Experimental

EFFECTS OF A BIOENERGY HEALING TECHNIQUE ON CHRONIC PAIN

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ABSTRACT

This study examined the physical and psychological effects of a bioenergy healing technique upon 47 individuals with one of three long-term and chronic disorders: arthritis, headaches, or low back pain. Participants were randomly assigned to either a treatment group or an attention placebo control group. Outcome measures included: the McGill Pain Questionnaire, the McGill Home Recording Form, the Profile of Mood States, and a physical examination.

None of the outcome variables from the physical examinations or the McGill Home Recording Form demonstrated any significant improvement due to the treatment. Outcome variables from the McGill Pain Questionnaire demonstrated that the treatment group had significantly decreased severity of the sensory and affective aspects of pain while the attention placebo control group did not.

KEYWORDS: Bioenergy, therapeutic touch, intention, double blind, placebo, pain

INTRODUCTION

Within the last decade, research efforts to evaluate alternative forms of healing have increased, particularly with regard to techniques commonly known as bioenergy healing or energy medicine. Generally, these alternative techniques profess to manipulate biological energies hypothesized to surround and permeate the physical body. While these energies have rarely been recognized by traditional Western science or medicine, many holistic health therapies and Eastern traditions (e.g., acupuncture, acupressure, Therapeutic Touch) discuss these fields in great detail and utilize them to diagnose and treat various physical ailments. Research on bioenergy fields seems to fall into two approaches: research on the empirical substantiation of energy fields or research on the healing effects of the energy field. The focus of the present research is on the effectiveness of a particular bioenergy healing technique in ameliorating three chronic disorders.

The healing technique investigated in the present study has been developed and documented over the last 15 years.[1] Similar to many other bioenergy systems, this approach proposes that an energy field surrounds and permeates the physical body. A strong and balanced field is hypothesized to be the source of health, while alterations or imbalances in this field produce disease. This field, (with "distribution" centers on particular parts of the body), transmits energy to the body via a network of tiny pathways. Part of this network is assumed to overlie and energize the nervous system which, in turn, innervates the endocrine system. The hormones released from the endocrine glands are carried via the circulatory system to specific organs and thus, physical and emotional health are maintained.

The general treatment procedure employed by this method of bioenergy healing begins with the treater's assessment of the bioenergy field around the patient's physical body. Using their hands, the treater senses any imbalances, (which may evidence as heat, a dense quality, or a sense of blockage), and treats the imbalance by visualizing the energy becoming balanced and free flowing. This visualization continues until the treater senses a change towards balance or the free flow of energy in that area.

Johnston's technique is both similar to and different from the more widely known bioenergy technique called Therapeutic Touch.[2] The most obvious difference is that Therapeutic Touch typically involves physically touching the body of the patient, although Quinn (1984) recently provided a successful test of Therapeutic Touch performed off-the-body.[3] Johnston's technique occurs entirely off the body in the patient's energy field. Generally, the research on Therapeutic Touch has demonstrated that patients receiving this treatment evidence significantly higher levels of blood hemoglobin, greater physiologic relaxation, significant reductions in headache pain, and decreased anxiety as compared to non-treated patients.[4,5,6,7] Critics of Therapeutic Touch cite numerous methodological difficulties which seriously weaken the case for the proven effectiveness of this treatment.[8] Specifically, Clark and Clark cite conceptual confusion regarding outcome measures, the inappropriate use of statistics, failure to provide empirical measures, and failure to control for potential placebo effects. In addition, a well controlled study by Randolph[9] failed to find evidence for the predicted relaxation effect; although Randolph cites various differences between her study and previous Therapeutic Touch research which could have accounted for the lack of findings. Clark and Clark conclude that the research on Therapeutic Touch is weak at best and they call for more rigorous experimental research.

The current study attempted to provide additional data on bioenergy healing while avoiding some of the methodological problems in the Therapeutic Touch research. First, a major improvement over previous research was the inclusion of an attention placebo control group to account for potential expectancy effects, as well as the effects of a period of relaxation while receiving attention from caring individuals. Second, the current bioenergy technique was implemented with greater strength than many of the Therapeutic Touch interventions. Those studies have often involved single treatments of five to ten minutes in length. The 30-minute treatments administered on four occasions in the present study greatly enhanced the possibility of finding effects. In addition, the treatment protocol of the Johnston technique required that two individuals treat the patient, versus one treater administering Therapeutic Touch. Third, the procedures for treatment with the Johnston technique are quite systematic and anatomically specific. This feature allows for a more standardized and quantifiable performance than is usually possible in Therapeutic Touch. Fourth, no experimental study has attempted to compare

the perceived diagnoses of bioenergy treaters with independent physical examinations. This study attempted to empirically compare bioenergy diagnosis with a medical examination. Fifth, an attempt was made to examine positive and negative mood states rather than a single psychological state such as anxiety. Sixth, the Therapeutic Touch research has most often administered outcome measures immediately after the treatment. The present study administered outcome measures one week after the treatment in order to establish the duration of effects. Finally, an attempt was made to generalize the bioenergy treatments beyond a single, crisis-oriented, physical disorder by treating three different chronic disorders.

