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Inside:

The Effects of Quantum-Touch® on Chronic Musculoskeletal Pain: A Pilot Study

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Abstract

Chronic pain is a problem that affects a sizeable percentage of the population, with significant costs to both the individual and society. Often caused by a complex interplay of biological, psychological, and social factors, chronic pain is notoriously difficult to treat, and both patients and medical practitioners would benefit from additional options (particularly those that are low-cost and noninvasive). This study examined the effects of Quantum-Touch® (QT), a complementary therapy for which there is anecdotal evidence but no published research. Participants (N = 12) were screened and selected from a group of patients who (a) were being treated for chronic musculoskeletal pain at a clinic in rehabilitative and physical medicine and (b) had expressed an interest in incorporating holistic therapy into their treatment regimen. Participants were randomized based on gender into experimental (n = 6) and control groups (n = 6). After identifying a particular area of their body that would be the focus of treatment, participants in the experimental group received light hands-on touch including QT; those in the control group received only light hands-on touch. Participants received a 30-min treatment session every 2 weeks across an 8-week time frame. At the start and end of each session, they assessed their pain on the 0- to 10-point Pain Rating Scale (Matheson & Associates, 2005). Participants also completed a Functional Questionnaire before the first treatment session and after the final treatment session, to assess their range of ability on common everyday tasks and movements. Statistical analysis revealed that pain decreased significantly for both men and women in the experimental group (−63%; $p < .05$). The control group showed no significant improvement. A similar pattern emerged in a comparison of the pre- and post-study Functional Questionnaire responses, with the experimental group reporting improvement in standing, walking, and general range of motion and the control group reporting no change. Although future studies will need to incorporate a larger sample size, an array of validated assessments, and longitudinal approach into their design, these initial findings suggest that even very brief exposure to QT techniques can help reduce musculoskeletal pain in chronic sufferers.

Keywords: chronic pain, complementary therapies, holistic, musculoskeletal pain, Quantum-Touch

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According to a recent report by the Institute of Medicine (IOM; 2011), at least 116 million adult Americans are affected by chronic pain, a public health phenomenon that costs the U.S. economy $560–630 billion annually in combined medical treatment expenses and lost productivity at work (IOM, 2011, p. 1). The implications of various types of chronic pain can be parsed even further. For example, Bellenir (2002, p. ix) found the following U.S. pain statistics: lower-back pain accounted for 93 million lost work days and $5 billion in healthcare costs; 40 million Americans experienced chronic headaches, and migraine sufferers alone miss 65 million work days each year; 20 million Americans are affected by arthritis, which translates into an annual $4 billion in healthcare and lost productivity costs. With one third of the nation experiencing chronic pain, prevalence rates alone would explain why the IOM has identified the problem as a significant public health "challenge."

Chronic pain's particular challenge lies in its defining characteristic: It is long-lasting. Caudill (2002, p. 36) described chronic pain as any pain lasting longer than 3 months. The IOM (2011, p. 239) defined it as "ongoing or recurrent pain lasting beyond the usual course of acute illness or injury or, generally, more than 3 to 6 months…. A simpler definition … is pain that continues when it should not." In addition, chronic pain frequently perplexes and frustrates patient and practitioner alike, as its causes can be difficult to pinpoint. "Some people suffer from chronic pain in the absence of any past injury or evidence of body damage," noted Bellenir (2002, p. 3). O'Hara (2002) argued that this is because the causes of chronic pain tend to be more complex than physical injury or illness: "There are several contributing factors to chronic pain. [These include] pain memory, central pain and pain receptors … lifestyle issues, body/mind interactions and psychic pain" (pp. 79–80). This complexity of biological, psychological, and social factors can make chronic pain particularly resistant to treatment, with approaches rarely being one size fits all. "This multiplicity of causes and effects opens up the possibility for a variety of treatment approaches," noted the IOM (2011): "In severe chronic pain syndromes, quite a number of treatments may be attempted before the combination of physiological, cognitive, psychological, clinical, and self-care approaches that will produce the best result for a specific person is identified" (p. 32). The impact on the patient until that right combination is discovered can, in Bellenir's (2002) words, be "unremitting and demoralizing" (p. 3).

Treating Chronic Pain

There are a host of medical and nonmedical modalities currently being used to treat chronic pain. The IOM report (2011, p. 111), for example, cited medication, regional anaesthetic interventions, surgery, psychological therapies, rehabilitative/physical therapy, and complementary and alternative therapies.

The last of these modalities is the one for which the least amount of research exists—owing, perhaps, to a legacy of skepticism in conventional Western medicine. This skepticism will need to be overcome, however, if we are to find effective ways to treat something as complex as chronic pain. The IOM (2011, p. 20) cited the value of comprehensive treatment and the need for interdisciplinary approaches as two of the underlying principles informing its "blueprint" to prevent and treat chronic pain in Americans. The more techniques practitioners and patients have at their disposal, the more likely they are to find the specific combination of treatments best able to target and alleviate an individual's unique brand of chronic pain.

Alternatives to strictly medically based interventions are key for several reasons. For one, as evidenced by the prevalence of chronic pain rates in the population, medical treatment by itself is not always effective. As O'Hara (2002) noted, "Clinical experience shows that subjecting the body to a multitude of drugs and invasive treatments has only a limited chance of success, and often only temporarily. Medicines alone rarely provide a cure" (p. 79).

