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Energy Psychology: Efficacy, Speed, Mechanisms

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Abstract

The most well-known forms of "energy psychology" combine cognitive and exposure techniques with the stimulation of selected acupuncture points (acupoints) by tapping on them. Most clinicians who learn and utilize an acupoint tapping protocol integrate the approach within their existing clinical framework rather than using it as a stand-alone therapy. The method has been highly controversial, with its efficacy, purported speed, and explanatory models all questioned. Nonetheless, its utilization within clinical settings and as a self-help method has continued to expand since it was introduced more than three decades ago. This paper reviews the most salient criticisms of the method and presents research and empirically based theoretical constructs that address them. More than 100 peer-reviewed outcome studies—51 of which are randomized controlled trials—provide an evidential base for evaluating the claims and criticisms surrounding the approach. This review concludes that a growing body of evidence indicates that acupoint-based energy psychology protocols are rapid and effective in producing beneficial outcomes in the treatment of anxiety, depression, PTSD, and possibly other conditions. Mechanisms by which acupoint tapping might bring about these treatment outcomes are also proposed.

Keywords: acupuncture, acupressure, Emotional Freedom Techniques, energy psychology, memory reconsolidation, Thought Field Therapy

Acknowledgements: The author wishes to thank Phil Mollon, Shoshana Garfield, Philip Friedman, David MacKay, and Maarten Aalberse for their useful suggestions while the manuscript was being developed.

Disclosure: The author conducts trainings, provides clinical services, and has written books related to the approach examined in this paper.

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A set of clinical and self-help approaches that integrate cognitive and exposure techniques with methods drawn from ancient healing and spiritual traditions, such as acupuncture and yoga, are collectively known as "energy psychology" (Gallo, 2004). Most energy psychology protocols incorporate the stimulation of acupuncture points (acupoints) by having the client tap on them. The earliest formulation of the approach, Thought Field Therapy (TFT), and a popular derivative, Emotional Freedom Techniques (EFT), are its most widely known variants, and it is often referred to simply as "tapping." While these methods have been investigated primarily in their manualized forms and can be applied in that manner, most licensed psychotherapists who identified themselves with energy psychology indicated, in a survey, that they integrated acupoint tapping into more conventional clinical frameworks rather than using it as a stand-alone approach (Feinstein, 2016).

Since tapping on acupoints to address psychological issues was first introduced in the 1980s, the technique has generated intense controversy and even ridicule. A commentary by Harvard psychologist Richard McNally began: "After obtaining a TFT protocol for treating phobic fear we wondered whether TFT was a hoax, concocted by some clever prankster to spoof 'fringe' therapies" (2001, p. 1171). A critique in a prominent clinical journal characterized a paper written by a pioneer of the method as "a disjointed series of unsubstantiated assertions, ill-defined neologisms, and far-fetched case reports that blur boundaries between farce and expository prose" (Kline, 2001, p. 1188). Subsequent highly critical journal reviews of the approach have also appeared (Bakker, 2013, 2014; Devilly, 2005; Gaudiano, Brown, & Miller, 2012; McCaslin, 2009; Pignotti & Thyer, 2009).

Proponents, on the other hand, have claimed that acupoint tapping protocols and related methods are triggering "a paradigm shift in biomedicine" (Leskowitz, 2018, p. 525). Some have gone so far as to suggest that the approach represents a "4th Wave" of psychotherapy—purportedly more effective than psychodynamic, behavioral, or cognitive approaches—with claims of strong efficacy, unusual speed, and special strengths in facilitating targeted shifts in the neural pathways that underlie psychological difficulties (Stapleton, in press).

The American Psychological Association's (APA) response to energy psychology has wavered. In 1999, the APA banned its continuing education (CE) sponsors from offering CE credits to psychologists for courses on acupoint therapies (Murray, 1999). In 2011, the APA reversed this ban by granting CE sponsorship status to the Association for Comprehensive Energy Psychology based on peer-reviewed randomized controlled trials (RCTs) that exceeded its requirements for CE content. While numerous RCTs (e.g., Church, Hawk, et al., 2013; Connolly & Sakai, 2011; Geronilla, Minewiser, Mollon, McWilliams, & Clond, 2016; Karatzias et al., 2011) and a meta-analysis (Sebastian & Nelms, 2017) have shown unusually strong effects within relatively few sessions when acupoint tapping protocols were used in treating PTSD, the APA's recent PTSD treatment guidelines (American Psychological Association, 2017) do not

mention acupoint tapping protocols as recommended or even conditionally recommended treatments.

On the other hand, the National Institute for Health and Care Excellence (NICE), the governmental authority responsible for determining which treatments are allowed for given health conditions within the U.K.'s National Health Service, created a new category for treating PTSD, "Combined Somatic and Cognitive Therapies," comprised of EFT and TFT. The NICE report includes preliminary evidence in support of these approaches and makes further investigation of EFT one of its four PTSD research priorities (https://www.nice.org.uk/guidance/ng116/evidence, "Evidence Review D," retrieved December 6, 2018).

This paper describes the most salient criticisms of energy psychology and considers research and empirically based theoretical constructs that bear upon them. It begins with a brief overview of how energy psychology protocols are most commonly practiced, with particular focus on their most distinguishing feature, acupoint tapping. The criticisms and counterpoints are then organized around efficacy claims, alleged speed, and ostensible mechanisms of action.

The Approach

In a typical tapping-based energy psychology treatment session, following history and other preparatory dialogue, the client will mentally attune to a scene, emotion, sensation, or statement related to a target issue and tap on a prescribed set of acupoints (Church, 2013c). The mental focus might be, for instance, on a difficult memory, an unwanted response to a trigger, a self-defeating belief, a problematic emotion, or a sensation such as tightness in one's throat. The operating assumption is that the tapping will methodically reduce the client's sense of distress or arousal in relation to the area of mental focus. Before and following each round of tapping, the client rates emotional upset about the problem or a facet of it on a 0-to-10 Subjective Units of Distress (SUD) scale (after Wolpe, 1958). Based on this quick assessment of the immediate effects of the tapping, another round of tapping is done with the therapist guiding the client to keep the same focus or to move to a new focus. This new focus may highlight any of numerous aspects of a given problem (e.g., memories, self-assessments, safety assessments, beliefs, emotions, sensations). Each is identified and addressed via additional rounds of tapping (generally requiring one to three minutes each) until no subjective distress is reported regarding that aspect of the problem. Additional somatic techniques, designed to shift the focus, have a centering effect, and facilitate information processing may be introduced at various points during a session. A brief video illustrating an acupoint tapping protocol in the treatment of a height phobia provides a glimpse into the relatively unusual procedures (http://phobiacase.EnergyPsychEd.com, retrieved September 10, 2018).

Usage

Clinical applications. The number of therapists incorporating acupoint tapping into their practices is unknown. A professional organization, the Association for Comprehensive Energy Psychology, was established in 1999 and has more than 1200 dues-paying members

(https://www.energypsych.org/?AboutACEPv2, retrieved January 8, 2019). A survey submitted to licensed psychotherapists on listservs—such as those for the Association for Behavioral and Cognitive Therapies and the Society for the Science of Clinical Psychology—found that 42% of 149 respondents reported that they were using or inclined to use an energy psychotherapy modality (Gaudiano et al., 2012). An estimate published in the journal *Medical Acupuncture* placed the number of psychotherapists using energy psychology in the "tens of thousands" (Leskowitz, 2016, p. 181). Again, however, most practitioners of acupoint tapping do not identify it as their primary modality (Feinstein, 2016).

