

Critical Thinking in the Energy Therapies: Comments on Gaudiano et al. (2012)

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Abstract

Gaudiano, Brown, and Miller (2012) report that of 149 licensed psychotherapists who responded to an Internet-based survey, 42.3% said that they frequently use or are inclined to use Energy Meridian Techniques (EMTs). Gaudiano et al. portray EMTs as lacking an empirical basis and displaying multiple characteristics of pseudoscience. They conclude that EMT therapists may be characterized as relying on intuition in decision-making, holding erroneous health beliefs, and showing lower scores on a test of critical

thinking. This reply by clinicians who use EMTs demonstrates that, contrary to the claims of Gaudiano et al., there is a substantial body of research supporting the efficacy of EMTs, that theories underlying EMTs have an empirical basis, and that an affinity toward EMTs is not incompatible with critical thinking abilities.

Keywords: energy psychology, critical thinking, evidence-based practice, Thought Field Therapy, Emotional Freedom Techniques

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Energy Meridian Techniques (EMTs) are at the core of a novel family of physical and psychological therapies that work with acupuncture points and associated energy pathways known as meridians (Stux & Hamerschlag, 2001). When applied to psychological problems, specific acupuncture points are stimulated, usually by tapping on them, while a targeted memory or trigger is brought to mind. This combination is believed to send electrochemical signals to the brain that reduce elevated limbic activity,

alleviating a range of psychological symptoms (Church & Brooks, 2010; Mollon, 2007b). Best known through the practices of Thought Field Therapy (TFT) and Emotional Freedom Techniques (EFT), these psychologically oriented EMTs also include other approaches that fall within a class of treatments called “energy psychology.” EMTs, and energy psychology in particular, have been controversial (e.g., Lohr, 2001; McNally, 2001; Pignotti & Thyer, 2009), with Gaudiano, Brown, and Miller (2012) contending that they lack efficacy and credible mechanisms of action, and also that they are beset by flawed thinking among their proponents. This paper is a response to those concerns.

Early EMT practitioners claimed strong, rapid outcomes with disorders that are difficult to treat, including posttraumatic stress disorder (PTSD), prior to the availability of published efficacy research. With the mechanisms of action for the approach also being elusive, they pointed to formulations from ancient healing traditions or

hypothesized constructs such as “thought fields” (Callahan & Callahan, 1996) rather than relying on established psychological principles in accounting for the efficacy they were claiming. The skepticism generated by these bold assertions and unconventional explanations is reflected in the difficulty the American Psychological Association had in deciding whether to allow its continuing education (CE) providers to offer psychologists CE credit for energy psychology courses. It required more than a dozen years to lift its initial 1999 ban (Murray, 1999), despite mounting evidence for the effectiveness of the approach. Within the context of this struggle for a fair assessment, the paper by Gaudiano et al. is of particular concern. In an apparent attempt to invalidate EMTs, whose popularity in clinical settings is on the rise, the authors fail to accurately cite the accumulating research support and assert that EMTs “lack a scientific basis” and “display multiple characteristics of pseudoscience” (p. 649). They also characterize those who utilize these methods as being more likely than other clinicians to promote erroneous health beliefs and to have an aversion to critical thinking.

Gaudiano et al. go even further, recommending that therapists using EMTs undergo additional training and education to help them overcome their “affinity toward controversial therapies” (p. 653). They, in fact, call for “future research to investigate whether targeting individual factors related to [this affinity] can improve therapists’ critical thinking skills and the use of evidence-based practices.” They suggest that training programs should address the “personal and emotional draw and appeal of EMTs” (p. 653), a conversion therapy of sorts. The educational workshops they propose would teach therapists “to better differentiate scientific from pseudoscientific claims” (p. 653). Therapists should, after all, “not only be trained in what to use but what not to use” (p. 653). We fully agree that sound clinical judgment and the ability to distinguish effective from ineffective interventions are both required of competent psychotherapists. However, the authors’ *a priori* judgments, clear from the onset, run counter to growing scientific evidence, which they neglect to acknowledge or cite in their article.

