship with the perpetrator; it also does not mean forgetting, denying, tolerating, excusing, or condoning wrongdoings and wrongdoers (Akhtar & Barlow, 2018). The process of forgiveness is intrapersonal but not necessarily interpersonal (Worthington, 2022). Therefore, it is imperative to focus on discovering the internal processes that may motivate forgiveness.

Affective empathy has been suggested as the strongest social and cognitive attribute of motivating forgiveness (McCullough et al., 1998). Evidence has indicated that increasing empathy reduces unforgiving attitudes and motivates forgiving responses towards the offender (Ascıoglu Onal & Yalcın, 2017). It shifts the victim's perception and makes it possible to reevaluate the accountability, avoidability, severity, and intentionality of the offender. Hence, cultivating empathy towards the offender decreases negative reactions and promotes the forgiveness process (Ascıoglu Onal & Yalcın, 2017).

Theoretical framework

Strelan and Covic (2006) and Strelan (2020) proposed that the forgiving process can be conceptualized as a process of coping with an internal stress induced by an interpersonal stress or conflict. It is an ongoing process of working toward being emotionally freed from the adverse effects of the hurt caused by others. As a result, an effective way to promote forgiveness is suggested to be an emotion-based coping strategy that targets stress reduction (Strelan, 2020; Strelan & Covic, 2006; Worthington & Scherer, 2004). Deactivating stress responses and reducing the chronicity of psychological distress is the crucial step to facilitating forgiveness and protecting the victim from suffering greater harm to their mental and physical wellbeing (Strelan, 2020; Strelan & Covic, 2006; Worthington & Scherer, 2004). Accordingly, an evidence-based treatment technique, which is quick, effective, and easily accessible online that allows the individual to self-administer during times of heightened stress could be an effective means of promoting forgiveness in many different circumstances.

Emotional Freedom Techniques

Clinical Emotional Freedom Techniques (EFT) have been validated by more than 100 randomized control trials and outcome studies as an evidence-based practice that meets the APA standards as an efficacious treatment for several psychological and physiological conditions (Church et al., 2022; Clond, 2016; Nelms & Castel, 2016; Sebastian & Nelms, 2017; Seok & Kim, 2024; Stapleton et al., 2023). A growing body of evidence has supported its efficacy in treating psychological symptoms of anxiety, depression, phobia, and PTSD and physiological symptoms including pain, insomnia and autoimmune conditions such as psoriasis and fibromyalgia (Church et al., 2022; Hodge & Jurgens, 2011; Lee et al., 2013; Stapleton et al.,

2025). Clinical EFT combines well-established therapies: Cognitive Behavioural Therapy (CBT) and Prolonged Exposure Therapy (PE) with acupoint stimulation. Specifically, EFT stimulates the acupuncture points on the body and the face by tapping on them with the fingertips, which is why it is commonly called "tapping". Evidence indicates that stimulating the acupoints by tapping produces the same effect as acupuncture needling (Cherkin et al., 2009).

Underlying mechanisms

Several functional magnetic resonance imaging (fMRI) studies investigating the effectiveness of facial acupoint stimulation showed that this stimulus regulates the amygdala, hippocampus, and other brain regions engaging in emotion processing, especially fear and pain (Fang et al., 2009; Hui et al., 2005; Napadow et al., 2007). The amygdala is the major center for processing many kinds of emotions and acupoint stimulation appears to normalize the amygdala function (Napadow et al., 2007). Tapping acupoints either decreases the hypersensitized and hyperactive amygdala activities (Napadow et al., 2007) or increases amygdala activities to assist integration (Wittfoth et al., 2022). These findings might indicate that acupoint tapping increases the adaptability and capacity of brain regions or neural circuits engaged in information and emotion processing. The direct effect of acupoint stimulation is that it directly deactivates the body's stress response, which rapidly regulates the body's stress reactivity, calms psychological and somatic stress reactions, and alleviates physiological and psychological symptoms of distress (Church et al., 2022). Numerous other studies have demonstrated the physiological benefits of EFT, including reductions in brain wave frequencies associated with PTSD (Swingle et al., 2004), increased relaxation (Lambrou et al., 2003), improved stress biochemistry (Bach et al., 2019), and decreased cortisol levels (Church et al., 2012; Stapleton et al., 2020).

EFT integrates the components of cognitive reframing, imaginal exposure, awareness building, preframing and systematic desensitization. While tapping the acupuncture points, participants maintain a mental focus on disturbing emotions, thoughts, and events. This bifocal-multisensory intervention has been found to alter and reorganize information and emotion processing from the underlying neural pathways, which assists emotion regulation (Wittfoth et al., 2022). Church et al. (2018) conducted a systematic review comparing the effectiveness of a full EFT protocol with comparative treatments using alternatives of acupoint tapping including the mindfulness breathing exercise, diaphragmatic breathing, and sham tapping, points not used in EFT (Tan et al., 2015). This review showed that a full EFT protocol produced a superior outcome. Thus, it is reasonable to conclude that the novel approach of EFT intervention, adding acupoint stimulation to the techniques of cognitive restructuring and exposure, is the actual ingredient that causes the rapid and effective outcomes of the EFT intervention (Church et al., 2018). When the established treatments of cognitive and exposure therapies combine with acupoint stimulation, the treatment effect appears to be enhanced.

Researchers have claimed EFT is fast and effective, and efficacious in delivery in virtual and self-administering format, which makes EFT suitable as a primary and first-line self-help intervention for coping with stress (Church et al., 2022). Online, self-administered Emotional Freedom Techniques (EFT) have demonstrated efficacy in various mental health contexts, including stress, anxiety, and chronic pain management. A study by Church et al. (2020) involving over 270,000 users of an EFT mobile app revealed significant reductions in self-reported emotional distress, supporting the effectiveness of self-guided EFT interventions. Additionally, a randomized clinical trial by Stapleton et al. (2025) found that both live and self-paced online EFT programs were equally effective in reducing chronic pain severity and improving quality of life, with benefits sustained at a 6-month follow-up. These findings suggest that online, self-administered EFT can be a viable option for facilitating forgiveness and addressing recent grievances in adults. Therefore, the purpose of this study was to expand current knowledge of the efficacy of EFT in fostering forgiveness in individuals experiencing interpersonal hurt.

Current study

This study aimed to investigate the effectiveness of a single brief EFT self-tapping intervention in facilitating the process of forgiveness in individuals who had experienced an interpersonal offense. It was

hypothesized that, compared to participants in the control group, participants exposed to a brief EFT intervention would show improved indicators of forgiveness, empathy, and mood and reduced rumination, perceptions of injustice, and anxiety and depression symptoms.

Method

This trial was pre-registered with The Australian New Zealand Clinical Trials Registry (ACTRN12623000538640).