Where pharmaceuticals do offer relief from chronic pain, there exists the concern that this relief may be temporary or contingent upon the long-term reliance on an analgesic—what the IOM (2011) termed the "conundrum of opiates" (p. 20). Again, where other options exist, patients and practitioners might think these preferable.

In many instances, complementary therapies offer practical benefits that medical interventions do not, with implications for healthcare costs, accessibility, and ability to self-treat. Laliberte (2003) found that

> Alternative treatments, in contrast to traditional medicine, tend to be relatively cheap (though out-of-pocket costs can add up), patient-controlled, and low-tech. Just as important, they tend to see the body—along with the mind and, often, the spirit—as an integrated whole, not as a collection of isolated parts. (p. 110)

Furthermore, the growing interest and spread of holistic therapies suggest demand among patients and practitioners for nonmedical, less invasive interventions to treat chronic pain. The practice of Reiki has steadily grown more widespread since being introduced into the United States and Canada from Japan in 1980, and the practice has gradually filtered into traditional medical settings. Desmon (2007), for example, noted that in 2007, practitioners at the Shock Trauma Center at the University of Maryland Medical Center delivered Reiki to over 350 surgical patients for the

treatment of pain, at the request of both patients and doctors. Therapeutic Touch, meanwhile, was taught initially only in graduate schools of nursing for students interested in incorporating what were then perceived as relaxation and comforting techniques into their practice. Interest from other health care providers as well as the lay community has spurred its growth: Therapeutic Touch has since been taught by more than 36,000 professionals, in 80 colleges and universities, and in 68 countries (Kreiger, 1993, p. 5). Acupuncture, too, has begun making inroads in the medical establishment: Medical schools across the country (most notably, perhaps, at Harvard) offer courses for physicians, and acupuncture has attracted enough medical practitioners to warrant its own professional association, the American Academy of Medical Acupuncture (Laliberte, 2003, p. 114). Both the corporate world and health insurance providers have begun to take note of alternative therapies: After finding that wellness programs incorporating guided relaxation and somatic functional therapy reduced or even eliminated chronic pain in employees of Chrysler and Dow Chemical, the Henry Ford Center for Integrative Wellness was awarded a $360,000 grant from Blue Cross Blue Shield of Michigan to expand its services to 600 members with chronic pain and stress-related ailments (Greene, 2011).

Finally, it is important to point out that an absence of evidence for the efficacy of some of these alternative therapies means not that they should not be considered in a practitioner's toolbox of available treatment options, but that researchers should begin to systematically assess their impact on patients' pain levels. Anecdotal evidence for the benefits of these therapies exists in abundance in many cases, but the research has yet to catch up. Practitioners' failure to offer or suggest potentially effective therapies to patients experiencing chronic pain because these practices have not yet been properly investigated is a disservice to the patient.

Quantum-Touch

One such modality that is growing in popularity but has yet to be systematically evaluated is Quantum-Touch® (QT). Although the intervention originated in the late 1970s, it was not until two decades later that the first practice manual was published (R. Gordon, 1999), explaining its underlying principles and prescribing its techniques, which were then further elucidated by Herriott (2007) and Herriott and Herriott (2009). QT is a hands-on healing therapy that makes use of various hand positions, breathing techniques, and body awareness meditations to stimulate the body's ability to heal itself. Informed by traditional Eastern healing principles, QT practitioners believe that these techniques are able to impact the "life force" of the body (known as *chi* by the Chinese and *ki* by the Japanese). Practitioners use visualization to "see" into the body along with "breathing and sweeping" exercises to focus their intent to activate the innate healing system of the patient.

Although it is difficult to describe its methods in concrete terms that would satisfy Western medicine's interpretation of the scientific method, it is evident from the myriad testimonials of healing found online (e.g., see www.quantumtouch.com) and its steady expansion throughout the United States and into over 35 other countries that QT has garnered a loyal group of adherents among both practitioners and patients. Yet the reports of its effects have remained entirely anecdotal. It is thus unlikely to be given much serious consideration by the medical establishment as a viable complementary therapy for the reduction of chronic pain unless these reports are more systematically studied and substantiated. To that end, this study sought to explore for the first time in a controlled experiment the effects of QT on chronic pain.

Relevant Research

Although there is no published research on the efficacy of QT, a review of the literature in comparable modalities can help inform hypotheses for the outcome of the present study. Dressler (1990) and Castronova and Oleson (1991), for example, explored the effects on chronic back pain of general hands-on touch techniques. Using a light-touch manipulative technique, Dressler found that 16 of 27 subjects in the experimental group showed improvement (i.e., experienced reductions in pain), while only 4 of 11 subjects in the control group improved. Castronova and Oleson compared the impact of psychotherapy and touch-healing techniques on the reduction of pain, somatization, anxiety, and depression in 37 subjects with chronic back pain. Results were significant for both groups, but in the touch-healing group, after Weeks 1, 3, and 6, subjects reported that their pain was either all gone or nearly gone.