Each of the authors of this rebuttal to Gaudiano et al. uses EMTs and holds a decidedly different perspective from the one presented in the

Gaudiano paper, “Tapping their Patients’ Problems Away? Characteristics of Psychotherapists Using Energy Meridian Techniques.” In this response, we challenge the claims of Gaudiano et al. that EMTs fall within the realm of pseudoscience and that they advance ineffective interventions, as well as their assertion that the increasing affinity toward EMTs among psychotherapists is a sort of occupational disorder that the field should take determined steps to counter. Moreover, we will establish that substantial evidence shows strong efficacy for EMTs, that theories underlying EMTs have an empirical basis, and that an affinity toward EMTs is compatible with critical thinking abilities.

Efficacy Research on EMTs for Psychological Issues

In framing their argument, Gaudiano et al. were explicit about their belief that EMTs are not research-supported:

...the only published, placebo-controlled studies of both EFT and TFT to date suggest that any benefits observed from the procedures are likely the result of placebo effects (p. 648).

Extensive research countering this assertion is readily available. The Association for Comprehensive Energy Psychology, for instance, posts regularly updated accounts of current research on EMT on its website (www.energypsych.org). Even a cursory review of this material would have provided the authors with the correct information that 18 randomized controlled trials (RCTs) investigating the two most widely used EMT methods (EFT and TFT) had been published by the time their article appeared. Twelve studies controlled for placebo effects by using either a placebo treatment or an active-ingredient comparison condition (the other controlled studies used wait-list comparison groups). All of these studies were published in peer-reviewed journals (see Table 1).

In each of the RCTs, tapping on a prescribed set of acupoints resulted in statistically significant improvement of the target condition. In 10 of 12 studies that used a placebo or active-ingredient comparison group, the treatment outperformed the comparison condition or was equivalent to an empirically established treatment (Baker & Siegel, 2010; Benor, Ledger, Toussaint, Hett, & Zaccaro,

2009; Church, 2009a; Church, Yount, & Brooks, 2012; Karatzias et al., 2011; Llewellyn-Edwards & Llewellyn-Edwards, 2012; Rubino, in press; Salas, Brooks, & Rowe, 2011; Sezgin & Özcan, 2009; Wells, Polglase, Andrews, Carrington, & Baker, 2003). In an 11th study (Pignotti, 2005), tapping on acupoints in a prescribed order produced equivalent improvement to tapping on acupoints in a random order. In only one of the 12 studies (Waite & Holder, 2003) did a pure placebo condition perform as well as tapping on prescribed acupoints, and a possible explanation was that even in the placebo condition, the subjects' acupoints were inadvertently being stimulated (Feinstein, 2009).

In 2012, Feinstein published an analysis of the 18 RCTs on dimensions such as the study's use of blinding, effect size, objective measures (vs. self-inventories only), active-ingredient (vs. wait-list only) comparison groups, and follow-up in each trial. Statistical significance was reported on at least one salient outcome measure in each of the RCTs. Sustained improvement was found in each of the eight studies that conducted follow-up investigation. The overall conclusion based on this analysis was that the RCTs "consistently demonstrated strong effect sizes and other positive statistical results that far exceed chance after relatively few treatment sessions" (Feinstein, 2012a, p. 14). In addition to the 18 RCTs, the review identified a total of 51 peer-reviewed papers that tracked outcomes following the use of TFT or EFT. All 51 papers reported positive changes in symptoms or behavior following the treatment, with moderate to large effect sizes being found where calculated. Three studies of patients with PTSD described a rapid reduction of symptoms from above to below PTSD thresholds on standardized self-inventories after a single session of the EMT being studied (Church, Piña, Reategui, & Brooks, 2011; Connolly & Sakai, 2011; Sakai, Connolly, & Oas, 2010).

A Sampling of Pertinent Studies

To illustrate the quality of the existing evidence, brief descriptions of some of the most pertinent studies follow. A comparison between EFT and Eye Movement Desensitization and Reprocessing (EMDR) in the treatment of PTSD was conducted by Scotland's National Health Service (Karatzias et al., 2011). Forty-six individuals who met *DSM-IV* criteria for PTSD were randomly assigned to EFT or EMDR treatment. EMDR is

an established evidence-based treatment for PTSD (Bisson & Andrew, 2007), and this study was the first controlled comparison between EFT and EMDR for PTSD. Assessments included standardized self-report measures of PTSD symptoms, anxiety, depression, and satisfaction with life, and a clinician-administered PTSD scale. A baseline assessment was made 8 weeks prior to treatment, pretreatment, posttreatment, and 3 months after the completion of treatment. Assessors were blind to the treatment arm. Treatment fidelity was determined by videotapes of a sample of the sessions and was equivalent for both treatment conditions. Pre/posttreatment differences exceeded the .001 level of statistical significance on all measures for both treatment conditions, with strong effect sizes of $d = .9$ or higher on all measures. Participants were allowed up to eight 1-hour sessions. The EFT treatments were completed after an average of 3.8 sessions and the EMDR treatments after an average of 3.7 sessions. Overall, the study revealed that both interventions produced significant therapeutic gains at posttreatment and at 3-month follow-up. Weaknesses of the study included relatively small numbers (23 for each group), a high loss to follow-up, and lack of a no-treatment control.

