ORIGINAL RESEARCH

Is Acupoint Tapping an Active Ingredient or an Inert Placebo in Emotional Freedom Techniques (EFT)? A Randomized Controlled Dismantling Study

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Abstract

EFT or Emotional Freedom Techniques is the most widely used energy psychology method. It combines psychological exposure with the stimulation of acupuncture points (acupoints). This study used 2 conditions—EFT and a control group—to assess emotional self-report and mindfulness. The sample consisted of 20 undergraduates; 8 study-related emotions and mindfulness were measured immediately before and 7 days after each 40-min intervention with the Achievement Emotions Questionnaire and Philadelphia Mindfulness Scale. Mixed analysis of variance with paired-sample *t* tests showed that EFT participants experienced significantly greater increases in enjoyment ($p < .005$) and hope ($p < .05$) and significantly greater decreases in anger ($p < .05$) and shame ($p < .05$) than did the control group. When data from all emotion-dependent variables were grouped together, analysis showed that EFT participants experienced a significantly greater increase in "positive emotions" ($p < .01$) and significantly greater decrease in "negative emotions" ($p < .01$) than did the control group. No significant change was found for mindfulness. Tapping on acupoints, combined with the vocalization of self-affirming statements, appears to be an active ingredient in EFT rather than an inert placebo. The results were consistent with other published reports demonstrating EFTs efficacy for addressing psychological conditions in students.

Keywords: Emotional Freedom Techniques, EFT, achievement emotions, mindfulness, undergraduates, study anxiety, acupoint tapping

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In recent years techniques have emerged aimed at effecting therapeutic psychological change in individuals by combining the stimulation of acupuncture points (acupoints) with psychological exposure. The origin of such techniques traces back to psychologist Roger Callahan's formulation of Thought Field Therapy (TFT; Callahan & Callahan, 1996). TFT protocol involves repeated application of pressure ("tapping") to a set of acupuncture points specific to a condition while the relevant psychological issue is simultaneously mentally activated. A variation of Callahan's technique has more recently been developed called Emotional Freedom Techniques (EFT). Gary Craig (2011) formulated EFT on the theory that tapping one universal set of acupoints during mental activation could yield equally positive effects with any given issue. Techniques such as these have since been referred to under the umbrella term *energy psychology* (EP; Gallo, 2004)—a reference to the speculation on the mechanisms of EP that has commonly been put forward by EP practitioners, given the absence of a complete empirically based model of true mechanism (see Feinstein, 2012, for a discussion of this topic).

A literature review of research into the efficacy of acupoint tapping techniques (EFT and TFT) in treating psychological disorders found 51 peer-reviewed studies (Feinstein, 2012a). Of these, 18 were randomized controlled trials (RCT's). These RCT's have provided supporting evidence for the efficacy of these techniques in treating psychological, physiological, and physical symptoms

associated with fibromyalgia, depression, specific phobias, posttraumatic stress disorder (PTSD), generalized stress, public speaking anxiety, generalized anxiety, athletic performance, food cravings, and test anxiety. Where follow-up observations have been conducted, researchers have found that gains from these interventions often persist for time periods ranging from 1 month to 12 months. Some of the studies have reported participants receiving substantial amounts of gain in very few treatment sessions, sometimes in a single session (e.g., Church, Piña, Reategui, & Brooks, 2012; Sakai, Connolly, & Oas, 2010). The accumulating quantity of statistically significant results on the efficacy of acupoint tapping—including its seemingly potent effect on PTSD in particular (Church et al., 2013; Feinstein, 2010)—has drawn the attention of many psychological researchers over the past decade, and it appears that this area of research is just beginning to mature. Various universities and research institutions have now funded many studies on this topic, and EFT has for several psychological conditions met the criteria required by the American Psychological Association's Division 12 Task Force on Empirically Validated Therapies for an "evidence-based" practice (Church, 2013). Most studies, however, are still being performed by proponents of EP techniques, and thus do not alleviate the contention and subsequent resistance from the mainstream scientific community that has surrounded EP since its conception.

The controversy surrounding EP techniques appears to be due mainly to an incomplete theoretical model of their mechanism, combined with reports of seemingly implausible speed and efficacy of treatment. It has been claimed that controversy has been exacerbated by a paradigmatic clash within the Western scientific community (Feinstein, 2009). There have also been arguments contesting the reality of the phenomenon, most notably, citing parallels within the techniques with established cognitive and behavioral treatments (McCaslin, 2009) and researcher bias (Pignotti & Thyer, 2009). Although these arguments have appeared increasingly less significant in recent years, given the sheer weight of evidence supporting the efficacy of the treatment, they are pertinent and are addressed by the present study.

