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Evaluation of a Meridian-Based Intervention, Emotional Freedom Techniques (EFT), for Reducing Specific Phobias of Small Animals

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Abstract

This study explored whether a meridian-based procedure, Emotional Freedom Techniques (EFT), can reduce specific phobias of small animals under laboratory-controlled conditions. Randomly assigned participants were treated individually for 30 minutes with EFT (n = 18) or a comparison condition, Diaphragmatic Breathing (DB) (n = 17). ANOVAS revealed that EFT produced significantly greater improvement than did DB behaviorally and on three self-report measures, but not on pulse rate. The greater improvement for EFT was maintained, and possibly enhanced, at 6 - 9 months follow-up on the behavioral measure. These findings suggest that a single treatment session using EFT to reduce specific phobias can produce valid behavioral and subjective effects. Some limitations of the study are also noted and clarifying research suggested.

Keywords

Specific phobia; Desensitization; Diaphragmatic Breathing; Meridian-based techniques; Exposure Therapy; Emotional Freedom Techniques (EFT)

Evaluation of a Meridian-Based Intervention, Emotional Freedom Techniques (EFT), for Reducing Specific Phobias of Small Animals

Specific phobias (previously called "simple phobias") rank among the most prevalent anxiety disorders, with phobia of "bugs, mice, snakes and bats" the largest subgroup in this category (Ost, Stridh, & Wolf, 1998). Until the mid 1970's systematic desensitization was the most widely used behavioral treatment for this condition (Wolpe, 1958,1973), but subsequent research has shown that in vivo exposure to the feared stimulus is even more effective (Ost, Salkovskis & Hellstrom, 1991).

It seems that many phobic persons can be taught to approach their dreaded object or situation by simply watching or participating with an experimenter who

demonstrates a confident non-anxious interaction with that object, and therapist-directed exposure has outperformed systematic desensitization in a number of research studies on treatment for phobias (Hellstrom, Fellenius & Ost, 1996; Hellstrom & Ost, 1995; Ost, 1989, 1996; Ost, Brandberg, & Alm, 1997; Ost, Ferebee & Furmark, 1997; Ost, Hellstrom & Kaver, 1992). Ost and his colleagues report that they have been able to shorten the treatment to a single intensive session averaging 2.1 hours with results equal to that of much more widely spaced and lengthier programs for treating specific phobias, and suggest this treatment to be the treatment of choice for specific phobias (Ost, Ferebee, et al., 1997).

There are certain limitations to therapist-directed exposure, however. It demands in vivo exposure to objects or situations frequently unavailable in clinical settings. To stay in the presence of the feared object may be re-traumatizing for certain people which can result in undesirable attrition rates in experiments and cause some people to refuse to participate in treatment programs which use this approach. Since therapist-directed exposure relies heavily upon successful modeling, it also requires that the therapist be skilled at such forms of modeling as handling snakes, spiders, roaches, etc. with genuine ease, a requirement not always easily met. Furthermore, the method is most effective if a therapist is present to model the correct behavior, so it does not lend itself too readily to self-directed exposure. Ost and his colleagues do however report some success using manual-based exposure for specific phobias (Hellstrom & Ost, 1995; Ost et al., 1991).

It would be desirable to have a short, effective one-session treatment for specific phobias which does not require either in vivo exposure or therapist modeling, and which could also lend itself readily to self-treatment outside the clinical setting. This paper explores one such possibility.

Meridian-Based Desensitization

Recently, a new group of behavioral interventions known as “meridian-based therapies” or “energy psychology" methods have been proposed as treatments for anxiety disorders based on clinical reports which indicate that these approaches have produced rapid improvement in negative emotional states (Callahan, 2001, Craig, 1995; Figley & Carbonell, 1995; Gallo, 1999). They are considered to work by

intervening in the same energy meridian system that is the claimed basis for acupuncture.

These methods typically require light manual stimulation of the end points of traditional acupuncture meridians, or "energy pathways", usually on the face, upper body, and hands, while at the same time the person is mentally focusing on the feared object. The parallel to systematic desensitization is obvious – exposure (either actual or imagined) to a feared stimulus is coupled with deep relaxation to neutralize anxiety.

Certain points of difference exist between these meridian-based forms of desensitization and the forms that have been used up until now in the behavior therapies, however. Meridian-based desensitization is reported to occur very rapidly in many instances - a few moments of tapping lightly on a sequence of "acupoints" is reported to have a neutralizing effect typically seen only after prolonged practice with other desensitization procedures. Often one treatment session using a meridian based technique and lasting no more than 30 to 60 minutes has been reported as sufficient to substantially reduce or even eliminate a specific phobia (Callahan, 1997; Craig, 1999; Gallo, 1999). Clinically, these meridian-based techniques have the advantage of being extremely easy for patients to self-administer, and are reported to be as effective when used only with imagery or repetitive verbal description of the phobic object, as they are when applied in vivo (Craig, 1999).

As yet, however, no adequately controlled studies have been conducted on these methods. Acupuncture, however, from which they were derived, has been quite extensively studied, with hundreds of research reports published (Stux & Pomeranx, 1995). While the majority of studies have focused on acupuncture's analgesic properties (e.g. Levine, Gormley, & Fields, 1976), or its use in treating physiological conditions, needle acupuncture is widely recognized by practitioners and researchers as a potent means of inducing a sense of calm and tranquility. In clinical practice needle acupuncture is frequently used as either a sedative or an anti-anxiety agent depending upon the length of time the needles remain in place (Apostolopoulos & Karari, 1996; Lo & Chung, 1979; Roccia & Rogora, 1976). This tranquilizing potential of acupuncture is consistent with the concept that the stimulation of acupoints in the meridian-based therapies can lead to deep relaxation and, if desired, to subsequent desensitization.

Evidence showing a marked difference between acupuncture points and nonacupuncture points in terms of electrical resistance of the skin (Bergsmann & Woolley-Hart, 1973; Cho, 1998; Cho & Chun, 1994; Syldona & Rein, 1999) is, in turn, consistent with the notion that the meridian-based therapies may derive their special therapeutic properties from stimulating specific acupoints (Callahan, 1995; Gallo, 1999).

Because of the invasive nature of needle acupuncture and the level of expertise required to administer it, this intervention has not lent itself readily to the treatment of emotional disorders, however. By contrast, the meridian-based therapies are noninvasive and easily administered by those untrained in acupuncture. They are therefore potentially appropriate for treating a wide variety of emotional disorders.

Emotional Freedom Techniques (EFT)

The two leading meridian-based therapies are Thought Field Therapy (TFT) (Callahan, 1987) and Emotional Freedom Techniques (EFT) (Craig, 1995, 1999). TFT was developed by Roger Callahan from his study of the energy meridian system of acupuncture which he applied to the treatment of emotional problems, combining this approach with treatment techniques developed by George Goodheart (1987), and John Diamond (1985). TFT utilizes light tapping of meridian points in a protocol which involves the use of specific sequences of these points (called "algorithms"), each of which addresses a specific emotional problem or category of problems.

While its followers claim to have applied TFT clinically with great success (Callahan, 2001a), the few published studies on TFT (Bray & Folkes, 1999; Carbonell, 1997; Figley & Carbonell, 1995; Johnson, Shala, Sejdijaj, Odell and Dabishevci, 2001; Leonoff, 1996; Wade, 1990; Callahan, 2001a, 2001b, 2001c; Pignotti & Steinberg, 2001; Sakai, Paperny, Mathews, Tanida, Boyd, Simons, Yamamoto, Mau, & Nutter, 2001) all suffer from a number of methodological weaknesses. One of the most prominent of these is the consistent lack of a comparison control condition in all except the Carbonell (1997) study, which employed both a control condition, and random assignment of participants, but unfortunately only a brief preliminary report of this study was ever published. The other studies suffer variously from a range of methodological weaknesses including lack of experimental controls, sampling biases, and an over-reliance on subjective

measures (for a summary of criticisms see in particular: Gaudiano & Herbert, 2000; Herbert & Gaudiano, 2001; Lohr, 2001).

EFT, presently the most widely used of the meridian-based therapies, is an offshoot of the TFT method which, unlike the latter, uses only a single "all-purpose" algorithm to treat every emotional problem, and therefore does not require any diagnostic procedures, whereas TFT uses muscle testing for this purpose. For this reason, it can easily be self-applied. EFT also has a detailed manual which allows for well-controlled research.

