

# A Comparison of Still Point Induction to Massage Therapy in Reducing Pain and Increasing Comfort in Chronic Pain

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A quantitative study was completed to determine whether complementary techniques provide pain relief and comfort in patients with chronic pain. Subjects participated in sessions including aromatherapy and music therapy. Massage or cranial still point induction was randomly assigned. Statistically significant improvement in pain and comfort was noted in both groups. **KEY WORDS:** *aromatherapy, chronic pain, Comfort Theory, complementary therapies, massage therapy, music therapy, randomized trial, still point induction* *Holist Nurs Pract* 2014;28(2):78–84

At least 116 million adults in the United States suffer from pain resulting from common chronic health conditions.<sup>1</sup> This represents more than the number affected by heart disease, diabetes, and cancer combined. Over the course of a lifetime, pain is one of the most frequent reasons for physician visits, taking medications, and for work disability.<sup>1</sup> A total of 26.4% Americans reported low back pain lasting at least a day in the last 3 months.<sup>1</sup> More than 25% of Americans older than 20 years experience pain lasting longer than 24 hours monthly. At least 50% of patients with cancer experience pain.<sup>2</sup>

Chronic pain leads to lost productivity and increased health care cost in the United States each

year.<sup>2</sup> Inadequate pain management results in longer hospital stays, increased rates of rehospitalization, additional outpatient visits, and reduced functional ability that results in lost wages. The annual cost of pain treatment in the United States is an estimated \$100 billion in health care experiences and at least \$60 billion in lost productivity.<sup>2</sup> The total cost estimate for chronic pain in the United States is estimated at \$560 to \$635 billion per year. In 2008, state and federal government medical expenditures for pain totaled \$99 million.<sup>1</sup>

It has been estimated that up to 25 million people in the world die in pain each day.<sup>3</sup> Pain management, particularly in patients with chronic pain, is a complex issue that impacts many individuals daily. Pain can be controlled in 85% to 95% of patients through either pharmacological or nonpharmacological methods; however, poor pain relief continues to be a reality for many patients.<sup>3</sup> The search question for this investigation is as follows: Are complementary pain management therapies, including aromatherapy, music therapy, massage, and cranial still point induction, beneficial as adjunct therapies for pain management and comfort in patients with chronic pain?

To investigate the problem of pain management techniques, it is first necessary to define the concept of pain. The classic definition of pain, cited in the literature, is the International Association for Study of Pain definition: “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”<sup>4</sup>

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A second definition is: “Pain is whatever the experiencing person says it is, existing whenever he says it does.”<sup>5(p17)</sup>

## BACKGROUND AND SIGNIFICANCE

Chronic pain has been described as persistent or recurrent pain, lasting beyond the usual course of acute illness or injury or more than 3 to 6 months, and which adversely affects the individual’s sense of well-being, level of function, and quality of life.<sup>6</sup> A simpler definition for chronic pain is pain that continues when it should not.<sup>6</sup> Pain specialists sometimes refer to chronic pain as “persistent pain.” It has been defined as—a condition that can be continuous or recurrent and of sufficient duration and intensity to adversely affect a patient’s well-being, level of function, and quality of life.<sup>6</sup> The International Association for the Study of Pain provides a widely used definition of chronic pain that takes into account duration and “appropriateness.” International Association for the Study of Pain defines chronic pain as pain without apparent biological value that has persisted beyond the normal tissue healing time, usually 3 months.<sup>7</sup>

There is no widely accepted definition for complementary and alternative medicine but is generally considered for the use of therapies that are not currently considered to be included in conventional medicine.<sup>8</sup> Complementary therapies are utilized along with traditional medicine, whereas alternative therapies are utilized in place of traditional medicines.<sup>8</sup> Complementary and alternative medicine therapies have the potential to increase well-being and, therefore, influence pain. The use of complementary therapies in addition to conventional techniques is sometimes referred to as integrative therapy.<sup>9</sup> The therapies that will be described include aromatherapy, music therapy, massage therapy, and self-induced cranial still point therapy (CSPT).

Cranial still point therapy, also called “still point induction,” is a component of craniosacral therapy. The following are the underlying assumptions of craniosacral therapy: The cranial sutures of the skull remain mobile; the craniosacral system (composed of the membranes and cerebrospinal fluid that protect the brain and spinal cord) is a semiclosed hydraulic system.<sup>10</sup> According to Upledger,<sup>10</sup> the craniosacral rhythm can be modified and enhanced through

implementation of CSPT. This is achieved when a craniosacral therapy practitioner, using his or her hands at the level of the second and third cervical vertebra, applies gentle resistance. Self-induction of CSPT may be accomplished by substituting a springy inanimate surface (such as tennis balls) for the therapist’s palpation pressures on the occiput of the supine client. This process is said to have a relaxing effect on the autonomic nervous system, resulting in a relaxation of the connective tissue. The results, which also include increased blood flow to the brain, can have a therapeutic effect on the central nervous system and the entire body.<sup>10,11</sup> Other beneficial effects include headache and muscle pain relief, a reduced state of stress and ready response, a deep state of relaxation, and a general sense of well-being.<sup>10,11</sup> Contraindications include situations in which even slight and transient intracranial pressure must be avoided, such as impending cerebrovascular accident or hemorrhage resulting from situations such as aneurism or trauma.<sup>10,11</sup>