Participants

The participants consisted of college students and adults from institutions of higher education in Australia ($n = 69$) and the United States ($n = 31$) through university distribution and social media, snow balling techniques. As a result, the average age of the sample was 47.9 ($SD = 13.0$; $Med = 47.5$) and was 91% female. The sample was highly educated with the majority holding a bachelor's degree or less (51%) and the remaining holding a higher degree credential (49%). Finally 50% of the sample was married or in a committed relationship, and 50% were not. No statistically significant differences were observed between institutions on any of the demographic variables ($ps = 0.12 - 0.74$). Participants were provided informed consent, institutional ethics approval was obtained for this study, and participants received no incentive to complete the study outside of course credit for college participants.

Measures

Four measures—revenge, avoidance, benevolence, and empathy—were used to measure forgiveness. Four measures—mood, injustice perception, rumination, and anxiety and depression symptoms—were used to assess mental health. Items for each measure were averaged together to create a scale score, except for the injustice gap measure which was summed.

Transgression-Related Interpersonal Motivations (TRIMs-18) (McCullough et al., 1998; 2003; McCullough & Hoyt,2002)

The TRIM-18 Inventory contains three subscales assessing the motivational changes in forgiveness (McCullough et al., 1998). Participants rated all items on a 7-point Likert scale 1 (*strongly disagree*) to 7 (*strongly agree*). The seven-item avoidance subscale measures the tendency to avoid the transgressor (e.g. "I keep as much distance between us as possible"). The five-item revenge subscale measures the tendency to seek revenge (e.g. "I'll make him/her pay"). Both subscales were found to have high internal consistency reliability with Cronbach's alpha ≥ 0.85 and moderate test-retest reliability with approximate $r = 0.45$ (e.g. 8 weeks test-retest reliability ≈ 0.50; McCullough et al., 1998). Additionally, the benevolence subscale consists of six positively worded items measuring benevolence motivation (e.g. "Even though his/her actions hurt me, I still have goodwill for him/her"). This subscale was also found to have a good internal consistency with estimated $\alpha = 0.85$ and a good test-retest reliability, $r > 50$ (McCullough et al., 2003; McCullough & Hoyt, 2002). In this study, the internal consistency reliability was adequate with $\alpha = 0.92$, 0.83 and 0.84 and test-retest correlations were good with $r = 0.85$, 0.85 and 0.80 on avoidance, revenge and benevolence subscales, respectively. Taken together, low scores in the avoidance and revenge subscales and high scores in benevolence indicate a stronger degree of forgiveness toward the transgressor.

Affective empathy for the transgressor (Batson et al., 1987)

Participants' levels of empathy toward the transgressors were assessed by rating their current feelings about these six emotion words: sympathetic, moved, compassionate, tender, warm and softhearted, on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*extremely*) while thinking about the hurtful person and event. The six items were summed to calculate the overall score between 6 and 42 with higher scores indicating stronger empathy towards the transgressor. The scale was found to have good internal consistency with Pearson correlation coefficients ranging from 0.44 to 0.75 (Batson et al., 1987). The

internal consistency reliability of the current study was sufficient with α = 0.93 and the test-retest reliability was $r = 0.86$.

Rumination about an Interpersonal Offense Scale (RIO) (Wade et al., 2008)

Participants' state or situation-specific rumination was assessed utilizing a six-item brief instrument measuring repetitive cognitive rehearsal following an interpersonal offense (Wade et al., 2008). Participants responded to the measure with a 5-point Likert scale indicating their degree of agreement or disagreement with each item, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) regarding the person, event or situation that hurt them. The higher the total scores are, the higher the rumination about the interpersonal offense. The internal consistency was reported above Cronbach's alpha level of 0.90 and the test-retest reliability was moderately stable with $r = 0.50$ over a 10-week interval (Wade et al., 2008). The internal consistency reliability of this study was α = 0.85 with acceptable test and retest reliability, $r = 0.70$.

Injustice Gap Scale (IGS; Davis et al., 2016)

The magnitude of participants' perception of the aftermath of the interpersonal offence not meeting expectations of ideal justice was assessed using a brief four-item IGS (Davis et al., 2016). Participants rated their extent of agreement on questions regarding the offender and event on the standard visual analog scale from 0 (*strongly disagree*) to 100 (*strongly agree*). Three questions: "True justice was done;" "The offender did everything he or she could to repair the offense;" "The situation was handled fairly" were reverse coded. Mean scores were computed with higher mean scores indicating greater difficulty forgiving at this moment (Davis et al., 2016). The internal consistency reliability was high, α = 0.90 (Davis et al., 2016). However, in this study, the internal consistency reliability was α = 0.73 and 0.68 at pretest and posttest, respectively. Removing item number two "It fell short of true justice," changed the internal consistency reliability to α = 0.71 and 0.85 at pretest and posttest, respectively. We decided to use this slightly modified version since it did not negatively impact pretest scores too greatly and substantially improved posttest reliability. Test-retest reliability was $r = 0.66$.

Positive and Negative Affect Schedule Short Form (I-PANAS-SF) (Thompson, 2007)

Participants' current affective state was measured using an internationally validated 10-item PANAS short-form (Thompson, 2007). Participants rated the extent of their feelings on a 5-point Likert scale from 1 (*very slightly or not at all*) to 5 (*extremely*) about the following words at the current moment while reflecting on the hurtful person and event (Thompson, 2007). Each subscale contains five items with alert, inspired, determined, attentive and active measuring positive affect (PA) and upset, hostile, ashamed, nervous and afraid assessing negative affect (NA). The scores were summed separately by subscale and higher scores in NA subscale indicated higher levels of negative moods, whereas higher total scores in PA suggested a higher level of positive mood at the current moment. (Watson et al., 1988). The reliabilities of PA and NA subscales of I-PANAS-SF were adequate with Cronbach's alphas of 0.78 and 0.76 respectively and the test-retest reliability for both subscales was good and the same, $r = 0.84$, for an 8-week interval (Thompson, 2007). In this study, the internal consistency reliability was sufficient with α = 0.82 and 0.80 in PA and NA subscales respectively and test and retest reliability was $r = 0.67$ in both subscales.

The Patient Health Questionnaire for depression and anxiety (the PHQ-4) (Kroenke et al., 2009)

The PHQ-4 is a valid ultra-brief scale for detecting a general marker of psychological distress and the result was proven to account for 84% of the total variance in predicting depression and anxiety in the general population (Kroenke et al., 2009). Participants respond to the four items on a scale of 0 (*not at all*) to 4 (*a great deal*) with a total score ranging from 0 to 12. The total scores of PHQ-4 are categorized into four degrees of severity, normal (0–2), mild (3–5), moderate (6–8), and severe (9–12). Internal and test-retest reliabilities have been reported are good with α = 0.93 and $r = 0.74$ (Kroenke et al., 2009), with sufficient internal consistency reliability (α = 0.90 and 0.77, for pretest and posttest anxiety scores and

0.94 and 0.91, for pretest and posttest depression scores). Test-retest reliability was $r = 0.51$ and 0.49 for anxiety and depression scores, respectively (Kroenke et al., 2009).

Demographics

Demographic information including gender, age, marital status, and education level was collected.