Like Dressler (1990) and Castronova and Oleson (1991), QT practitioners make use of these so-called laying-on-of-hands techniques to help patients heal. This laying-on-of-hands principle is replicated or echoed in various other complementary therapies that attempt to locate different pressure points on the body that, when activated, can reduce pain and stress. QT shares with other holistic modalities an emphasis on breathing and visualization techniques to promote mindfulness, relaxation, and healing, based on the principle that the tendency of Western medicine to delineate between problems of the mind and the body separately may be misguided, and interventions designed to target the one can impact the whole.

Below, I summarize some of these therapies and briefly review the prevailing findings from existing research on them. Although QT overlaps in premise and technique with a number of other therapies—Shiatsu, biofeedback, and relaxation response, for example—I focus on those therapies for which the most convincing research currently exists: acupuncture, meditation, Reiki, and Therapeutic Touch.

Acupuncture

Based on the principles of Traditional Chinese Medicine and with a history extending back well over 2,000 years, acupuncture is designed to activate any of the 2,000 points on the human body that connect with 12 main and eight secondary pathways, or meridians, that practitioners believe "conduct energy, or qi, between the surface of the body and internal organs" (Bellenir, 2002, p. 402). Slender needles inserted under the patient's skin at selected points on the body (along a specific meridian) are then twirled and manipulated by the practitioner to aid in pain relief. Conditions shown to benefit from the administration of acupuncture include "headache, trigeminal neuralgia, peripheral nerve injuries, musculoskeletal pain, low back pain, sciatica and osteoarthritis…. Acupuncture also appears to produce relaxation and a sense of calm" (O'Hara, 2002, p. 135).

Although researchers disagree about the underlying mechanisms at work, studies have begun to accumulate to suggest that acupuncture can help with a variety of pains. Among current findings of acupuncture's effects on particular types of pain, National Institutes of Health studies have suggested that the practice "may help reduce pain and improve function in patients with OA [osteoarthritis] of the knee" (Laliberte, 2003, p. 176).

Meditation

In its simplest form, meditation is a way to relax and calm the mind. Dating back thousands of years, the practice has evolved into forms that may incorporate repetitive secular or religious words (i.e., mantras), phrases, and/or positive thoughts (called affirmations). Meditation may focus on the breath, nothing (no thing), or quiet rhythmic music or frequencies to still and calm the mind. Over the past 30 years, structured meditation practices have been introduced into major medical centers and pain clinics to promote "mindfulness" in patients, based on the principle that the more aware patients are of the mind–body connection and the ways in which their thoughts and feelings can contribute to physical health, the better able they are to self-regulate their stress and emotion. For those experiencing chronic pain, it is thought that mindfulness-based stress reduction (MBSR) not only can help patients to cope with their pain but also can actually reduce the pain itself.

Studies into the efficacy of MBSR on chronic pain have compared groups receiving MBSR with those receiving pain medications alone, more hands-on approaches (e.g., massage therapy), and cognitive–behavioral interventions. Results range from the modestly supportive to the highly significant. In a study based at the Stress Reduction Clinic at the University of Massachusetts Medical Center, for example, Kabat-Zinn (1990) found that when patients were taught MBSR techniques during eight weekly classes at the hospital, dramatic reductions in pain followed:

> In one study, 72 percent of the patients with chronic pain conditions achieved at least a 33 percent reduction on the [Pain Rating Index] while 61 percent of the pain patients achieved at least a 50 percent reduction. This means that the majority of people who came with pain experienced clinically significant reductions in their pain levels over the eight weeks they were practicing the meditation at home and attending weekly classes at the hospital. (Kabat-Zinn, 1990, p. 288)

In contrast, there was little change in the group that did not meditate for pain control and stress reduction. The clinic also showed that medication

alone was not as effective as a combination of medication and meditation (see also, Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, & Burney, 1985; Kabat-Zinn, Lipworth, Burney, & Sellers, 1986).

Recent studies have tended to find that where patients with chronic pain receive the most benefit from MBSR is in improvement to their quality of life, mood, and ability to cope with pain (see, e.g., Morone, Lynch, Greco, Tindle, & Weiner, 2008; Plews-Ogan, Owens, Goodman, Wolfe, & Schorling, 2005; Rosenzweig et al., 2010; Schmidt et al., 2011). Findings on MBSR's potential for actually reducing pain have tended to be more mixed: Plews-Ogan et al. (2005) found that for patients with chronic musculoskeletal pain, massage was more effective than MBSR for reducing pain. However, Wong et al. (2011) found that MBSR yielded statistically significant reductions in both pain intensity and pain-related distress but that these reductions were comparable for those participants receiving a multidisciplinary pain intervention instead.

Reiki

Reiki uses a laying-on-of-hands technique designed to reduce stress and help promote healing in the body. The word *Reiki* means universal life energy, and Reiki practitioners believe that by using their hands they can activate the flow of that life energy into the body. Where Reiki differs from other practices that include laying on of hands (reflexology, Shiatsu, and massage, for example) is that the only mental effort required of practitioners is what Lyles (2001, p. 50) calls "right intention."