Self-help applications. An annual online conference focusing on acupoint tapping for personal development has averaged more than 500,000 participants over each of the past 10 years (personal communication, Nick Ortner, May 18, 2018). A free *EFT Manual* has been downloaded nearly three million times (personal communication, Dawson Church, May 20, 2018). The approach has frequently been featured in national media (https://www.eftuniverse.com/eft-related-press-releases/eft-and-energy-psychology-in-the-news, retrieved December 5, 2018). Its popularity in both its therapist-administered and self-help formats, particularly in the context of the controversy surrounding it, underlines the need for an informed response and guidance from the clinical community. This paper is an attempt to contribute to that dialogue.

Safety

A review of clinical trials of acupoint tapping protocols involved more than one thousand subjects and found that no "adverse events" had been reported (Church, 2013a, p. 650). A survey of therapists using energy psychology in treating survivors of childhood sexual abuse reported that the respondents preferred the approach because it is able to "relieve the trauma in a non-invasive manner [that] lessens the possibility of retraumatization" (Schulz, 2009, p. 18). A danger in the application of acupoint tapping, however, is that, as it is so easy to learn a basic protocol, people with no training in mental health care have attempted to apply it with seriously disturbed individuals, opening issues the practitioner was not capable of helping the person resolve.

The Somatic Component of Energy Psychology

Discussing how he came to utilize somatic interventions in treating trauma, the Harvard psychiatrist Eric Leskowitz reflected:

> I began my career as a psychiatrist in 1983 at the Veterans Administration (VA) Outpatient Clinic in Boston, MA. At that time, psychiatric treatment of PTSD largely consisted of supportive listening as veterans retold their war stories, either one-on-one or in peer groups. The hope was that, somehow, the inevitable emotional catharsis of sharing long-forgotten stories would ease the veterans' emotional burdens. Mild anxiolytics such as Valium® (diazepam) were also part of the picture, but the Freudian psychoanalytic model still held sway: Make the unconscious conscious, and all would be well. However, that is not how things worked out. Telling and retelling war stories

> actually made things worse because it reactivated the original trauma response again and again. (2016, p. 181).

Bessel van der Kolk's (1994) seminal paper, "The Body Keeps the Score: Approaches to the Psychobiology of Posttraumatic Stress Disorder," proposed a biological basis for Leskowitz's experience that "talk therapy is not enough." Van der Kolk pointed to evidence that "trauma is stored in somatic memory and expressed as changes in the biological stress response [that are subsequently] relatively impervious to change" (p. 253). The neurological dimensions of trauma-based disorders are, in fact, being directly addressed by therapies that include explicit somatic components (e.g., Minton, Ogden, & Pain, 2006). Nonetheless, treatments that are effective in directly targeting the somatic underpinnings of trauma have not—beyond cursory somatic interventions such as breath control, muscle relaxation, and focusing on bodily sensations—been widely utilized. While the "standard of care" therapies for PTSD—cognitive processing therapy and prolonged exposure—are proving to be more effective than talk therapy alone, a *JAMA* (*Journal of the American Medical Association*) review of the two approaches with military and veteran populations, conducted between 1980 and 2015, found that while many patients received some benefit, approximately two thirds retained their PTSD diagnosis after completing treatment (Steenkamp, Litz, Hoge, & Marmar, 2015).

Meanwhile, a variety therapies have been emerging that utilize nonverbal, body-oriented, "bottom-up" techniques for treating psychological distress and mental illness. *The Handbook of Body Psychotherapy and Somatic Psychology* (Marlock, Weiss, Young, & Soth, 2015) provides a comprehensive overview of these approaches. Body-mind therapies date back to the work of Elsa Gindler and Wilhelm Reich (Marlock et al., 2015) and extend to modern iterations such as "somatic experiencing" (Paynel, Levine, & Crane-Godreaul, 2015) and "sensory-motor processing" (Gene-Cos, Fisher, Ogden, & Cantrell, 2016). Each represents a unified body-mind perspective, based on the complementary premises that physical conditions affect mental health and mental conditions affect physical health. Acupoint tapping is a gentle somatic intervention that has been shown to mitigate stress-related hormonal states (Church, Yount, & Brooks, 2012), facilitate shifts in gene expression associated with improved health and mental health (Maharaj, 2016), and generate electrical signals that rapidly disrupt the neurological underpinnings of psychological symptoms (Stapleton, in press; Stapleton et al., 2019). Such findings, discussed later in greater detail, illustrate potential strengths of somatic interventions in treating emotional difficulties.

Roots in Acupuncture

Acupoint tapping protocols draw from the ancient Chinese healing system of acupuncture. The reception of acupuncture in the West has been mixed, with strong detractors (see, for instance, the opinion-setting anthology edited by Ernst and White, 1999, and an influential editorial by Hall, 2011). On the other hand, 1,300 physicians are members of the American Academy of Medical Acupuncture (https://www.medicalacupuncture.org/, retrieved December 5, 2018) and hundreds of scientific papers are published in English each year in more than a dozen peer-reviewed journals that are devoted to acupuncture and related topics. Interpretations of this vast literature regarding the effectiveness of the method have been equivocal. One of the most comprehensive and stringent reviews to date is the report of the

Acupuncture Evidence Project (McDonald & Janz, 2017). It drew upon 136 systematic reviews and meta-analyses (including extensive investigations by the World Health Organization and the United States Department of Veterans Affairs as well as 27 Cochrane reviews) in examining pooled data from more than a thousand RCTs. Although the report was published as a monograph and thus was not peer-reviewed, the studies it assessed were peer-reviewed, and the authors evaluated them according to the National Health and Medical Research Council criteria for assessing "levels of evidence" and the Cochrane GRADE criteria for assessing risk of study bias.

Applying these criteria, the quality of evidence for the efficacy of 122 medical conditions across 14 broad clinical areas that had been investigated in the various reviews was evaluated. "Moderate" to "high quality" evidence of beneficial effects of acupuncture was found with 46 conditions, including several psychiatric disorders. Acupuncture was also shown to be effective as an adjunct to medication in the treatment of depression, schizophrenia, and hypertension. At least some supportive evidence was found for 117 of the 122 conditions. The studies included in the various reviews were all conducted between 2005 and 2016. The authors noted a trend that, during the 11-year period that was considered, the quality of evidence had increased significantly for 24 of the conditions.

Acupuncture vs. Tapping on Acupuncture Points

Energy psychology protocols stimulate acupuncture points by percussing the fingertips on the skin (tapping), a form of acupressure. In acupressure, traditional acupuncture points are manually stimulated for therapeutic effects (Lee & Frazier, 2011). A double-blind study comparing penetration by acupuncture needles with non-penetrating pressure found equivalent clinical improvements for each intervention (Takakura & Yajima, 2009). Informal studies have actually shown tapping to be superior to needling in the treatment of anxiety disorders (Andrade & Feinstein, 2004), presumably because of the flexibility of tapping compared to needling in being able to make quick adjustments that are attuned to the client's emerging experiences as the session progresses. Although the term "acupressure" might give the impression that continual pressure is being applied, tapping on acupuncture points is another traditional form of acupressure. While the published research on acupuncture is substantially more extensive than that on acupressure, a growing literature is showing acupressure to be effective as well for a range of physical and emotional conditions (e.g., Au et al., 2015; Chen, Chien, & Liu, 2013; Gach & Henning, 2004; Helmreich, Shiao, & Dune, 2006). Differing from the conventional uses of acupressure, energy psychology protocols also introduce imaginal exposure and cognitive interventions within a context oriented toward emotional healing and psychological development.