To date, however, despite clinical anecdotal evidence which suggests that EFT can be effective in reducing anxiety (Carrington & Craig, 2000; Craig, 1999; Hardistry, 1999; Hartmann-Kent, 1999a, 1999b) there have been only a few studies exploring its clinical potential. In a pilot study on the effects of EFT on auto accident victims suffering from PTSD, Swingle, Pulos & Swingle (2001), found significant changes in these patients' brain waves and self-reported symptoms of stress three months after they had received two 1-hour sessions of EFT treatment. In a study of children diagnosed with epilepsy, Swingle (2001) found significant reductions in seizure frequency in this group as well as extensive clinical improvement in the children's EEG readings after exposure to two weeks of daily in-home EFT treatment. However, neither of these studies included a control comparison condition and both had very small numbers of participants.

Comparison Condition

A number of clinicians, including three of the authors (S.W., P.C., and A.H.B), have observed EFT to be effective in the treatment of specific phobias, and thus it appeared useful to test the efficacy of this method for this clinical condition. The question then arose as to what might be a suitable procedure to use as an attention-comparison condition, to assess the possible contribution made by placebo effects. Because the authors, as well as others (Craig, 1995; Gallo, 1999), have observed that a frequent result of EFT is to produce a state of calm in the user, we decided to employ as a comparison condition another method known for its specific calming effects, namely controlled diaphragmatic breathing. It was thought that both of these techniques might hold promise as desensitization procedures because of their common calming properties.

While most of the research on diaphragmatic breathing has studied this practice as an adjunct to other anxiety-reducing techniques, the practice has been repeatedly associated with creation of a state of deep calm and tranquility, which state can apparently be voluntarily reversed so that anxiety can be intentionally produced by manipulation of the breathing pattern (Peper & MacHose, 1993). In a review of research on breathing retraining for treatment of Hyperventilation Syndrome and panic disorder, Garssen, de Ruiter, and van Cyck (1992) concluded that breathing retraining and related procedures are therapeutically effective, and Lehrer, Sasoki, and Saito (1999) have demonstrated that slowing the respiration results in demonstrable physiological changes consistent with deep relaxation. It seems logical therefore that diaphragmatic breathing might be useful for desensitization.

While an attention-comparison condition which did not possess active treatment ingredients would have presumably enhanced the likelihood of finding significant effects for EFT, we chose to create a more stringent test, by employing a diaphragmatic breathing condition which may well have some active treatment ingredients which serve to counteract anxiet*y*.

Hypothesis

The present study compared EFT to a specific form of Diaphragmatic Breathing (DB) designed to include verbal elements similar to those of EFT. In an informal survey of colleagues in the psychological field, we found that many clinicians who had used EFT in their practice claimed to have obtained a rapid and dramatic decrease in anxiety using this method, with the anxiety often lessening markedly within one session. Clinicians who were familiar with diaphragmatic breathing also reported a decrease in anxiety with that intervention, but this was usually observed to occur over a longer period of time. Accordingly, we formulated a hypothesis to the effect that EFT would produce greater reductions in self-report and physiological indicators of anxiety and in avoidance behavior than would DB in a single 30-minute treatment session, and that these changes would be maintained over time.

Method

Participants

Participants were recruited through advertisements placed in the newspaper and on community radio seeking people with spider, mouse, rat, or roach phobias. An extensive, highly structured interview based on the DSM IV criteria for Specific Phobia was administered to each participant over the telephone when participants responded to the advertisement.

Participants were selected for inclusion in the study using the following criteria. Participants had to be: (l) over 18 years old, (2) have symptoms matching the DSM-IV criteria for specific phobia (American Psychiatric Association, 1994), (3) not be currently receiving treatment (psychological or medical) for their phobia, and (4) agree to be contacted for follow-up testing. On the Behavioral Approach Task, any participants able to stand at the closest point to the feared animal and still report a SUDS level (Wolpe, 1958) of less than 5 were also excluded from the study.

Overall, 70 potential participants responded to the call for volunteers. Of these, 24 were ruled out as ineligible, leaving a total of 46 participants in the study. Thirty-five of these were assigned directly to one of the two experimental conditions. Because experimenters were no longer available to treat them individually, the 11 additional respondents who replied to the call for volunteers after the two treatment groups had already been formed were assigned to a Group EFT treatment and their results are reported separately. Thirty-five participants thus participated in the individual treatments, and 11 in the group treatment.

Of the 46 participants overall, 43 were female and 3 male. These figures are consistent with previous studies of specific phobias, which have reported the overwhelming majority of participants to be women (Ost 1987). The mean age of the participants in this study was 39.6 years (Range = 19 – 72). With respect to the duration of their phobia, 23 participants reported that they had suffered from it as long as they could remember (or an equivalent phrase), and the remaining 23 reported having had the phobia from 3 to 50 years (M = 20 years).

Design

Participants were randomly assigned to either the EFT treatment condition (*n* = 18) or DB treatment condition (*n* = 17). All eligible volunteers who responded to the advertisements after the individual treatment sessions had already been allocated were assigned to the Group EFT treatment condition (*n* = 11). No participants were assigned to a Group DB treatment condition because of the very small number of these additional participants. All participants were reimbursed for any parking and travel expenses incurred but received no compensation for their participation in the experiment.

The experimenters consisted of a male and a female psychologist who administered standardized treatment protocols for each of the treatment conditions. Each experimenter conducted roughly one half of the individual treatments, the male treating 18 participants (11 EFT, 7 DB), and the female treating 17 participants (7 EFT, 10 DB). The assessments were made by two research assistants who were intentionally kept totally uninformed with respect to the experimental condition of each of the participants they assessed.

Measures

Behavioral Approach Task (BAT). The Behavioral Approach Task was designed to measure the participants' level of avoidance of the feared animal. Participants were assessed on how close they would allow themselves to get to the feared animal. There were 8 measurement points, with a SUDS rating (Wolpe & Lang, 1964) taken at each point: The first two points were: (i) outside the room, door closed, and (ii) outside the room with door open (6 meters from stimulus animal). The next 6 points were inside the room, at the following distances away from the feared animal: (iii) 5 meters; (iv) 4 meters; (v) 3 meters; (vi) 2 meters; (vii) 1 meter; (viii) directly in front. The BAT was scored from 1 to 8 according to the point reached by the participant. Experimenter demand during the BAT was kept purposely low, with the participants not encouraged to move closer to the animal at any time.

Fear Questionnaire. A modified form of the Brief Standard Self-Rating for Phobic Patients (Marks and Matthews, 1979) was used to measure phobic symptoms and change. The version used here included 3 of Marks and Matthew's original 4 measures -- Main Target Phobia, Global Phobia, and Anxiety-Depression. Marks and

Matthew's (1979) report (a) that test-retest correlations for these three measures range from .79 to .93, and (b) that the measures sensitively reflect clinical improvement of phobic patients following treatment.

Subjective Units of Distress (SUDS) when imaging the animal (SUDS Imagined). This SUDS measure (Wolpe, 1958) consisted of an 11-point scale ranging from 0 = No fear/distress, to 10 = Intense/unbearable fear/distress. Participants were asked to give a SUDS rating indicating how they felt when they imagined their phobic animal "here, right now." They were asked to rate how they felt *at this moment*, not how they imagined they would feel.

SUDS During BAT. SUDS ratings were also recorded at each step taken on the Behavioral Approach Task, and a SUDS average was calculated for each participant by averaging the SUDS scores for each step taken in common between pre- and post-assessments, for that participant's behavior test. The SUDS average on the BAT thus reflected levels of distress evidenced while approaching the feared animal.

Pulse Rate. A research assistant took pulse rate manually following completion of demographic data, and once again at the point at which the client voluntarily stopped on the Behavioral Approach Task.

Confidence Rating. Expectancy effect was measured by asking participants to indicate during the pre-treatment assessments how confident they were that their as yet unidentified treatment would work on an 11-point scale, from 0 = not at all confident, to 10 = absolutely confident. The participants' ratings thus provided a global rating of confidence that *any* treatment would work for their condition.

Procedure

On attending their scheduled session, participants were met by a research assistant who was unaware of which treatment they would receive (except in the case of the group treatment where it was obvious that all were receiving the same intervention) or of the treatments being offered.