In another study of PTSD, TFT was shown to rapidly relieve PTSD that had persisted more than a dozen years after the 1994 genocide in Rwanda. Sakai et al. (2010) treated 50 adolescents who were orphaned by the genocide and were still suffering from severe PTSD symptoms, including frequent flashbacks, nightmares, inability to concentrate, withdrawal, regression, and bedwetting. A standardized pre/posttreatment PTSD symptom inventory for parents or caregivers, translated into the local language in a manner approved by the test-makers, was completed by the orphanage staff for 181 adolescents. The 50 with the highest PTSD scores were selected for the study. The ratings for all 50 were above the PTSD cutoff. After a single TFT session, the caregivers' ratings on the same inventory showed 47 (94%) of them as being below the PTSD cutoff. On 1-year follow-up using the same instrument, 46 (92%) of the participants were still rated as being below the PTSD cutoff.

Connolly and Sakai (2011) then investigated the effects on PTSD symptoms of a single-session TFT treatment on 71 adult survivors of the 1994 Rwandan genocide compared to 74 adult survivors in a wait-list group. The study used a randomized

Table 1: RCTs Using Standardized Measures to Investigate the Efficacy of TFT and EFT¹

Author (date)	Condition treated	Treatment/ Controls	n	Measures	Main findings/Comments
Baker & Siegel (2010)	Specific phobia (small animals)	EFT	11	BAT, BSSPP, FOSAQ,	A 45-minute EFT session produced significant decreases in fear on most measures. The control conditions did not. Benefits persisted on follow-up more than a year after the treatment.
		SC	10	Pulse rate, SUD	
		No Tx	10		
Brattberg (2008)	Fibromyalgia	EFT	26	CPAQ, GSE, HAD,	An 8-week treatment program was administered over the Internet with e-mail support. Improvement on pain, anxiety, depression, and other measures was highly significant for the treatment group.
		Wait list	36	PCS, SF-36, SUD	
Church (2009a)	Basketball performance	EFT	13	Free throws, vertical	Four 90-minute group EFT sessions with moderately to severely depressed college students in the Philippines reduced average depression scores from well above the moderate range to well below the depression cut-off.
		Inspirational talk by coach	13	jump height	
Church, De Asis, & Brooks (2012)	Depression	EFT	9	Beck Depression	Male and female college basketball players significantly improved free-throw percentages after 15 minutes of EFT, compared to controls, but group differences on jump height were not significant.
		Wait List	9	Inventory	
Church, Hawk, et al. (2013)	PTSD	EFT	8	PCL-M, SA-45	Abused teenage boys in a facility in Peru scoring an average of 36 on the IES (35 indicates a “probable diagnosis of PTSD”) scored an average of 3 after a single EFT session. Scores for the wait list group were unchanged.
		Wait list	8		
Church, Piña, et al. (2011)	PTSD	EFT	29	Impact of	PCL scores dropped from 61.4 to 34.6 after 6 EFT sessions (50 is the PTSD cutoff; 17 is the lowest score possible) and held at 36.5 on 6-month follow-up.
		Wait List	25	Events Scale	
Church, Yount, et al. (2012)	Stress	EFT	28	SA-45, Salivary Cortisol	Psychological symptoms decreased for both treatment conditions after a 1-hour session but significantly more for the EFT group. Significant drops in stress cortisol levels were found after EFT but not for the other two groups.
		SC	28	Assay	
		No Tx	27		
Connolly & Sakai (2011)	PTSD	TFT	71	Modified PTSD Symptom	Survivors of the 1994 genocide in Rwanda received a single TFT session (average 41 minutes) conducted by laypersons trained in TFT. Highly significant improvement on all subscales held on 2-year follow-up.
		Wait list	74	Scale, Trauma Symptom Inventory	
Irgens et al. (2012)	Anxiety	TFT	24	Fear Survey, MINI,	Significant symptom reduction was found on most scales following one to eight sessions (mean = 3.6) in comparison to the control group.
		Wait list	24	HAD, LSAS, SCL-90-R	