Although the mechanisms by which acupoint tapping techniques exert a therapeutic effect psychologically have not been completely delineated, there have been reports of direct empirical evidence of effects on the brain and autonomic nervous system. Swingle, Pulos, and Swingle (2005) utilized qEEG measures to report that participants self-reporting improvement following EFT treatments for PTSD symptoms also showed increased amplitude of theta brainwaves in the occiput and sensory motor cortex, as well as an altered ratio of theta:beta brainwaves in the frontal cortex, indicating more frontal lobe symmetry. These processes described have been associated with the relief of depressed mood states (Henriques & Davidson, 1991) and effective treatments for stress-related conditions (Green & Green, 1997) and epilepsy (Sterman, 2000; Swingle, 1998). Lambrou, Pratt, and Chevalier (2003) reported similar EEG data and also found EFT to increase theta brain wave activity. Furthermore, Diepold and Goldstein (2009) conducted a single-subject case study—also using qEEG—on a woman suffering flashbacks of prior abuse. After she participated in a single session of TFT, her brain waves, which had shown statistical abnormality before the session while she recalled traumatic memories, appeared to be statistically normal during recall. A posttreatment trend toward an increase in delta and theta brain waves, and decrease in alpha and beta, was also observed. This trend reversed the pretreatment report. In addition, the subject was observed to be more relaxed during traumatic memory recall, and at 18-month follow-up inquiry reported having been entirely free of flashbacks or emotional distress relating to her abuse since her treatment. Regarding the physiological effects of EFT, an RCT conducted by Church, Yount, and Brooks (2012) found a single hour-long session EFT to reduce salivary cortisol measures significantly more than did supportive interviews or a no treatment group. The effect of EP techniques on other known physiological correlates of these processes has yet to be investigated.

Other studies have provided more indirect insights into potential mechanisms. A series of fMRI studies at Harvard have shown acupuncture needling to produce extensive deactivation in the amygdala and other areas of the limbic system (Dhond, Kettner, & Napadow, 2007; Fang et al., 2009; Hui et al., 2000, 2005). A double-blind crossover study has also shown needling to be no more effective than tapping in promoting analgesia (Takakura & Yajima, 2009); similar findings were produced by Cherkin et al. (2009); however,

in this study it was unclear whether results were indicative of a placebo effect.

As noted above, parallels of EFT with established therapies have been cited as a possible explanation for its effects. Studies have attempted to determine the effect of treatment ingredients specific to EFT on an individual's psychological wellbeing. Wells, Polglase, Andrews, Carrington, and Baker (2003) conducted the first such study and found significantly larger improvements in specific phobia fear within an EFT group compared with a group utilizing diaphragmatic breathing. There were only two key differences between groups: The EFT group utilized (a) acupoint tapping and (b) a vocalized self-acceptance statement ("Even though I have this fear of [phobia], I deeply and completely accept myself"; see Appendix for the EFT protocol). In their article, the researchers suggested that future research into mechanisms of EFT should attempt to "dismantle" these two properties in separate conditions. The only attempt that has been made to isolate the acupoint tapping component was a study by Waite and Holder (2003). They utilized four conditions: EFT, tapping on "sham" acupoints, tapping on a doll, and a no-treatment control. All conditions except the control condition yielded similar improvement in subjective self-reported fear. The researchers' conclusions acknowledged the possibility that systematic desensitization and distraction are primary mediators in the apparent effectiveness of EFT. A limitation of this methodology, argued by Feinstein (2009), was that acupoints may still have been stimulated under the two "placebo" conditions. Furthermore, the object of participants' fear was not present (as in Wells et al., 2003). I argue that without the object of fear being present, a subjective self-report measure of phobia fear is not a particularly valid measure and risks sensitivity to demand characteristics effects.