The Mechanics of Acupoint Tapping

The process by which tapping on acupoints produces electrical signals involves a well-established mechanism called "mechanosensory transduction," by which cells are able to convert a mechanical stimulus (e.g., needling or tapping) into electrical activity (Gillespie & Walker, 2001). At least some acupuncture points have also been shown to have less electrical resistance, and thus greater electrical conductivity, than adjacent points (Li et al., 2012). Physiological

pathways by which the signals generated by acupoint stimulation move through the body have been demonstrated in studies using radioactive tracers injected at acupoints (de Vernejoul, Albarède, & Darras, 1992), photoluminescent bioceramic irradiation (Chen et al., 2013), and fMRI (functional magnetic resonance imaging) scanners (Langevin & Yandow, 2002). These pathways appear to be embedded in the fascia, the soft tissue component of connective tissue, which forms a whole-body matrix of structural support (Bai et al., 2011; Finando & Finando, 2012).

A strong correspondence has, in fact, been found between the conjectured pathways on which acupuncture points are purportedly situated (described as "meridians" in acupuncture) and the body's interstitial connective tissue (Langevin & Yandow, 2002). While a major criticism of acupuncture has been based on the difficulty of establishing correspondences among such pathways and anatomical structures (e.g., McCaslin, 2009), these imaging studies are beginning to resolve that question (Langevin & Wayne, 2018) and shed light on other puzzles. For instance, because of the semiconductive properties of the collagen comprising much of the connective tissue, the signals produced by tapping on acupoints can plausibly be sent to specific areas of the body more rapidly and directly than if they needed to travel through the nervous system, neuron-to-synapse-to-neuron (Oschman, 2003).

Efficacy

Seventeen years after a popular book, *The Five Minute Phobia Cure* (Callahan, 1985), provocatively introduced acupoint tapping as a psychological treatment, not a single peer-reviewed clinical trial showed acupoint tapping to be effective in helping overcome phobias or, for that matter, any other psychological problem. With enthusiastic proclamations but no scientific backing, the view that a hoax was being perpetrated on the public had become a matter of concern to the clinical community (Feinstein, 2005). The first RCT investigating the approach was not published until 2003. Wells, Polgase, Andrews, Carrington, and Baker (2003) reported that a 30-minute treatment using an acupoint tapping protocol reduced fear to a significantly greater degree than a non-tapping comparison. Over the next several years, no additional well-designed RCTs appeared. The past decade has, however, seen a spate of studies of the approach for treating a variety of disorders. Their reception by the clinical community has been mixed. The existing efficacy evidence is briefly surveyed here.

Clinical Trials

As of December 2018, 116 clinical trials investigating the application of acupoint tapping protocols had been published in peer-reviewed journals and were listed in the research area of the Association for Comprehensive Energy Psychology's website (www.energypsych.org). The compilation, containing studies originating in more than a dozen countries, builds upon systematic literature searches conducted for reviews assessing the approach (sources typically included MEDLINE/PubMed, PsycINFO, Google Scholar, and references from retrieved papers) as well as continual updates from interested researchers. Beyond the journal reports, an additional 26 studies or commentaries are listed that were retrieved from the "grey literature" (e.g., doctoral dissertations, conference proceedings, et cetera). Of the 116 published outcome studies, 51 were RCTs examining the use of the method with a wide range of conditions,

including anxiety, PTSD, specific phobias, depression, weight issues, sleep disorders, physical pain, fibromyalgia, and athletic performance.

Standardized written instruments or other evaluations such as structured clinical interviews or observed behavioral changes showed significant pre/posttreatment improvements in all of the studies reported in the grey literature and all but one of the 116 published clinical trials. In the study with null results, Moritz et al. (2011) offered individuals already participating in online OCD (obsessive-compulsive disorder) support groups a self-help manual for using acupoint tapping with OCD as well as access to two video demonstrations, but no face-to-face or other contact with a therapist. This arrangement does not correspond with any known treatment for OCD. Unsurprisingly, improvement on standardized measures of OCD had not reached significance four weeks after the instructional material was introduced. Nonetheless, 39% of participants credited the tutorial for decreased OCD symptoms and 72% indicated that they would continue to use the approach in the future.

Additional clinical trials with null or negative results may of course have been conducted but not reported, constituting undetected publication bias. Meanwhile, two investigations, consistent with the vast majority of the outcome studies, found statistically significant improvement following acupoint tapping, but the investigators attributed these outcomes to other factors than the tapping (Pignotti, 2005; Waite & Holder, 2003).

Meta-analytic Reviews

Meta-analyses have been conducted on energy psychology treatments of anxiety, PTSD, and depression, respectively. Of 14 RCTs (N = 658) examining acupoint tapping in the treatment of anxiety disorders (Clond, 2016), a combined pre- to posttreatment effect size of 1.23 was found (.8 is considered a “large effect”). A meta-analysis of seven RCTs (N = 247) investigating the treatment of PTSD found a pre- to posttreatment effect of 2.96 (Sebastian & Nelms, 2017). A meta-analysis of 12 RCTs (N = 398) investigating the approach with depression showed an overall effect size of 1.85 (Nelms & Castel, 2016). A fourth meta-analysis, reviewing 18 studies addressing a variety of conditions, found a moderate overall effect size of .66 (Gilomen & Lee, 2015). A fifth meta-analysis, though not an efficacy study per se (it was investigating active ingredients, a question we will turn to later), found large effect sizes in the studies it reviewed (Church, Stapleton, Yang, & Gallo, 2018).

Design Quality

The conclusions that can be drawn from meta-analysis are, of course, only as reliable as the information being analyzed, and acupoint tapping studies have varied widely in quality. Many of the investigations lacked features of more robust designs, such as large Ns, precisely defined diagnostic populations, systematic procedures for insuring compliance with treatment manuals, and diagnostic pre- and posttreatment interviews to augment validated written instruments. Also, the principal investigators were often proponents of the approach, a potential source of strong bias.

More rigorous studies by disinterested investigators are clearly needed to corroborate or challenge the existing efficacy research. Nonetheless, an analysis of adherence to the standards set by Division 12 of the APA for "empirically supported treatments"—the standards that were in effect when the vast majority of the studies were conducted (http://www.div12.org/PsychologicalTreatments/index.html, retrieved February 12, 2014)—showed that 15 RCTs investigating acupoint tapping met all seven of the essential criteria of the Division 12 standards (Church, Feinstein, Palmer-Hoffman, Stein, & Tranguch, 2014). These essential criteria included (a) randomization, (b) sample sizes that are adequate for detecting statistically significant differences, (c) clearly defined treatment populations, (d) assessment tools with established reliability and validity, (e) blinded assessments, (f) use of treatment manuals or other means for ensuring uniform interventions, and (g) enough data provided in the paper reporting the clinical trial that the study's conclusions can be reviewed for appropriateness. The 15 studies meeting all of these criteria represented nearly half of the energy psychology RCTs published at the time.

Beyond variation in the quality of the studies being analyzed, another potential weakness in the meta-analytic reviews is that the comparison conditions were most frequently wait lists, treatment-as-usual, or placebo interventions rather than evidence-based therapies. Most psychological treatments will show some positive effect based on factors shared by all therapies, such as a therapeutic alliance and the expectation that the process will result in improvement (Wampold, 2015). "Head-to-head" comparisons with therapies whose effectiveness has been empirically verified have become a standard for establishing the relative effectiveness of a new treatment approach.