Jones et al. (2011)	Public speaking anxiety	EFT Wait list	18 18	PRCS, PRCA-24B, SRQ, STAI, SUD, TBC	Significant improvement was found on most of the scales after a 45-minute EFT session.
Karatzias et al. (2011)	PTSD	EFT EMDR	23 23	Clinician Administered PTSD Scale, HAD, PCL-C, SLS	Both treatment conditions showed highly significant improvements on self-report measures as well as interview assessments after a mean of 3.8 (EFT) or 3.7 (EMDR) sessions.
Llewellyn-Edwards & Llewellyn-Edwards (2012)	Soccer performance	EFT Instructions from trainer	7 8	Kicks at goal from 13.5 meters	Significant improvement was found on goal kicks after a group EFT session focusing on obstacles to kick accuracy but not after a coaching session aimed at improving accuracy.
Rubino (in press)	Test-taking anxiety	EFT DB/exposure Wait list	30 30 30	RTI, SA-45, Westside Test Anxiety Scale	Both treatments significantly reduced test-taking anxiety after 4 weeks of practice following a 2-hour training session in the method. High dropout rate, with 41 subjects completing the study.
Salas et al. (2011)	Specific phobias	EFT DB	11 11	BAT, Beck Anxiety Inventory, SUD	College students self-reporting specific phobias (heights, snakes, cockroaches, darkness, syringes) improved after a single brief session of either treatment, with EFT being statistically superior.
Schoninger & Hartung (2010)	Public speaking anxiety	TFT Wait list	28 20	Speaker Anxiety Scale, SUD	Highly significant reduction of anxiety and increase in measures of positive anticipation were found after a 1-hour session.
Sezgin & Özcan (2009)	Test-taking anxiety	EFT Progressive relaxation	35 35	Test Anxiety Inventory	Both treatments significantly reduced test-taking anxiety after 2 months of practice following an initial training session. EFT led to significantly greater improvement than the relaxation group.
Stapleton et al. (2012)	Food Cravings	EFT Wait list	49 47	BMI, Food Craving Inventory, PFS, SA-45	Reductions in food craving followed four 2-hour group sessions. Outcomes held at 1 year along with reduced body mass.
Wells et al. (2003)	Specific phobia (small animals)	EFT DB/Exposure	18 17	BAT, Pulse Rate, SFS, SUD	Both groups showed significant reductions in fear after a 30-minute session, with EFT being statistically superior to DB. Gains held on most measures 6 to 9 months after the treatment.

Note: ¹Adapted from Feinstein, 2012a.

Abbreviations: BAT = Behavior Approach Task; BSSPP = Brief Standard Self-Rating for Phobic Patients; BMI = Body Mass Index; CBT = Cognitive Behavior Therapy; CPAQ = Chronic Pain Acceptance Questionnaire; DB = Diaphragmatic Breathing; FOSAQ = Fear of Specific Animal Questionnaire; EFT = Emotional Freedom Techniques; EMDR = Eye Movement Desensitization and Reprocessing; GSE = General Self-Efficacy Scale; HAD = Hospital Anxiety and Depression Scale; LSAS = Liebowitz Social Anxiety Scale; MINI = Mini-International Neuropsychiatric Interview; NS = not specified; PCL-C = PTSD Checklist Civilian Version; PCS = Pain Catastrophizing Scale; PFS = Power of Food Scale; PRCA-24B = Personal Report of Communication Apprehension; PRCS = Personal Report of Confidence; RTI = Reactions to Tests Inventory; SA-45 = Symptom Assessment-45 Questionnaire; SC = Supportive Counseling; SCL-90-R = Symptom Checklist 90-Revised; SF-36 = Swedish Health Questionnaire; SFS = Standardized Fear Survey; SLS = Satisfaction with Life Scale; SRQ = Self-Report Questionnaire; STAI = State-Trait Anxiety Checklist; SUD = Subjective Units of Distress; TBC = Timed Behavior Checklist; TFT = Thought Field Therapy; TIR = Traumatic Incident Reduction; VIKD = Visual/Kinesthetic Dissociation; WHEE = Wholistic Hybrid Derived from EMDR and EFT.

wait-list comparison design with standardized self-inventories that assess PTSD symptoms and symptoms following trauma. Both inventories showed highly significant improvements that were sustained on 2-year follow-up. The investigators suggested additional research be conducted that utilizes a placebo or active-ingredient comparison group, noted that the findings from their sample do not necessarily generalize to all Rwandan genocide survivors, and acknowledged the possibility of missteps that may occur in cross-cultural research.