Procedure

Participants self-selected to the trial responding to email distribution, University advertising, snow balling techniques and social media posts. Participants were informed that they would participate in the study regarding forgiveness, engage in a therapeutic technique and answer questions regarding a recent hurt caused by someone. The criteria acknowledged this may have been a minor grievance or a significant betrayal of trust so for the purpose of this study we asked participants to think of a minor grievance only. After agreeing to the informed consent, participants proceeded to self-report questionnaires using the Qualtrics platform. Participants were asked to recall a recent experience of being hurt by someone unfairly and deeply and visualize and revisit the event and the offender. Participants responded to questions related to this event and the measures assessing the baseline information about the momentary levels of stress, distress, and forgiveness when participants remained focused on the hurtful event. Participants then were randomly assigned via computer to EFT or control group respectively.

Participants assigned to the EFT group watched a video split up into two clips. The first one was the information about EFT tapping lasting for 2.5 minutes followed by the second one with EFT instructions for practice lasting approximately 4.5 minutes. Participants were asked to practice along with the second video clip and self-practice with written instructions guiding them through each step. The intervention could be accessed in participants' own time and on own device, and they were not observed during the process.

In the first step of the EFT intervention, participants were asked to think about the interpersonal hurt that occurred recently, write down their feelings if they wanted, and pay attention to their physiological sensations while stating the "setup statement" of self-acceptance. For example, "Even though I feel very hurt by this person, I accept that I feel this way." They then were asked to self-rate their intensity of distress on a scale of 0 to 10, 0 (*no distress*) to 10 (*extreme distress*). In the second step, participants chose one of the feelings about the event, person, or situation to focus on, gently tapped on the side of their hands with two fingers as shown in the picture below (see Figure 1) and repeated their self-accepting statement three times before continuing to the next step.

Participants started tapping on the following eight acupoints beginning from the eyebrow, as shown in Figure 2 while repeating the feeling that they focused on. For example, "I feel really hurt."

After completing one round of tapping, participants were instructed to relax and rate their levels of distress again. Participants were encouraged to repeat as many rounds as needed until they felt the distress decrease down to 0 or 1 out of 10. Participants then responded to measures assessing the posttest information about the momentary levels of forgiveness and mental health while focused on the hurtful event.

Participants assigned to the control group completed a spatial reasoning task with 58 questions. Using a visuospatial reasoning task as the control group in the trial ensured cognitive engagement without overlapping with the emotional processes targeted by the intervention. These tasks were emotionally neutral, minimizing confounding variables related to emotional arousal. Additionally, their standardization and previous use in psychological research were anticipated to enhance the reliability and comparability of any findings (Aul et al., 2023). One example of these questions was: "Where is the diamond in relation to the triangle?" and participants responded with above, in line, or below. Participants in the control group were provided with a chance to participate in the EFT group voluntarily at another time and received a link to participate in the clinical trial again as a participant in the treatment group. This minimized potential harm by providing access to the potentially beneficial treatment, aligning with the ethical principle of beneficence, and it enhanced fairness and equity, ensuring that all participants had an equal opportunity to benefit from the study, which is crucial in maintaining ethical integrity in clinical

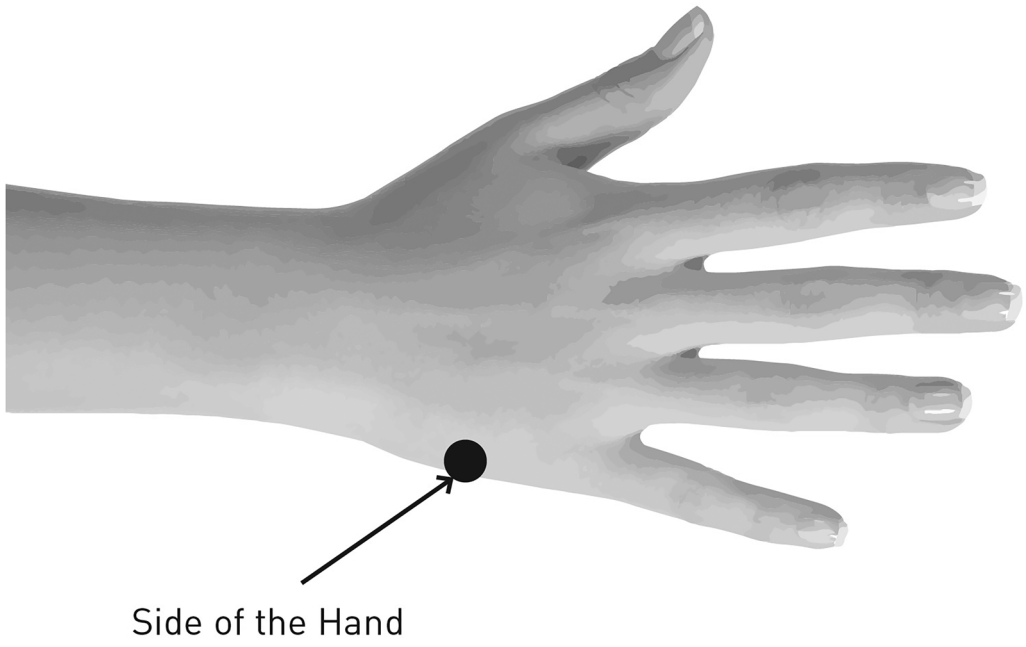

Figure 1. Side of the hand point.

research. For this study though, none of that data is included. Control participants completed the same pretest and posttest assessments to the EFT group. The total duration of the study was 35–40 minutes, and the data was collected from 18 May to 27 July, 2023.

Statistical analysis

G* power software was used and a minimum sample size of 52 was required to detect a statistically significant result with the alpha criteria of 0.05, a statistical power of 0.80 and a medium effect size ($d = 0.40$) in within and between subjects repeated measures analysis of variance. The Statistical Package of Social Sciences (SPSS) Version 29 was utilized to assess main and interaction effects, as well as, simple effects within the design. Data were checked for the assumptions of normality, outliers, homogeneity of variance and the variance-covariance matrices before conducting repeated measures analysis. Missing data was observed and was determined to be missing completely at random, χ^2 (131) = 141, p = .266. On average, variables had 11% missing data (range = 2–22%). Hotdeck imputation was used to impute missing data. Statistical significance was set at $p < .05$. Effect size was evaluated using η^2 and d.

Results

Table 1 presents the means, standard deviations, range of scores and statistically significant differences of all measures before and after the intervention for both conditions. Mixed model analysis of variance was used to evaluate the hypothesized changes in outcomes and determine if changes were similar or different in the control and EFT groups. Statistically significant differences between the control and EFT group changes from pretest to posttest were observed on nine of ten outcomes (see Table 2).

Having identified that the EFT training impacted changes in outcomes differently than the control group, we proceeded to examine differences between EFT and control groups and pretest and posttest. Here we found that on ten of ten outcomes the differences between control and EFT groups were not statistically significant at pretest, but differences were statistically significant at posttest on eight of ten outcomes. Group differences at posttest on injustice gap approached statistical significance, and group differences at posttest on positive mood were not statistically different. The eight group differences at posttest were not only statistically significant, but the size of the differences was moderate (see Table 3).