Baker and Siegel (2010) conducted a partial replication of Wells et al. (2003), yielding similar findings to Wells when comparing EFT to a supportive interview. They suggested that further research should examine the breadth of psychological issues that EFT is effective at treating and the mechanisms by which EFT promotes psychological wellbeing. The present study aims to address these suggestions. In constructing its design, I considered a "dismantling" design that separated the self-acceptance statement and acupoint tapping, as suggested by both Wells et al. and McCaslin (2009). However, the EFT practitioner involved with this research was uncomfortable with such methodology because of concerns about the emotional wellbeing of control participants. This, combined with practical issues regarding the construction of a structured and coherent control condition to mirror the EFT condition, meant that this study used a design similar to Wells et al.'s in the sense that acupoint tapping and the self-acceptance statements were isolated together within a single condition. Observations spanning long periods of time were beyond the scope of this dissertation project, so I measured dependent variables 1 week after the intervention to emulate a follow-up observation and to minimize demand characteristics and expectancy effects that might be expected immediately posttreatment.

To investigate further aspects of psychological functioning that may reap benefits from EFT, I examined the effects of EFT on eight emotions with regard to independent study at university: enjoyment, hope, pride, anger, anxiety, shame, hopelessness, and boredom. Pekrun, Goetz, Titz, and Perry (2002) elaborated the study of affect within educational psychology in a series of qualitative and quantitative studies that used secondary school and university students, demonstrating that anxiety (the primary focus of affective studies in educational psychology up to that point) was by no means the only emotion that influenced study attitudes, behaviors, and achievements. Although anxiety did appear to be the most frequently cited, other emotions such as enjoyment, hope, and anger also arose, and positive emotions were cited just as frequently as negative ones. Drawing upon this research, Pekrun, Goetz, Frenzel, Barchfeld, and Perry (2011) developed the Achievement Emotions Questionnaire (AEQ), used in the present study, with the aim of measuring a broad mixture of positive and negative emotions. Its application has yielded significant relationships between the emotions it claims to measure and motivation, learning strategies, cognitive resources, self-regulation, and academic achievement. The relationships of many of these emotions have been stronger than that of anxiety (Pekrun et al., 2002). Testing a theoretical model of the relationship of achievement goals and achievement emotions with performance attainment, Pekrun, Elliot, and Maier (2009) found their model to be supported by their findings: Achievement goals were found to predict achievement

emotions, and achievement emotions were found to predict performance attainment. Seven of the eight achievement emotions studied (excluding enjoyment) were found to mediate the relationship between achievement goals and performance attainment. These findings have been corroborated by researchers such as Dettmers et al. (2011), who found unpleasant emotions during homework (measured using the AEQ) to be negatively related to homework effort and also to negatively predict later achievement. As noted by Op't Eynde and Turner (2006), emotions in general would appear to be "an integral part of learning in close interaction with conative and cognitive processes" (p. 362).

Two RCT's and one pilot study have investigated the effects of EFT on test anxiety; another RCT has investigated its effects on depressed university students. Sezgin and Özcan (2009) compared EFT to Progressive Muscular Relaxation in high school students with high levels of test anxiety in an RCT. Statistically significant decreases in test anxiety were observed in both groups 2 months after the intervention, after self-treatment at home. EFT was, however, found to induce significantly greater decreases than were found in the control group. Another RCT was conducted by Jain and Rubino (2012), who found EFT to produce significantly more reduction in measures of test anxiety than did a no-treatment control condition. EFT was not found to be significantly more effective than a third condition utilizing Diaphragmatic Breathing. A pilot study by Benor, Ledger, Toussaint, Hett, and Zaccaro (2009) compared EFT with cognitive behavioral therapy and a hybrid treatment combining EFT and another treatment categorized under EP—Eye Movement Desensitization and Reprocessing. Significant reductions in test anxiety in university students were observed for all three treatment conditions, despite a small sample size (n = 5 for each group). Cognitive behavioral therapy took five sessions to achieve the same treatment benefits as both the hybrid treatment and the EFT treatment achieved in two sessions. Finally, an RCT by Church et al. (2012) was conducted on 18 university students experiencing moderate to severe depression. They found depression scores in EFT group participants to be significantly reduced, compared with controls, at follow up assessment 3 weeks later. In addition, a mean score of posttest depression in EFT group participants was within the "nondepressed" range. Other research has documented positive, long-term effects of EFT on general anxiety and depression—negative emotional states that could reasonably be associated with the stress of university study (Church & Brooks, 2010; Palmer-Hoffman & Brooks, 2011; Rowe, 2005; Temple & Mollon, 2011). Some of these studies have been relatively uncontrolled, however. Nonetheless, the empirical literature described suggests that EFT may be effective in reducing the intensity of negative emotions over a long-term basis.