Of the studies that have explored the effects of Reiki, most have addressed Reiki's potential usefulness as a nonmedical intervention in a medical setting. Barnett and Chambers (1996), for example, reported the effects of Reiki on patients as observed by nurses: Following Reiki sessions, patients were observed sleeping more calmly and for more extended periods, their attitudes were more positive, and they reported decreased pain (pp. 56–57). Barnett and Chambers further reported that the use of Reiki during childbirth seemed to be associated with reduced use of drugs, shorter labors, and fewer complications (p. 62). Eos (1995) published "diary accounts" describing her use of Reiki as a complementary therapy in her medical practice; she found that Reiki aided patient healing or helped reduce patient perceptions of pain in cases of chronic obstructive pulmonary disease, tooth pain, migraine headaches, and trauma (pp. 29–78). Burden, Herron-Marx, and Clifford (2005) found that in palliative care settings, patients reported increased relaxation and perceptions of decreases in pain following the administration of Reiki.

These observational and qualitative findings on Reiki have begun to be replicated in quantitative research. Dressen and Singg (1998) assigned participants with chronic illness and pain persisting for at least 1 year into three different treatment groups: Reiki, progressive muscle relaxation (PMR), and "false Reiki." Participants were given ten 30-min treatments twice a week, for 5 weeks. Those in the Reiki group showed significant improvement on 10 out of 12 variables measured. These changes were consistent at the 3-month follow-up, with members of the Reiki group showing highly significant reductions on the total pain rating index.

Therapeutic Touch

Similar to Reiki, Therapeutic Touch (TT) makes "conscious use of the hands to direct or modulate, for therapeutic purposes, selected nonphysical energies that activate the physical body" (Kreiger, 1993, p. 5). Although TT in its early development did involve light touch on the recipient's body, the technique has since evolved into a noncontact energy healing method: TT practitioners now place their hands slightly above and off the recipient's body while focusing on moving "congested energy along or through the long bones of extremities involved in pain" (Kreiger, 1993, p. 45). Practitioners learn to progress through four stages in delivering treatment: First, they center their consciousness; then they assess the patient by picking up physical cues from the patient's body; next they attempt to rebalance or repattern "the energy deficits, hyperactivity, blockages or dysrhythmias" in the patient's body, before finally reevaluating the patient's energy field and deciding whether to "discontinue or redirect the healing interaction" (Kreiger, 1993, p. 174).

Good clinical research exists to support the efficacy of TT. In a comparison of 60 subjects treated for tension headaches with either TT or a mock placebo, Keller and Bzdek (1986) found that TT was the more effective intervention, yielding a reduction of pain in 90% of recipients, highly significant results that had to be attenuated, however,

because some of the subjects had used long-lasting pain medications that might still have been in effect at the time of the experiment. Redner, Briner, and Snellman (1991) found significant, though modest, reductions in pain and anxiety in TT recipients for 47 subjects with headaches, lower back pain, or arthritis. Meehan (1990) examined the effects of TT on postoperative pain reduction in patients who had undergone elective abdominal or pelvic surgery. Of the 159 participants randomly assigned to three groups, those who were given eight treatments of TT in conjunction with an analgesic waited a significantly longer time before requesting additional pain medication. When Meehan (1993) attempted to replicate this research, this time with 108 subjects, the TT group evidenced both a reduction of pain and a significantly longer duration of pain relief than the mock TT group, though the group that received the standard intervention of pain medications alone showed the largest reduction. However, it should be noted that pain increased in three of the standard intervention groups and did so substantially in the mock TT group.

Peck (1998) compared the efficacy of TT and PMR for improving functional mobility in 84 older adults with degenerative arthritis. Although both groups showed significant decreases in pain between pre- and postassessments, the TT group had greater decreases in pain and distress. Turner, Clark, Gautier, and Williams (1998) found that TT reduced pain and anxiety in their study of 99 burn patients. A. Gordon, Merenstein, D'Amico, and Hudgens (1998) found in a study of 27 subjects with osteoarthritis in one or both knees that TT led to significant reductions in subjects' pain levels and significant improvement in their activity levels. In a randomized clinical trial conducted with 120 subjects recruited from a major pain management clinic, Abbot et al. (2001) found that the group that received 30-min sessions of TT each week for 8 weeks experienced significant reductions in chronic pain. Similarly, Denison (2004) reported that six TT treatments led to a significant decrease in pain as well as a significant improvement in quality of life as self-reported by a group of subjects with fibromyalgia.

Generalizability to QT

Practitioners of the above therapies, and the researchers who have studied them, may disagree about the underlying mechanisms at work, but good research has begun to accumulate to support the efficacy of these interventions on the reduction of pain. Although QT follows certain steps and incorporates certain principles that make it its own unique intervention, one might expect that because of what it shares with the above complementary therapies, similar findings will result. However, although there are plenty of testimonials and anecdotal evidence for the benefits of QT, it lags behind Reiki and TT, which practices it most resembles, in quantitative research. This study was designed to begin to redress that gap.

Objective of the Present Study

If QT is to be given serious consideration as a therapy that can complement or even provide a low-cost, noninvasive alternative to traditional medical interventions, the positive findings of existing testimonials will need to be borne out in an expanding body of clinical research. The goal of this pilot study, therefore, was to test, in a controlled experiment, the efficacy of QT on the reduction of chronic pain. I chose to focus my research on musculoskeletal pain, as this is the single most common type of chronic pain (back and joint pain being particularly prevalent types within this category; IOM, 2011, p. 53). I designed the experiment to explore two particular questions: (a) whether QT can enhance the reduction of chronic pain in adults with chronic musculoskeletal pain and (b) whether QT can enhance the functional mobility of those same adults.