It was predicted that the Johnston bioenergy healing procedure would produce greater improvement in physical and emotional health for a treatment group as compared to an attention placebo control group.

METHOD

TREATERS

Eleven treaters were recruited from a pool of individuals who had completed a minimum of two courses in the three course bioenergy healing sequence, and had also regularly attended weekly practice sessions for two years. Four of the treaters had completed all three courses and had been practicing for an additional six months. These treaters were designated as "facilitators" and their role was to perform the more technical aspects of the experimental treatment. In return for their participation, all treaters received a $50.00 honorarium for each four week treatment series they completed.

The average age of the treaters was 47 years; 10 of the 11 treaters were female, 3 held Bachelor's degrees, 3 held Master's degrees, 1 held a Ph.D., 1 was a certified chiropractor, 2 held nursing degrees, and 1 was a certified massage therapist. All were Caucasian.

Treater training involved multiple sessions in which the treaters practiced the experimental treatment and attention placebo procedure, completing measures, and session procedures.

PHYSICIANS

Six osteopathic physicians and one advanced medical student affiliated with the local medical school were recruited to perform the pre and post treatment physical examinations and were paid a $10.00 honorarium for each physical examination.

The physicians' average age was 42 years; 3 were female and 4 were male; all were Caucasian. They had spent an average of 12 years in clinical practice.

PARTICIPANTS

Participants recruited through advertisements placed in three local newspapers were evaluated for eligibility according to the inclusion/exclusion criteria shown in Table I. Eligible respondents suffering from chronic arthritis, headaches, or low back pain were invited to attend a one hour orientation meeting during which they were provided with a brief description of the treatment. In addition, informed consent material in accord with university wide ethical guidelines was presented, the treatment schedules were explained, and there was extended opportunity for questions. Participants were also informed that they would receive $50.00 at the completion of their six week commitment. Participants chose their own preferred treatment schedule on a "first-come-first-serve" basis.

Of the 49 individuals who began the treatment, one withdrew from each of the two conditions. Both suffered from chronic low back pain. Thus, a sample of 47 participants completed the study. The sample consisted of 35 (75%) women and 12 (25%) men. Forty-five (96%) of the participants were Caucasian, one (2%) participant was Black, and one (2%) participant was from Malaysia. The average age was 49.23 years, with a range from 26 to 71 years. Six (13%) participants were single, 30 (64%) were married, 4 (9%) were separated, and 7 (15%) were divorced. Nine (19%) participants had completed only high school, 18 (39%) had completed between 1 and 3 years of college, and 20 (43%) had completed 4 years of college.

Table I
Inclusion Criteria for Study Participants:

Disorders	Criteria
Arthritis Headache, and Low back Pain	• must have discussed condition with family physician • must have been diagnosed by a physician at some point • could not be taking narcotic medications, could not be simultaneously receiving massage, physical therapy, acupuncture or acupressure during treatment
Arthritis only	• pain in more than one joint • at least 2 occurrences of pain per week which lasted at least 12 hours each • condition existed for at least 6 months included stiffness and aching
Headaches only[a]	• at least 2 headaches per week • condition existed for at least 6 weeks
Low Back Pain only	• condition existed for at least 6 weeks • no surgery within the last two years • no disc fusions • not in physical therapy during project, but current use of traction was acceptable if part of a regular routine for at least a month • facet rhizotomy acceptable as long as it occurred at least two years ago

Note: These were minimum criteria. All participants experienced much greater severity of symptoms than required by the criteria.

[a] This criteria was specifically designed to eliminate cyclical headaches due to hormonal changes in women.

The Cornell Medical Index[10] was administered to provide a concise medical description of participants. Table II reports the average number of yes responses for each of the 18 scales on the Cornell Medical Index.

Experimental Design

This true experiment was a 2 x 3 x 2 repeated measures design. The first factor consisted of two levels of condition (an experimental or High Intensity

Table II
Average Number of "yes" Responses to the Cornell Medical Index

Scale/Physical System	# of Items	Average number of yes's
Eyes & Ears	9	2.19
Respiratory	18	2.74
Cardiovascular	13	2.47
Digestive Tract	23	3.55
Musculoskeletal	8	1.91
Skin	7	1.13
Nervous System	18	3.30
Genitourinary[a]	11	3.66
Fatigability	7	1.23
Frequency of Illness	9	0.62
Miscellaneous Diseases	15	2.51
Habits	6	1.36
Inadequacy	12	1.19
Depression	6	0.29
Anxiety	9	1.64
Sensitivity	6	1.53
Anger	9	1.36
Tension	9	1.21

[a] The Cornell Medical Index contains identical items for males and females with the exception of six items in the Genitourinary scale. These six items concern the female reproductive organs or the male reproductive organs.

group and an attention placebo control or Low Intensity group), and the second factor consisted of three types of physical disorder (arthritis, headache or low back pain). The repeated measures factor consisted of two periods of assessment: pre-intervention and post-intervention (Table III describes the experimental design and number of participants per cell).