Pretest data was collected as described and participants were then taken to another room for the BAT. Outside the room, with the door closed, they were asked to report their SUDS level knowing that the feared animal was inside. They were then asked if they wished to have the door opened, and if so the door was opened and

another SUDS rating taken. The feared animal was housed in a transparent container on a desk inside the room. Participants were then asked if they wished to move closer, and at each of the subsequent steps on the behavior test their SUDS rating was requested. At the point at which the participant did not want to move any closer, their pulse rate was recorded and testing was discontinued. Those participants who failed to meet criteria for inclusion in the study on the BAT were either given EFT treatment if they wished, or were included in the group EFT treatment, but their results were not included in the analysis.

Participants were re-contacted for follow-up 6 months after completion of the first part of the study, but fourteen of them did not return for retesting. Many of them had moved to other locations, a few were simply reluctant to participate further. Twenty-one participants in all, 12 in the EFT condition and 9 in the DB condition, took part in the follow-up study. Due to procedural difficulties, it was three months before retesting of all 21 participants was completed.

Treatment

Treatment was conducted immediately following pretesting. At the beginning of each treatment session, the experimenter provided a rationale for the intervention, which was constructed to reflect a similar low level of demand for each experimental condition. Individual treatment sessions were limited to 30 minutes, including both rationale and treatment procedures. Group treatment sessions were 75 minutes. At the end of the allotted time, the treatment was stopped and posttesting proceeded in the same order as pretesting, using identical measures.

EFT condition. The EFT treatment protocol followed the EFT “Basic Recipe” outlined by its developer (Craig 1995, 1999), which consists of having a person tap on a series of acupuncture points on his or her own body while remaining “tuned into” - or focused on - her fear by repeating a standardized "Reminder Phrase" (e.g. “this fear of spiders”, “ this fear of cockroaches” etc.) as each acupoint is contacted. A round of EFT consists of tapping 5 to 7 times in prescribed sequence, at the end points of each of the 12 traditional acupuncture meridians (5 located on the head, 2 located on the upper trunk of the body, and the remaining 5 on the hand), thus theoretically avoiding any requirement to "prescribe" specific sets of acupoints. A self-accepting statement (e.g. “Even though I have this fear of spiders roaches, rats etc., I deeply and

completely accept myself"), combined with rubbing on a reflex point in the upper chest known as the "neurolymphatic reflex point" (Callahan, 1987) is used prior to each sequence of tapping in EFT. SUDS level is checked at the outset and following each round of the Basic Recipe. Treatment continues ideally until all aspects or separate issues of the problem identified have been dealt with (i.e. until SUDS is reduced to 2 or below), as related issues as well as the original identified stimulus can sometimes trigger fear. For example a rat in motion, the sound of it scurrying, a rat's tail, etc. could still trigger a fear response even after the general issue ("rats") had been treated. Craig (1995) refers to these additional components of the total fear as "aspects". In the current study, treatment continued until the end of the time limit for the session.

For the individual sessions, the full version of EFT (covering all 12 meridian endpoints as specified above) was used for the first three rounds of treatment, and a shortcut version as prescribed in Gary Craig's manual (Craig, 1999) (using only the first 7 meridian endpoints) was used for the remainder of the session.

DB condition. The deep breathing condition was designed to parallel as closely as possible the EFT condition, the difference between the two being mainly the fact that EFT participants tapped on meridian end points and DB participants used controlled breathing as their intervention, and the fact that the participants in the DB condition did not use a self-acceptance statement.

In the DB treatment, participants were instructed to "tune into" or focus on their fear throughout the treatment (exactly as in EFT) by repeating a similar Reminder Phrase (e.g. "This fear of spiders") between each breath. An initial SUDS level was obtained and participants were instructed in deep diaphragmatic breathing. The two main elements in the breathing training were to breathe low into the diaphragm (demonstrated to them), and to use a count (4 for inhale - 2 for hold breath - 4 for exhale) to slow down the inhalations and exhalations. Participants did the breathing in "rounds" of 10 deep breaths, with each complete breath taking approximately 10-12 seconds. In between each separate breath they were asked to repeat their "Reminder Phrase" or focus on an image representing their fear, thus paralleling the way the person focuses on the problem while tapping on each meridian point in the EFT treatment. After each "round" of 10 breaths, the participant was asked for a SUDS rating. Each separate aspect or issue related to the problem was

then addressed by additional "rounds" of the breathing technique in exactly the same fashion as separate aspects or issues are addressed in the standard EFT protocol (Craig, 1995, 1999).

Group Treatment. Group EFT sessions were conducted with 11 additional participants who could not be accommodated in the individual treatments. Since there was no control group used, the group treatment procedures and data are reported in Appendix A.

Follow-up

When participants came for follow-up they were retested on all measures, following which they were given an opportunity to discuss their experiences with the researchers.

Statistical Procedures

Intervention. Five separate 2 x 2 split plot ANOVA's [1] were used to measure the effect of two levels of the repeated measures variable of Time (pretest vs. posttest) and two levels of the between group treatment variable (EFT vs. DB) on the 5 dependent variables.

Follow-up. Four converging sets of information were computed for each dependent variable where significant effects of EFT vs. DB were observed during the original intervention session in order to assess whether or not the effects predicted for EFT (if such did appear) had dissipated by the time of the follow-up. These included: (i) repeated measures *t* tests comparing data from the pretest with data from the follow-up; (ii) repeated measures *t* tests comparing data from the posttest with data from the follow-up; (iii) separate 2 x 2 split plot ANOVA's measuring the effect of two levels of the repeated measures variable of Time (pretest vs. follow-up) and two levels of the between group treatment variable (EFT vs. DB); (iv) finally, Cohen's (1988) *d* was computed for each of these four dependent variables.

All statistical tests were two-tailed, and performed using the statistical package SPSS for Windows version 10.0.

Results

The results are presented in terms of several interrelated issues.

Comparability of Conditions

1. *t*-tests showed no significant difference between EFT (M = 40.5, SD = 13.09) and DB (M = 36.24, SD = 11.37) conditions in terms of participants' age (t (33) = 1.00, *ns*).

2. *t*-tests showed no significant difference between the mean confidence level that any treatment would work for those later included in the EFT condition (M = 5.00, SD = 1.68) as compared to those later included in the DB condition (M = 5.18, SD = 2.60) (t (33) = -.24, *ns*).

3. *t*-tests comparing the pretest values of EFT and DB conditions showed no significant differences on any of the measures used.

Assessment of Hypothesis: Is There an Immediate Effect of EFT?

Results from ANOVAS

Separate ANOVAs were undertaken for each of the five dependent variables. If EFT showed significantly greater improvement from pretest to posttest than did DB, this would result in a significant Time (pretest vs. posttest) x Treatment (EFT vs. DB) interaction.

Behavior Approach Task (BAT). Participants in EFT showed greater improvement from pretest (M = 4.5, SD = 2.5) to posttest (M = 6.8, SD = 1.7) than did participants in the DB condition, who showed lesser improvement from pretest (M = 5.6, SD = 2.5) to posttest (M = 6.4, SD = 1.8). This interaction was significant (F [1,33] = 6.63, $p < .02$).

SUDS Imagined. Participants in EFT showed a greater decrease in fear from pretest (M = 7.6, SD = 2.4) to posttest (M = 3.8, SD = 2.3) than did participants in the DB condition who showed a lesser decrease in fear from pretest (M = 7.1, SD = 2.2) to posttest (M = 6.0, SD = 2.4). This interaction was significant (F [1,33] = 8.84, $p <$ .005).

SUDS During BAT. Participants in EFT showed a greater decrease in fear from pretest (M = 6.2, SD = 2.1) to posttest (M = 2.5, SD = 2.0) than did participants in the DB condition who showed a lesser decrease in fear from pretest (M = 6.5, SD = 2.1) to posttest (M = 4.7, SD = 2.8). This interaction was significant (F [1,33] = 7.34, $p < .02$).

Fear Questionnaire. Participants in EFT showed a greater decrease in fear from pretest (M = 31.9, SD = 7.3) to posttest (M = 15.1, SD = 9,7) than did participants in the DB condition, who showed a lesser decrease in fear from pretest (M = 32.2, SD = 10.6) to posttest (M = 25.2, SD =12.2). This interaction was significant (F [1,33] = 10.53, $p < .005$).