Method

Participants

Participants were volunteers chosen from a field of patients then being treated for chronic musculoskeletal pain at a clinic in rehabilitative and physical medicine in Maryland. Volunteers were originally approached by their treating doctor if they had previously expressed interest in incorporating holistic techniques into their treatment. Information about the study was provided to patients during their regular private appointment with the doctor. They were then invited to attend an information session with the principal investigator, where they had the opportunity to hear in more detail a description of the planned experiment and to ask questions. Twenty-three patients

expressed interest in participating initially and attended the information session. Ten patients declined to participate after the information session due to scheduling conflicts. The remaining 13 patients were then screened further for eligibility.

Patients were included in the potential pool of participants only if they met the following criteria: They had chronic pain, had not responded to physical therapy and/or surgery, were currently on pain medication(s), had a well-documented pathology/diagnosis, had never received Reiki or QT, had injury or surgery that was not recent, and had a diagnosis for musculoskeletal problems. Patients were excluded if their injuries were recent; their pain was acute; they had a diagnosis of terminal disease or of HIV and/or AIDS; had a history of myocardial infarction, cardiac, renal, or severe respiratory disease, or a complex orthopedic disorder; or they were on dialysis.

After screening, there were 12 participants (six women, mean age = 38.6 years; six men, mean age = 50.6 years) who met all criteria. They were then randomly assigned to QT treatment (experimental) or control groups, three men and three women in each. The flow of participants from initial screening through the pilot is shown in Figure 1.

All participants gave informed consent prior to the start of the study. The study design was approved in advance by the institutional review board of the Clayton College of Natural Health.

Measures

Pain Rating Scale. Participants were first asked to identify a particular area of their body that would be the focus of treatment. This same area would then remain the focus of treatment throughout the experiment. Participants individually identified their hand/wrist, elbow, shoulder, hip, abdomen/pelvis, knees/legs, and back as the area in which they were experiencing chronic pain and wanted to focus treatment. At the start and end of each treatment session, participants rated their level of pain in that particular area on a scale ranging from 0 (*no pain at all*) to 10 (*emergency pain*). This simple Pain Rating Scale was developed by Matheson and Associates (2005) and has been in clinical use in the field of physical medicine and rehabilitation since 1997, with an estimated 5,000 clinicians trained in its usage (M. T. Kyi, personal communication, October 19, 2011). Although the Matheson scale has yet to be systematically evaluated in a peer-reviewed journal, the similar Functional Pain Scale has been found to be a "reliable, valid, and responsive" instrument for assessing pain and, in older populations, has been found to be superior, on the basis of these criteria, to the Visual Analog Scale, the Present Pain Intensity, the McGill Short-Form Questionnaire, and the Numeric Pain Scale (Gloth, Scheve, Stober, Chow, & Prosser, 2001, p. 110). The Matheson scale has a more descriptive rating system (ranging from 0 to 10, versus the Functional Pain Scale's 0-to-5 rating system) and is designed for use in a general population.

Functional Questionnaire. Participants were also asked to complete a Functional Questionnaire to assess their range of ability on common everyday tasks (e.g., dressing, grooming, grocery shopping, vacuuming) and movements (e.g., standing, lying down, walking, lifting). Participants completed this questionnaire twice: before the first treatment session and after the final treatment session. This form was developed by the treating doctor with input from the principal investigator and is a broad skills assessment form. Because the feedback collected on the form is self-assessed and not easily quantifiable, however, we used these reports mainly to corroborate findings from the Pain Rating Scale and to begin to develop a qualitative understanding of the impact of QT and how it might work. See the appendix for the full list of skills and tasks assessed.

Study Design

All participants received treatment at the location they usually visited for their regular appointments. Both the treating doctor and principal investigator were present in the examination room for each treatment session and together administered the treatment. The treating doctor is a QT practitioner who has participated in a single basic live training session. The principal investigator has been a certified instructor in QT since November 2007. Among other criteria, certification requires five workshop trainings (a combination of in-person, basic, and advanced training) and a minimum of 60 documented practice hours with clients.

Participants attended a total of four 30-min treatment sessions, delivered every 2 weeks, across a total study time of 8 weeks.

