

Patricia P. Hooks. A COMPARISON OF PROGRESSIVE RELAXATION TECHNIQUE TO THERAPEUTIC TOUCH IN REDUCING STATE ANXIETY IN HOSPITALIZED CARDIOVASCULAR PATIENTS. (Under the direction of Bonnie W. Duldt) School of Nursing, May, 1988.

There are approximately 1.5 million heart attacks each year. These patients experience anxiety related to hospitalization and diagnostic testing such as cardiac catheterization. A high level of anxiety may further compromise the cardiac patient. Nurses need to know which interventions reduce anxiety in these patients.

The purpose of this study was to determine if progressive relaxation technique (PRT) and therapeutic touch (TT) would be effective in reducing the state anxiety in hospitalized cardiovascular patients, and to determine if TT was more effective than PRT as a first time intervention.

This study utilized a pretest posttest experimental design. Subjects were randomly assigned to either the TT or PRT group with a resulting sample of 17 patients in each group. The Spielberger State-trait Anxiety Inventory, Form Y-1, was administered before and after a 10 minute intervention of either noncontact TT or a taped PRT.

The convenience sample (n=34) included a majority of patients with angina, MI, or coronary artery disease who were admitted for cardiac catheterization or coronary artery angioplasty. Eleven subjects received their intervention before procedures and 22, afterwards; one, no procedure.

Dependent sample t-tests revealed that both TT and PRT intervention groups experienced reductions in state anxiety at the .05 level of significance. In comparison, one intervention was not superior to the other. Two way analyses of the variance revealed no significant interactions between the demographic variables and the specific intervention group.

A COMPARISON OF PROGRESSIVE
RELAXATION TECHNIQUE TO THERAPEUTIC
TOUCH IN REDUCING STATE ANXIETY IN
HOSPITALIZED CARDIOVASCULAR PATIENTS

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Chapter I

Introduction

Anxiety is defined as "a feeling of apprehension, uncertainty, and fear without apparent stimulus, and associated with physiological changes (tachycardia, sweating, tremor, etc.)" (Dorland, 1985, p. 96).

Anxiety is "the most commonly occurring human response to illness and diagnosis" (Lambert & Lambert, 1985, p. 8). It is assumed that most patients experience anxiety to some degree. This has particular consequences for the cardiac patient.

In the United States, approximately 1.5 million heart attacks occur each year (Pasternak, Braunwald & Alpert, 1987). For cardiac patients, three noted situations of high anxiety are admission to the CCU, transfer to a step-down unit and discharge from the hospital (Lambert & Lambert, 1985).

When a cardiovascular patient experiences stress, the resultant effects compound the problem. With stimulation of the sympathetic nervous system, the body reacts with constriction of blood vessels, increases in heart rate, blood pressure, metabolic rate, muscle tone and respiratory rate (Benson, Greenwood, & Klemchuk,

1976). This sympathetic stimulation increases the workload of the cardiovascular system.

Physical, psychological, and emotional stress are implicated as mechanisms which may effect change in cardiac rhythm, coronary artery tone, and clotting time. Stress in the cardiac patient contributes to vasoconstriction, hypertension, tachycardia, ventricular arrhythmias and blood clotting. Epinephrine concentration, increasing up to ten times the normal level, may activate platelets and stimulate aggregation, resulting in sudden death by occlusion of diseased or constricted coronary arteries. Sympathetic activity can destabilize the cardiac electrical activity in a non-ischemic heart. In situations of ischemia or infarction, psychological stress reduces the threshold for ventricular fibrillation (Dwyer, 1987). Anxiety which is associated with pain increases myocardial oxygen demand (Conforti & Horvath, 1984). Stress and resulting anxiety create further compromise for the cardiac patient.

Recognizing that anxiety is a common problem of cardiovascular patients, nurses may seek ways to reduce the present and prevent additional anxiety. One may

look to the theories of stress to determine measures to reduce anxiety.