Mindfulness is a construct that is steeped in traditional Buddhist practice, but it has been subject to increasing popularity in both Western psychology and mainstream society in recent years. Mindfulness-based interventions, often involving meditation, have been shown to be efficacious in promoting positive psychological well-being and providing relief from negative psychological states such as depression and anxiety (Keng, Smoski, & Robins, 2011; Klainin-Yobas, Cho, & Creedy, 2012; Vøllestad, Nielsen, & Nielsen, 2012). Two key components of mindfulness are *awareness* of one's own thoughts, emotions, and bodily feeling and *acceptance* or, in other words, being nonjudgmental or nonanalytical of such experiences and merely observing them as they are (Brown, Ryan, & Creswell, 2007; Kabat-Zinn, 1994). EFT protocol (see Appendix) appears to utilize such aspects of mindfulness. For example, during EFT the individual is invited to become *aware* of the emotions or bodily sensations that he or she feels with regard to the issue being addressed. *Acceptance* of such feelings is also encouraged (e.g., saying the phrase "I deeply love and accept myself"). It is reasonable therefore to suppose that the utilization, or cultivation, of mindfulness skills could play a role in any salutary effects of EFT.

In summary, the present study aimed to (a) replicate previous research findings that EFT can be a useful technique for reducing the severity of negative emotions and promoting psychological wellbeing; (b) investigate whether EFT is applicable to various emotions associated with independent study in university students; (c) utilize an active control condition that is as identical to an EFT session as is feasibly possible, but without any acupoint tapping or self-acceptance statements, to attempt to determine the significance of these actions to any observed psychological effect; and (d) explore

the potential role of mindfulness within the EFT process. After evaluating the literature, I hypothesized that EFT group participants would experience significantly greater decrease in negative emotions related to studying than controls (H_1); EFT group participants would experience significantly greater increase in positive emotions related to studying than controls (H_2); and mindfulness would moderate or mediate any observed effects of EFT (H_3).

Method

Participants

The study utilized an opportunity sample of second- or third-year undergraduate students ($n = 20$; 7 men, 13 women; mean $M = 22.53$ years) at Liverpool John Moores University. Participants were approached via e-mail, text messaging, or word of mouth. Some participants were known to the researcher.

Measures

The between-participants variable consisted of two conditions: EFT group ($n = 10$; 3 men, 7 women; $M = 23.6$ years) and control group ($n = 10$; 4 men, 6 women; $M = 21.1$ years). Participants were randomly assigned to groups via coin toss—once one group quota of 10 participants had been filled, remaining participants were assigned to the other group. Dependent variables were measured immediately before the intervention (T_1) and 7 days after the intervention (T_2). To minimize the potential influence of expectancy or demand characteristics effects on participants' ultimate outcomes, I did not take measures immediately following the intervention. There were nine dependent variables—study-related enjoyment, hope, pride, anger, anxiety, shame, hopelessness, and boredom, as well as mindfulness.

Emotions related to studying were measured using the Achievement Emotions Questionnaire (AEQ; Pekrun et al., 2011). For this study, the Class-Related and Exam-Related Emotions sections were discarded. The Study-Related Emotions section of the scale (75 items) measures enjoyment, hope, pride, anger, anxiety, shame, hopelessness, and boredom. The subscales are internally consistent (αs = .75–.92); confirmatory factor analysis shows them internally valid; and their external validity has been demonstrated in terms of relationships with student control-value appraisals (Pekrun, 2006), learning, and performance (Pekrun et al., 2011). This section of the questionnaire is divided into three subsections: how one typically feels before study, during study, and after study. Within these sections, all items were shuffled so that items about different emotions were mixed together. Responses to statements were recorded using a 5-point Likert scale, with answers ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Mean scores for each emotion subscale were taken; the minimum possible score is 1, the maximum 5.

Mindfulness was measured using the Philadelphia Mindfulness Scale (PHLMS). The 20-item scale can also be divided into two subscales: Awareness and Acceptance. These subscales have been demonstrated to be internally consistent (Awareness, $\alpha = .75$; Acceptance, $\alpha = .75$; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008) and uncorrelated with each other, and confirmatory factor analysis has lent support for this two-factor solution. Respondents are asked how frequently the statements have applied to them in the past week, rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*).