Church, Yount, and Brooks (2012) examined the changes in cortisol levels and psychological distress symptoms of 83 subjects randomly assigned to receive an EFT session, a supportive counseling session, or no treatment. Salivary cortisol assays were performed immediately before and 30 minutes after the intervention. Psychological distress was assessed using the Symptom Assessment-45 (SA-45), a 45-item standardized self-report inventory. The EFT group showed highly significant improvements on the SA-45 individual scales as well as on the two general scales: breadth of symptoms ($p < 0.001$) and depth of symptoms ($p < 0.001$). The EFT treated group experienced a 51% decrease in depth of symptoms whereas the counseling and control groups had a 17% and 14% decrease, respectively. When cortisol levels were compared, the EFT group showed a 24% decrease compared with 14% each in the other two groups. The authors concluded that “the decrease in cortisol levels in the EFT group mirrored the observed improvement in psychological distress” (p. 891).

In addition to the stress hormone levels examined by Church et al., other biological markers have also been tracked. Studies using quantitative electroencephalogram, electromyography, and other electrical devices showed that acupoint stimulation combined with the mental activation of scenes that evoke fear produces a rapid regulation of measures associated with the physiological fear response. These shifts also corresponded with self-reported reductions in fear following the treatment (Diepold & Goldstein, 2009; Lambrou, Pratt, & Chevalier, 2003; Swingle, Pulos, & Swingle, 2004; Swingle, 2010).

Selection of Studies by Gaudiano et al.

Ignoring most of these findings, Gaudiano et al. cited only the trials by Pignotti (2005) and

Waite & Holder (2003). In these studies, tapping done in a different manner than prescribed by TFT (Pignotti) or EFT (Waite & Holder) performed as well as tapping that precisely followed the protocols. Gaudiano et al. interpreted these findings as showing that the positive outcomes seen in EMT therapies must be based on placebo effects. They do not address the fact that a remarkable 97% of participants in Pignotti’s study, whether tapping on acupoints in a prescribed order or in a random order, “reported a complete elimination of all subjective emotional distress” (p. 38). Also omitted from their account was the finding that the act of tapping (in three variations) in Waite and Holder’s study resulted in highly significant reductions in self-reported fear ($p < .003$, $.001$, and $.001$, respectively) while there was no improvement ($p = .255$) for those in a fourth arm that did not use any tapping. Waite and Holder (2003) attributed their unexpected findings to “characteristics [EFT] shares with more traditional therapies” (p. 25) such as desensitization and imaginal exposure, a conclusion that has been vigorously disputed (Baker & Carrington, 2005; Pasahow, 2010). Pignotti (2005) speculated on the possible roles of expectancy, social-demand characteristics, allegiance effects, and other placebo agents, as well as desensitization and imaginal exposure, in the outcomes of the two protocols she compared. While she concluded that the acupoint tapping was not an active ingredient in the treatment since these other, better-established explanations were available, she did not present any evidence showing that placebo, desensitization, and/or exposure have *ever* produced the “elimination of all subjective emotional distress” in 97% of the participants of a study.

Rather than citing the growing efficacy literature investigating EMTs, Gaudiano et al. rely on “a recent review of the literature [which] concluded that EMTs lack a valid scientific basis, show nonspecific efficacy, are not superior to other treatments, and display multiple characteristics of pseudoscience (Deville, 2005)” (p. 649). This review, however, was published in 2005, prior to the preponderance of trials cited above. Furthermore, Devilly’s review has been heavily criticized as “journalistic rather than embodying genuine scientific enquiry,” engaging in “wildly speculative and sweeping generalizations” (Mollon, 2007a, p. 15). Mollon notes that the review utilizes “extensive disparagement of the motives and

integrity of those who develop the newer therapies ... disregarding the more obvious and simpler hypothesis that the methods become popular because people find that they work" (p. 15). The review is neither "recent" in relationship to the relevant literature nor unbiased in relation to the studies it does review.