Prior to the first intervention session, participants were randomly assigned to either the High Intensity or Low Intensity group. Participants knew there were two conditions, but were kept blind as to their assignment. In addition, participants were randomly assigned to treater pairs and were treated by the same pair throughout the study. Treater pairs were created randomly. Treaters could not be randomly assigned to a 4 week treatment series due to the constraints of availability.

Table III
Experimental Design

Disorder	Condition: High Intensity Pre/Post	Condition: Low Intensity Pre/Post	Total
Arthritis	8	8	16
Headaches	8	9	17
Low Back Pain	7	7	14
Total	23	24	47

Note: N is the number of participants who completed the entire six week project commitment.

Participants were also randomly assigned to the physicians who conducted the physicals and participants' pre and post intervention physicals were conducted by the same physician. Physicians were kept blind to the intervention assignment of the participants.

PROCEDURE

Overview. The physical examinations and treatment sessions were held at a physician's private practice office after regular office hours. Upon arrival, each participant completed the appropriate measures which were reviewed for completeness by study staff. The participant then received either an individual physical examination (at sessions 1 and 6), or an individual treatment (at sessions 2 through 5). Physical examinations took one hour to complete, while each treatment session lasted 35 minutes.

At the beginning of the treatment session, the facilitator-treaters informed the participant about a number of procedural details related to the treatment. An experimental treatment or an attention placebo procedure (which appeared identical to the experimental treatment from the participant's viewpoint) was then administered. After the session was completed, a home pain diary was distributed for the following week. Once all treatment sessions and physical examinations were completed for the entire study, participants were debriefed as to group assignment, provided with individual feedback concerning their

energy field and physical examinations, and offered the opportunity to receive additional treatments which were being performed independently of the study.

Experimental Treatment: High Intensity Group. The bioenergy treatments in the High Intensity group all began with an "attunement" of the treaters to the individual participant. This attunement consisted of the treaters achieving an internal focus or a meditative consciousness and the visualization of a connection to the participant. The intention to heal was also invoked by both treaters. Once the attunement was established, the treatment protocol consisted of a specific set of hand movements and points of mental concentration that were performed in a prescribed order without touching the participant's physical body. The physical sensations and mental impressions experienced by the treaters as they performed this treatment sequence enabled them to assess and balance the energy contained in the major energy centers, glands, and systems of the body. Balancing consisted of a "sense" of energy flow (or the visualization of energy) to depleted energy points, or the "sense" of energy draining (or the visualization of energy reduction) to over-energized points.

These energy points corresponded to the physical locations of organs, general systems, and glands within the physical body. There were specific energy points common to all three treated disorders; in addition, there were energy points in the treatment protocol which were unique to each disorder. Each treater assessed and balanced a set of specific energy points determined by the bioenergy healing protocol created by Johnston[1] and her associates. Specifically, the facilitator was assigned to assess and balance the energies of the body's six major energy centers (located at the forehead, throat, heart, solar plexus, lumbosacral junction, and the coccyx). In addition, the adrenal glands, kidneys, spine, ears, eyes, occipital base of the skull, the brain, lymph points, urinary system, genital system, and legs were assessed and balanced by the facilitator. While the facilitator treated these areas, the second treater simultaneously assessed and balanced the energies of the spleen, liver, lymphatic system, stomach, pancreas, gastrointestinal system and arms. These energy points were common to all three disorders.

The additional specific points for the arthritis participants included the entire spinal column and the joints. The facilitator treated the spine while the second treater balanced the joints.

For the headache participants, the facilitator performed additional movements focusing on the forehead, sinuses, jaw, and neck. There were no energy points for the second treater.

For the low back pain participants, the facilitator performed additional movements focusing on the lumbar area of the spine and the second treater performed additional movements focusing on the low back muscles and the pelvis.

As necessary, each treater paused at times during the treatment sequence to record their assessments of the just-treated areas, using the Bioenergy form (described in the Measures section).

Attention Placebo Control: Low Intensity Group. The High Intensity and Low Intensity groups were identical until the point of treatment initiation. At that point, the treaters in the Low Intensity group pretended to be performing the treatment, but did not attune to the participant, did not move their hands to the specified energy points, and did not assess or balance the energy field. In other words, the Low Intensity treaters mimicked the High Intensity sessions but omitted the crucial components of the bioenergy healing treatment. Thus, participants in the Low Intensity group received any potential benefits associated with the setting and their own expectations, while the participants in the High Intensity group received any additional benefits attributable to the treatment itself.

Treaters in the Low Intensity group did move their hands around the participant's body, but they simply made random motions. The treaters also wrote on the Bioenergy forms, but the writing was scribbles or nonsense; however, the research staff collected these forms as if they contained valid data. The amount of treatment time for the Low Intensity group was also identical to that of the High Intensity group (35 minutes).