Head-to-Head Comparisons

Ten studies have compared energy psychology treatments with an evidence-based comparison condition. Eight compared treatment outcomes between energy psychology and cognitive behavior therapy (CBT) for conditions including agoraphobia (Irgens et al., 2017), anxiety in teens (Gaesser & Karan, 2017), depression/anxiety (Chatwin, Stapleton, Porter, Devine, & Sheldon, 2016; Jasubhai & Mukundan, 2018), food cravings (Stapleton, Bannatyne, Porter, Urzi, & Sheldon, 2016), generalized anxiety disorder (Andrade & Feinstein, 2004), test-taking anxiety (Benor, Ledger, Toussaint, Hett, & Zaccaro, 2009), and trauma following gender violence (Nemiro & Papworth, 2015). In each of these studies, the energy psychology outcomes were at least equivalent to the CBT outcomes and some exceeded them in some measures, particularly in speed. In a comparison with Eye Movement Desensitization and Reprocessing (EMDR) in the treatment of PTSD, both approaches led to high effect sizes within a mean of less than four sessions (Karatzias et al., 2011). In a comparison with Narrative Exposure Therapy for the treatment of PTSD, EFT was significantly more effective in reducing hyperarousal, anxiety, and depression symptoms, with reductions following the EFT treatments remaining consistent at 12-month follow-up (Al-Hadethe, Hunt, Al-Qaysi, & Thomas, 2015).

The principal investigators in more than half of these studies, however, had some allegiance to energy psychology, and three of the studies were presented as pilot studies. Additional well-designed head-to-head studies conducted by impartial investigators are clearly needed to make informed comparisons of energy psychology with other treatments. Meanwhile,

a meta-analysis of 32 studies of treatment outcomes with children and adults following human-made and natural disasters provides another basis for comparison of a tapping protocol with recognized treatments (Brown et al., 2017). Narrative Exposure Therapy, CBT, EMDR, and trauma-oriented classroom interventions constituted the vast majority of the included treatments. Only one of the 32 studies investigated an energy psychology protocol (TFT). Effect sizes ranged from 0.09 to 4.19, with the average effect size across the groups being large (1.47). The strongest effect size of the 32 treatments was produced by TFT (4.19).

Active Ingredients

The question of whether acupoint tapping—the most prominent yet most controversial feature of energy psychology protocols—is an essential or even active ingredient in the reported clinical outcomes has been a focus of critical reviews of the approach (e.g., Bakker, 2013; Gaudiano et al., 2012). In addition to the clinical ingredients shared by all psychotherapies, energy psychology protocols utilize exposure techniques and cognitive interventions. Of the various components, tapping on one's skin might seem the ingredient that is the least likely to be a therapeutic agent. It is certainly the strangest-looking and least aligned with existing explanatory models about what makes psychotherapy effective. What is the evidence for the clinical efficacy of acupoint tapping independent of the protocol's other features?

This type of inquiry is generally addressed with *dismantling* or *component* studies, which eliminate or replace elements of a treatment and compare outcomes with the standard treatment protocol (Papa & Follette, 2015). A review of six component studies involving EFT protocols with and without acupoint tapping concluded that acupoint tapping is an active ingredient, independent of placebo, nonspecific therapeutic effects, or other clinical factors (Church, Stapleton, et al., 2018). Two of the comparative studies substituted tapping on acupoints with tapping on non-acupuncture ("sham") points in otherwise identical EFT protocols and found that tapping on the acupuncture points produced significantly stronger emotional benefits than tapping on the sham points (Reynolds, 2015; Rogers & Sears, 2014). Church and Nelms (2016) substituted diaphragmatic breathing for acupoint tapping in otherwise identical 30-minute EFT protocols and found the acupoint tapping condition to produce greater long-term emotional benefits as well as sustained improvements in a targeted physical condition. A systematic review of 66 acupressure studies (7265 subjects) comparing the use of established acupoints with sham points corroborate these findings, with the acupoint treatments producing stronger therapeutic effects than the sham point treatments, which still yielded some clinical benefit (Tan, Suen, Wang, & Molassiotis, 2015).

While the finding that sham points produce therapeutic effects has been interpreted as undermining acupuncture theory (Moffet, 2009), McDonald and Janz (2017) have argued that the therapeutic effects of sham points are actually an affirmation of the clinical potency of acupuncture points. They emphasize that because the "sham/placebo controls used in acupuncture trials are not inert," there is "a consistent underestimation of the true effect size of acupuncture interventions" (p. iii). In other words, studies that compare the effects of traditional points with sham points require the traditional points to show a stronger effect size if they are to statistically exceed, as they have, the effects of "sham" points that have some rather than no therapeutic value.

The first attempt to isolate whether tapping is an active ingredient in energy psychology protocols (Waite & Holder, 2003) has been interpreted both as demonstrating that tapping *is* an active ingredient (Baker, Carrington & Putilin, 2009; Pasahow, 2010) and that it *is not* an active ingredient (Gaudiano et al., 2012; Pignotti & Thyer, 2009). Three tapping variations—tapping on acupoints, tapping on sham points, and tapping on a doll—each produced significant reductions in fear, while a no-tapping control group showed no change. An explanation that has been put forth for the conflicting interpretations is that all three tapping conditions inadvertently stimulated an acupuncture point on the forefinger (Large Intestine 1) that is used in the treatment of "mental restlessness" (Ross, 1995, p. 306). Reynolds (2015) was the first to devise a sham tapping research strategy that ensures that active acupoints (hundreds are identified in the acupuncture literature) are not being stimulated.

Summary of Efficacy Evidence

While only a cursory overview of the efficacy research is presented above, substantial reviews of existing studies and their strengths and weaknesses can be found in the five meta-analytic reviews. At this point, existing meta-analyses, RCTs, and other outcome studies constitute a growing body of evidence supporting claims that acupoint tapping protocols are effective in producing beneficial outcomes in the treatment of anxiety, depression, PTSD, and possibly other conditions.

Purported Speed

Although the title of the 1985 *Five Minute Phobia Cure* was highly provocative and over-stated, evidence has since accumulated suggesting that the approach may be unusually rapid. After a single acupoint tapping session of 30 to 60 minutes, significant therapeutic changes—in relation to comparison conditions—have been measured in brain-wave patterns (Swingle, 2010), cortisol levels (Church et al., 2012), the expression of genes involved in learning and emotional regulation (Maharaj, 2016), frozen shoulder (Church & Nelms, 2016), fear of small animals (Wells et al., 2003), agoraphobia (Lambrou, Pratt, & Chevalier, 2003), PTSD (Connolly & Sakai, 2011), and various other psychological conditions (Church, 2013b).

For instance, 16 abused male adolescents, all scoring above the PTSD range on a standardized symptom inventory, were randomly assigned to an EFT treatment group or a wait-list condition (Church, Piña, Reategui, & Brooks, 2011). Each of the eight participants in the treatment group no longer met the inventory's PTSD criteria 30 days after a single treatment session. None in the wait-list control group showed significant change. In a larger study, 145 traumatized adult survivors of the Rwanda genocide more than a decade earlier were randomly assigned to a single-session TFT group or a wait-list control (Connolly & Sakai, 2011). Pre/posttreatment scores on two standardized PTSD self-inventories showed improvements that were significant beyond the .001 level on all scales (e.g., anxious arousal, depression, irritability, intrusive experiences, defensive avoidance, dissociation), and the improvements held on two-year follow-up. Participants in two other studies also showed significant relief of PTSD symptoms after a single tapping session (Connolly, Roe-Sepowitz, Sakai, & Edwards, 2013; Sakai, Connolly, & Oas, 2010).