Pulse Rate. The main effect for Time (pre- vs. posttest) on this variable was statistically significant (F (1,33) = 16.84, $p < .001$) with participants' pulse rates being reduced when EFT and DB conditions were pooled (pretest M = 87.43. SD = 16.75; posttest M = 80.03, SD = 14.12) but the Time x Treatment interaction was non-significant (F (1,33) = .01, *ns*). Contrary to the hypothesis, the amount of decrease for the EFT condition did not differ from the amount of decrease for the DB condition.

The hypothesis of greater effect of EFT than DB treatment was thus supported for four of the five measures used in this study. [2]

Effect Sizes

As indicated above, the hypothesis here focuses on the interaction between Time (pre- vs. posttest) and Condition (EFT vs. DB), thus involving four means for each variable. For *descriptive* (but not inferential) purposes, we reduced each of these four means to two means by subtracting the posttest mean from the pretest mean. In this manner it became possible to assess the effect size of each significant interaction in terms of Cohen's d, which is the mean difference between two conditions expressed in standard deviation units. Cohen (1988) has suggested, as a rough rule of thumb, that in the behavioral sciences a difference of 0.20 SD is a small effect, a difference of 0.50 SD is a medium effect and a difference of 0.80 SD is a large effect (for example, the very noticeable difference in height between 13 and 18 year old females is 0.80 SD units).

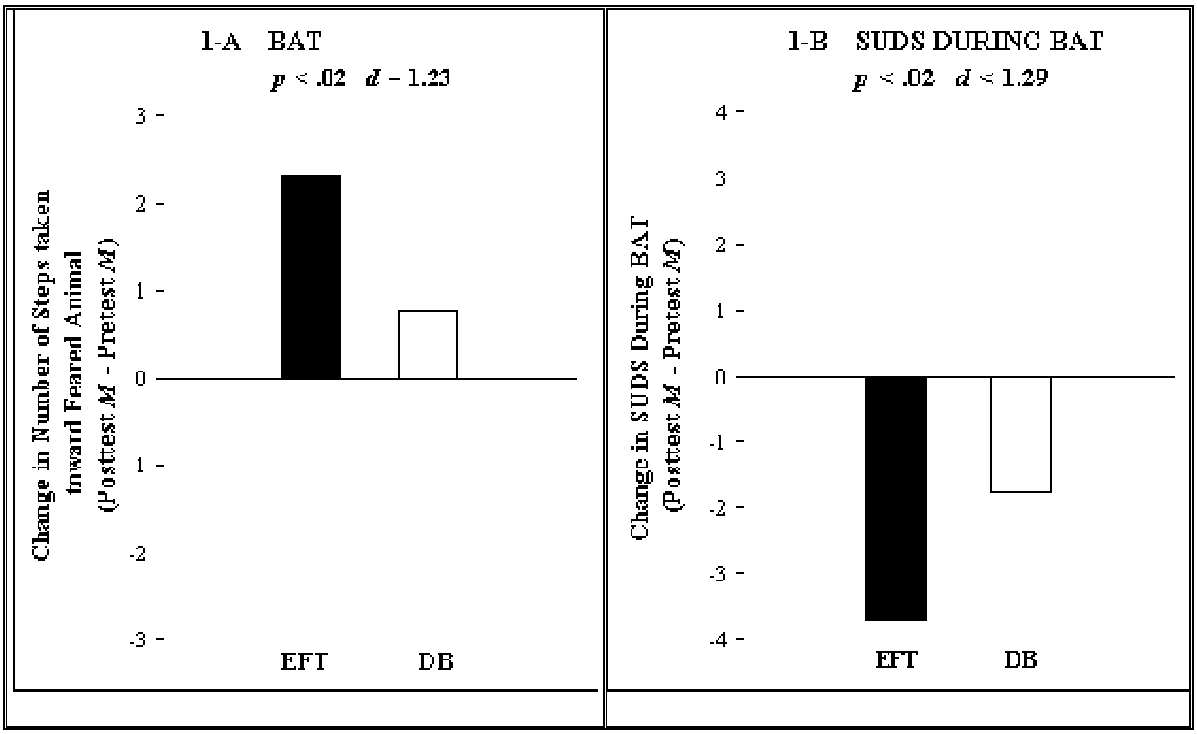
For the four significant interactions, BAT, SUDS Imagined, SUDS During BAT and the Fear Questionnaire, the values of d were 1.24, 1.42, 1.30, and 1.54 respectively. In terms of Cohen's suggested criteria these are very large effects.

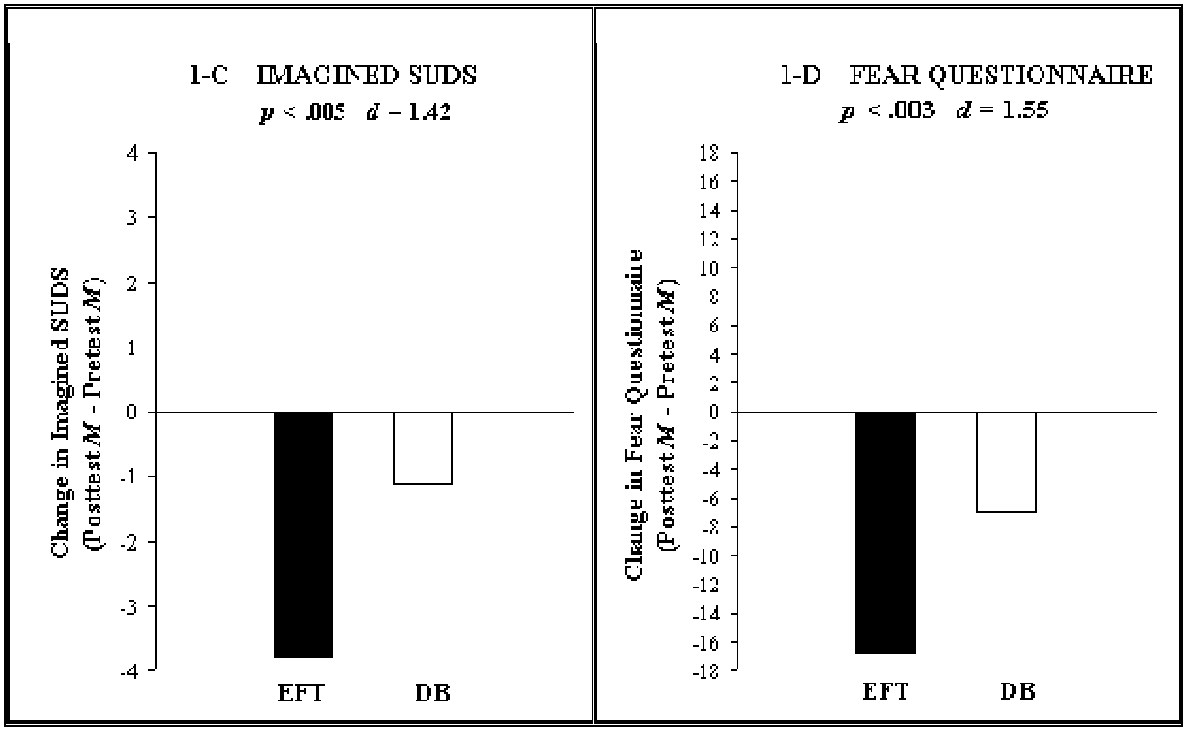
Graphic Presentation

The posttest-minus-pretest change scores used in computing the *d's* are presented in Figures 1-A through 1-D for the above four significant interactions. Since Pulse Rate showed no difference between conditions at either posttest or follow-up and thus is not relevant to the issues which underlie this study, it is not

depicted. For BAT, the hypothesis predicted that EFT participants would walk closer to the feared object (and thus obtain *higher* scores on posttest vs. pretest) than would DB participants. Figure 1-A depicts this greater positive change for EFT. For the remaining three dependent measures, the hypothesis predicted that EFT participants would show a greater *decrease* in fear (and hence obtain *lower* scores at posttest) than would those in the DB condition. Thus, lower scores are reflected in *larger* negative numbers in figures 1-B through 1-D.

Figure 1. Comparison of the **immediate** effect of EFT vs. DB intervention: Amount of change (posttest minus pretest) on the four dependent measures with significant results.





Assessment of Hypothesis: Is There a Long-Term Effect of EFT?