In addition to the absence of attunement, treaters utilized several techniques to block any potential energy flow. These included: rehearsing multiplication tables, reviewing mundane life activities (i.e. creating a grocery list, lists of chores, memorizing homework), and slightly crossing their legs. Treaters also discovered that visualizing the participants as surrounded by a wall was

Table IV
Measure Administration

Measure	Session 1	2	3	4	5	6
Treater Measures:						
Bioenergy Evaluation		X	X	X	X	
Session Assessment		X	X	X	X	
Physician Measures:						
Medical History	X					
Examination	X					X
Participant Measures:						
Weekly Evaluation	X	X	X	X	X	X
Cornell Medical	X					
McGill Pain	X	X	X	X	X	X
McGill Home[a]		X	X	X	X	X
POMS	X	X	X	X	X	X
Manipulation Check	X					

Note. The X's indicate the weeks for which data were collected, rather than the distribution week.

[a] The McGill home Recording Form was distributed at each session to cover the following week.

effective in blocking any energy flow. Generally, effective blocking techniques included directing thoughts away from the participant and any healing intention. It was discovered that each treater needed to develop their own blocking technique. That is, a technique that worked for one treater did not necessarily work for another treater.

MEASURES

Multiple measures were used to document treatment processes and outcomes. Table IV presents the administration schedule.

Treater Measures. Treaters completed the Bioenergy Evaluation and the Session Assessment for each High or Low Intensity session.

Bioenergy Evaluation. This pilot measure was developed specifically for the study and was a beginning attempt to quantify the quality of energy for each energy point system assessed by the treaters. As indicated in the previous section, these points related to various aspects of human physiology. The points were rated in various ways depending upon the particular system, energy center or gland involved. for instance, for several variables, energy flow and vitality were rated on a scale from 0 (no flow or vitality) to 5 (excessive flow or vitality). For other energy points, it was only relevant to indicate the point which was most "reactive" to sensing. Most major physical systems (for example, the lymphatic or gastrointestinal system) were rated on overall health status with a scale from 1 (poor) to 4 (excellent). Clearly, these judgments were subjective impressions on the part of the treaters; however, treater training had included sessions designed to standardize the ratings.

Treater Session Assessment. Treaters also completed an assessment of each session. This measure asked the treaters to: describe any events which might have affected their treatment ability, rate their estimated degree of treatment effectiveness during a High Intensity session, rate their effectiveness in mimicking an experimental session when performing an attention placebo control session, and document techniques used to block or redirect the healing energy during a Low Intensity session. Information from this measure was used to monitor the performance of the treaters and to evaluate any problems which occurred during the treatment sessions.

Physician Measures. Physicians completed pre and post treatment physical examinations and a medical history designed to exclude inappropriate participants.

All physical examinations covered the following systems: General appearance, chest, lungs, heart, abdomen and back, and extremities. Additional physical

examination protocols were developed specific to each of the three presenting problems.

The major aspects of arthritis assessed during the physical examination were: temperature, swelling, quality of motion, and appearance of the one major joint affected by arthritis, cervical flexion and extension, standing lumbar range of motion in flexion, and standing lumbar range of motion in side bending.

The variables of importance for chronic headaches included: sinus tenderness, mandibular motion, musculoskeletal posture, tissue tension of the vertebra, and segmental motion restriction of the vertebra.

The major aspects of low back pain assessed during the physical examination were: lumbar range of motion flexion, side bend range of motion, standing flexion test, seated flexion test, sum of tissue tension for the various vertebra, sacrum posture, pelvis asis, and level of pelvis.

Participant Measures. Multiple self-report paper-and-pencil measures were administered to all research participants. All measures were completed prior to the physical examination or treatment session.

Weekly Evaluation Form. This measure was designed for the study to assess possible weekly changes in sleep patterns, eating habits, pain patterns, physical energy level, mood, and anything else the participant felt was important. This measure was used as a weekly monitoring device regarding participant status.

McGill-Melzack Pain Questionnaire. The McGill pain questionnaire[11] provided an assessment of the participant's pain experience throughout the course of the study. Multiple studies over a ten year period have documented the sound psychometric properties and extensive utility of this measure.[12,13,14,15]

This questionnaire consisted of 4 scales to assess various qualities of pain: the sensory, affective, evaluative, and miscellaneous scales. Pain patterns and intensity were also assessed. For this study, the McGill

items were modified to request the information for the previous week. The questionnaire was administered for each week of the study.

McGill-Melzack Home Recording Form. The home recording form requested participants to rate their pain twice daily. It also requested the daily total number of prescription or nonprescription pain killers taken by the participant. This form was completed weekly for the duration of the participant's involvement in the project.

Profile of Mood State. The paper-and-pencil bi-polar form of the POMS[16] was used to assess six mood states of the participants during the previous week. Participants completed the measure weekly. The POMS was selected primarily because it had been extensively utilized with normal populations, rather than psychiatric populations, and the reliability and validity data indicated it was a psychometrically sound measure.[16] Each mood state was defined by a scale of twelve adjectives which represented negative and positive aspects of that mood. The six scales were as follows: composed-anxious, agreeable-hostile, elated-depressed, confident-unsure, energetic-tired, and clearheaded-confused.

RESULTS

OVERVIEW

The effect of interest for all the measures was a condition-by-time interaction; thus, only significant interaction effects will be reported. Statistically significant main effects for condition or time will only be reported where they clarify outcome.[5] It was expected that the High Intensity group would improve on outcome variables from pre to post treatment, while the Low Intensity group would remain stable or deteriorate. Thus, condition-by-time interactions were predicted with mean changes in the direction of improving medical or psychological conditions for the High Intensity group.