Acupoint tapping practitioners are not, however, suggesting that a single-session format is adequate for treating PTSD, and certainly not for "complex PTSD" (e.g., Ford, 2015). Investigators in all four single-session studies were limited by practical constraints, and when queried by the current author, each acknowledged that additional sessions could have benefitted at least some if not most of the participants. Nonetheless, the number of sessions that have been required for successfully treating PTSD with energy psychology protocols in existing investigations is relatively low. A study of the use of EFT with PTSD that allowed subjects to receive up to eight treatment sessions within a public health service facility found voluntary termination of treatment after an average of 3.8 sessions, with a large overall effect size (1.0) on posttreatment measures (Karatzias et al., 2011). The first major study of energy psychology in the treatment of veterans with PTSD had a low dropout rate and found that only 14% still had the disorder after six one-hour tapping sessions (Church, Hawk, et al., 2013), a study that has been replicated with similar findings (Geronilla et al., 2016).

By way of contrast, cognitive behavior therapy (CBT) and its variations, which are the standards of care for treating PTSD (American Psychological Association, 2017), average 12 to 16 treatment sessions (http://www.apa.org/ptsd-guideline/treatments/cognitive-behavioral-therapy.aspx, retrieved August 16, 2018), and as many as two thirds of patients completing a course of CBT still met PTSD diagnostic criteria after treatment (Steenkamp et al., 2015). High dropout rates have also been a problem in CBT treatments of PTSD, particularly in "real world" (as contrasted with clinical trial) conditions (Najavits, 2015). Meanwhile, four well-designed studies comparing acupoint tapping and CBT treatments showed at least equivalent outcomes but with fewer sessions required by tapping to achieve those outcomes (Gaesser & Karan, 2017; Irgens et al., 2017; Jasubhai & Mukundan, 2018; Stapleton et al., 2016).

To summarize, three lines of evidence were briefly surveyed that bear upon the speed of energy psychology protocols: (a) after a single energy psychology session, significant health-associated changes were found in biological markers involving hormone levels, gene expression, and brain-wave patterns as well as a variety of clinical symptoms; (b) unusually rapid amelioration of PTSD was found in several studies; and (c) comparisons with CBT treatments showed at least equivalent outcomes in fewer sessions. Taken together, these findings suggest that tapping-based energy psychology treatments have produced rapid therapeutic effects on standard biological markers such as cortisol production and gene expression as well as with several clinical conditions.

Mechanisms

Perhaps the largest obstacle to the acceptance of energy psychology by the professional community has been the seeming implausibility of any claim that tapping on the skin can help overcome serious psychological problems. The following discussion examines neurological mechanisms that lead to a plausible explanatory framework for such claims.

Clinical outcomes following acupoint tapping have been explained in terms of "meridians," "chakras," "blocked chi," and "yin/yang imbalances," terms that originated in Eastern healing traditions to describe purported energies believed to influence health and well-being. While "biofield therapies" are increasingly being employed in health care (Guarneri &

King, 2015) and "subtle energy" explanations are adhered to by many practitioners of acupoint tapping protocols (Feinstein, 2012b), these concepts are generally not accepted by the scientific community. Their appearance in the early energy psychology literature led, in fact, to the approach being branded as a pseudoscience. A published commentary reviewing the first paper on energy psychology to appear in an APA journal asserted: "Nowhere in the history of psychology, medicine, anatomy, physiology, or biology is there any evidence that human beings have an energy field . . . Energy psychology advocates are not able to provide any evidence that the changes seen in any of their clients are related to acupressure, meridian points, or energy fields" (McCaslin, 2009, pp. 253–254).

Beyond the plethora of studies that contradict these assertions (e.g., McCraty, 2004; McDonald & Janz, 2017; Oschman, 2003; Rubik, Muehsam, Hammerschlag, & Jain, 2015), advances in neuroscience allow the mechanisms of acupoint tapping protocols to be explained with no recourse to concepts from metaphysics or ancient healing traditions. A range of hormonal and neurological shifts reliably follows acupoint tapping sessions. For instance, reductions in cortisol production (Church, Yount, & Brooks, 2012), normalization of brain-wave patterns (Lambrou et al., 2003; Swingle, 2010), shifts in blood flow within the brain (Stapleton, in press), and changes in gene expression (Church, Yount, Rachlin, Fox, & Nelms, 2018; Maharaj, 2016) have all, as previously discussed, been measured following energy psychology treatments.

Biological changes that can be detected after a treatment may, however, be correlational rather than causal. For instance, changes in the production of hormones such as cortisol typically follow rather than cause the reduction of amygdala activation. The decreased cortisol production is secondary and could be a misleading focus in attempts to discern the causal mechanisms of acupoint tapping. The following discussion is organized around two testable cause-effect hypotheses that are consistent with current neurological understanding.

Hypothesis 1: Acupoint Tapping Sends Regulating Signals to Brain Areas Aroused by the Imaginal Exposure Component of the Protocol

One of the earliest neurological explanations of how acupoint tapping might produce therapeutic change was based on the findings of a 10-year research program at Harvard Medical School investigating the effects of acupuncture. Among the research team's conclusions was that stimulating selected acupoints generates extensive deactivation in the amygdala and other areas of the limbic system: "Functional MRI and PET studies on acupuncture at commonly used acupuncture points have demonstrated significant modulatory effects on the limbic system, paralimbic, and subcortical gray structures" (Hui et al., 2005, p. 496). The premise based on these findings, as applied to energy psychology, was that "manually stimulating a set of acupuncture points decreases activation signals in areas of the amygdala and other brain structures involved with fear" (Feinstein, 2008, p. 211). These effects, as shown by the imaging studies, are virtually instantaneous.

Combining psychological exposure with acupoint tapping. The imaging studies offered a plausible explanation for one of the most puzzling features of acupoint tapping, which is why it seems to work more quickly than other exposure treatments. In all forms of

psychological exposure, the client mentally activates a feared situation, an unresolved traumatic memory, or other emotional trigger. Simply bringing to mind a stressful scene will produce a threat response in the amygdala and related areas of the limbic system (Phelps & LeDoux, 2005). But unlike other exposure approaches, acupoint tapping is also performed, so the limbic system is simultaneously receiving opposing messages: activating signals produced by the psychological exposure and deactivating signals produced by the tapping. The activating signals are habitual responses based on old learnings. The deactivating signals provide new information. With repeated rounds of acupoint tapping, the continual influx of deactivating signals begins to dominate, so the image can be held without the emotional response it previously evoked. This may also account for the low risk of abreaction associated with the method (Church, 2013a; Schulz, 2009). Arousal is quickly reduced while the trigger is still active. This is usually a vivid moment in the client's experience. The expected aversive emotional charge does not accompany the visualized scene, and therapists who use the approach are accustomed to witnessing the surprised sense of relief that often occurs during acupoint tapping sessions. (A 10-minute video illustrating such surprise in four combat veterans as their PTSD-based responses quickly recede can be viewed at http://www.vetcases.com, retrieved September 10, 2018).

Changes in neural arousal. A recent comparison of fMRI images prior to and following a course of energy psychology treatments lends support to the premise that acupoint tapping can send signals that directly influence brain activity in targeted ways. Stapleton et al. (2019) compared pretreatment with posttreatment brain scans of 10 obese participants from a four-week (two hours per week) EFT program designed to reduce food cravings. Photos of high-calorie foods such as pizza, hamburgers with fries, chocolate chip cookies, and ice cream sundaes were shown while participants were in the fMRI scanner and asked to "think" about eating the food. The areas of the participants' brains that were activated (i.e., increased blood flow) were recorded. Following the treatment, the same photos were again shown and areas of brain activation recorded. Significant decreases between the first and second scans were found in the activation of the lateral orbitofrontal cortex, a part of the brain's reward system that is associated with food cravings. Decreases were also found in the superior temporal gyrus, which among other functions is associated with food recognition. Participants experienced corresponding decreases in their actual cravings for carbohydrates and fast foods. No changes in brain activation or subjective food cravings were found in a no-treatment control group over the four-week period.