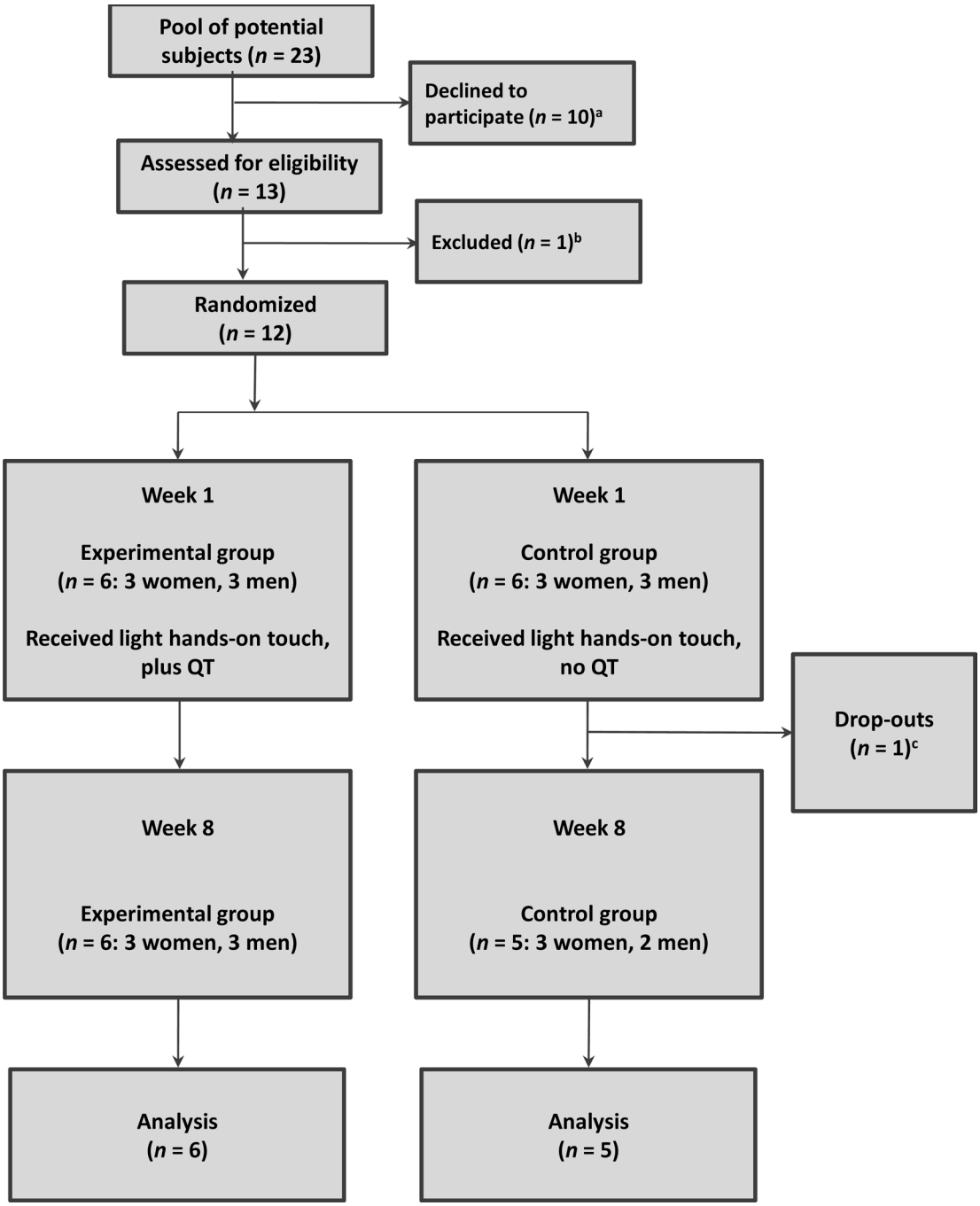

Figure 1: Flowchart of participants through trial. QT = Quantum-Touch®.
[a]Participants had scheduling conflicts or opted out after being given additional background on the study. [b]Participant did not meet the age criterion. [c]Participant was noncompliant and therefore excluded from subsequent treatment and analysis.

Procedure

As noted above, participants were assigned either to an experimental group, in which they were treated with QT, or to a control group, in which QT was not administered. Participants did not know to which group they had been assigned, and they were blindfolded during the actual treatment so that they could not observe the practitioners' actions and conclude whether they were receiving QT.

All participants were given 5 min at the start of each session to rate their pain on the Pain Rating Scale. After positioning the blindfold, they then lay down in a comfortable position on the pallet while still fully clothed. The subsequent treatment lasted 20 min. Participants were then given another 5 min at the end of each session for recovery and to rate their pain a second time, during which the practitioners left the room.

During the 20-min treatment, the practitioners together simultaneously administered light hands-on touch to the patient in his or her identified problem area. This practice was identical for both experimental and control groups. What differed between groups was whether the practitioners also administered QT techniques. In the experimental group, practitioners used a series of visualizations and what are referred to as "breathing and sweeping techniques," as described by the QT practice manual (R. Gordon, 1999), whereby they feel the sensation of energy running either physically or mentally in long strokes up the front and/or back of the body. Practitioners believe that these practices allow them to use the intuitive, right side of the brain to activate the innate healing system in the recipient. In the control group, in contrast, the practitioners did not administer these techniques, instead replacing this "right-brain" focus with "left-brain" activity: reading medical charts or medical magazines, counting, or doing simple arithmetic problems. Note, though, that the control group did still receive the light hands-on touch even while the practitioners focused their attention differently.

Data Collection

Data collected on the Pain Rating Scale were anonymized so that researchers could not identify respondents; a coding system identified the participant by gender, a randomly assigned number, and whether the participant was part of the experimental or control group. Results were tabulated by both the treating doctor and principal investigator.

Results

Sample Size

Scores from the Pain Rating Scale were translated into change percentages for each participant and for the entire sample. One participant in the male control group was ruled ineligible part-way through the study when new, excluding, information arose about his treatment history. All scores collected for this participant were therefore dropped from the final statistical analysis. This left 12 observations available for analysis in each of the female groups and the male experimental group and eight observations for the male control group.

Because of the small sample size, *t* tests for statistical reliability and validity are more appropriate than an analysis of variance. Results are reported by group: female experimental, female control, male experimental, and male control.