There have been few studies to review the impact of CSPT. Most available literature consists of anecdotal reports. In 1 small mixed method study,<sup>12</sup> a pilot study was designed to explore the effects of CSPT in individuals with dementia to determine whether agitation would be decreased. The study was based on the theory that CSPT could potentially benefit older adults with dementia in 2 ways. First, the relaxation response induced by CSPT may prevent or delay the onset of agitation that occurs when there is a lowered tolerance to stress. Second, the purported increase in symmetry and amplitude of the craniosacral rhythm that occurs with CSPT is expected to support the exchange of cerebrospinal fluid. This could have important implications, as research has shown that older adults with dementia exchange cerebrospinal fluid at a much lower level than do healthy individuals. The study demonstrated a statistically significant reduction in the mean subscale scores of the modified Cohen-Mansfield Agitation Inventory that measures physically aggressive agitation, physically nonaggressive agitation, and verbal agitation during weeks 1 to 3 and 4 to 6 of the intervention period compared with baseline. A statistically significant reduction continued throughout the 3-week postintervention period for physically nonaggressive agitation and verbal agitation but not physically aggressive agitation.<sup>13</sup>

Harris and Richards<sup>13</sup> stated that more research is needed to test the effects of complementary

techniques on pain relief and rest using objective measures. Other researchers have indicated that there is a lack of formal research of experiences of using music therapy from patients' perspectives.<sup>14</sup>

The purpose of this study was to determine whether

- simple complementary pain management techniques including aromatherapy and music therapy, along with a technique such as massage or still point therapy, provide pain relief and comfort when administered by health care professionals;
- hand massage is more effective than self-induced still point therapy for pain relief and comfort enhancement; and
- whether there is a relationship between reported pain and comfort levels.

## THEORETICAL FRAMEWORK

Katharine Kolcaba's Comfort Theory, a midrange nursing theory, has been utilized to direct holistic care through "comfort care interventions."<sup>15(p389)</sup> Its holistic framework makes it an ideal theory to explore in the use of complementary techniques as adjunct therapies in patients with chronic pain, as well as increase the evidence in the integrative therapy literature. Comfort is described as being more than a lack of negative physical sensation or emotion distress.<sup>16</sup>

According to the comfort theory, human experience occurs in 4 contexts: physical, psychospiritual, sociocultural, and environmental.<sup>17</sup> Physical comfort is being relaxed and generally free from pain. Psychospiritual comfort relates to an individual's internal feeling of satisfaction with his or her life and accomplishments. It may also include feelings about his or her relationship with a higher being. An individual's sociocultural comfort is related to feelings about interpersonal, family, and societal relationships. An individual's environmental comfort is based on feelings of satisfaction with the physical environment, such as the temperature, light, and physical setting. The comfort theory proposes that if patients and their families are more comfortable, "they engage more fully in health-seeking behaviors that include internal behaviors, external behaviors, or a peaceful death."<sup>17(p539)</sup> Health-seeking behaviors may lead to reduced cost of care and length of stay, increased patient satisfaction, and other benefits. When the health care needs of a patient are appropriately

assessed and proper nursing interventions are carried out, the outcome is improved patient comfort.<sup>16</sup>

The comfort theory is comprehensive and has been utilized in many settings. These include pediatrics; perioperative settings; and labor and delivery settings, including midwifery settings, parish nursing, critical care, and hospice settings.<sup>18-20</sup>

Kolcaba lists the assumptions that she includes in the theory of comfort. The 4 assumptions are applicable to the phenomenon of utilizing complementary techniques as adjunct pain relief modalities in palliative care patients. The assumptions are as follows:

- Comfort is a desirable, strengthening, holistic outcome that is germane to the discipline of nursing and health care.
- Human beings actively strive to meet, or to have met, their basic comfort needs. It is an active endeavor.
- The effects of comfort measures are perceived with 6 senses (touch, smell, taste, hearing, seeing, and proprioception).
- Comfort is individualistic and more than the absence of pain.<sup>21(p159)</sup>

Kolcaba<sup>21(p94)</sup> states that when a patient has his or her needs for relief, ease, and transcendence met in the 4 contexts (physical, psychospiritual, social, and environmental), they will increase his or her sense of comfort. This definition is totally compatible with the concept of chronic pain management. Comfort is one of the consequences of pain management.