The mean time that elapsed between initial testing and follow-up was 7.58 months ($N = 12$, range = 6-9 months) for EFT participants, and 8.11 months ($N = 9$, range = 7-9 months) for DB participants.

Comparability of Follow-Up and Nonfollow-Up Participants

For each of the four variables where there was a significant outcome from pre- to posttest we undertook a *t* test in which we compared pretest scores for those who came back with pretest scores for those who did not return. None of these were significant.

Do the Effects of EFT Endure?

There are four kinds of information that are relevant to this question. Two examples may make this clearer.

Case 1 supposes that the effects of EFT totally dissipate over time. In this event means for EFT subjects at follow-up would approximate means at pretest on each variable, with *t* values approximating zero. However, for these subjects, means of the posttest would differ dramatically from the means of the follow up, with the *t* values being highly significant. When EFT and DB are compared, none of the 2x2

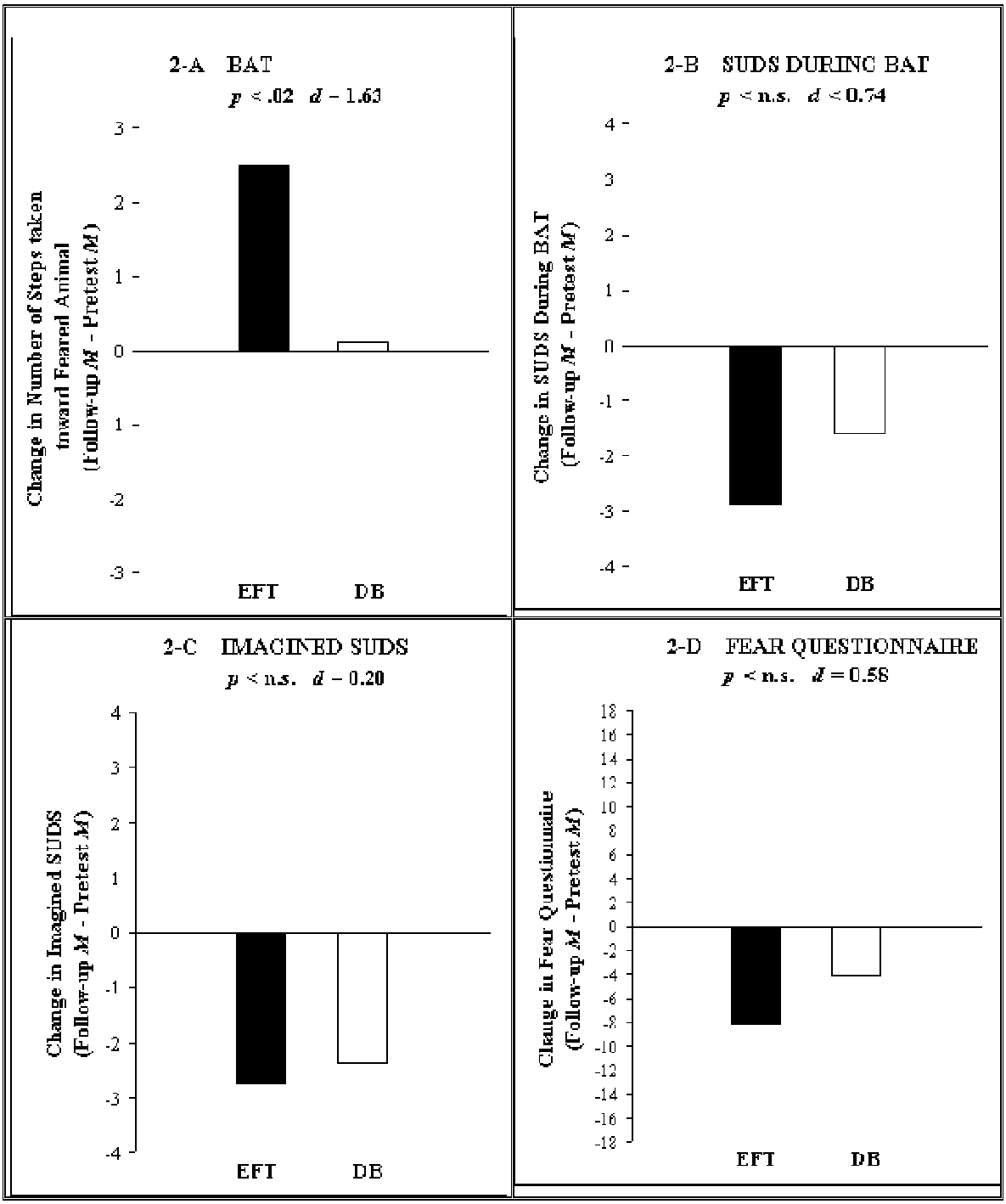
ANOVAs would be significant and the *F's* would approximate zero. And finally, *d* values describing the effect sizes of these interactions would also approximate zero.

Case 2 would fall at the opposite extreme. Here there would be total and complete persistence of the effects; the *t* tests comparing pretest and follow-up means would show very large and significant values, whereas *t* tests comparing posttest and follow-up would be nonsignificant since here it is assumed that the effects persisted. The interaction between Condition (EFT vs. DB) and Time (pretest vs. follow-up) would also be highly significant and the values of *d* showing the effect size of these interactions would be substantial.

As will be seen, our outcome fell between these two extremes.

Follow-up for BAT. EFT participants walked further toward the feared animal during the follow-up ($M = 6.67$, $SD = 1.56$) than on the pretest ($M = 4.17$, $SD = 2.72$), ($t\,[11] = 3.23$, $p < .008$). This observed effect showed no evidence of dissipating between posttest ($M = 6.42$, $SD = 1.98$) and the follow-up ($M = (6.67$, $SD = 1.56$) ($t\,[11] = 0.41$, *ns*). An ANOVA revealed a significant Treatment x Time interaction ($F\,[1, 19] = 6.81$, $p < .02$) (for DB: pretest $M = 6.11$, $SD = 2.52$; follow-up $M = 6.22$, $SD = 2.64$; for EFT: see above). Defining effect size for BAT exactly as was done above, $d = 1.63$ *SD* units when EFT is compared to DB, a very large value according to Cohen's (1988) criteria. This represents a substantial increase in *d*. Thus, four converging lines of evidence indicate no dissipation in the effects of EFT. Descriptively speaking, when Figures 1-A and 2-A are compared, there is a substantial increase in the effects of EFT on the BAT as compared to DB at the time of the follow-up as compared to the time of the pretest.

Figure 2. Comparison of the **long-term** effect of EFT vs. DB intervention: Amount of change between pretest and follow-up on the four dependent measures with significant results.



Follow-Up for SUDS Imagined. EFT participants showed less fear at follow-up (M = 4.83, SD = 3.07) than at pretest (M = 7.58, SD = 2.23) (t [11] = 2.63, p < .02). This effect showed no evidence of dissipating between the posttest (M = 3.83, SD = 2.52) and the follow-up (M = 4.83, SD = 3.07) (t [11] = 0.99, *ns*). There was however no significant Treatment x Time interaction in the ANOVA (F [1,19] = 0.11, *ns*) (For DB: pretest M = 6.67, SD = 2.00; follow-up, M = 4.33, SD = 2.96. For EFT: see

above.). The effect size here showed $d = 0.20$ *SD*. Although the effect of EFT did not dissipate, the outcome is at best ambiguous, and evidence that EFT produced a long-lasting effect greater than that for DB is lacking (See Fig. 1-B and 2-B).

Follow-Up for SUDS During BAT. EFT participants showed less fear at follow-up ($M = 3.23$, $SD = 2.13$) than at pretest ($M = 6.11$, $SD = 2.51$) (t [11] = 3.21, $p < .008$). This effect showed no evidence of dissipating between the posttest ($M = 2.23$, $SD = 2.08$) and follow-up ($M = 3.23$, $SD = 2.13$) (t [11] = 1.31, *ns*). There was however no significant Treatment x Time interaction in the ANOVA (F [1,19] = 1.43, *ns*) (For DB: pretest $M = 5.67$, $SD = 1.75$; follow-up $M = 4.08$, $SD = 1.71$. For EFT: see above.). The effect size for this interaction showed $d = 0.74$ *SD*, a large value according to Cohen's (1988) criteria. Descriptively speaking, when Figs. 1-C and 2-C are compared, there is a less striking difference between the effects of EFT vs. DB at time of follow-up as compared to time of posttest, but a substantial effect is nevertheless present at follow-up.