Theories of Stress

Selye (1956) describes stress as a state manifested by a specific syndrome which consists of nonspecifically induced changes within a biologic system. Selye (1976) describes biological reactions to stress as nonspecific responses of the body to any type of increased demands. He was the first to describe the General Adaptation Syndrome (G.A.S.) as having the three stages of alarm reaction, resistance, and exhaustion. This G.A.S. serves as a general model for stress. Lazarus (1976) noted that stress occurs when demands exceed or tax the adjustive resources of the individual. He maintains that perception or "cognitive appraisal" is the key to understanding the personal response to stress. The person may judge the stressor to be irrelevant, benign-positive, or stressful (Lazarus, 1960).

Speilberger (1979) defines stress as a complex of three elements: a stressor (stimulus which is potentially harmful), the perception of threat, and anxiety. Speilberger differentiates between state anxiety and trait anxiety. State anxiety is the

emotional reaction of subjective feelings of tension, apprehension, nervousness, and activation of the autonomic nervous system. Trait anxiety is the individual differences in anxiety proneness. Trait anxiety describes how a person generally feels while state anxiety focuses on now (Speilberger, 1983).

Stress and Illness

Stress is recognized as having a role in illness. Cannon (1932) was the first physician to view stress as a causative factor in illness. He described the "fight or flight" concept of stress and saw the body as trying to maintain a steady state (homeostasis). Selye (1983) states that every disease causes stress and at some time stress plays some role in the development of every disease. Stressors disrupt homeostasis either by going beyond the power of adaptation or causing disease in a particular weak organ. Selye describes the general ways to deal with stress as (1) removing unnecessary stress, (2) not allowing neutral events to become stressors, (3) developing proficiency in dealing with conditions one cannot avoid, (4) learning to recognize overstress, and (5) seeking relaxation or diversion (Selye, 1983).

Methods of seeking relaxation are of particular relevance to this study. Anxiety increases cardiovascular stress. Nurses, as a part of their practice, seek measures to reduce anxiety but need to know which interventions are best for cardiovascular patients.

Relaxation Techniques to Reduce Anxiety

As early as 1938, Jacobson described a technique for progressive relaxation. He noted that anxiety and muscle relaxation produced opposite physiologic states and could not exist together. Progressive relaxation training has been used for decreasing strain on the heart and blood vessels, reducing fatigue and exhaustion, diminishing energy output and quieting the nervous system (Jacobson, 1938). More recently, Benson (1975) described the Relaxation Response, noting four essential elements: a quiet environment, a mental device, a passive attitude and a comfortable position. Research using relaxation techniques has supported a reduction in muscle tone, blood pressure, state anxiety and oxygen consumption (Beary & Benson, 1974; Benson, 1975; Chenella, 1981; Peters, Benson, & Peters, 1977). Based on these studies, it appears that relaxation techniques may benefit the cardiac patient.

In addition to the usual nursing interventions such as administering medication, comfort measures, and patient education, it is believed that measures to induce relaxation could effectively reduce the state anxiety of the cardiovascular patient in a reasonable period of time; it is believed such measures are within the scope of practice of the nurse (Snyder, 1984). In almost every culture of man, religious practices have been used to induce the relaxation response.

Transcendental Meditation, Christian and Jewish mysticism and Eastern religions such as Zen, Yoga, Hinduism and Taoism are a few examples of these practices which produce the same physiologic changes of the relaxation response. Secular techniques such as autogenic training, hypnosis, biofeedback, progressive relaxation technique and therapeutic touch elicit the relaxation response. Of these listed, progressive relaxation and therapeutic touch are within the scope of nursing, may easily be learned and do not require certification.

Progressive relaxation is a relatively easy technique which can be practiced in almost any setting. It requires practice by the client over a period of time to be most effective (Benson, 1975). Practicing

twice each day is suggested since it is an acquired skill that becomes a habit. It is viewed as benign but should be used cautiously in the depressed person as it may contribute to further withdrawal. The cardiac patient is instructed not to tense muscles tightly and to avoid getting up quickly from a relaxed state due to potential postural hypotension (Snyder, 1984). In contrast, other nursing interventions for relaxation such as therapeutic touch, do not require any effort on the part of the client.

Therapeutic touch (TT) is a nursing intervention first described in the early seventies by Dr. Dolores Krieger. It was derived from the healing practice of laying on of hands (Krieger, 1979). TT assumes that man is an energy field and an open system. There is said to be an energy exchange between the nurse and the patient. It has been taught in the nursing program at New York University since the early 1970's and currently is being taught in over thirty countries world wide (Krieger, 1985).