Procedures

Participants underwent the procedure individually. They first completed the AEQ and PHLMS. They were asked whether they had ever heard of EFT before (if any participants had heard of EFT, their data would have been omitted from the analysis). They were then reminded that the following session was entirely confidential, and the researcher left the room, leaving them alone with the EFT practitioner for 40 min. Participants either underwent EFT relating to their study-related emotions or underwent the control condition, which was identical to the EFT condition with the exception that utilization of acupoint tapping and the self-acceptance statements characteristic of EFT (e.g., "Even though I have this [thought/feeling/belief], I'm OK and I'm here now") were not used. Instead, participants were asked to simply observe how the emotion felt in their body and sometimes invited to imagine sending a breath toward any discomfort felt (for a more detailed description of the group procedures see Appendix). EFT was delivered with fidelity to *The EFT Manual* (Craig, 2011). All study participants filled out the AEQ

and PHLMS again at home 7 days after receiving the intervention.

Practitioner

The EFT practitioner, Ruth Fox, is accredited by the Association for the Advancement of Meridian Energy Techniques as an advanced practitioner and trainer of EFT (www.aamet.org). She is also a trained hypnotherapist.

Results

None of the participants had heard of EFT prior to the study. The *t* tests found none of the emotion measure or mindfulness to significantly differ between the groups at T_1 (*p*s = .067–.905); only pride approached significance ($p = .067$). The focus of the statistical analysis was to look for significant Group × Time interactions within each dependent variable to determine whether EFT resulted in significantly larger pre- to posttest differences in study-related emotions in that group than in the control condition. Assumptions for parametric testing were met for two of the dependent variables that yielded significant Group × Time interactions. A Shapiro-Wilk's test showed enjoyment and hope to be normally distributed (*p*s > .05) and Levene's test showed the variances amongst these variables to be equal (*p*s = .10–.89). Subsequent analysis using a mixed analysis of variance (ANOVA) revealed the Group × Time interaction for enjoyment to be significant. This interaction showed a fairly large effect size, $F(1, 18) = 12.95$, $p < .005$, partial $\eta^2 = .42$. The interaction for hope was also significant, yielding a moderate effect size, $F(1, 18) = 6.78$, $p < .05$, partial $\eta^2 = .27$. The assumption of homogeneity of variance was violated within T_2 data for the variables anger ($p = .01$) and shame ($p = .03$). As the group sample sizes were equal, however, the researcher proceeded with parametric analyses. The Group × Time interaction for anger was significant, yielding a medium effect size, $F(1, 18) = 6.85$, $p < .05$, partial $\eta^2 = .28$; the interaction for shame was also significant, also yielding a medium effect size, $F(1, 18) = 6.04$, $p < .05$, partial $\eta^2 = .25$. Group × Time interactions for all other emotion measures and mindfulness were not significant. No significant main effects were found for either group or time on any of the emotion measures. ANOVAs were also performed on the individual Awareness and Acceptance dimensions of the PHLMS, but yielded no significant interactions.

Additionally, to see whether baseline levels of mindfulness bore any relationship with participants' responsiveness to the intervention, I calculated Pearson's *r* for the relationship between baseline (T_1) scores of mindfulness and the differences in emotion scores between T_1 and T_2. No significant correlations were found for any emotion items, however. This was the case both when all study participants were grouped together and when each group was analyzed separately. H_3 would therefore appear to be unsupported by the findings of this study.

Post hoc analysis was performed using paired samples *t* tests (see Table 1). EFT participants significantly differed between T_1 and T_2 on all emotions except pride; all changes were in a beneficial direction. The only significant difference between T_1 and T_2 among control participants was on enjoyment, which decreased.

To account for individual differences in the particular emotions addressed by the sessions (as discussed below), I also grouped emotions into *positive emotions* and *negative emotions* and analyzed them. For positive emotions, a mean score was calculated from enjoyment, hope, and pride. Pride was interpreted as positive, as pride statements on the AEQ appear to represent positive states of self-fulfillment (e.g., "I think I can be proud of my accomplishments at studying"; "When I solve a difficult problem in my studying, my heart beats with pride"), as opposed to representing states of arrogance, as could also be implied by the term *pride*. For negative emotions, a mean score was calculated from anger, anxiety, shame, hopelessness, and boredom.