Follow-Up for Fear Questionnaire. The pattern of findings here is somewhat complex. As indicated earlier, at pretest the EFT participants scored relatively high ($M = 30.92$, $SD = 8.28$) and at posttest they showed a very substantial decrease ($M = 13.08$, $SD = 8.20$), however by the time of the follow-up a significant part of this decrease had been lost ($M = 22.75$, $SD = 7.46$) (for posttest vs. follow-up, t [11] = 3.11, $p < .01$). It is noteworthy however that in terms of the issue at hand, these scores at the time of the follow-up had *not* returned to their original value: the follow-up value was still significantly smaller (t [11] = 2.59, $p < .025$) than the original pretest value. Regarding the ANOVA, there was no significant Treatment x Time interaction (F [1,19] = 0.86, *ns*) (For DB: pretest $M = 30.89$, $SD = 11.63$; follow-up $M = 26.78$, $SD = 15.64$. For EFT: see above.). The effect size for this interaction showed $d = 0.58$ *SD*, a medium value according to Cohen's (1988) criteria. Descriptively speaking, when Figures 1-D and 2-D are compared, there is a less striking difference between the effects of EFT vs. DB on the Fear Questionnaire at the follow-up as compared to the posttest, but a moderate effect is still seen at follow-up.

Discussion

The findings are largely consistent with the hypothesis that EFT does reduce phobias of small animals, and that this reduction is enduring, at least in terms of

behavioral change. However, as we shall presently outline, inferences drawn from these findings must be considered tentative due to certain methodological limitations of the current study.

The results of our analyses indicate that EFT treatment had an immediate effect of reducing specific phobias of small animals in a single 30-minute treatment session conducted under controlled conditions. On 4 of the 5 measures employed, EFT-treated participants improved significantly more from pre- to posttest during the original intervention session than did those in the DB condition. On the single physiological measure used, Pulse Rate, both conditions showed a significant decrease from pre- to posttest but there was no difference between conditions in this respect.

This immediate effect of EFT appears to be long lasting. This is especially clear in terms of improvement in avoidance behavior. For BAT the evidence was clear-cut; the follow-up showed (a) substantial improvement compared to the pretest and (b) no evidence of dissipation relative to the posttest. The significant results from the ANOVA indicate that EFT participants showed greater improvement in how far they walked toward the feared animal from pretest to follow-up than did DB participants. The effect size associated with this interaction actually showed a considerable increase (d = 1.24 for the immediate effect and 1.63 for the long-term effect). Thus, converging evidence from four interrelated sources leads to the same conclusion, namely that, on the important behavioral task, EFT produces an effect which lasts at least 6 to 9 months.

For SUDS During BAT and for the Fear Questionnaire, however, the evidence is only suggestive of a long-term effect for EFT. The immediate effect on both of these measures was a decrease in reported fear from pretest to posttest. For both measures the level of fear was significantly smaller at follow-up than at the time of the original pretest, indicating that these effects persisted, although for the Fear Questionnaire some significant dissipation of the original decrease in fear was also observed. The d values (0.75 and 0.58) associated with the amount of decrease in fear from pretest to follow-up for EFT as compared to DB participants can be described as "large" and "medium" respectively, in terms of Cohen's (1988) suggested criteria. Although the interactions between Treatment (EFT vs. DB) x Time (pretest vs. follow-up) for SUDS During BAT and for Fear Questionnaire were not significant,

these negative findings can be arguably attributed to low statistical power, given the small sample sizes involved in the follow-up. For example, according to Cohen (1988), if the true population value of *d* were 0.75, one would need a sample of approximately 30 in each condition to have an 80 per cent chance of observing an outcome which was significant at the .05 level (two-tailed test). Although a firm conclusion cannot be drawn here, evidence that (a) the observed decrease had not disappeared at follow-up and (b) the between-treatment conditions effect sizes are substantial, suggests that a long-term effect may well obtain for these two measures.

The evidence for a long-term effect of EFT on the other subjective measure, Imagined SUDS, is weak. Although the immediate effect of a decrease in fear from pretest to posttest did not disappear at the time of the follow-up, the effect size associated with this measure was small (d = .20) and the interaction between Treatment x Time was not significant. For this measure, therefore, no claim of a long-term effect for EFT can be made based on the present data.

Intent of Study

The main question the study addressed can be stated as — does EFT produce any effects on specific phobias of small animals? We did not attempt to find out whether EFT is the preferred mode of therapy for such phobias. To do this we would have had to include in our design the best available current procedure for such treatment — Therapist Directed Exposure Therapy. Rather, we were asking a more preliminary question — are the effects observed for EFT real or can they be dismissed as artifacts? The answer to this question depends in large part on how appropriately the comparison condition, DB, was designed.

Comparability of Interventions

The two treatments closely paralleled each other except for the experimental variables. In both interventions, experimenters introduced the treatment with a similarly worded rationale designed to minimize the demand characteristics of the experiment. In both, the length of the treatment sessions was limited to 30 minutes. EFT participants were instructed to stay attuned to the issue at hand by repeating a standard Reminder Phrase at each acupoint, DB participants repeated a similar standard Reminder Phrase between taking each deep breath. EFT participants used 12

Reminder Phrase repetitions for each round of their treatment during the first 3 rounds and 7 Reminder Phrase repetitions during the remaining rounds, and DB participants used 10 Reminder Phrase repetitions per round (roughly the numerical midpoint for the EFT repetitions) for the duration of the DB treatment. EFT participants' SUDS ratings were retaken after each round of that treatment, and DB participants' SUDS ratings were taken after each round of DB. During EFT, each separate aspect or issue related to the problem was addressed by adding more rounds of EFT, and in DB they were addressed by similarly adding more rounds of DB.

The factors that differentiated these treatments were that (a) during EFT specific acupoints on the body were contacted with light tapping, while during DB, participants practiced a specific form of deep breathing, and (b) only EFT participants repeated a self-acceptance statement at the commencement of each round. From the perspective of answering the question, "Does EFT work?" the fact that EFT and DB differed in two ways is not relevant. From the perspective of determining *why* EFT may have worked, future dismantling studies are needed to determine the relative contribution of each of these variables.

Generalizability of Results

Since in the present study recruitment of participants was through ads in newspapers and on radio, the generalizability of these findings to a strictly clinical population carries with it some uncertainty. However, since specific phobias of small animals and insects are seldom incapacitating and the usual way of handling them is by simply avoiding the phobic object, clinicians only rarely receive referrals for treatment for this type of phobia (although they may incidentally work with a small animal phobia if presented by a multiphobic patient or a patient with some other psychiatric diagnosis). In this context, Ost has observed that although people with specific phobias might very well constitute the single most prevalent anxiety disorder, at the same time it is the group that apply for treatment the least (Ost, 2002).

A review of the research on small animal phobias shows that in the overwhelming majority of studies — we did not find a single exception to this rule in our sample of major studies in this area — researchers used ads in local newspapers to recruit, as well as, in some cases, some physician referrals (see Bandura, 1969; Ost et al, 1991; Hellstrom & Ost, 1993; Ost, 1996; Ost et al.1997; Ost et al. 1998; Muris,

Merckelbach, Holdrinet, & Sijsenaar 1998; Muris et al., 1998). Obtaining subjects with specific phobias of small animals is so difficult, in fact, that we do not believe the researchers cited above could have conducted their studies had they not gone beyond clinical populations for their subject pool, an assumption in agreement with that of Ost who has expressed the opinion that if researchers had to wait for subjects to be referred for such studies "a study of 40-50 subjects would certainly take 5 years or more to complete" (Ost, 2002).

With respect to whether the findings in our sample of nonclinically recruited subjects with small animal phobias will generalize to a clinical population with similar phobias, it should be noted that when screening applicants for participation in the present study, the experimenters gave special attention to assessing the degree to which the phobia was interfering with the person's life. They searched carefully for specific evidence that the phobia was very distressing to the person and/or affecting his or her life negatively in an important manner, rejecting all those who did not provide evidence to support this criterion. A moderate degree of disruption was not sufficient; it had to be either moderate-to-severe or severe for the person to be admitted to the study. In addition, even after being initially admitted, a participant was eliminated from the study if at pretest she went all the way up to the feared animal on the behavioral test and did not at least report a fear level of 5 or higher. All of our participants would have easily exceeded the minimum criteria of phobia severity advised by Ost, the principal researcher in this area, for a study of specific phobias (Ost, 2002), who specifies that participants must fulfill all DSM IV diagnostic criteria for this condition (the "interference" criteria in particular), but also that the severity of their symptoms is, as a minimum, "moderate; life is disturbed, but symptoms are not considered disabling in any way" (Ost, 1991). In fact, subjects who indicated that their symptoms were not disabling in any way would normally have been eliminated from this study.