Sending regulating signals to targeted brain areas. Regulating signals may give instructions to increase or to decrease activity in a particular region of the brain. The stimulation of acupoints can have deactivating effects on specific brain regions or bodily functions (called "sedation" in traditional acupuncture) or activating effects (called "tonification"; Moncayo & Moncayo, 2009). While these contrasting actions of acupoint tapping have not been studied as such in energy psychology treatments, even if "sedation" and "tonification" only serve as metaphors, either type of action may be required, depending on the targeted outcome. Deactivating signals are needed when decreased activation is desired in brain areas involved with, for instance, food cravings or irrational fear. Activating signals are needed when greater activation is desired, such as in areas of the brain having to do with self-confidence or discernment. Laboratory investigations following energy psychology treatments correspond with both types of outcomes. For instance, magnetoencephalography images (which map brain

activity) before and after an EFT session that successfully treated a fear of flying showed that the treatment downregulated activity in limbic and cerebellar regions implicated in the fear response while increasing activity in executive regions that mediate limbic responses to stressful stimuli (Di Rienzo et al., 2019).

These imaging studies showing that acupoint tapping changes arousal levels in areas of the brain related to targeted problems also correspond with clinical experience. In energy psychology protocols, the client brings to mind situations that evoke unwanted psychological responses (such as anger or anxiety) or desired responses (such as increased confidence). The acupoint tapping appears to send regulating signals to brain regions that have been aroused by this brief exposure. By the selection of scenes for the client's attention during the acupoint tapping, energy psychology practitioners are able to "aim" the regulating signals at targeted issues with considerable precision. This is consistent with the hypothesis: *acupoint tapping sends regulating signals to brain areas aroused by the imaginal exposure component of the protocol.* Imaging studies using energy psychology with additional conditions are underway and will lend confirming or disconfirming evidence to this premise.

Hypothesis 2: Acupoint Tapping Protocols Can, with Unusual Efficiency, Modify Maladaptive Emotional Learnings at Their Neural Foundations

While evidence that acupoint tapping rapidly modulates activity in targeted brain areas is appearing, the question remains: Why would these changes persist? Even if, for instance, applying acupoint tapping while bringing to mind a stimulus that evokes excessive anger reduces limbic system arousal, and thus the anger, in the moment, why would the person's anger not return the next time the stimulus is encountered? Yet follow-up investigations of energy psychology treatments have consistently shown symptomatic improvements to be durable, even after brief treatments (Church, 2013a; Feinstein 2012a).

The neural pathways that maintain maladaptive feelings, thoughts, and behavior. Up until the 1990s, most neuroscientists agreed that once a deep emotional learning was acquired, it was "forever" (Grecucci, Frederickson, & Job, 2017, para. 7). The concept of neuroplasticity did not emerge until the second half of the 20th century (e.g., Bennett, Diamond, Krech, & Rosenzweig, 1964), and studies of the brain mechanisms that have evolved for rapidly and decisively countering entrenched maladaptive learnings only began to gain attention in the 1990s (e.g., Nader, Schafe, & LeDoux, 2000). The "forever" notion was based on the assumption that after a remembered experience or an old learning was mentally accessed, it was reintegrated into the cognitive system unchanged, like putting a DVD back onto the shelf after having viewed it. This belief had to be revised after chemical agents were used with rodents to disrupt the protein synthesis required for a learned fear to be reintegrated. Because the learning could not be reintegrated, it was as if the fear had peen permanently erased. Subsequent studies with human subjects found that the affective component of the fear memory was able to be neutralized "without changing the actual recollection of the threatening event" (Kindt, 2018, p. 2). Of particular relevance for psychotherapy were experiments that induced experiences which vividly contradicted what the old learning expected or predicted. When introduced shortly after the old learning was accessed, these experiences caused even deep emotional learnings to be revised to

accommodate the new information before being reintegrated (Pedreira, Pérez-Cuesta, & Maldonado, 2004).

Memory reconsolidation. This process—by which an outdated learning can be transformed while activated, forming new neural pathways that are then integrated into the memory system, replacing earlier representations—is called "memory reconsolidation" (Ecker, 2018; Kindt, 2018; Nader et al., 2000). While many aspects of memory reconsolidation are still being explored, the proposed neural mechanisms seem to explain how memories are formed, stored, retrieved, modified, updated and used" (Alberini & LeDoux, 2013, p. 746). Memory reconsolidation has also been shown to be more durable than the extinction training that is the basis of exposure therapies (Monfils, Cowansage, Klann, & LeDoux, 2009; Schiller et al., 2010). Extinction does not actually eradicate the old learning. Rather, extinction inhibits the old learning with a neurologically distinct new learning that competes with the old one (thus the term "inhibitory learning" to explain the essential mechanism of extinction). As a result, the symptoms that were extinguished are subject to return (Schiller et al., 2010). Memory reconsolidation, on the other hand, is believed to transform or completely "depotentiate" (eradicate at the synaptic level) the neural pathways supporting outdated learnings. Neurologists have identified three distinctive markers for the depotentiation of a deep emotional learning: (a) an abrupt cessation of an emotional reaction to cues that had evoked that reaction, (b) the cessation of physiological, behavioral, and mental states that were expressions of the emotional reaction, and (c) the change persists effortlessly with no further corrective measures (Ecker, Ticic, & Hulley, 2012). Comparisons of extinction training in rats with treatments that used reconsolidation procedures found that the two approaches "engage different mechanisms in the lateral amygdala and lead to a drastically different behavior outcome" (Monfils et al., 2009, p. 953). A difference between the two approaches that has been observed during the treatment process is that extinction is characterized by a general fear-dampening effect while memory reconsolidation results in abrupt changes in fear behavior (Kindt, 2018).

Memory integration. While memory reconsolidation has for more than two decades been the dominant model for explaining how established learnings can be modified or altogether eliminated (as opposed to inhibited, as occurs when exposure treatments create a new competing learning), some features of the theory have not been supported by experimental evidence (Gisquet-Verrier et al., 2015). A complementary model for explaining the "embedding of new material into an already existing representation" (Gisquet-Verrier & Riccio, 2018, p. 1), called "memory integration," has been proposed. This model accounts for experimental findings in which (a) memories were modified without the type of protein synthesis that is believed to be a requirement for memory reconsolidation, (b) learnings that according to reconsolidation theory should have been eradicated at the neural level—and therefore not available for reactivation—were reactivated, and (c) timing sequences did not correspond with the requisites of reconsolidation theory. The core difference is that in memory reconsolidation, when a memory is altered following recall, components of the original memory trace are eliminated. The new experience is consolidated into the memory system as essentially a new memory, requiring *de novo* protein synthesis (synthesized anew from simple molecules). With memory integration, on the other hand, the memory can be modified while active and reintegrated without necessarily having eliminated the original memory trace, which is consistent with the finding that from-the-ground-up protein synthesis does not always occur. Both theories are supported by evidence, and

further research will determine how they interact and the conditions under which each has greater explanatory power. Memory integration appears to be more applicable for new experiences that augment an earlier learning, leading to incremental changes. Memory reconsolidation appears to be more applicable when a new experience decisively contradicts an old learning at its emotional roots. This causes a depotentiation of the neural pathways that maintain salient aspects of the old learning (e.g., associated physiological, emotional, or behavioral responses) along with the widely observed "abrupt changes" that follow (Kindt, 2018). Meanwhile, it is where the two models overlap, as proposed below, that holds the strongest implications for understanding the neurological mechanisms of acupoint tapping protocols.