After being grouped into positive emotions and negative emotions, all data were found to be normally distributed (*p*s > .05). Variances were found to be equal for positive emotions at T_1, $F(1, 18) = 2.62$, $p > .05$, and T_2, $F(1, 18) = 0.14$, $p > .05$, and negative emotions at T_1, $F(1, 18) = 1.20$, $p > .05$. This assumption was violated for negative emotions at T_2, $F(1, 18) = 5.25$, $p < .05$. A mixed ANOVA was performed, yielding significant Group × Time interactions and moderate effect sizes for both positive emotions, $F(1, 18) = 9.78$, $p < .01$, partial $\eta^2 = .35$, and negative emotions, $F(1, 18) = 8.33$, $p < .01$, partial $\eta^2 = .32$. Group and time main effects for these two dependent variables were all nonsignificant; however, the main effect for time for negative emotions approached significance, $F(1, 18) = 4.30$, $p = .053$.

Table 1: *Dependent Variables Before (T_1) and After (T_2) Treatment*

Variable	T_1		T_2		*t*	*p*
	M	*SD*	*M*	*SD*		
Enjoyment						
EFT	3.80	.65	3.97	.68	2.19	.028
Control	3.77	.42	3.55	.44	2.91	.009
Hope						
EFT	3.82	.65	4.15	.53	2.95	.008
Control	3.63	.55	3.58	.74	0.52	.307
Pride						
EFT	4.15	.45	4.23	.36	1.07	.157
Control	3.75	.46	3.68	.52	0.41	.346
Anger						
EFT	2.51	.68	2.20	.49	3.12	.006
Control	2.12	.64	2.24	.93	0.92	.19
Anxiety						
EFT	2.63	.66	2.34	.61	2.42	.02
Control	2.71	.69	2.73	.96	0.13	.451
Shame						
EFT	2.26	.53	1.87	.54	2.53	.017
Control	2.13	.89	2.19	.96	0.64	.27
Hopelessness						
EFT	1.98	.62	1.74	.57	1.86	.048
Control	2.06	.70	2.10	.84	0.36	.363
Boredom						
EFT	2.36	.49	2.05	.49	2.34	.022
Control	2.63	.83	2.65	.92	0.15	.447
Positive emotions						
EFT	3.92	.52	4.12	.45	3.93	.002
Control	3.72	.33	3.60	.52	1.38	.101
Negative emotions						
EFT	2.35	.49	2.04	.42	3.74	.003
Control	2.33	.63	2.38	.85	0.54	.3
Mindfulness						
EFT	3.26	.39	3.36	.47	0.81	.22
Control	3.55	.52	3.59	.62	0.46	.33

Note. EFT = Emotional Freedom Techniques.

Post hoc analysis was performed on positive emotions and negative emotions using paired-sample *t* tests (see Table 1). Positive emotions increased and negative emotions decreased from T_1 to T_2 among EFT participants; both were significant (ps < .01). No significant differences were found between T_1 and T_2 among control participants for either positive emotions or negative emotions. These findings lend support for both H_1 and H_2. There were no dropouts, and no adverse events were reported by participants.

Discussion

Analysis of the data gathered in the present study found EFT to be statistically superior to the control condition at increasing participants' self-perceived levels of study-related enjoyment

and hope and decreasing self-perceived levels of study-related anger and shame. Statistical superiority of EFT was also observed both when all positive emotions and all negative emotions were grouped into singular variables. Results from *t* tests showed that participants' self-perception of nearly all emotion variables (with the exception of pride) significantly differed after EFT. All observed changes in the EFT group were in a beneficial direction, that is, anger was reduced, and enjoyment was increased. These findings support H_1 and H_2. Mindfulness did not show any significant relationships with other variables within the data, and thus H_3 would appear to be unsupported. Findings presented here suggest that EFT may be a useful tool for both regulating negative and cultivating positive emotions associated with independent study at a university level. In light of these findings and research by Pekrun et al. (2002, 2009) and Dettmers et al. (2011), EFT may therefore be useful in assisting students to engage with studies and potentially achieve more positive academic outcomes. It is possible that EFT may be particularly effective at addressing study-related enjoyment, hope, anger, and shame. The application of acupoint tapping, along with the vocalization of the phrase "even though I have this [thought/feeling/belief], I'm OK and I'm here now" may be the primary cause of the observed effects, which would appear to persist beyond the immediate conclusion of EFT.