Also relevant may be the observation of the present authors who use EFT regularly in their practice (Wells, Carrington and Baker), that the clients whom we have treated in a clinical setting for specific phobias incidental to more severe problems, have experienced the same rapid and lasting relief from these phobias when EFT was applied to them, as the participants in the present study.

Possible Processes Contributing to Results

Although the present research was not designed as a dismantling study, it may nevertheless be useful to consider what factors might have produced the results.

Imaginal Exposure

One factor contributing to the results might be the high level of imaginal exposure used in both conditions. Participants were repeatedly asked to focus on the object of their fear by repeating a Reminder Phrase which made specific reference to that object. While it is possible that this element of imaginal exposure contributed towards the overall results, participants in the EFT treatment used a similar amount of imaging as in the DB condition. The fact that EFT produced superior results to DB despite the similarity of the imagery used in both conditions, suggests that there are additional elements in EFT that contributed to the outcome in this condition.

Energy System Hypothesis

In light of the fact that it is derived from acupuncture theory, it is possible that EFT may have obtained its results through intervening in the body's so-called "energy system", i.e. through its meridian end points, as suggested by its originator (Craig, 1993; Craig, 1995, 1999). One factor that supports this hypothesis is that one of the two primary differences between EFT and DB conditions in our study was that EFT participants contacted the meridian end points while focusing on their feared object while DB participants did not. Future dismantling studies will need to be conducted, however, to determine the contribution of the various components of EFT to the results.

Desensitization

Another explanation, which is closer to the concepts of traditional psychology, is that EFT constitutes a novel form of desensitization. A common report from participants in this study as well as from clinical patients is that they feel very "relaxed" after tapping on the meridian points, and EFT seems to bring about such relaxation very quickly. Since each round of EFT requires focusing of attention upon a feared object, this combination of repeated focusing on the feared object while one

is simultaneously relaxed fits well into the paradigm of desensitization. In fact, certain desensitization elements seem to be present during both EFT and DB. Just how great a part they may play in determining the final results remains to be investigated.

Distraction

Even though EFT specifically directs a person to stay tuned-in to his/her fear (by repeating a phrase such as "fear of rats") while tapping on the meridian points, a procedure which on face value appears to be the opposite of distraction, perhaps the most common question directed at EFT is whether the tapping process works because it distracts the person from focusing on the fear. With respect to this concern we would point out that any "distraction" possibly present seems to be equally involved in the DB condition where participants focused on a count for the duration of each breath, yet the DB condition showed less improvement from pretest to posttest than did the EFT condition, suggesting that if such distraction played a role in the results, it was a minor one.

Some might argue that focusing on deep breathing may not be as "distracting" as focusing on tapping. To clarify this point, further studies involving introduction of a variety of distraction conditions would be needed. However, extrapolating from daily life, where momentary distraction from a phobic fear leads at best to momentary improvement, the robustness of these results — assessed after the allegedly distracting treatment was completed —argue against "distraction" being a key factor in the outcomes observed.

It is also noteworthy that the issue of distraction touches upon <u>*why*</u> EFT works, while the central point of the present study was "does it work?"

Comments on the DB Condition

Although EFT produced significantly greater improvement than did DB on 4 of the 5 measures, within the DB condition itself there was a significant improvement from pre- to posttest (cf. Footnote 2). Unfortunately, the design of this study precluded our being able to interpret this substantial improvement. On the one hand, it is possible that there are true effects of diaphragmatic breathing on the measures studied. On the other hand, without an appropriate comparison condition, we cannot

rule out the many possible alternative explanations, such as placebo effect, regression to the mean, etc. In the case of EFT, DB served as an appropriate comparison condition and therefore conclusions could be reached regarding EFT. If an appropriate third condition had been included to which we could have compared the DB results, then there would have been a basis for reaching conclusions regarding the effectiveness of DB. Future studies would do well to include such a condition.

Converging evidence from a replication study now in progress

Baker and Siegel (2001) undertook a replication of the present study using two different comparison conditions — a supportive interview and a no intervention condition. The pattern of their findings provides a basis for speculating about the effectiveness of DB. For EFT, they found similar reduction in fear of small animals to that found for EFT in the present study. If it had been by virtue of a placebo effect alone that in the present study the attention comparison condition (DB) produced significant (albeit less than EFT) reduction in fear, one might expect that the Baker-Siegel results for the supportive interview condition would be similar to those found for DB in the present study. However this was not the case. The latter researchers found no change whatsoever from pretest to posttest in either their no intervention condition or the supportive interview. Alternative explanations such as placebo effect and regression to the mean can therefore be ruled out in their study. Because their replication study is very similar to the present one, one can parsimoniously account for the findings of both the Baker-Siegel study and the present one in terms of the following hypothesis: EFT and DB both produce a *true* effect due to their common feature of rapid relaxation and this shared feature led both conditions to produce reduction in fear when experimentally studied, presumably by a desensitization process. However, since EFT produced significantly greater reduction in fear than DB, it would seem that there must be something additional occurring within the EFT condition.

Possible Sources of Error or Bias and Limitations of the Study

There are several possible sources of error or bias which could have affected the findings.

Practice Effect

Since both the EFT and DB conditions had identical exposure to practice, this explanation can be considered unlikely.

Regression to the Mean

Since participants in both conditions were randomly assigned to treatments and showed no significant difference at time of pretest on any of the measures used, the findings appear inconsistent with an explanation based on regression to the mean.

Expectations, Demand Characteristics and Other Possible Sources of Bias.

Here, we consider the possible role of expectancy effects, demand characteristics and other sources which might have biased our results. To rule out such sources of bias, the "gold standard" design in medical research is both double blind and placebo-controlled. Because in psychotherapy research it is not usually possible to have participant or experimenter blind as to what treatment is being administered, a double-blind design is at best infrequently possible in such studies. However, it is possible to approximate such a design and thus minimize sources of bias and artifact.

Blind data collection. The Research Assistants who collected the data were kept totally blind as to which experimental condition a given subject was assigned during both the pre- and posttesting. Because of this strategy, there is no way that they could have biased the data collection.

Participants' a priori expectations. Prospective participants were given no specific information whatsoever about either the EFT or the DB condition before the start of the study. Materials used in recruiting people simply stated that the study would be exploring ways of reducing phobic reactions to small animals, without specifying the "ways". There was thus no way that participants could have had any differential expectancy regarding either DB or EFT.

Participants' expectations during first part of treatment. Of necessity, participants did learn about the conditions to which they were assigned, at the start of the study. Therefore once a given condition was started, each participant had her own impressions of the procedure being administered to her. Could these initial impressions have given rise to a placebo effect which favored EFT?

Clinical experience of the authors indicates that upon first being exposed to such an unusual procedure as EFT, many people are initially skeptical and may even

regard the idea that tapping on one's body could produce a psychological effect to be quite absurd (see also observations by Craig, 1995, 1999). This argues against a positive placebo effect, at least for the EFT condition. In fact, a placebo effect is probably more likely to be present in the DB condition because deep breathing is at face value more plausible as a stress reduction technique than EFT. If so, presence of a placebo response here would have worked against the hypothesis.

Possible experimenter allegiance or expectation effect. One important source of possible bias in psychotherapy research is found when the experimenter has an allegiance or expectation for one, but not the other, form of therapy being studied. Particularly when the experimenter is administering the treatment(s), the potential exists that he/she may inadvertently shape the participants' outcomes via various verbal and non-verbal cues.

A standard way to control for such a possible source of bias when two well-known forms of therapy are being compared is to have each form of therapy administered by practitioners who have an allegiance to that particular form of therapy. It was not possible to apply this strategy in the present study, however, because we felt it advantageous to construct a comparison condition which included certain key elements of the EFT condition. We also felt it desirable to select an attention-comparison condition which shared the feature of fostering a state of calm. Accordingly, we constructed an entirely new condition, DB. Precisely because DB was new and experimentally constructed, there was no possibility of recruiting therapists who had any pre-existing allegiance to it. Given our choice of comparing EFT and DB, one common means of controlling for experimenter expectancy or allegiance effects was therefore ruled out.