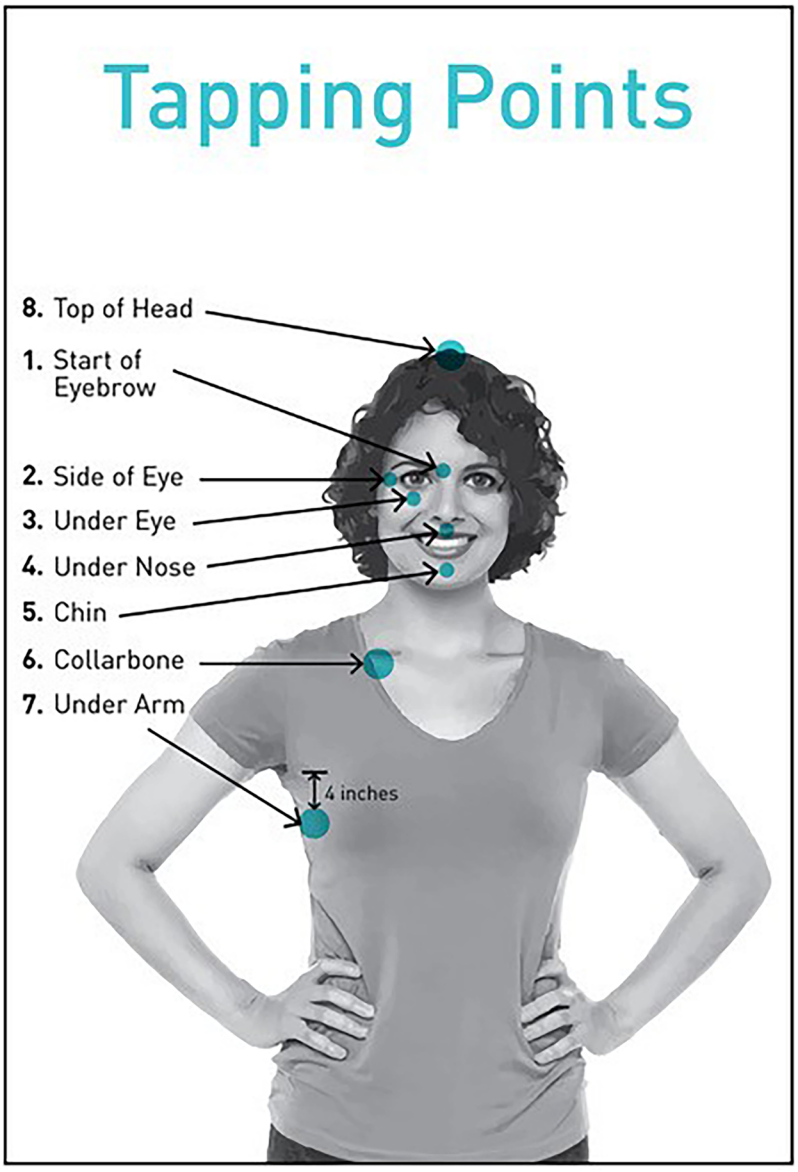

Figure 2. EFT tapping points.

Table 1. Descriptive statistics for all study outcomes for the emotion freedom technique and control groups ($N = 100$).

	Pre-Intervention				Post-Intervention			
	EFT		Control		EFT		Control	
Outcome	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Revenge	2.38	1.43	2.59	1.24	1.67	0.98	2.36	1.42
Avoidance	4.58	1.59	4.72	1.74	3.83	1.66	4.72	1.77
Benevolence	4.04	1.32	3.90	1.47	4.95	1.32	3.91	1.53
Empathy	3.40	1.45	3.35	1.67	4.08	1.63	3.04	1.71
Rumination	3.65	0.74	3.40	0.98	2.93	0.87	3.34	1.04
Injustice Gap	70.26	21.69	70.91	19.36	65.43	19.13	72.83	19.98
Positive Affect	2.86	0.86	2.64	0.94	1.87	0.80	2.46	1.03
Negative Affect	2.44	0.80	2.30	0.76	2.34	0.99	2.37	0.95
Anxiety Symptoms	2.35	0.85	2.44	0.98	0.98	0.91	1.85	1.13
Depression Symptoms	2.03	0.85	2.20	1.04	0.86	1.00	1.65	1.33

We also examined the amount of change from pretest to posttest separately for each group. The EFT group showed statistically significant change from pretest to posttest of moderate to large size whereas the control group did not change on eight of ten outcomes (see Table 4). On anxiety and depression outcomes both the EFT and control groups showed statistically significant decreases in symptoms from

Table 2. Significance and effect size of difference between EFT and control groups in change across time on study outcomes.

Outcome	*F*	*p*	η^2
Revenge	5.48	0.021	0.05
Avoidance	10.29	0.002	0.10
Benevolence	15.27	<0.001	0.14
Empathy	9.66	0.002	0.09
Rumination	14.61	<0.001	0.13
Injustice Gap	4.30	0.041	0.04
Negative Mood	25.23	<0.001	0.21
Positive Mood	1.06	0.31	0.01
Anxiety Symptoms	16.89	<0.001	0.15
Depression Symptoms	8.12	0.005	0.08

Table 3. Significance and effect size of difference between EFT and control groups at pretest and posttest.

	Group difference pretest		Group difference posttest	
Outcome	*p*	*d*	*p*	*d*
Revenge	0.423	0.11	0.006	0.40
Avoidance	0.662	0.06	0.010	0.37
Benevolence	0.621	0.07	<0.001	0.51
Empathy	0.855	0.03	0.003	0.44
Rumination	0.150	0.21	0.034	0.30
Injustice Gap	0.875	0.02	0.062	0.27
Negative Mood	0.219	0.17	0.002	0.45
Positive Mood	0.370	0.13	0.881	0.02
Anxiety Symptoms	0.626	0.07	<0.001	0.60
Depression Symptoms	0.374	0.13	0.001	0.48

Table 4. Significance and effect size of pretest-posttest difference within the EFT and control groups.

	Control group pre-post difference		EFT group pre-post difference	
Outcome	*p*	*d*	*p*	*d*
Revenge	0.117	0.22	<0.001	0.69
Avoidance	0.996	0.00	<0.001	0.64
Benevolence	0.918	0.01	<0.001	0.80
Empathy	0.172	0.19	0.003	0.43
Rumination	0.634	0.07	<0.001	0.83
Injustice Gap	0.406	0.12	0.039	0.30
Negative Mood	0.128	0.22	<0.001	1.22
Positive Mood	0.577	0.08	0.372	0.13
Anxiety Symptoms	<0.001	0.62	<0.001	1.45
Depression Symptoms	<0.001	0.51	<0.001	1.07

pretest to posttest, but the decreases for the EFT group were approximately twice the size of the decreases for the control group.

Figure 3 depicts the interaction effects of the pre-post test for the two groups.