It is not clear why the application of EFT yielded significant changes in enjoyment, hope, anger, and shame, specifically; the literature cited previously has suggested anxiety to be the most likely variable to show significant change. It is possible that these findings illustrate individual differences in the content of the EFT sessions in this study. For example, more participants could have spent the majority of the session focusing on study-related anger; fewer could have spent the session focusing predominantly on anxiety. With this in mind, it is in fact surprising that the emotion variables yielded any significant effects at all, especially given the small sample size. This suggests a possibility that EFT can effectively address various affective components of an issue simultaneously, regardless of the particular focus of the session. This idea is supported by the fact that significant Group × Time interactions were still obtained when these emotion variables were combined with other positive or negative subscales in which the Group × Time interactions were deemed to be insignificant. In fact, the interaction significance level for negative emotions was found to be stronger—and to yield a larger effect size—than that of either anger or shame.

The findings here suggest that the application of acupoint tapping with simultaneous vocalization of the phrase "even though I have this [thought/feeling/belief], I'm OK and I'm here now" is triggering a psychological mechanism that subsequently leads to an enhanced sense of psychological wellbeing. There are conceivably a number of potential extraneous variables within this effect; these are addressed here. The similarities among between-groups conditions within the present study refute the idea that this effect could be merely due to a supportive interview. It must be conceded, however, that if EFT was more efficacious at altering the immediate experience of emotional discomforts, the subsequent discussion could have moved along more rapidly, therefore addressing more issues—this could influence subsequent differences in emotions observed. It must also be conceded that individual differences in participants' responsiveness to the intervention could explain the group differences. It seems unlikely that the observed salutary effects were purely a result of expectancy or placebo effect, as participants were blind as to whether they were receiving an EFT treatment or not. This cannot be certain—it may be that the EFT procedure, involving somatic elements, appeared more substantive to participants. However, the opposite could also feasibly be the case: The EFT practitioner recalled that its unfamiliarity and bizarre procedure has in fact been known to make people feel quite uncomfortable—this could potentially instigate a nocebo effect. This would also make the idea of affective touch seem unlikely.

Regarding the effect of acupoint tapping in particular, the only other substantive difference between the procedures of each condition was the repeated vocalization by the participant of various self-acceptance phrases, that is, "Even though I have this anxiety about my upcoming exam, I'm OK and I'm here now." In addressing whether this vocalization could in fact be the primary cause of the observed effects rather than acupoint tapping, one should refer to previously published studies on the intriguing therapeutic effect of EFT on PTSD (Church et al., 2013; Feinstein,

2010). Considering the findings of these PTSD studies, it stands to reason that if it were merely the vocalization of self-affirming statements that was the primary cause of the effects seen in these studies, then traditional psychotherapy would be quite sufficient (and efficient) at treating PTSD. Treating PTSD with psychotherapy is, however, usually a long and gradual process. It is therefore reasonable to conclude that this is not the case in the present study and that the observed effects are likely to have arisen at least partially as a result of the application of acupoint tapping.

Another key issue that remains is the question of experimenter effect. The EFT practitioner was made acutely aware of the importance of maintaining controlled experimental conditions. Despite this, it is a possibility that the practitioner, in desiring a favorable experimental outcome for EFT, may subconsciously have provided a more beneficial discussion to EFT participants, for example, via more positive body language or increased enthusiasm for the discussion. In response, the techniques employed within the control condition were conceived with the help of the practitioner, who believes this technique to also be of therapeutic benefit. With this in mind, the personal investment of the practitioner in the wellbeing of each participant would render it fairly unlikely that any participant received a subpar level of attention. Additionally, if subconscious bias were indeed the case, the relatively minimal effect this would have on the practitioner's behavior would be unlikely to produce the multiple significant effects that were observed 7 days later.

It is not clear why there was a significant pre- to posttest decrease in study-related enjoyment among control participants. It is possible that bringing study issues to light during discussion may have caused participants to dwell on their emotional discomforts regarding studying in the week that followed. It is also possible that increasing external pressure to work hard is to blame for this result, as data collection was conducted toward the middle of the final semester of the final year for most participants—a period of exponentially increasing pressure for many students in terms of workload. Either way, this result explains the relatively large effect size within the Group × Time interaction for enjoyment. The small sample size makes it difficult to determine whether this is a sign that EFT has had a protective effect or whether it is merely a marker of individual differences between groups.