The results of four measures were not statistically evaluated. As indicated, both the Weekly Evaluation measure and the treaters' Session Assessment forms were

utilized by research staff to evaluate any procedural problems. Treater ratings of session effectiveness were highly stable; 91% of High Intensity sessions were rated as effective or very effective, while 96% of Low Intensity sessions were rated as effective or very effective in mimicking the High Intensity treatment.

The Medical History taken by physicians during the pre-treatment physical examination was intended primarily to make inclusion/exclusion decisions about research participants. Thus, none of these data were analyzed.

The final measure which was not statistically evaluated was the Bioenergy Evaluation. Comparisons of the independent manipulation check on the major energy centers (see the next section) and the Bioenergy Evaluation assessment of the energy centers completed by the treaters indicated little agreement; thus, although this measure was a reasonable attempt to document energy quality, it provided little reliable information.

Manipulation Check

To confirm that two levels of treatment were implemented by the treaters, a manipulation check was performed on a random sample of participants at their first treatment session by an individual blind to the treatment condition. This individual was a bioenergy treater with 4 years of experience. The quality of the energy (degree of flow and amount of vitality) at the six major energy centers (see Experimental Treatment) was assessed immediately before and after the participants' first treatment session using the 0 to 5 assessment scale from the Bioenergy Evaluation.

The average *amount of change* on flow and vitality across the six major energy centers was calculated for the two treatment groups. The results of the manipulation check indicated that, in fact, the sample of High Intensity treatment participants was rated as having a greater average change in energy flow and vitality than the Low Intensity treatment participants. for the High Intensity group, the average change in energy flow was 4.67 as compared to an average change of 2.40 for the Low Intensity treatment group.

Table V
Normative POMS Scores Compared to Study Participants'

Scale	Normative Sample Mean	Normative Sample SD	Study Sample Mean	Study Sample SD
Composed-Anxious	22.60	7.83	23.15	7.70
Agreeable-Hostile	27.61	6.46	27.02	5.80
Elated-Depressed	23.18	7.40	22.87	7.23
Confident-Unsure	21.90	7.13	22.38	6.81
Energetic-Tired	20.11	8.86	19.47	8.16
Clearheaded-Confused	24.13	7.08	26.68	7.69

Note. The normative sample data were taken from Lorr and McNair, 1984.

The average change in vitality for the High Intensity group was 4.50 as compared to 1.80 for the Low Intensity group. No statistical assessment of the significance of these differences could be made due to the small size of the sample evaluated.

Physical Examinations

All physical examination outcome variables were analyzed individually for each disorder with a 2 x 2 (condition-by-time) repeated measures analysis of variance. There were no significant condition-by-time interactions for any of these outcome variables.

Profile of Mood State

To provide evidence that the sample of participants involved in the study were not anomalous in any way, Table V presents the normative data supplied by the POMS and the pre-intervention data from the study sample. The participants, all of whom had chronic painful disorders, virtually matched the normal sample.

Table VI
Anova Summary and Mean Ratings for Composed-Anxious Scale of the POMS

Condition	*n*	Time Period Pre	Post
Low Intensity	24	21.92	25.00
High Intensity	23	24.44	22.78

Source	Df	Analysis of Variance Ms	*F*	Prob.
Condition	1	.53	.01	n.s.
Subject	45	96.06		
Time	1	12.03	.44	n.s.
CxT	1	131.69	4.77	<.05
SxT	45	27.61		

Note. The range of possible scores on the scale was from 0 to 36 with the higher score indicating the more positive attribute.

Pre and post treatment POMS data were analyzed combining data across disorders. Each POMS scale was individually analyzed with a 2 x 2 (condition-by-time) repeated measures analysis of variance. Only one of the scales demonstrated a significant interaction effect and this was contrary to predictions. The analysis of the composed-anxious scale indicated a significant condition-by-time effect, $F(1,45) = 4.77$, $p < .05$, such that the High Intensity group became more anxious over time, while the Low Intensity group became more composed over time. This finding directly contradicts previous literature and is somewhat inexplicable. Table VI presents the analysis of variance summary and cell means.

McGill-Melzack Home Recording Form. Individual 2 x 2 (condition-by-time) repeated measures analyses of variance were performed on the total pain score and amount of pain medication for pre and post treatment data collapsed across disorders. Neither analysis was statistically significant.

Table VII
Anova Summary and Mean Ratings for the Sensory Scale of the McGill

Condition	*n*	Time Period Pre	Post
Low Intensity	24	9.38	10.79
High Intensity	23	11.13	8.35

Source	Df	Analysis of Variance Ms	*F*	Prob.
Condition	1	2.78	.03	n.s.
Subject	45	82.39		
Time	1	10.96	.62	n.s.
CxT	1	103.55	5.88	<.05
SxT	45	17.60		

Note. The range of possible scores was from 0 (indicating low levels of sensory aspects of pain) to 42 (indicating severe levels of sensory aspects of pain.) The 0 score would result if none of the adjectives were chosen as representative of the experience of pain. A score of 10 would result if all of the lowest ranking adjectives were chosen for the scale.