Discussion

This preliminary study aimed to investigate the effectiveness of a one-time, brief EFT intervention in facilitating forgiveness through stress and psychological distress reduction. The ultimate goal was to examine if EFT is a promising coping strategy that could provide effective mental relief to individuals suffering from emotional pain incurred by an interpersonal offence. It was hypothesized that compared to the control group, participants in the EFT group would have improved indicators of forgiveness, empathy, and mood, and reduce rumination, perceptions of injustice, and reduced anxiety and depression symptoms. This found to be supported, with all having a significant effect. Considerable research has examined methods to effectively promote forgiveness and three strategies have been most commonly used (Enright, 2019; Luskin, 2002, Worthington, 2008). These strategies all share a psychoeducational methodological approach where the primary logic is that teaching individuals about forgiveness will allow them to develop higher levels of experienced forgiveness (Sarkhel et al., 2020). These strategies have proven effective in

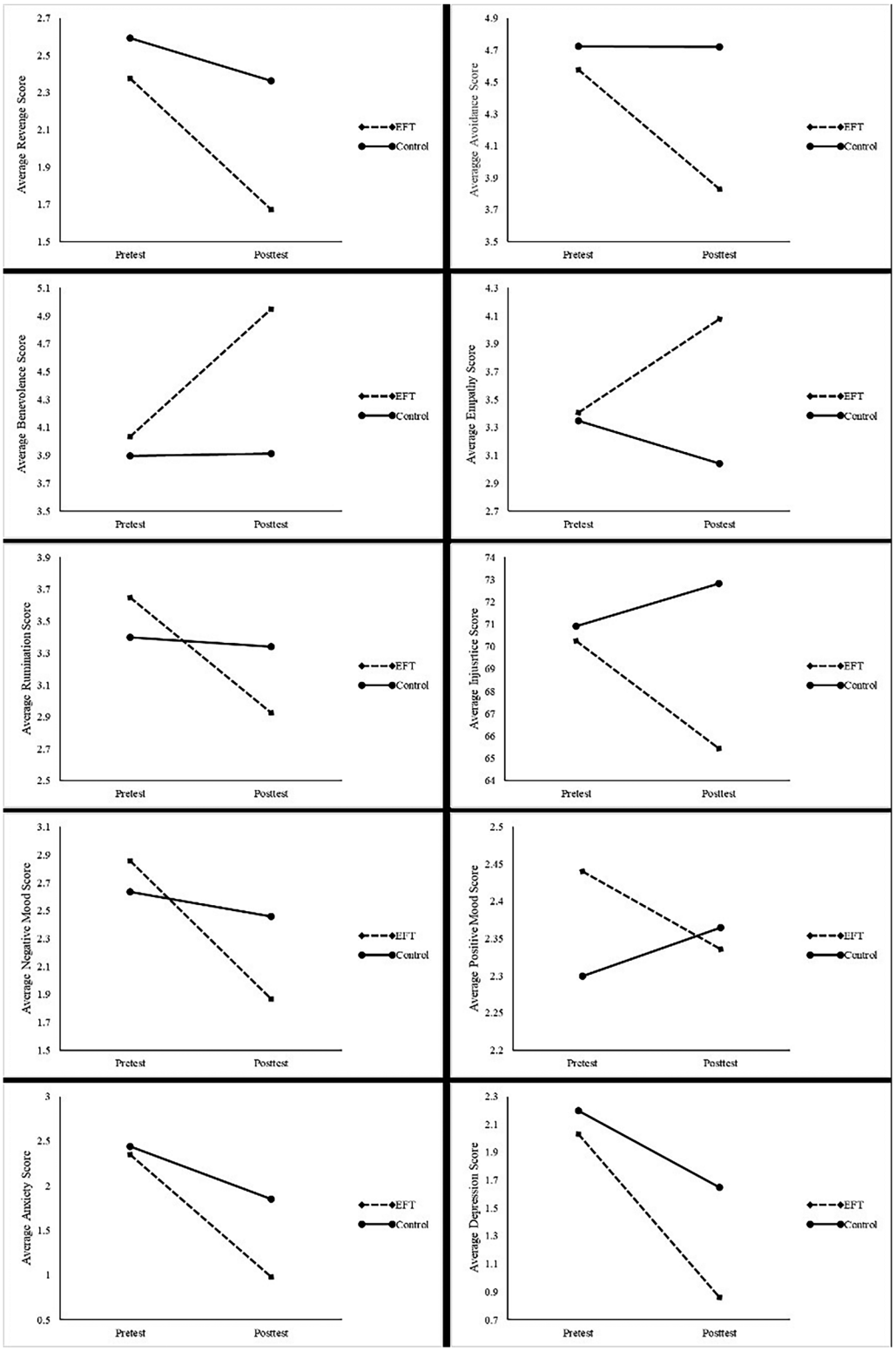

Figure 3. Interaction effects for each group.

multiple randomized trials, and often these approaches yield changes in forgiveness of approximately $d = 0.56$, and changes in depression of $d = 0.34$ (Wade et al., 2014). In the present study, there were changes in the EFT group of $d = 0.64 - 0.80$ for factors of forgiveness and $d = 1.45$ and 1.07 for anxiety and depression symptoms. Many of the psychoeducation approaches to forgiveness intervention take several hours (often 6–8 or more) to complete. This is the first time that individuals' levels of forgiveness have been shown to be enhanced through the use of a brief psychosomatic method such as EFT.

Other notable findings include that nine out of the ten outcomes found significant differences between the control and EFT group changes from pre test to post test, with changes in benevolence, negative mood and anxiety symptoms having the largest effect. The significant reduction in scores of avoidance and revenge, in addition to the increase in benevolence scores suggest that the EFT intervention was successful in increasing forgiveness. One outcome that was non-significant was positive mood, highlighting that whilst the singular EFT session was effective at reducing negative affect and reducing aspects of unforgiveness, positive affect only changed minimally. Whilst another EFT session may be needed to further increase positive affect, it can be argued that perhaps positive mood is not required for forgiveness. In fact, the benefits of forgiveness can still occur, even in the absence of a positive emotional state. Research does suggest that forgiveness is often more about alleviating negative emotions such as anger, resentment, and revenge, rather than fostering positive emotions (Strelan, 2020; Strelan & Covic, 2006; Worthington & Scherer, 2004). This aligns with the idea that the primary psychological benefit of forgiveness is the reduction of stress and negative affect, which can lead to improved mental and physical health outcomes (Harris & Thoresen, 2005; Witvliet & McCullough, 2007). Additionally, it is important to note that forgiveness can be a complex and multifaceted process. Emotional forgiveness, which involves replacing negative emotions with positive ones, may not always be necessary for the benefits of forgiveness to manifest. Decisional forgiveness, which is a behavioural intention to resist an unforgiving stance, can also lead to significant health benefits by reducing the physiological and psychological burden of unforgiveness (Worthington, 2020; Worthington et al., 2005). Therefore, the primary therapeutic benefit of forgiveness may lie in its ability to reduce negative affect, thereby promoting overall well-being.

This study's findings also parallel much of the research showing efficacious effects of EFT for a variety of psychosocial stress. Previous research has found EFT to reduce the effect of occupational stressors such as tense interpersonal relationships and interpersonal sensitivity, in addition to reducing burnout in working populations (Church & David, 2019; Reynolds, 2015). This suggests that EFT may be an effective intervention for not just interpersonal transgressions and unforgiveness, but also other interpersonal stressors that may arise.