Attempt to Discredit Previous Efficacy Reviews

Gaudiano et al. do mention a review of the efficacy of EMTs that was published in *Psychotherapy: Theory, Research, Practice, Training*, a flagship clinical journal of the American Psychological Association (Feinstein, 2008), but their discussion is limited to a recounting of Pignotti and Thyer's (2009) critique of that paper, claiming bias and criticizing the fact that much of the research presented was from unpublished reports, dissertations, and conference proceedings. However, the 2008 review appeared in a special theme issue on *new* treatments. It did not attempt or claim to present only peer-reviewed RCTs. Instead, it organized the existing evidence into four useful categories: a) case studies, descriptions of systematic observation, or anecdotal reports (more than two thousand such reports were identified as being posted on websites or available from other sources); b) six outcome studies using standardized pre/post measures but no control group; c) four RCTs with "limited generalizability" (due to design flaws); and d) seven RCTs with "potentially strong generalizability." The paper clearly indicated which had appeared in peer-reviewed journals, which were dissertations, which were conference proceedings, and which (in the case of the anecdotal reports) were from websites. None of the studies were from "proprietary publications" or "promotional newsletters" as Gaudiano et al. imply.

Pignotti and Thyer (2009) pointed to the omission of three studies in Feinstein's 2008 review as "evidence of bias" (Gaudiano et al., 2012, p. 648). In a rejoinder, Feinstein (2009) explained that these studies had more bearing on mechanisms than efficacy issues, the focus of his review. He also noted that all three could be interpreted as showing positive outcomes following energy psychology protocols, lending further support for rather than countering the premises of his alleged biases. Pignotti and Thyer also

claimed that Feinstein had been deceptive in not disclosing a conflict of interest—since he benefits from the fees for his books and trainings about the approach he was reviewing, another charge echoed by Gaudiano et al. Feinstein (2009) had responded that citing his "books and articles in the references, along with listing subtitles that clearly advocate an energy approach ... signaled to the reader [his] predispositions as the author, as did the tone of the writing" (p. 265). Beyond that, Feinstein stated, "I also did note on the journal's disclosure form 'a significant financial interest' in that 'I provide clinical services using this approach, have written three books on the topic, and consult and speak on the topic'" (p. 265). These clarifications appeared in the same issue as the Pignotti and Thyer critique cited by Gaudiano et al. but were not acknowledged in their comments. Uncritical citation of personal attacks on proponents of EMTs (e.g., Devilly, 2005; Pignotti & Thyer, 2009) obscures the most pertinent observation about the literature on the efficacy of EMTs, which is that the research since Feinstein's review of the preliminary evidence has supported his initial assessments (Feinstein, 2012a; Gruder, 2012).

Empirical Support for Theories Underlying EMTs

Beyond claiming that there is no efficacy research supporting EMTs, Gaudiano et al. assert that "no scientific evidence to date has been offered to support the theory underlying any EMTs" (p. 648). This is also not the case (e.g., Feinstein 2010, 2012b; Lane, 2009; Ruden, 2005, 2010). For instance, evidence cited by Feinstein (2012b) suggests that the stimulation of acupuncture points during imaginal exposure activates (a) electromagnetic signals that reduce threat arousal in the amygdala (Dhond, Kettner, & Napadow, 2007; Fang et al., 2009; Hui et al., 2005), (b) delta waves that are believed to depotentiate neural pathways that maintain maladaptive fear (Harper, 2012), and (c) electromagnetic fields that organize neural activity (Buschman, Denovellis, Diogo, Bullock, & Miller, 2012).

Electromagnetic fields have been shown to direct cellular activity in wound healing (e.g., Liboff, 2004; Oschman, 2000), and recent studies have demonstrated that oscillations in the electromagnetic fields of the prefrontal cortex impact thought and behavior (Buschman et al., 2012).

Referring back to Karl Lashley's (1950) speculation that memory recall must involve "some sort of resonance among a very large number of neurons" (p. 479), Feinstein notes that recent neurological findings are showing how large-scale electrical oscillations across distant brain regions allow "content-specific information to be transmitted" (Feinstein, 2012b, p. 71). These findings help explain the longstanding enigma of how diverse brain activities involved in information processing are coordinated. Energy psychology interventions are believed to impact the electromagnetic fields that coordinate activity among neurons.