The absence of any relationship with mindfulness as measured by the PHLMS does not necessarily imply that the utilization or cultivation of mindfulness is not involved in the EFT process. The construct of mindfulness is yet to be operationally defined, and it may be that a different measure of mindfulness would highlight patterns that the PHLMS could not. Alternatively, it may be that observable changes in mindfulness can only become apparent within longer timescales, for example, by undergoing EFT every day for 2 months. Considering that previous research has cited individuals showing no significant increases on mindfulness measures following 8-week mindfulness training programs (e.g., Sedaghat, Mohammadi, Alizadeh, & Imani, 2011), both notions are plausible.

Constructing an adequately stringent control condition relevant to the research aims of this project proved to be challenging. In addition to it being logistically unfeasible to isolate the tapping component and the self-affirming statement into two separate conditions, during experimentation the exact protocol for the control condition varied slightly from participant to participant, despite the practitioner being instructed to stick to a strict protocol. The dynamic nature of the interactive procedure involved made this unavoidable. This fact illustrates the difficulties in maintaining stringent experimental procedures when studying psychotherapeutic techniques of this nature and attempting to discern the active ingredients. Of the limitations of this study, however, the most notable was the sampling method, which was not random enough; the findings here cannot reasonably be applied to the general population. The researcher also knew some of the participants—although this is far from ideal, findings from this study could not be explained by a demand characteristics effect, as participants were blind to their condition.

The present study replicated previous research findings of a general tendency of EFT to promote psychological wellbeing. This change in participants' affect was observed 7 days after the EFT session, which lasted 40 min. Whether this change persisted beyond 7 days is unknown. The question remains: Are the observed results of the present study a temporary, superficial effect based on the day-to-day variability of personal affect or are they the result of a more fundamental shift in neurological processing that is profound and long-lasting? Although the present study is unable to answer this, previous literature citing effects

attributable to acupoint tapping as persisting for as long as 12 months (e.g., Sakai et al., 2010) would tend to lean speculation in the latter direction. PTSD is, however, a serious psychological condition, and one cannot justify the assumption that PTSD and achievement emotions are affected in the same way by EFT. Informal feedback from EFT participants in the present study yielded such statements as "[the session] produced a feeling of level-headedness," "the tapping is very relaxing," and "the tapping became therapeutic allowing me to become more comfortable about expressing my feelings." Regarding the time after the session, participants claimed that "I left feeling strong-minded and equipped to succeed," "I felt more motivated and driven to do revision and work hard for the assignment ... however this feeling only lasted for a short while," and "afterwards, I felt nothing of any significance." There seems to be some shared appreciation for the immediate experience brought on by acupoint tapping, but a general lack of consensus on the effects following the session that is far from illuminating.

The present study provides further clarification and corroborating findings to an accumulating research base detailing statistical superiority of acupoint tapping techniques such as EFT and TFT over a control condition when applied to various psychological disorders. These findings from varying methodologies and experimental designs appear to dispute alternative explanations for the effect of EFT, suggesting rather that it is more likely that a specific neurological mechanism is being engaged during the EFT process. Considering what we currently know about the effects of EFT on neurological, physiological, and psychological processes, it is possible that acupoint tapping may exert a long-term effect by allowing the individual to enter an altered state of consciousness in which it is possible to modify the characteristics of the body's conditioned reaction to certain psychological stimuli (e.g., recalling past trauma; irrational fear of small animals; reacting with anxiety to the thought of studying, regardless of relevant objective factors such as the size and difficulty of the task) via reverse associative learning (or "counterconditioning"). This may be enhanced by acupoint tapping, and directed using self-affirming statements in order to focus the client's attention.

From the conventional perspective of a Western psychologist, it would seem quite implausible that a technique so basic could have any potent therapeutic psychological effect. However, the apparent broad applicability of acupoint tapping techniques (Feinstein, 2012a), along with evidence suggesting that their benefits can be obtained in a very short amount of time and persist for as long as a year following application (Church et al., 2012; Sakai et al., 2010), imply an intriguing phenomenon that conceivably has the potential to significantly change the way that the West collectively tends to think about psychological functioning and the psychosomatic relationship. Future research should continue to explore relationships between tapping of the acupoints used in EFT and both physiological and neurological activity. Qualitative research could also be invaluable in gaining insight into the personal experience of the individual undergoing EFT, in turn helping to inform our understanding of the nature of its therapeutic effect.

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