Since we cannot rule out experimenter allegiance effects the findings of the present study, although clearly positive and in keeping with the hypothesis, must be interpreted tentatively. Perhaps they are due to some true effect of EFT, or perhaps they simply reflect a therapist allegiance effect. Only future research can clarify this issue.

Need for Additional Controls

It would have been useful if a no-treatment or waiting list control condition had been included and we hope to see this in future research. However, when Ost (1997) reviewed previous research on specific phobias with respect to the inclusion of

no treatment controls, he found that of 21 studies in which an active treatment was compared with a no treatment or waiting list condition, the active treatment achieved significantly better results in 90% of the studies. Additionally, as he notes, the few studies to date that have followed untreated phobias for a long period of time have found a low proportion of spontaneous remission after 5 years (Agras, Chapin & Oliveau, 1972) and also after 7 years (Wittchen, 1991).

The BAT Procedure

With respect to the measurements used in this study, the Behavioral Approach Task did not include having the participant actually touch the feared animal, as has been done in some other studies (e.g. Ost, 1989), and therefore the participants may not have recovered from their phobic avoidance as fully as is suggested by our measures. On the other hand, it is possible that certain participants would have shown even greater improvement than they were able to demonstrate here had these additional instructions been included. It may be relevant that pretest-posttest comparisons showed significant improvements in avoidance behavior for both of the treatment conditions despite this limitation in the measure.

Pulse Rate

In the current study, pulse rate was the only measure that did not show any differences between conditions at time of intervention, a finding consistent with findings by Turpin (1989) and Ost (1991) who note that behavioral interventions tend to yield changes on physiological measures with less regularity than they do on behavioral and self-report measures. In the present study, the pulse rate measure was taken by hand at different points of time during the pre- and posttest, and also at the point when participants voluntarily stopped the BAT. Considering that in both treatments the majority of participants approached closer to the feared object on posttest than on pretest, it is encouraging to note that their pulse rate was actually lower on average when doing so. It would be useful in the future to compare pulse rates at the identical approach point, or at several different points, in both conditions but this would require more sophisticated measurement devices than used in the current study.

Suggestions For Future Research

In this study, individual treatments were limited to 30 minutes and this amount of time included the treatment description, presentation of rationale, development of therapeutic working alliance, and the treatment proper. Had the time been extended, could the study have achieved even better results? It was clear to the researchers that some participants still had several aspects of their fear remaining after 30 minutes of treatment. Since a central component of EFT treatment is the comprehensive addressing of various aspects of the fear, a 45-60 minute session more typical of a regular psychotherapy session would allow more time to address these aspects more thoroughly for the majority of participants, and might well result in greater gains. This slightly longer time frame would still represent a significant advance over the time required in other desensitization regimes.

There is a need to compare both EFT and DB treatments to traditional methods used for treating specific phobias. A study that compares EFT with single-session therapist-directed exposure might shed considerable light on the potential clinical usefulness of EFT. In addition, a study in which EFT was combined with therapist-directed exposure and crossed over to see if either treatment adds anything to the results achieved by the other would be informative.

With respect to dismantling studies, the obvious move would be to compare EFT with a "bogus" form of this technique using non-meridian tapping points. We did not find it appropriate to use a bogus form in the present study because there are two questions which can be raised in this area:

1. Does EFT work?

2. Does EFT work for the particular hypothesized reasons that the theory of energy meridians would suggest?

If the issue addressed is #1 above — and that is the issue which we are addressing in this study — using only two conditions, genuine versus bogus tapping points, might not be informative. Suppose, for example, that both conditions produced similar pre- to posttest improvement. Such findings could be dismissed as merely a placebo effect, whereas they might mean that EFT *does* work, but not because of the spot at which the tapping occurs. Accordingly, in the present study, EFT was compared to a quite different type of intervention in order to provide a basis for assessing possible placebo effects and thereby address the question "Does EFT

work?" Since the present study appears to show that it does, dismantling studies are clearly needed, including one using non-meridian points as a comparison condition (one of the authors, Harvey Baker, is undertaking such a study at the present time).

Conclusions

The findings are largely consistent with the hypothesis that EFT can reduce phobias of small animals in a single treatment session. However, due to methodological limitations in the present study, firm conclusions about the efficacy of EFT must wait for confirmation from future studies. Further research is also needed to determine the clinical value of EFT when compared to existing techniques used for this purpose.

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Footnotes

[1] When repeated measures ANOVA is used with several levels of the repeated measures variable, the assumption of equal variance of difference scores may not be met, which would constitute a serious problem. In such a case, the usual correction factor when such a repeated measures analysis is undertaken is a statistic known as Box's Epsilon. Epsilon will always be (a) in a range where the upper limit is 1 and (b) where the lower limit equals 1 divided by (the number of levels of the repeated measures variable minus 1). Given that there are two repeated measures levels here, Epsilon is always equal to "one" in this study, an Epsilon value which indicates that the most serious assumption of the repeated measures analysis is satisfied.

[2] The Time x Treatment interaction comprehensively assesses the hypothesis under study. In terms of hypothesis testing there is therefore no need to supplement these ANOVAS with pre- vs. posttest comparison of means within each condition. However, we feel it would aid researchers who may want to explore either or both of these conditions in the future to be informed of the following: For EFT, all five *t* values were greater than 4.6 ($p < .001$), for DB, four *t* values were greater than 2.2, ($p < .05$) with the *t* value for SUDS Imagined being 2.0 (*ns*).

Appendix A

Group EFT Treatment

Group EFT treatment was provided to those participants who applied for the study but were not able to be accommodated in the individual treatment conditions. After excluding participants who did not meet the criteria for the study from the data here reported, 11 participants' data were included. Since they were not randomly assigned, their data could not be compared to that of the individual EFT participants. However, since the results were very similar to those for the EFT individual treatment condition and EFT group treatment could conceivably offer a highly efficient methodology, we summarize it here.

The EFT group treatment was conducted similarly to the EFT individual treatment, except that only the "shortcut" version of EFT was used for the group (7 meridian endpoints tapped). Rounds of EFT proceeded with all participants tapping

on the treatment points at the same time while repeating their individual Reminder Phrase or imagining their own feared animal. SUDS ratings were taken after each round. Group treatment sessions continued for 75 minutes, after which posttesting occurred.

t-tests performed on the results of the Group EFT Treatment, showed that on the BAT, pretest scores ($M = 6.64$, $SD = 1.80$) did not differ significantly from posttest scores ($M = 7.64$, $SD = .92$) (t [10] = 1.91, *ns*), although there was substantial improvement ($d = 0.75$ *SD*) in the expected direction. However, on the 3 subjective measures and the pulse rate test, group EFT participants showed a significant decrease in fear from pre- to posttest: SUDS Imagined pretest ($M = 7.00$, $SD = 2.61$) vs. posttest ($M = 4.00$, $SD = 2.19$) (t [10] = 3.06, $p < .05$); for SUDS During BAT pretest ($M = 6.59$, $SD = 2.21$) vs. posttest ($M = 3.29$, $SD = 2.30$) (t [10] = 6.08, $p < .001$); for the Fear Questionnaire pretest ($M = 26.0$, $SD = 7.94$) vs. posttest ($M = 14.27$, $SD = 10.01$) (t [10] = 3.53, $p < .001$); and for the Pulse Rate pretest ($M = 92.0$, $SD = 15.18$) vs. posttest ($M = 79.63$, $SD = 11.93$) (t [10] = 5.07, $p < .001$).

Results thus indicate that the group EFT treatment produced a significant decrease in 4 of the 5 measures studied. EFT group participants also showed an increase in their ability to approach the feared animal on the BAT which approached, but did not reach, statistical significance ($p < 10$, *ns*). Given that the sample size here was only 11, that a large effect size (*d* value) was observed, and that the results for the individual EFT intervention were significant at both posttest and follow-up, it is plausible as well as parsimonious to assume that statistical significance would have been observed for the group procedure with a larger sample size.

In summary, the results achieved by the group treatment provide informal corroboration of some of the beneficial effects of EFT, and suggest that EFT group treatment should be studied separately as a possible treatment alternative for specific phobias.