In addition to disregarding studies focusing specifically on the mechanisms of energy psychology, Gaudiano et al. dismiss without mention the extensive, if still somewhat controversial (e.g., Ernst, 2006; Stux & Hammerschlag, 2001) literature investigating the nature of the acupuncture points and meridians that are at the core of EMT theory. While it is impossible to begin to do justice to the thousands of research studies published on acupuncture and other energy therapies (e.g., Benor, 2004; Deadman & Al-Khafaj, 2007; Gerber, 2001; Oschman, 2000; Swanson, 2010; World Health Organization, 2003), a few salient examples are mentioned here.

Attempts to scientifically establish the anatomy of the meridian system, first described in papers by Kim Bonghan in North Korea in the 1960s, have been corroborated by independent investigators in other countries (Johng et al., 2007; Langevin & Yandow, 2002; Milbradt, 2009; Schlebusch, Maric-Oehler, & Popp, 2005; Yan et al., 1992). Heat, sensations, and radiolabeled traces propagate along the meridian lines described in traditional Chinese texts (Darras, de Vernejoul, & Albarede, 1992; Ji, 1981). Low electrical impedance, a characteristic of many acupuncture points (Ahn, 2008; Johng et al., 2002), is believed to make these points more responsive in producing the electrochemical effects of acupuncture. Acupuncture has, for instance, been shown to stimulate the release of endogenous opioids in brainstem, subcortical, and limbic structures (Han, 2003; Pomeranz, 1996), increase the brain's opioid binding potential (Harris, Zubieta, Scott, Napadow, Gracely, & Clauw, 2009), deactivate limbic arousal (Fang et al., 2009), stimulate the release of adenosine (Goldman et al., 2010), and create an anti-inflammatory response via secretion of adrenocorticotrophic hormone from the pituitary

gland (Li et al., 2008). This brief sampling from a much larger literature shows that, unlike Gaudiano et al.'s assertion to the contrary, considerable evidence supporting the theories underlying EFTs is available.

Characteristics of Psychotherapists Utilizing EMTs

From ignoring the preponderance of evidence and portraying EMTs as unsubstantiated by empirical studies or plausible theory, Gaudiano et al. proceed to investigate the characteristics of psychotherapists who would utilize such supposedly questionable methods. As would be expected, given that EMTs are alternative therapies, psychotherapists who employ EMTs showed more positive attitudes toward alternative therapies. The other characteristics listed, however, become confounded with ideological issues, such as whether relying on intuition is a positive or negative trait in a clinician. The authors' approach to assessing "erroneous health beliefs" is deeply bound in ideological assumptions. The assumption that endorsing "erroneous health beliefs that are not supported by scientific evidence" (p. 650) is a negative characteristic hinges, for instance, on another assumption, which is that the health beliefs are actually erroneous. The first item on the 10-item Health Beliefs Subscale (Lindeman, Keskiivaara, & Roschier, 2000) used by the authors to determine "erroneous health beliefs" is:

An imbalance between energy currents lies behind many illnesses.

This "erroneous" health belief has been a basic tenet of acupuncture, the original EMT, for several thousand years. It was first affirmed within a Western scientific framework in the 1940s (Langman & Burr, 1947). Langman and Burr found that voltage abnormalities around the cervix predicted malignancies with 85% accuracy in more than 1000 women presenting with gynecological problems. Many cardiac conditions, including cardiac arrhythmias (Spragg & Tomaselli, 2011), are due to abnormal electrical activity in the heart. Neurological conditions, such as seizure disorders (Lowenstein, 2011), involve imbalances in underlying electrical currents. Anxiety disorders (Drevets, Charney, & Rauch, 2009) and mood disorders (Savitz & Drevets, 2009) reflect imbalances in affective circuitry and stability. Scoring, as an

erroneous health belief, agreement with the statement “an imbalance between energy currents lies behind many illnesses” is an ideological position rather than an example of the critical thinking the authors extol.