Emotional memories or emotional learnings. A distinction between "emotional memories" and "emotional learnings" must be made here. In everyday language, emotional memory means "the recollection of specific emotional events" while in neuroscience it also refers to "emotional learning in the recent or distant past" with not only cognitive content but also physiological, emotional, and behavioral components (Kindt, 2018, p. 2). "Memory" in memory reconsolidation theory and memory integration theory refers to emotional learnings as well as memories. In both theories, the changes to "memory" that occur are not necessarily in the content of the memory, but frequently in the bodily responses, feelings, and behaviors that are associated with the memory or the instructional models based on that memory and others like it.

An essential ingredient for changing deeply embedded learnings. Learnings that were formed during times of threat or trauma are linked to survival. While extremely durable, they often become outmoded and are "at the root of a broad range of mental disorders, from anxiety disorders to PTSD to addiction and eating disorders" (Kindt, 2018, p. 2). *Memory reconsolidation* theory and *memory integration* theory provide different explanations of the mechanisms that nature has evolved for updating such memories based on new experiences. A process shared by both explanations, however, is central in the action of acupoint tapping protocols. It has to do with the way emotional learnings can be modified. Any time an emotional learning has been mentally activated, it becomes potentially malleable. It can change depending on what occurs while it is active or shortly thereafter. Specifically, it can be modified if information that adds to or contradicts the old learning is vividly experienced. Known as a "prediction error" experience, the new experience must be different from what the old learning predicts or expects, providing "surprising, but relevant, information" (Kindt, 2018, p. 4).

The primary ways psychotherapists evoke experiences that add to or contradict maladaptive emotional learnings while the old learning is still active (whether through the therapist's insight, intuition, or a clinical framework that expedites the process) are by (a) activating a contradictory experience from the client's past that was not being accessed, (b) creating or highlighting a situation within the therapeutic relationship that contradicts the old learning, (c) vividly accessing more recent experiences that contradict the old learning, or (d) facilitating new experiences that are inconsistent with the old learning. If vivid and strong, a single experience that does not conform to the old learning can (unlike in exposure treatment) alter or replace the earlier learning. Clinical trials investigating acupoint tapping outcomes correspond with the experiments that show rapid, durable changes in fear behavior (e.g., Kindt, 2018; Monfils et al., 2009; Schiller et al., 2010).

How energy psychology protocols change deeply embedded learnings. Energy psychology protocols may, in fact, evidence their greatest strength in their facility for readily generating experiences that definitively and permanently modify outmoded learnings (Feinstein, 2010, 2015). They accomplish this through a different process than other psychotherapies. Because stimulating selected acupoints can almost instantly reduce limbic arousal, the expected feelings do not occur while the traumatizing memory or anticipation is mentally active. A traumatic memory or trigger that produced a physiological threat response is vividly imagined, but after a few rounds of acupoint tapping, the disturbing physiological and emotional responses that were expected are not experienced. The memory or trigger created a visceral expectation that an intense negatively charged emotional reaction would be evoked, but this does not happen because the acupoint stimulation deactivated the limbic system arousal. This mismatch is the necessary ingredient for the types of change described by both reconsolidation theory and integration theory. The scene that was mentally activated is modified in a manner that incorporates the new, unexpected experience, untethered from feelings, beliefs, and behavioral strategies that are inconsistent with the new experience.

Beyond These Hypotheses

Abram Kardiner, one of the foremost pioneers in the understanding and treatment of PTSD, spoke of PTSD's "physiological nucleus" (cited in van der Kolk, 1996/2007, p. 217). While the role of the prefrontal cortex in the etiology and treatment of PTSD is another rich area of ongoing exploration (e.g., Arnsten, 2015), the core of PTSD involves conditioned fear within the limbic system. That has been the focus of the two hypotheses presented here. Imaging studies that show activation of prefrontal executive functions following acupoint tapping (e.g., Di Rienzo et al., 2019) reveal additional levels of processing that are involved in overcoming many fear-based conditions, such as deriving meaning from aversive life events and facilitating "post-traumatic growth" (e.g., Morrill et al., 2008).

Case Illustration

Using a hypothetical situation to keep the focus on the pertinent treatment steps, a woman who had been frequently and severely criticized by her father developed an internal model that included: an unconscious core belief that she is unworthy along with an interpersonal strategy that requires her to do things so meticulously that they are beyond criticism; a perceptual filter that scans for any hint of criticism; a propensity for such criticism to evoke the same feelings of shame and being unlovable that she felt in the face of her father's criticism; and an impulse, as an adult, to react to new criticism with strong counterattacks. Because deep emotional learnings are generalizations—internal models, perceptual filters, patterns of assessment, and propensities for action based on one or more experiences—a direct way of altering an outdated learning is by focusing on memories that reflect or were instrumental in forming the learning. After assessing the woman's presenting complaints, associated emotional and behavioral patterns, and relevant history, the first round of tapping might be done while she brings to mind an incident in which her father's admonishments were particularly severe. She would be asked to evoke the memory, focus on the most upsetting moment, and give it a 0-to-10 SUD (subjective units of distress) rating. This would be followed by a brief sequence designed to help her accept her feelings about

the incident and address any self-judgment. Then the tapping would be introduced, during which she might repeat a brief reminder phrase (such as “Daddy yelled at me in front of my whole class”) as she taps on a sequence of about a dozen acupoints for several seconds each.

Another SUD rating might be taken after one or several more tapping rounds. If the intensity of subjective distress has decreased but is not yet down to 0, additional tapping might be initiated using the same or similar wording. If the SUD rating has not decreased, the woman might be asked to describe her thoughts and feelings as she brings the incident to mind. The therapist would listen for aspects of her experience or for cognitions that warrant special focus. Such aspects might include her humiliation, her sense of unworthiness, her belief that everyone is poised to criticize her, the sadness she feels behind her eyes, the queasiness in her stomach. By persistently tracking and tapping on every aspect of the incident that emerges into her awareness until each can be rated at 0, the entire memory may be neutralized. She will be able to activate it with no emotional upset or self-defeating thoughts. This is a “juxtaposition” moment (after Ecker et al., 2012), an experience that vividly contradicts what her old learning predicts. It is the ingredient that allows a deep emotional learning to be revised. At this point, another early incident might be addressed, using the same basic protocol, and another, and so on. Eventually, a “generalization effect” takes hold so that similar incidents no longer evoke similar responses. When related early experiences are no longer initiating emotional arousal, the contents of the formative memories have been successfully separated from the physiological and affective reflexes that were associated with them. A more recent experience or an imagined experience in which the old learning would have triggered her into shame or anger might then be identified, with additional tapping applied as needed. Since a typical round of tapping takes only a couple of minutes, multiple scenes and their numerous aspects may be neutralized in a single session.

Because (according to Hypothesis 1) acupoint tapping sends almost instantaneous regulating signals to areas of the brain aroused by the memory, the imaginal exposure that initially generated threat or distress no longer provokes the elevated response. Because the imaginal exposure no longer provokes the expected response, the old learning (according to Hypothesis 2) is disrupted due to the physiological and emotional responses being different from what the old learning predicted. This results in the maladaptive aspects of the old learning (e.g., unwarranted fear, anger, self-doubt) being dispelled in a manner that conforms to the new learning. When this occurs, the client’s experience is generally that an important shift has taken place. Enhanced understanding of the client's past and possibilities tends to follow spontaneously or can readily be facilitated with additional rounds of tapping. Conveniently, neither the energy psychology practitioner nor the client need focus on or even be aware that a “juxtaposition experience” must be generated if the unwanted emotional or behavioral response is to be eliminated. The creation of the juxtaposition experience is, as illustrated in this discussion, inherent in the acupoint tapping protocol itself.