The propositions in the comfort theory are consistent with the idea of using complementary techniques. Complementary techniques used as adjuncts to other pain relief when administered by health care professionals who are providing care to the patient are congruent with the 3 types of comfort described by the theory. Relief, the state of a patient who has had a specific need met, is accomplished when a patient's pain is reduced through the combination of medication and complementary techniques. Ease, state of calm or contentment, may be increased through relaxation that occurs because of the complementary techniques. Transcendence, the state in which one rises above one's problems or pain, may be increased because of relaxation and ability to interact with caregivers.

## DESIGN METHODS, PROCEDURES, AND DATA COLLECTION

The aim of the study was to determine the effect of the selected complementary therapies to reduce pain and increase comfort in patients with chronic pain. Patients continued to receive their usual pharmacological therapies during the study. Patient care staff (research assistants) who agreed to participate, including registered nurses and physical therapists, were trained to deliver the therapies that included music therapy, aromatherapy, massage, and self-induced CSPT. Training was provided by the principal investigator through demonstration, as well as provision of written instructions that included illustrations of each technique. Each research assistant demonstrated each technique to verify understanding. Both inpatients and outpatients were recruited to participate in 2 sessions. Subjects with chronic pain were identified by patient care providers on the basis of diagnosis or pain history. Those who participated in the study met the required criteria and signed the institutional review board–approved informed consent. Criteria included

- adults at least 18 years of age;
- alert and oriented (able to answer questions and respond to person, place, and time);
- English speaking and English reading; and
- no surgical procedures in the past 30 days.

Two instruments were identified to assist with outcomes measurement of the complementary techniques for pain management study. The patient's perception of his or her pain was measured with the 0 to 10 numeric Likert pain scale immediately prior to and immediately upon completion of the intervention. The Comfort Lines Visual Analogue Scale<sup>21</sup> was also administered immediately prior to as well as immediately upon completion of the intervention. To administer this instrument, participants were asked to rank their agreement with the following statements: "I feel as comfortable as possible right now; I have many discomforts right now; I am feeling content and at ease right now; and I feel motivated and strengthened right now."<sup>21(p223)</sup>

The 30-minute protocol included music therapy and aromatherapy. Music therapy consisted of prerecorded harp music delivered through headphones and an MP3 player for the entire session. The aromatherapy portion consisted of pure lavender essential oil (5 drops added to 15 mL of distilled water) delivered utilizing a spray bottle at the beginning of the session,

after 10 minutes, and finally 20 minutes after the beginning of the session.

Subjects were randomly assigned to protocol A (massage) or protocol B (still point induction), depending on the protocol specified inside the opaque sealed envelope that they selected prior to the initiation of the protocol. The assigned 10-minute technique (massage or still point induction) was administered 10 minutes into the session. At the end of the assigned protocol, the third spray of aromatherapy was delivered, and the subject continued to listen to the music for the final 10 minutes of the session.

The principal investigator or research assistant provided 10 minutes of geriatric massage to hands, arm, and shoulders as taught by Daybreak Geriatric Massage Institute<sup>22</sup> to subjects who were randomly assigned to protocol A. An unscented, nut-free water dispersible massage lotion was utilized as a lubricant.

Still point induction was provided to subjects assigned to protocol B for 10 minutes through the utilization of Becalm balls. Becalm balls consist of 2 adjustable soft rubber balls designed to be adjusted at eye width and placed just under the external occipital protuberance level on the back of the skull.<sup>23</sup>

## DATA ANALYSIS AND FINDINGS

Age, sex, pain, and comfort levels as recorded prior to the interventions were analyzed to determine whether there were significant characteristic differences between the 2 groups (intervention A and intervention B). The characteristics are displayed in Table 1. Analysis with Minitab 16 Statistical Software (Minitab Inc., State College, Pennsylvania) indicated that there was no significant difference between the 2 groups in prepain or precomfort scores when compared utilizing paired samples *t* test ( $P < .05$ ).

Forty-one sessions were completed on 22 subjects. Diagnoses included posttransplant (8) (multivisceral: 4, liver: 2, pancreatic: 1, and kidney: 1) with chronic pain; osteoarthritis or rheumatoid arthritis with joint pain (6); back, shoulder, or neck pain (5); end-stage heart disease (1); sickle-cell crisis (1); and myelodysplastic syndrome along with stem cell transplant (1). Subjects ranged in age from 21 to 81 years, with a mean age of 48.68 years. The median age was 51 years. Three subjects received only 1 treatment because of hospital discharge (2) or refusal to have second treatment (1). Participant characteristics are displayed in Table 1.