The advantages of an EFT approach include that it requires little language, reading, or comprehension so it could be easily adapted to different age and cultural groups. It can be practiced in virtually any circumstances, including those in which the recurrent feelings of unforgiveness swell up, often because of interaction (real or imagined) with the offender. It can be potentially taught online via pre-recorded videos alleviating the need for instructor curriculums, workbooks, exercises, and various other support materials. In sum, while virtually all current methods of promoting forgiveness are based on psychoeducation, other methods that involve psychosomatic approaches may also help foster forgiveness experiences in those struggling with past offenses.

Limitations and implications

Some limitations of this study exist, and future research should address these issues. The primary limitation is the less than 1-hour EFT session, which may not be sufficient to produce lasting changes in positive mood, and the lack of follow-up data leaves questions about the durability of the effects. Additionally, the results are only applicable to females with a mean age of 48 years, so caution is needed when interpreting the findings for younger samples. The study only supports temporary forgiveness, not trend forgiveness, and generalizing the results to other socio-cultural backgrounds should be done with caution. Limited interpretations about perceived injustice are due to the low credibility of IGS, and personality traits, which were not measured, could influence forgiveness tendencies. Lastly, while the visuospatial task in the control condition effectively reduced negative moods, a verbally distracting task might provide a more stable comparison group. It is important to note that this study did not directly compare the effectiveness of different stress reduction techniques (e.g. visual tasks versus EFT), but rather compared an EFT group to a group engaged in a non-therapeutic activity. Therefore, these findings require caution when drawing conclusions about the unique advantage of EFT compared to other options for reducing psychological distress. Despite these limitations, the study supports EFT's efficacy in fostering state forgiveness by improving emotional and psychological conditions.

Conclusion

Unforgiving is stressful. The outcomes of this brief, single EFT intervention are encouraging. This preliminary study provides additional knowledge and insight into EFT's potential and capability to cultivate forgiving responses by effectively ameliorating stress and personal distress. EFT, an evidence-based psychological intervention, can be recommended as an effective coping strategy to victims experiencing excessive emotional disturbance due to the hurt of interpersonal offences. EFT may be a promising preventive intervention that not only protects victims' general wellbeing from the harmful effects of prolonged mental stress but also assists emotional recovery. These positive improvements may foster a more forgiving attitude, gradually enhancing the likelihood of experiencing the mental health benefits associated with forgiveness.

Disclosure statement

The first author receives book royalties (Hay House, McFarland), consultant, and speaking fees. No other author reports a conflict.

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Data availability statement

Data is available on request, from the first author.

References

Ascıoglu Onal, A., & Yalcın, İ. (2017). Forgiveness of others and self-forgiveness: The predictive role of cognitive distortions, empathy, and rumination. *Eurasian Journal of Educational Research*, *17*(68), 97–120.

Akhtar, S., & Barlow, J. (2018). Forgiveness therapy for the promotion of mental well-being: A systematic review and meta-analysis. *Trauma, Violence & Abuse*, *19*(1), 107–122. https://doi.org/10.1177/1524838016637079

Aul, C., Brau, J. M., Sugarman, A., DeGutis, J. M., Germine, L. T., Esterman, M., McGlinchey, R. E., & Fortenbaugh, F. C. (2023). The functional relevance of visuospatial processing speed across the lifespan. *Cognitive Research: principles and Implications*, *8*(1), 51. https://doi.org/10.1186/s41235-023-00504-y

Bach, D., Groesbeck, G., Stapleton, P., Sims, R., Blickheuser, K., & Church, D. (2019). Clinical EFT (Emotional Freedom Techniques) improves multiple physiological markers of health. *Journal of Evidence-Based Integrative Medicine*, *24*, 2515690X18823691. https://doi.org/10.1177/2515690X18823691

Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality*, *55*(1), 19–39. https://doi.org/10.1111/j.1467-6494.1987.tb00426.x

Benard, S., Doan, L., Nicholson, D. A., Meanwell, E., Wright, E. L., & Lista, P. (2022). To forgive is divine? Morality and the status value of intergroup revenge and forgiveness. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, *8*(6), 122–139. https://doi.org/10.7758/RSF.2022.8.6.07

Cherkin, D. C., Sherman, K. J., Avins, A. L., Erro, J. H., Ichikawa, L., Barlow, W. E., Delaney, K., Hawkes, R., Hamilton, L., Pressman, A., Khalsa, P. S., & Deyo, R. A. (2009). A randomized trial comparing acupuncture, simulated acupuncture, and usual care for chronic low back pain. *Archives of Internal Medicine*, *169*(9), 858–866. https://doi.org/10.1001/archinternmed.2009.65

Church, D., & David, I. (2019). Borrowing benefits: Clinical EFT (Emotional Freedom Techniques) as an immediate stress reduction skill in the workplace. *Psychology*, *10*(07), 941–952. https://doi.org/10.4236/psych.2019.107061

Church, D., Stapleton, P. B., & Sabot, D. (2020). App-based delivery of clinical emotional freedom techniques: Cross-sectional study of app user self-ratings. *JMIR mHealth and uHealth*, *8*(10), e18545. https://doi.org/10.2196/18545

Church, D., Stapleton, P., Vasudevan, A., & O'Keefe, T. (2022). Clinical EFT as an evidence-based practice for the treatment of psychological and physiological conditions: A systematic review. *Frontiers in Psychology*, *13*, 951451. https://doi.org/10.3389/fpsyg.2022.951451

Church, D., Stapleton, P., Yang, A., & Gallo, F. (2018). Is tapping on acupuncture points an active ingredient in emotional freedom techniques? A systematic review and meta-analysis of comparative studies. *The Journal of Nervous and Mental Disease*, *206*(10), 783–793. https://doi.org/10.1097/NMD.0000000000000878

Church, D., Yount, G., & Brooks, A. J. (2012). The effect of emotional freedom techniques on stress biochemistry: A randomized controlled trial. *The Journal of Nervous and Mental Disease*, *200*(10), 891–896. https://doi.org/10.1097/NMD.0b013e31826b9fc1

Church, D., Yount, G., Rachlin, K., Fox, L., & Nelms, J. (2018). Epigenetic effects of PTSD remediation in veterans using clinical emotional freedom techniques: A randomized controlled pilot study. *American Journal of Health Promotion: AJHP*, *32*(1), 112–122. https://doi.org/10.1177/0890117116661154

Clond, M. (2016). Emotional freedom techniques for anxiety: A systematic review with meta-analysis. *The Journal of Nervous and Mental Disease*, *204*(5), 388–395. https://doi.org/10.1097/NMD.0000000000000483

Connolly, S. L., & Alloy, L. B. (2018). Negative event recall as a vulnerability for depression: Relationship between momentary stress-reactive rumination and memory for daily life stress. *Clinical Psychological Science: a Journal of the Association for Psychological Science*, *6*(1), 32–47. https://doi.org/10.1177/2167702617729487

Davis, D. E., Yang, X., DeBlaere, C., McElroy, S. E., Van Tongeren, D. R., Hook, J. N., & Worthington, E. L. (2016). The injustice gap. *Psychology of Religion and Spirituality*, *8*(3), 175–184. https://doi.org/10.1037/rel0000042

Duque, A., Cano-López, I., & Puig-Pérez, S. (2022). Effects of psychological stress and cortisol on decision making and modulating factors: A systematic review. *The European Journal of Neuroscience*, *56*(2), 3889–3920. https://doi.org/10.1111/ejn.15721

Enright, R. D., & Fitzgibbons, R. P. (2015). *Forgiveness therapy: An empirical guide for resolving anger and restoring hope*. American Psychological Association.