Statistical Analysis

Female experimental. Table 1 reports the pain ratings for each of the three women in the experimental group across four treatment sessions. Each participant experienced at least a 50% reduction in pain in each session. For one participant, there was a 100% reduction in pain to "0" for every session.

Table 2 shows the results of the *t* tests within each group. Where $p < .05$ is the standard baseline for significance, we can see that for the female experimental group, $t(11) = 13.79$, $p = 1.38 \times 10^{-8}$ (one-tailed) and 2.76×10^{-8} (two-tailed), pain levels were reduced significantly after the administration of QT.

Female control. As seen in Table 3, changes in pain ratings for the female control group followed less striking and distinctive a pattern. In two of three female controls, there was a decrease of only 1 point in the pain rating during three sessions among them (Week 3 for F5 and F6; Week 4 for F6). During all other sessions, the pain ratings either remained the same or increased between the start and end of the treatment. As seen in Table 2, $t(11) = -0.32$, $p = .37$ (one-tailed) and .75 (two-tailed), meaning that changes in pain ratings were insignificant for the female control group.

Table 1: Female Experimental Before and After Pain Ratings

Subject	Session 1		Session 2		Session 3		Session 4	
	Start	End	Start	End	Start	End	Start	End
F1	4	2	6	2	7	2	5	1
F2	3	1	6	2	4	0	4	0
F3	3	0	3	0	4	0	4	0

Table 2: Comparison of *t*-Test Results for the Change in Self-Reported Pain Ratings, Within Groups

	Mean pain rating (*SD*)			Pearson			One-tail		Two-tail	
Group	T1	T2	*N*	*r*	*t*	*df*	*p* ($T \leq t$)	*t* critical	*p* ($T \leq t$)	*t* critical
Experimental female	4.42 (1.72)	0.83 (0.88)	12	.73	13.79	11	1.38×10^{-8}	1.80	2.76×10^{-8}	2.20
Control female	5.67 (2.61)	5.75 (3.48)	12	.88	-0.32	11	0.37	1.80	0.75	2.20
Experimental male	5.50 (4.09)	3.08 (2.81)	12	.87	8.40	11	2.04×10^{-6}	1.80	4.08×10^{-6}	2.20
Control male	6.63 (0.55)	6.38 (1.13)	8	.75	1.00	7	0.18	1.89	0.35	2.36

Note. T1 = pain rating reported at start of treatment session; T2 = pain rating reported at end of treatment session; *N* = number of observations.

Table 3: Female Control Before and After Pain Ratings

Subject	Session 1		Session 2		Session 3		Session 4	
	Start	End	Start	End	Start	End	Start	End
F4	5	6	4	4	7	7	6	8
F5	8	8	6	6	8	7	7	8
F6	4	4	3	3	5	4	5	4

Male experimental. As seen in Table 4, members of the male experimental group clearly experienced reductions in pain in 100% of treatment sessions. For five of twelve sessions, these reductions were at least 50% or greater. In other words, the QT treatment yielded significant reductions in these men's pain ratings, $t(11) = 8.40$, $p = 2.04 \times 10^{-6}$ (one-tailed) and 4.08×10^{-6} (two tailed; see Table 2).

Male control. Finally, as seen in Table 5, the change in pain ratings for the male control group was as similarly unimpressive as it was in the female control group. One of the men experienced no change in pain during any session, whereas the other man experienced a single-point reduction in pain for three of four sessions and a single-point increase in pain for one session. The results were not significant, $t(7) = 1.00$, $p = .18$ (one-tailed) and 2.36 (two-tailed; see Table 2).

Themes From the Functional Questionnaire

A comparison of the tasks and range of motion that participants reported on the Functional Questionnaire pre- and poststudy reveals a similar pattern: All members of the experimental group recorded improvement in several of the areas where they had difficulty prior to receiving QT. In

Table 4: Male Experimental Before and After Pain Ratings

Subject	Session 1		Session 2		Session 3		Session 4	
	Start	End	Start	End	Start	End	Start	End
M1	7	4	5	1	6	3	6	4
M2	4	2	4	2	2	1	3	1
M3	8	4	6	4	9	6	6	5

Table 5: Male Control Before and After Pain Ratings

Subject	Session 1		Session 2		Session 3		Session 4	
	Start	End	Start	End	Start	End	Start	End
M4	7	7	7	7	7	7	7	7
M5	5	4	7	6	6	7	7	6

contrast, with the exception of one woman, who reported being able to tolerate using the computer for slightly longer periods of time poststudy, no member of the control group reported any improvement in their ability to perform those tasks that were challenging prestudy. As can be seen in the summary of comments found in Table 6, experimental group participants reported particular improvements in their ability to stand and walk for longer periods, and they reported less discomfort while sleeping or lying down. Some participants reported doing activities that they had not done for years.

Though not conclusive on their own, themes that emerged on the Functional Questionnaire seem to reinforce findings from the statistical analysis. Recipients of QT not only reported significant decreases in pain between the start and end of each treatment session, but across the entire 8-week intervention, they reported improvement in their ability to perform everyday tasks.