McGill-Melzack Pain Questionnaire. Pre and post treatment data were combined across disorders and each scale was individually analyzed with a 2 x 2 (condition-by-time) repeated measures analysis of variance.

Sensory Scale. The sensory scale consisted of 10 sets of adjectives which described the pain experience in terms of temporal, spatial, pressure, and thermal properties. The analysis of this scale indicated a significant condition-by-time interaction, $F(1,45) = 5.88$, $p < .05$, which was consistent with predictions. Table VII presents the scale means and the analysis summary. This finding demonstrated that the Low Intensity group rated the sensory aspects of their pain experience as more severe after the treatment than before, while the High Intensity group rated the sensory aspects of their pain as less severe after treatment than before treatment.

Affective Scale. The affective scale included 5 sets of adjectives which described the pain experience in terms of tension, fear, and autonomic properties that

Table VIII
Anova Summary and Mean Ratings for the Affective Scale of the McGill

Condition	*n*	Time Period Pre	Post
Low Intensity	24	1.04	1.67
High Intensity	23	1.87	1.26

Source	Df	Analysis of Variance Ms	*F*	Prob.
Condition	1	1.05	.18	n.s.
Subject	45	5.75		
Time	1	.00	.00	n.s.
CxT	1	8.94	4.87	<.05
SxT	45	1.83		

Note. The range of possible scores was from 0 (low levels of affective aspects of pain) to 14 (severe levels of affective aspects of pain.) The 0 score would result if none of the adjectives were chosen as representative of the experience of pain. A score of 5 would result if all of the lowest ranking adjectives were chosen for this scale.

were involved in the pain experience. The analysis of this scale also indicated a significant condition-by-time interaction, $F(1,45) = 4.87$, $p < .05$, in accord with predictions. Table VIII presents the scale means and the analysis summary. This finding demonstrated that the Low Intensity group rated the affective aspects of pain as more severe after treatment than before, while the High Intensity group rated affective aspects as less severe after treatment as compared to before treatment.

Evaluative Scale. The evaluative scale consisted of one set of pain descriptors: annoying, troublesome, miserable, intense, and unbearable. The analysis of variance did not result in a significant *F* statistic; however, the direction of mean change for each group was in accord with predictions. The Low Intensity group reported more severe evaluative dimensions of pain after treatment ($x = 1.88$) than before treatment ($x = 1.46$), while the High Intensity group reported less severe evaluative dimensions of pain after treatment ($x = 1.74$) than before treatment ($x = 2.09$).

Miscellaneous Scale. This scale consisted of 4 sets of descriptors which included adjectives such as: radiating, tight, cold, and nauseating. As with the above scale, the analysis was not statistically significant; however, the Low Intensity group reported ratings of increased severity from pre (x = 2.38) to post (x = 3.21) treatment, while the High Intensity group reported ratings of decreased severity from pre (x = 3.00) to post (x = 2.26) treatment.

Summary. The four scales of the McGill pain measure demonstrated both significant effects and strong trends in the reduction of pain severity for the High Intensity group. This occurred when disorders were combined for each treatment group. To determine whether one disorder was causing the significant effects, the disorders were examined separately for each scale. Unfortunately, the small number of cases per cell precluded a statistical analysis; however, an examination of the means for each scale by disorder and treatment group provided some evidence that no single disorder was likely to be causing the statistical effect. If one examines the direction and degree of mean change from pre to post treatment for each group, the pattern of pain reduction seems to be most consistent with predictions for the headache group, somewhat consistent for the arthritis group, and least consistent for the low back pain group. Table IX presents the means for each McGill scale by treatment group and disorder.

Steadiness of Pain. Steadiness or pattern of pain was analyzed with a 2 x 2 repeated measures analysis of variance (condition-by-time). No significant effects were found.

Pain Severity. Three items assessed the degree of pain during the previous week on a scale from 1 (mild pain) to 5 (excruciating pain). Ratings were made for overall weekly pain, the worst weekly pain, and the least weekly pain. Each item was analyzed with a 2 x 2 (condition-by-time) repeated measures analysis of variance. None of the analyses were significant. However, the direction of mean change for overall weekly pain was consistent with a condition-by-time effect; the High Intensity group reported less severe overall pain from pre (x = 2.20) to post (x = 2.00) treatment while the Low Intensity group reported increasing severity of pain from pre (x = 2.13) to post (x = 2.39) treatment.