Enright, R. D. (2019). *Forgiveness is a choice: A step-by-step process for resolving anger and restoring hope*. APA Life Tools.

Fang, J., Jin, Z., Wang, Y., Li, K., Kong, J., Nixon, E. E., Zeng, Y., Ren, Y., Tong, H., Wang, Y., Wang, P., & Hui, K. K.-S. (2009). The salient characteristics of the central effects of acupuncture needling: Limbic-paralimbic-neocortical network modulation. *Human Brain Mapping*, *30*(4), 1196–1206. https://doi.org/10.1002/hbm.20583

Fehr, R., Gelfand, M. J., & Nag, M. (2010). The road to forgiveness: A meta-analytic synthesis of its situational and dispositional correlates. *Psychological Bulletin*, *136*(5), 894–914. https://doi.org/10.1037/a0019993

Harris, A. H. S., & Thoresen, C. E. (2005). Forgiveness, unforgiveness, health, and disease. In E. L. Worthington (Ed.), *Handbook of forgiveness* (pp. 321–334). Routledge.

Hodge, P. M., & Jurgens, C. Y. (2011). A pilot study of the effects of emotional freedom techniques in psoriasis. *Energy Psychology Journal*, *3*(2), 13–23. https://doi.org/10.9769/EPJ.2011.3.2.PMH.CYJ

Hui, K. K., Liu, J., Marina, O., Napadow, V., Haselgrove, C., Kwong, K. K., Kennedy, D. N., & Makris, N. (2005). The integrated response of the human cerebro-cerebellar and limbic systems to acupuncture stimulation at ST 36 as evidenced by fMRI. *NeuroImage*, *27*(3), 479–496. https://doi.org/10.1016/j.neuroimage.2005.04.037

Karner-Huțuleac, A. (2020). Forgiveness, unforgiveness and health. *Journal of Intercultural Management and Ethics*, *3*(2), 51–58. https://doi.org/10.35478/jime.2020.2.06

Kim, J. J., & Enright, R. D. (2024). Forgiveness education from an Aristotelian realist perspective: Can we determine a good forgiveness education program? *Education Sciences*, *14*(2), 155. https://www.mdpi.com/2227-7102/14/2/155 https://doi.org/10.3390/educsci14020155

Kim, J. J., Payne, E. S., & Tracy, E. L. (2022). Indirect effects of forgiveness on psychological health through anger and hope: A parallel mediation analysis. *Journal of Religion and Health*, *61*(5), 3729–3746. https://doi.org/10.1007/s10943-022-01518-4

Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ–4. *Psychosomatics*, *50*(6), 613–621. https://doi.org/10.1016/S0033-3182(09)70864-3

Krug, E. G., Mercy, J. A., Dahlberg, L. L., & Zwi, A. B. (2002). The world report on violence and health. *Lancet (London, England)*, *360*(9339), 1083–1088. https://doi.org/10.1016/S0140-6736(02)11133-0

Lambrou, P., Pratt, G., & Chevalier, G. (2003). Physiological and psychological effects of a mind/body therapy on claustrophobia. *Subtle Energies & Energy Medicine Journal Archives*, *14*(3), 239–251.

Lee, Y.-R., & Enright, R. (2019). A meta-analysis of the association between forgiveness of others and physical health. *Psychology & Health*, *34*(5), 626–643. https://doi.org/10.1080/08870446.2018.1554185

Lee, J. H., Kim, S. Y., Song, S. Y., Seo, J. W., Chung, S. Y., Cho, S. H., et al. (2013). A randomized control trial for the evaluation of the effects of EFT-insomnia (EFT-I) for the elderly. *Psychotherapy and Psychosomatics*, *82*, 55.

Luskin, F. (2002). *Forgive for good: A proven prescription for health and happiness*. HarperCollins.

McCullough, M. E., Fincham, F. D., & Tsang, J. A. (2003). Forgiveness, forbearance, and time: The temporal unfolding of transgression-related interpersonal motivations. *Journal of Personality and Social Psychology*, *84*(3), 540–557. https://doi.org/10.1037/0022-3514.84.3.540

McCullough, M. E., & Hoyt, W. T. (2002). Transgression-related motivational dispositions: Personality substrates of forgiveness and their links to the Big Five. *Personality and Social Psychology Bulletin*, *28*(11), 1556–1573. https://doi.org/10.1177/014616702237583

McCullough, M. E., Rachal, K. C., Sandage, S. J., Worthington, E. L., Jr., Brown, S. W., & Hight, T. L. (1998). Interpersonal forgiving in close relationships: II. Theoretical elaboration and measurement. *Journal of Personality and Social Psychology*, *75*(6), 1586–1603. https://doi.org/10.1037/0022-3514.75.6.1586

McCullough, M. E., Root, L. M., & Cohen, A. D. (2006). Writing about the benefits of an interpersonal transgression facilitates forgiveness. *Journal of Consulting and Clinical Psychology*, *74*(5), 887–897. https://doi.org/10.1037/0022-006X.74.5.887

Napadow, V., Kettner, N., Liu, J., Li, M., Kwong, K. K., Vangel, M., Makris, N., Audette, J., & Hui, K. K. S. (2007). Hypothalamus and amygdala response to acupuncture stimuli in carpal tunnel syndrome. *Pain*, *130*(3), 254–266. https://doi.org/10.1016/j.pain.2006.12.003

Nelms, J., & Castel, D. (2016). A systematic review and meta-analysis of randomized and non-randomized trials of clinical emotional freedom techniques (EFT) for the treatment of depression. *Explore (New York, N.Y.)*, *12*(6), 416–426. https://doi.org/10.1016/j.explore.2016.08.001

Rasmussen, K. R., Stackhouse, M., Boon, S. D., Comstock, K., & Ross, R. (2019). Meta-analytic connections between forgiveness and health: The moderating effects of forgiveness-related distinctions. *Psychology & Health*, *34*(5), 515–534. https://doi.org/10.1080/08870446.2018.1545906

Reynolds, A. E. (2015). Is acupoint stimulation an active ingredient in Emotional Freedom Techniques (EFT)? A controlled trial of teacher burnout. *Energy Psychology*, *7*(1), 14–21. https://doi.org/10.9769/EPJ.2015.05.01.AR

Sarkhel, S., Singh, O. P., & Arora, M. (2020). Clinical practice guidelines for psychoeducation in psychiatric disorders general principles of psychoeducation. *Indian Journal of Psychiatry*, *62*(Suppl 2), S319–S323. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_780_19