Discussion

Summary of Principal Findings

Statistical results from this pilot study of the impact of QT on chronic musculoskeletal pain suggest, for the first time, that QT should be considered alongside other holistic modalities as an efficacious therapy that can complement traditional medical interventions. Differences between the experimental groups and control groups were significant for both genders, with those who received the QT treatment experiencing considerable reductions in their perceptions of pain between the beginning and end of each session. Furthermore, all participants in the experimental condition, regardless of gender, experienced reductions in pain in 100% of their treatment sessions. The women in the experimental group experienced at least a 50% reduction in their pain ratings in 100% of their sessions; the men in the experimental group experienced at least a 50% reduction in their pain ratings in a majority of the treatment sessions. The control groups, conversely, showed almost no improvement in their pain levels; in some instances, participants' pain actually increased.

Limitations

Although the results from this study were highly significant, the study had several limitations. The sample size was small. A larger sample size would have yielded more data, allowing for more comparisons between groups rather than the simple analysis done within each group. There would have also been the potential for further analysis of demographics and other participant characteristics: comparisons within specific age ranges, for example, or within groupings by area of chronic pain.

Another limitation was lack of follow-up. A longitudinal study would permit more research questions to be asked. What impact would QT have over a longer period of time? Do pain ratings continue to return to a baseline level between

Table 6: Comparison of Responses on the Pre- and Poststudy Functional Questionnaire

Subject	Pre-Study	Post-Study
	Female experimental	
F1	• Able to stand/walk for only 30 min	• Able to stand/walk for 40 min
F2	• Difficulty driving, reaching, lifting	• Noted improvement on reaching and lifting
F3	• Described problems with heavy cleaning, walking, bending, getting up to stand, kneeling, and grocery shopping • Tended to put all her weight on the right leg	• Grocery shopping with less difficulty • Her "knees didn't give out like they used to" • Able to kneel; stiffness in bending gone • Able to put weight on both legs
	Male experimental	
M1	• Could not vacuum; light cleaning challenging • Able to stand for only 10 min • Needed to elevate feet when lying down • Pain during sleep	• Able to vacuum; light cleaning "much better" • Able to stand "a little longer and feel much better" • No longer needed to elevate feet • Pain during sleep unchanged
M2	• Could not put on his belt while dressing • Difficulty lying down • Needed to sleep in a recliner instead of a bed	• Difficulty putting on his belt still • Lying down improved • Could now sleep in a bed
M3	• Could manage only limited walking • Difficulty grocery shopping • "I have a hard time doing most everything"	• Tolerated walking • Had not tested grocery shopping • Felt well enough to go fishing for the first time in 12 years • Reported being able to stay out for 4.5 hr with his pain medications with him but not needing to take them
	Female control	
F4	• Difficulty light cleaning, vacuuming, lying down	• "No change or improvement"
F5	• Reported problems with heavy and light cleaning, walking • Could stand only if she'd taken pain medication • Needed medication for sleeping	• "Everything is the same"
F6	• Difficulty vacuuming • Pain when folding laundry • Needed extra pillows when lying down • Pain while using the computer	• Reported being able to tolerate using the computer for a slightly longer period of time • All other tasks remained unchanged.
	Male control	
M4	• Difficulty reaching and bending • Could not lift • Restless sleep • Problems finding somewhere comfortable to sit	• "Everything is the same as before. I don't see where anything helped me."
M5	• Difficulty with light and heavy cleaning, vacuuming, lifting, walking, bending, sitting, and sleeping	• "There is no change in my status. Nothing improved."

treatment sessions? Are pain reductions then maintained weeks or months after treatment ends?

A third limitation is the fact that energy fields are nonlocal, immediate, and unmitigated or unmediated. There is the possibility that a morphogenic field that may have been created by the presence of a QT practitioner and an investigator who also was familiar with the method could "bleed" into the perceptive energy field of the participant. This would have made evaluation of the "on/off" delivery of the process difficult due to a charged atmosphere to begin with. However, even if the potential for such bleeding does exist, making it difficult to assess a designated evaluation period, this potential would presumably exist for both control and experimental groups. The fact remains that, regardless of any bleeding that could have occurred, there were significant differences in outcomes between the control and experimental groups.

The likely high motivation level of the subjects further limits the generalizability of the results. As volunteers with a documented interest in holistic techniques who had been given background information on QT in advance of the study, participants may not have been representative of a clinical population. The study design sought to minimize this limitation by maintaining participant blindness; however, future studies should draw from a general practice pool of participants.

Conclusion

The results of this study suggest that even very brief exposure to QT techniques can help reduce musculoskeletal pain in chronic sufferers. To test the efficacy of its techniques, Quantum-Touch will need to develop an evidence base, as Reiki and Therapeutic Touch have begun to do. With the development of an adequate evidence base, QT may then be considered alongside conventional allopathic treatment for the reduction and prevention of chronic pain in an integrative approach. Additional research to remedy these gaps and to further document the efficacy of QT interventions is required.

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Functional Questionnaire

Participants completed the following checklist both before their first treatment session and following their fourth treatment session, to assess their range of ability on common everyday tasks and movements. At the end of treatment, participants were also asked to assess whether they had observed any improvement in their functioning on these skills.

Functional Questionnaire

Date: ID #: Initials:

Have you improved with the following?:

	Yes	No	Describe
Dressing			
Grooming			
Meal Preparation			
Grocery Shopping			
Light Cleaning			
Vacuuming			
Heavy Cleaning			
Driving			
Reaching			
Standing			
Lying Down			
Lifting			
Walking			
Bending			
Sitting			
Sleeping			
Other:			