Table IX
Summary of Means for the McGill Pain Scales

Scale: Disorder	Condition	n	Time Period: Pre Mean	Pre SD	Post Mean	Post SD
Sensory						
Arthritis	L.I.	8	10.38	3.96	10.00	6.35
	H.I.	8	14.63	9.84	10.75	9.30
Headaches	L.I.	9	8.00	6.28	13.56	8.63
	H.I.	8	9.75	5.92	7.25	4.53
Low Back	L.I.	7	10.00	4.65	8.14	7.54
	H.I.	7	8.71	8.50	6.86	6.54
Affective						
Arthritis	L.I.	8	1.75	1.67	1.50	1.93
	H.I.	8	1.87	2.80	1.00	1.85
Headaches	L.I.	9	.89	.93	2.67	2.87
	H.I.	8	2.25	2.05	1.50	1.20
Low Back	L.I.	7	.43	.79	.57	1.51
	H.I.	7	1.43	2.57	1.29	1.80
Evaluative						
Arthritis	L.I.	8	1.75	1.28	1.63	.52
	H.I.	8	2.13	1.13	1.50	.93
Headaches	L.I.	9	1.44	1.01	2.22	1.86
	H.I.	8	2.50	1.41	1.88	1.46
Low Back	L.I.	7	1.14	.69	1.71	1.38
	H.I.	7	1.57	.98	1.86	1.22
Miscellaneous						
Arthritis	L.I.	8	3.13	2.85	2.38	2.45
	H.I.	8	2.63	2.00	1.38	1.85
Headaches	L.I.	9	2.78	2.28	4.44	4.53
	H.I.	8	2.88	2.74	2.13	2.10
Low Back	L.I.	7	1.00	1.53	2.57	2.70
	H.I.	7	3.57	3.99	3.43	3.82

DISCUSSION

This study provided both confirmations and disconfirmations of expected findings. Generally, it was expected that the High Intensity intervention would provide participants with greater improvement in their chronic conditions of headaches, low back pain, or arthritis than the Low Intensity intervention. This improvement was expected in: measurable physical variables; psychological states; degree and pattern of pain; and pain medication. In addition, a major goal of the study was to reliably document the quality of energy flow and to correlate these energy assessments with physical examination status.

There were a lack of predicted findings for the majority of physical outcome variables (including reduction in pain medication) and a finding contradictory to predictions for anxiety reduction. The experimental treatment did, however, significantly reduce the severity of sensory and affective aspects of the pain experience to a greater degree than the attention placebo treatment. In addition, the severity of evaluative and miscellaneous aspects of pain, as well as weekly pain severity ratings, demonstrated strong trends in the predicted direction of severity reduction.

The primary contribution of the current study was to provide empirical evidence from a rigorous experimental design for a significant reduction in pain severity due to bioenergy healing. Very little empirical outcome research has been done in this area which has not been seriously invalidated by various experimental design flaws.[8] The present research provides another piece of evidence in building the case for the effectiveness of bioenergy healing.

In addition to the rigorous experimental design and demonstration of bioenergy effectiveness on the reduction of various dimensions of chronic pain, this study has demonstrated several other important points about this type of intervention. First, unlike available Therapeutic Touch literature, this study demonstrated that an effect could be produced and measured even when there was significant delay between the treatment and subsequent outcome measurement. That is, in Therapeutic Touch research, the outcome measure is typically administered immediately after the Therapeutic Touch intervention. In the present study, the treatment occurred and pain severity was measured one week

later. Thus, this study demonstrated an effect which either manifested immediately after the treatment and was maintained for one week or manifested sometime after the treatment and then was maintained for that week.

Second, the use of three chronic disorders expands the generalizability of the treatment and the pain reduction effect to disorders of a chronic nature. None of the empirical Therapeutic Touch literature has dealt with disorders of a chronic nature; rather, outcomes have been assessed on hospitalized patients undergoing immediate crisis.[3,4,17]

Third, along with the Therapeutic Touch literature, this study provides evidence that lay individuals with appropriate training can perform bioenergy techniques and control the hypothesized key component of the technique (that is, the meditative focus necessary to facilitate assessment and energy flow). Along with Quinn's study,[3] it provides evidence that physical contact between treater and patient is not necessary for an improvement in the patient's condition, and that those who suffer from chronic pain can be helped with a treatment that is effective, non-intrusive, inexpensive, and has no negative side effects.

The failure to demonstrate measurable physical changes on major outcome variables and the failure of the Bioenergy Evaluation measure to reliably document the quality of energy in the human energy field are most likely due to a number of problems.

First, efforts to increase the generalizability of findings by treating three disorders resulted in very small numbers of participants within each cell of the experimental design, and thus reduced the power to detect a small or subtle effect.

Second, it is possible that the administration of four weekly treatments was not a strong enough intervention to produce the physical manifestations of change which were predicted in the present study. Given the chronic and entrenched quality of the disorders involved in the study, this seems a very plausible suggestion. A long-range research program would experimentally evaluate the ideal parameters of treatment for specific disorders and types of participants.

Third, the Bioenergy Evaluation and the physical examinations suffered from problems of unreliability. In both instances, additional training to achieve an acceptable level of reliability would begin to remedy potential problems with these measures. Once reasonable levels of reliability are accomplished, issues of validity can be examined. The development of the Bioenergy Evaluation or a similar instrument is particularly important to future research in this area. Once a psychometrically sound measure is developed, the relationship between the quality of the human energy field and physical health can be explored in an empirical manner. This, of course, assumes that the energy field can be experienced similarly by different individuals or that individuals can be trained to report their experiences in a reliable and standardized format.