Further Contrasts Between Exposure Treatment and Acupoint Tapping Protocols

Similarities between graduated exposure and acupoint tapping protocols include that, in both, a problem-generating trigger is evoked and an intervention is introduced that changes the person’s response to the trigger by contradicting what the brain expects or predicts when the trigger is present. In exposure therapy for treating the fear of flying, for instance, the client might

first be shown a photo of an airplane. Despite any anxiety that may arise, the instructions are to stay with the experience. Simultaneous diaphragmatic breathing, mindfulness, or other relaxation techniques may be introduced. The brain had associated an aversive external consequence with the trigger, and when nothing harmful occurs as the body relaxes, the threat response gradually diminishes. Another scene is selected that includes a measured increase in the arousal value of the trigger, such as imagining boarding a plane. The same procedure is applied, and scenes whose evocative power gradually increase are presented, up to in vivo experiences, until each element of flying can be tolerated. With acupoint tapping, the initial scene might be more aversive, such as recalling a panic response on a recent flight. But the memory is paired with acupoint tapping, which quickly reduces the limbic system activation. While in exposure treatment the expectation of an *external* event (something bad happening) is contradicted, with acupoint tapping protocols, the expectation of an *internal* event (e.g., panic or rage) is contradicted. The emotion that was experienced in the earlier event, and that was briefly reexperienced when the event was recalled, is no longer experienced in the presence of the memory after the tapping has been applied. The juxtaposition experience that modifies the learning has occurred. This produces shifts that are more rapid and durable than those generated by graduated exposure.

Other Mechanisms

Other causal mechanisms for acupoint tapping have also been proposed. Schwarz (2018) has suggested that acupoint tapping mediates the vagal system, restoring a sense of safety in traumatized individuals. Ruden (2010, in press) has incorporated brain imaging and related neurological findings into a sophisticated biochemical model of the actions of acupoint tapping and other forms of psychosensory stimulation. Specifically, certain types of touch produce an electromagnetic field that—when interacting with the neurons in the lateral nucleus of the amygdala activated by a traumatic memory—create oscillations within the neurons. These oscillations act to depotentiate the receptors that maintain the fear component of the memory, preventing future exposure from causing the release of stress hormones. Harper (2012) and Carletto, Borsato, and Pagani (2017) have reported that repetitive sensory stimulation can generate large increases in delta wave activity in areas of the brain involved in fear memories, as detected by EEG readings. After several minutes of stimulation, these amplified delta waves disrupted activated memory networks, reminiscent of the “natural memory editing system” found in delta-wave sleep (Harper, 2012, p. 61). Glutamate receptors on synapses that mediate a fear memory were “depotentiated by these powerful waves of neuronal firing” (p. 61). When the neural circuits in the amygdala that maintain the threat response are deactivated in this manner (during virtually *any* exposure therapy protocol that also employs repetitive stimulation on upper parts of the body, such as acupoint tapping, according to Harper’s findings), “the material basis of the fear memory has been removed” (p. 64).

While further research is needed to evaluate these formulations, they are compatible with the two mechanisms postulated above: the roles of acupoint tapping in (a) the rapid modulation of activity in targeted brain areas and (b) in facilitating durable changes in the neural pathways that maintain outmoded learnings. Particularly in the broad spectrum of trauma-based psychological difficulties, these two types of neural activity can, in themselves, impact and

transform what Kardiner called the "physiological nucleus" of the condition. They interact in a reciprocal manner and are consistent with existing clinical and neurological evidence.

Discussion

This review has presented the primary tenets of energy psychology, salient criticisms of the approach, and research-based responses to those criticisms. Three challenges in pursuing these aims have involved (a) providing a concise yet trustworthy assessment of the efficacy literature, (b) formulating a coherent explanation of the mechanisms by which the counterintuitive observation that tapping on the skin seems to play an instrumental role in bringing about positive clinical outcomes, and (c) a balanced presentation given the undeniable bias resulting from the author's identification with the approach, as highlighted in the disclosure statement accompanying the paper.

Efficacy. With more than 100 clinical trials, a comprehensive review of existing research would rightfully adhere to formal guidelines such as the PRISMA criteria for reporting systematic reviews and meta-analyses (Liberati et al., 2009). Given space limitations and the broader objectives of this review, adequately addressing each point in the PRISMA checklist was not feasible. However, the assessment of research pertinent to the efficacy and speed of energy psychology protocols was informed by PRISMA's most essential principles concerning transparency in relation to the review's objectives, study selection and appraisal methods, measures taken to address publication bias, client safety, and the conclusions reached.

Mechanisms of action. The two hypothesized neurological processes by which energy psychology protocols bring about rapid and lasting clinical change are built upon existing empirical knowledge, but they have not been tested as such. While two recent brain imaging studies of acupoint tapping treatments (Di Rienzo et al., 2019; Stapleton, in press) have produced findings that are consistent with these hypotheses, additional imaging studies are needed. In addition, any theoretical model is constrained by the limitations of the empirical knowledge at its foundation, and current understanding about the mechanisms involved in modifying emotional learnings leaves many fundamental questions unanswered.

First-person reflection on author bias. My first academic appointment, in the Department of Psychiatry and Behavioral Sciences at Johns Hopkins, was in 1972. More than 200 psychotherapies and personal development approaches had been identified by that time. One of my assignments was to do research for a state-funded investigation of a sample including 46 of the new therapies to assess their potential contributions to community psychiatry. I learned a great deal about therapeutic innovation while on that project, including the contagious power of a therapist's passions and beliefs, the veiled differences between true innovation and "old wine in new skins," and the powerful influence of expectation on clinical outcomes. Meanwhile, I have also been providing clinical services, part time, as a licensed psychologist since 1974. In 2001, I began to integrate energy psychology protocols into my practice. Based upon my subjective but compelling sense that the techniques were markedly decreasing the treatment time required to achieve equivalent or stronger outcomes, and that they constituted the most effective clinical innovation I'd encountered since the Hopkins study, I became a student and an advocate of the approach. This was prior to the point that research support (to my great relief) began to emerge.

To counter the bias that is inevitably involved in such a shift of clinical allegiance, I have endeavored in this paper to accurately describe the most salient criticisms of the method and to address each with a balanced, evidence-based account. While the paper's assertions are rooted in an advocate's experience and should be read with due vigilance, they are offered in a manner that attempts to provide enough information to allow scrutiny by interested clinicians and investigators while also pointing to areas where further research is needed.

Conclusion

Energy psychology is a controversial modality that integrates contemporary clinical methods with concepts and techniques derived from ancient healing systems, most frequently acupuncture and acupressure. While claims of rapid benefits with a range of conditions were widely publicized before any research backing had been presented, the past decade has seen a surge of efficacy studies. These studies constitute a growing body of evidence that is supportive of the approach. Two testable hypotheses for explaining the brain mechanisms that might produce the strong clinical outcomes reported in the research literature, based on current neurological understanding, were presented. Potential advantages of integrating the stimulation of acupoints within more conventional treatment approaches, based on existing evidence, include enhanced speed and a facility for efficiently modifying deep emotional learnings that are no longer adaptive.

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