The ideological bias evidenced in their assessment of “erroneous health beliefs,” as well as in the selection of literature that supports their own beliefs regarding EMTs while neglecting to acknowledge the strong body of evidence that contradicts their beliefs, led the authors of the current paper to question and scrutinize the validity of the items in the Critical Thinking Questionnaire used by Gaudiano et al. (selected by Sharp, Herbert, & Redding, 2008, from other critical thinking assessment instruments). The first of the eight items is:

Imagine that disorder X occurs in one in every 1,000 people. Imagine also there is a test to diagnose the disorder that always gives a positive result when a person has the disorder. Finally, imagine that the test has a false positive rate of 5 percent. This means that the test wrongly indicates that the disorder is present in 5 percent of the cases where the person does not have the disorder. Imagine that we choose a person randomly, administer the test, and that it yields a positive result (indicates that the person has the disorder). What is the probability that the individual actually has the disorder, assuming that we know nothing else about the individual’s psychological or medical history?

Choices: A) <10% B) 10–30% C) 30–50% D) 50–70% E) 70–90% F) >90%

While certainly calling for skills in critical thinking, such skills will not be detected if the clinician taking the test does not possess the requisite statistical training and mathematical ability to calculate probabilities. Critical thinking tests are, in fact, notoriously problematic (Ennis, 1993). Ennis, who designed one of the instruments from which items were selected in the Gaudiano et al. study, notes that most tests are simply not comprehensive enough to adequately assess critical thinking skills. Moreover, “differences in background beliefs and assumptions between test maker and test taker [can] result in justifiably different answers to test questions” (Ennis, 1993, p. 181). Gaudiano et al., on the other hand, do their Internet-based survey using eight items adapted from a 28-item inventory whose questions

were themselves selected from “several established measures of critical thinking” (Sharp, 2003, p. 36). Validity or reliability evaluations of either the eight-item or 28-item inventories are not cited. Gaudiano et al. conclude that the EMT therapists “demonstrated lower critical thinking abilities” (p. 650) than other therapists without acknowledging the complexities involving measures of critical thinking, the potential impact of differing background beliefs between test maker and test taker, or possible distortions resulting from an unvalidated assessment tool.

Conclusion

The great irony in the article by Gaudiano et al. is that critical thinking would compel informed therapists to seriously consider incorporating EMTs into their practices, based on the 51 peer-reviewed papers mentioned above that show positive, lasting, and, often, unusually rapid outcomes. Even though the evidence suggests that EMTs hold strong promise for better patient care, “Tapping Their Patients’ Problems Away” attempts—using obsolete data and sardonic characterizations of EMT therapists—to steer clinicians and researchers away from EMTs. Its lead author has, in fact, for more than a decade, been sounding the alarm that EMTs “are gaining widespread acceptance among mental health practitioners, despite their frankly bizarre theories and techniques, extraordinary claims, and absence of scientific support” (Gaudiano & Herbert, 2000, p. 29). This brings us to a second irony. Most of us writing this rebuttal would, in 2000, have agreed with him.

In 2000, a small group of proponents of EMTs—who felt certain about the unproven clinical benefits of EMTs for rapidly and deeply releasing anxieties, fears, phobias, PTSD, cravings, and more—were zealous in their claims and expressing annoyance at requests for empirical evidence. This seeming arrogance—combined with the strange-looking procedures, stranger explanatory models, and public assertions with no research support—did not endear the approach to the clinical community. A dozen years later, however, 42% of the psychotherapists in Gaudiano et al.’s sample indicated frequent or probable use of EMTs, and the research evidence is tending to affirm rather than contradict the “extraordinary claims” and “bizarre” techniques of the early EMT proponents. Of the 51 papers presenting positive

outcomes of EMT interventions referred to above, 50 have been published since 2000; 39 in the past four years. This profusion of new data invites the other 58% of the clinical community, including Gaudiano et al., to reexamine EMTs.

Achieving a balance between sound skepticism and receptivity to untested health care innovations is notoriously challenging (Forman, 1981). For instance, the cure for scurvy was known to the British admiralty for more than a century before it was adopted. Another tragic historical example of established beliefs overpowering receptivity to medical innovation is in the way that physicians did not begin to sanitize their hands and equipment prior to surgery until decades after it had been demonstrated that these practices save lives. The existing research on energy psychology suggests that an innovation has been developed that promises to bring about unusually rapid improvement for a range of conditions. Its compatibility with established scientific principles and clinical procedures, as discussed in this paper (also see Church, 2009b), adds plausibility to this prospect. Given the widespread suffering psychotherapists are called upon to help alleviate, and the ever-pressing need for more powerful non-pharmaceutical treatments, it behooves the psychotherapy community to continue to advance the best evidence-based therapies while also encouraging innovations by sincere clinicians who seek solutions outside mainstream paradigms.

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