Sebastian, B., & Nelms, J. (2017). The effectiveness of emotional freedom techniques in the treatment of posttraumatic stress disorder: A meta-analysis. *Explore (New York, N.Y.)*, *13*(1), 16–25. https://doi.org/10.1016/j.explore.2016.10.001

Seok, J.-W., & Kim, J. U. (2024). The effectiveness of emotional freedom techniques for depressive symptoms: A meta-analysis. *Journal of Clinical Medicine*, *13*(21), 6481. https://doi.org/10.3390/jcm13216481

Stapleton, P., Crighton, G., Sabot, D., & O'Neill, H. M. (2020). Reexamining the effect of emotional freedom techniques on stress biochemistry: A randomized controlled trial. *Psychological Trauma: theory, Research, Practice and Policy*, *12*(8), 869–877. https://doi.org/10.1037/tra0000563

Stapleton, P., Kip, K., Church, D., Toussaint, L., Footman, J., Ballantyne, P., & O'Keefe, T. (2023). Emotional freedom techniques for treating post traumatic stress disorder: An updated systematic review and meta-analysis. *Frontiers in Psychology*, *14*, 1195286. https://doi.org/10.3389/fpsyg.2023.1195286

Stapleton, P., Wilson, C., Uechtritz, N., Stewart, M., McCosker, M., O'Keefe, T., & Blanchard, M. (2025). A randomized clinical trial of emotional freedom techniques for chronic pain: Live versus self-paced delivery with 6-month follow-up. *European Journal of Pain (London, England)*, *29*(3), e4740. https://doi.org/10.1002/ejp.4740

Strelan, P., & Covic, T. (2006). A review of forgiveness process models and a coping framework to guide future research. *Journal of Social and Clinical Psychology*, *25*(10), 1059–1085. https://doi.org/10.1521/jscp.2006.25.10.1059

Strelan, P. (2020). The stress-and-coping model of forgiveness: Theory, research, and the potential of dyadic coping. In E. L. Worthington, Jr. & N. G. Wade (Eds.), *Handbook of forgiveness* (2nd ed., pp. 63–73). Routledge/Taylor & Francis Group.

Swingle, P. G., Pulos, L., & Swingle, M. K. (2004). Neurophysiological indicators of EFT treatment of post-traumatic stress. *Subtle Energies & Energy Medicine Journal Archives*, *15*(1), 75–86.

Tan, J.-Y., Suen, L. K., Wang, T., & Molassiotis, A. (2015). Sham acupressure controls used in randomized controlled trials: A systematic review and critique. *PloS One*, *10*(7), e0132989. https://doi.org/10.1371/journal.pone.0132989

Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, *38*(2), 227–242. https://doi.org/10.1177/0022022106297301

Toussaint, L. L., Worthington, E. L., Jr., & Williams, D. R. (2015). *Forgiveness and health: Scientific evidence and theories relating forgiveness to better health*. Springer Dordrecht. https://doi.org/10.1007/978-94-017-9993–5

Toussaint, L. L., Shields, G. S., & Slavich, G. M. (2016). Forgiveness, stress, and health: a 5-Week dynamic parallel process study. *Annals of Behavioral Medicine: a Publication of the Society of Behavioral Medicine*, *50*(5), 727–735. https://doi.org/10.1007/s12160-016-9796-6

Toussaint, L., & Worthington, E. L.Jr. (2023). Forgiveness and mental health. In H. S. Friedman and C. H. Markey (Eds.), *Encyclopedia of mental health* (3rd ed., Vol. 2, pp. 53–58). Elsevier. https://doi.org/10.1016/B978-0-323-91497-0.00068-0

Uzun, K., & Arslan, G. (2024). Rumination and forgiveness in emerging adults: Mediating role of mindfulness and humility. *Psychological Reports*, *0*(0), 332941241256641. https://doi.org/10.1177/00332941241256641

Vismaya, A., Gopi, A., Romate, J., & Rajkumar, E. (2024). Psychological interventions to promote self-forgiveness: A systematic review. *BMC Psychology*, *12*(1), 258. https://doi.org/10.1186/s40359-024-01671-3

Wade, N. G., Vogel, D. L., Liao, K. Y.-H., & Goldman, D. B. (2008). Measuring state-specific rumination: Development of the rumination about an interpersonal offense scale. *Journal of Counseling Psychology*, *55*(3), 419–426. https://doi.org/10.1037/0022-0167.55.3.419

Wade, N. G., Hoyt, W. T., Kidwell, J. E. M., & Worthington, E. L. (2014). Efficacy of psychotherapeutic interventions to promote forgiveness: A meta-analysis. *Journal of Consulting and Clinical Psychology*, *82*(1), 154–170. https://doi.org/10.1037/a0035268

Watkins, E. R., & Roberts, H. (2020). Reflecting on rumination: Consequences, causes, mechanisms and treatment of rumination. *Behaviour Research and Therapy*, *127*, 103573. https://doi.org/10.1016/j.brat.2020.103573

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Wittfoth, D., Beise, J., Manuel, J., Bohne, M., & Wittfoth, M. (2022). Bifocal emotion regulation through acupoint tapping in fear of flying. *NeuroImage. Clinical*, *34*, 102996. https://doi.org/10.1016/j.nicl.2022.102996

Witvliet, C. V. O., Ludwig, T. E., & Laan, K. L. V. (2001). Granting forgiveness or harbouring grudges: Implications for emotion, physiology, and health. *Psychological Science*, *12*(2), 117–123. https://doi.org/10.1111/1467-9280.00320

Worthington, E. L. (Ed.). (2005). *Handbook of forgiveness*. Routledge.

Witvliet, C. V. O., & McCullough, M. E. (2007). Forgiveness and health: A review and theoretical exploration of emotion pathways. In S. G. Post (Ed.), *Altruism and health: Perspectives from empirical research* (pp. 259–276). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195182910.003.0017

Worthington, E. L., & Scherer, M. (2004). Forgiveness is an emotion-focused coping strategy that can reduce health risks and promote health resilience: Theory, review, and hypotheses. *Psychology & Health*, *19*(3), 385–405. https://doi.org/10.1080/0887044042000196674

Worthington, E. L., Witvliet, C., Lerner, A. J., & Scherer, M. (2005). Forgiveness in health research and medical practice. *Explore (New York, N.Y.)*, *1*(3), 169–176. https://doi.org/10.1016/j.explore.2005.02.012

Worthington, E. L.Jr. (2008). Steps to REACH forgiveness and to reconcile. Pearson.

Worthington, E. L.Jr. (2020). Understanding forgiveness of other people: Definitions, theories, and processes. In E. L. Worthington & N. G. Wade (Eds.), *Handbook of forgiveness* (2nd ed., pp. 11–21). Routledge/Taylor & Francis Group.

Worthington, E. L.Jr. (2022). Forgiveness. In J. R. Peteet (Ed.), *The virtues in psychiatric practice*. (pp. 87–108). Oxford University Press.