There are a number of suggestions for future research efforts which were not possible in the current study. First, the issue of the maintenance of effects needs to be examined. How long will the reduction in various aspects of pain severity continue for the High Intensity group? The current study assessed only the week following the last treatment; follow-up assessments should be continued in a systematic manner to establish the duration of the treatment effects. In addition, follow-up measures could be used to establish any delayed effects. It is possible that effects of the treatment will manifest themselves at some point after the treatment is completed.

Second, as an adjunct to the physical examinations, laboratory procedures to assess key variables of disorders would add empirical support to the literature. The Therapeutic Touch literature has utilized various laboratory indices of change (e.g., hemoglobin levels, enzyme activity) and these data are apt to provide convincing evidence to the medical and scientific communities that bioenergy healing is effective. Any laboratory data may also contribute to an understanding of the mechanisms of this type of bioenergy technique.

Third, an aspect of the treatment process which has been neglected is the impact of the treatment process upon the treaters. In the present study, various treaters reported that they felt tired and drained when participating in the attention placebo sessions; however, they felt energized when performing the experimental treatment. The implication is that the process of intentionally blocking the "energy flow," or not having a meditative focus, is in some way depleting to the treater. Further systematic explorations of this experience and other impacts

upon the treaters could provide keys to facilitation of the process and a better understanding of energy flow. In fact, Krieger[2] presents anecdotal reports of the healer experience from those performing Therapeutic Touch, as well as a reprint of research by Ancoli, Porter, and Peper which describes changes in EEG activity in Krieger during Therapeutic Touch treatments. This research presents a beginning point for the systematic study of the impact of bioenergy healing on treaters and suggests that there may be change in brain activity associated with the process. The change in brain activity may be partly responsible for the affective responses of the treaters to both the High and Low Intensity experiences.

The effects on pain from bioenergy healing raise serious questions concerning possible mechanisms of the intervention. What is happening during a meditative focus session which is different from a non-meditative focus session, and more importantly, how does that "difference" affect the patient since there is no physical contact, little verbal contact, and the hypothesized mechanism ("energy flow") is currently not measurable by traditional scientific means? Discussions of possible mechanisms for this phenomenon have been somewhat neglected in this report in favor of documentation of the existence of a phenomenon. This has been due in part to the pressing need for empirical evidence of a reliable effect and documentation of its parameters. As evidence accumulates that a phenomenon exists, theoretical frameworks detailing specific mechanisms can begin to be addressed and appropriate measurement procedures incorporated into research.

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REFERENCES AND NOTES

1. B. Johnston, *New Age Healing* (Johnston, England,1975).
2. D. Krieger, *The Therapeutic Touch* (Prentice-Hall, Englewood Cliffs, N.J., 1979).

3. J. F. Quinn, Therapeutic Touch as Energy Exchange: Testing the Theory, *Advances in Nursing Science* January (1984), pp. 42-49.
4. P. Heidt, Effect of Therapeutic Touch on Anxiety Level of Hospitalized Patients, *Nursing Research* 30 (1981), pp. 32-37.
5. E. Keller & V. M. Bzdek, Effects of Therapeutic Touch on Tension Headache Pain, *Nursing Research* 35 (1986), pp. 101-106.
6. D. Krieger, Therapeutic Touch: The Imprimatur of Nursing, *American Journal of Nursing*, 5 (1975), pp. 748-787.
7. D. Krieger, E. Peper & S. Ancoli, Physiologic Indices of Therapeutic Touch, *American Journal of Nursing* 4 (1979), pp. 660-662.
8. P. E. Clark & M. J. Clark, Therapeutic Touch: Is There a Scientific Basis for the Practice? *Nursing Research* 33 (1984), pp. 37-41.
9. F. L. Randolph, Therapeutic and Physical Touch: Physiological Response to Stressful Stimuli, *Nursing Research* 33 (1984), pp. 33-36.
10. K. Brodman, A.J. Erdmann & H.G. Wolff, *Cornell Medical Index* (Cornell University Medical College, New York, NY, 1949).
11. R. Melzack, The McGill Pain Questionnaire: Major Properties and Scoring Methods, *Pain* 1 (1975), pp. 277-299.
12. R. Melzack, J. Katz & M. E. Jeans, The Role of Compensation in Chronic Pain: Analysis Using a New Method of Scoring the McGill Pain Questionnaire, *Pain* 23 (1985), pp. 101-112.
13. R. K. Klepac, J. Dowling, P. Rokke, L. Dodge & L. Schafer, Interview vs. Paper and Pencil Administration of the McGill Pain Questionnaire, *Pain* 11 (1981), pp. 241-246.
14. R. Melzack, The Short-Form McGill Pain Questionnaire, *Pain* 30 (1987), pp. 191-197.
15. R. Melzack, (Ed.), *Pain Measurement and Assessment* (Raven Press, New York, NY, 1983).
16. M. Lorr, & D. M. McNair, *Profile of Mood States (Bi-Polar Form)*, Educational and Industrial Testing Service, San Diego, CA (1988).
17. T. C. Meehan, *An Abstract of the Effect of Therapeutic Touch on the Experience of Pain in Post-operative Patients*, Doctoral Dissertation, New York University, NY (1985).