**TABLE 1.** Massage Versus Still Point Induction—Participant Characteristics

Protocol	No. of Participants	Percent Inpatients	Percent Outpatients	Percent Males	Percent Females
Massage (A)	9	55.56	44.44	22.22	77.78
Still Point (B)	13	46.15	53.85	30.77	69.23

Measurements included the pain score prior to and immediately after the protocol was completed. Pre- and postdifferences in the 4 comfort measures were also recorded. Results of the measurements were recorded by the research assistant who completed the protocol. Results for each patient were entered into a database for analysis. A paired *t* test was performed on each indicator to determine whether there was a statistically significant difference in the pre- and postprocedure measurements. *T* tests were conducted to determine whether there was a significant difference in the effectiveness between the protocols utilizing hand massage when compared with the protocol that utilizes still point induction. Pearson correlations were conducted to determine whether there was a correlation between the pain and comfort measurements. The correlation scores are illustrated in Table 2.

Subjects were asked to rate their pain on a scale of 0 to 10, using the Numeric Pain Scale prior to the treatment, as well as immediately after the treatment. Results were analyzed with paired *t* tests. The combined groups, as well as the individual protocols resulted in a statistically significant improvement in pain rating ( $P < .05$ ). No significant difference was identified between the 2 protocols. No significant difference was identified between session 1 and session 2. Detailed pain results are included in Table 3.

Subjects were asked to rate their agreement with the 4 comfort questions on the Comfort Lines tool prior to the treatment, as well as at the treatment's completion. The questions include the following: (a) I feel as comfortable as possible right now, (b) I am feeling content and at ease right now, (c) I have many

discomforts right now, and (d) I feel motivated and strengthened right now. Paired *t* tests demonstrated statistically significant improvement with all questions in participants in both protocol groups. Detailed comfort results are included in Table 4.

## CONCLUSIONS

Subjects who participated in this study received the same music therapy (harp), as well as aromatherapy (lavender), over a 30-minute period. Each subject was randomly assigned to protocol A (massage) or protocol B (still point induction). Each received the randomly assigned technique (massage or still point induction) for 10 minutes.

Based on the results of this study, it was concluded that both protocols resulted in statistically significant improvement in the participants' self-reported pain and comfort scores. There was not a statistical difference in improvement between the 2 protocols. There was a statistically significant improvement in

**TABLE 2.** Correlation Between Pain and Comfort

Comfort Indicator Being Compared to Pain	Pearson Correlation	<i>P</i>
Comfort	0.544	<.01
Contentment	0.560	<.01
Discomfort	-0.302	.055
Motivation	0.519	.001

**TABLE 3.** Massage Versus Still Point Induction—Comparison of Pre- and Posttreatment Pain Rating

Protocol	Mean Pain Rating Pretreatment	Mean Pain Rating Posttreatment	Difference at 90% Confidence Level
Combined	5.06	3.32	1.34-2.15
Massage (A)	4.59	3.03	0.78-2.35
Still point (B)	5.36	3.5	1.39-2.33

**TABLE 4.** Combined Groups—Comparison of Pre- and Posttreatment Comfort Ratings

Protocol	Mean Rating Pretreatment	Mean Rating Posttreatment
Comfort	5.18	3.05
Contentment	4.27	2.80
Discomfort	4.63	7.05
Motivation	5.34	4.24

comfort scores in those who participated in both protocols, as well as the combined group. A correlation was noted between subjects' perception of pain and comfort.

## DISCUSSION

There are advantages with each of the 2 protocols in this study. The protocol that included self-induced still point induction is easy to teach to the individual subject and can be completed without assistance. This option allows the subject to utilize the protocol on an ongoing basis after his or her participation in the study. The disadvantage is that there is a cost for the Becalm balls.<sup>24</sup> The massage technique may not be completed by subjects without assistance following participation in the study. The advantage to massage is that it is essentially without supply cost when provided by patient care staff in the hospital setting. Although each massage in the study was administered with a specific lotion that was oil free and nut free, a special lotion is not required.

Two sessions were attempted for each subject because of the concern that subject who had not received complementary therapies in the past might be uncomfortable and not receive optimal benefit during the first session. No significant difference was identified between session 1 and session 2 benefits. Therefore, it could be concluded that multiple sessions are not required in order for subjects to benefit from the techniques.

## IMPLICATIONS FOR FURTHER RESEARCH AND NURSING PRACTICE

Patient care providers may be educated on simple, low-cost techniques to assist patients with pain relief when combined with pharmacologic interventions. A future study can determine whether complementary interventions such as massage when provided on a routine schedule will result in decreased requirements for pharmacologic intervention.

It is recommended that follow-up studies be completed to determine whether reducing the number of interventions from 3 (music, aromatherapy, and an energy technique) to 1 or 2 techniques would effectively reduce pain and increase comfort. These options may include music and aromatherapy together, as well as separately.

Family caregivers may be taught simple protocols to enable them to provide pain relief and comfort measures for patients in the home environment. A future study can explore how caregivers, as well as patients benefit from the therapy.

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