Therapeutic touch elicits a generalized relaxation response in the patient, and is reported to relieve pain" (Krieger, 1979; Wright, 1987). Quinn (1982) and Heidt (1981) conducted studies using therapeutic touch

previous experience, practice or belief by the subject in order to be effective. It does, however, require the nurse have special training in the technique and reasonable practice in order to be effective. Thus both the TT and progressive relaxation techniques (PRT) are within the scope of practice of nursing and do not require a physician's order. The purpose of this study was to determine (a) whether two identified procedures, therapeutic touch and progressive relaxation technique would be effective in reducing the state anxiety in hospitalized cardiovascular patients and (b) if TT would be more effective than PRT.

Theoretical Basis

Rogers' theory, the Science of Unitary Man, is one theoretical basis for TT (Miller, 1979; Randolph, 1979). Rogers (1970) describes man as an energy field imbedded within an environmental energy field. These fields are involved in continuous exchange. In her theory, Rogers uses terms or principles of homeodynamics to explain the relationships and changes between the energy fields. The three homeodynamic principles identified are Helicy, Resonancy and Complementarity (Rogers, 1970).

The principle of Helicy describes the nature and direction of the human and environmental change as

unidirectional, sequential, evolutionary and never repeating. This postulates an ordering of man's evolutionary process (Rogers, 1970).

The principle of Resonancy seeks to explain the nature of change. The wave patterns and organization of the energy fields of man and environment manifest continuous change from lower-frequency, longer-wave patterns to more complex higher-frequency, shorter-wave patterns (Rogers, 1970).

The principle of Complementarity describes the interaction between the human and environmental fields as continuous, mutual and simultaneous. Also basic to Rogers' theory is that man is viewed as a whole and has characteristics that are more than and different from his parts (Rogers, 1970).

The process of TT is aimed at restoring balance and harmony to the patient as an energy field. The homeodynamic principles of Rogers' theory attempt to explain the interaction of the nurse and patient during TT (Boguslawski, 1979).

Purpose

The purpose of this study was to determine whether two identified procedures, TT and PRT would be effective in reducing the state anxiety of hospitalized

cardiovascular patients, and whether TT would be more effective than PRT.

Problem Statement

This pretest-posttest experimental study was designed to determine (a) whether both TT and PRT interventions were effective in reducing the state anxiety of hospitalized cardiovascular patients, and (b) to determine if TT was more effective than PRT in the same population.

Hypotheses

In this research investigation, it was hypothesized that:

1. There would be a reduction in the posttest state anxiety scores of hospitalized cardiovascular subjects who receive TT and PRT interventions as related to their pretest state anxiety scores.
2. There would be a greater reduction in the posttest state anxiety scores relative to the pretest state anxiety scores in cardiovascular subjects who receive TT intervention than in similar subjects who receive the PRT intervention.

Chapter II

Review of Related Literature

The literature will be reviewed as related to state anxiety, progressive relaxation techniques, and therapeutic touch.

State Anxiety

The concepts of state and trait anxiety were identified by Cattell (1966). Spielberger elaborated on these concepts in order to clarify them for research. He found that the terms "anxiety" and "stress" were used interchangeably. Generally, previous researchers failed to differentiate between temporary anxiety states and personality patterns of anxiety (Spielberger, 1976). For clarity, the following definitions were used in this study:

State anxiety is the transitory emotional state which reflects a reaction or mood at a given point in time. It is seen to vary with stress-producing events (Spielberger, 1983).

Trait anxiety is a relatively stable and general characteristic with a tendency towards anxiety. People who have high trait anxiety tend to perceive situations as threatening and tend to interpret more situations as

threatening than those people with low trait anxiety (Speilberger, 1983).

The State-Trait Anxiety Inventory (STAI) developed by Speilberger, Gorsuch and Lushene, utilized statements to which the subject indicated how he feels "now" or how he "generally" feels. The tool was revised in 1983 to provide clarification of terms used to provide a "purer" measure of anxiety and differentiation from depression (Speilberger, 1983). The STAI Form Y-1 is the dominant tool used to measure state and trait anxiety. The state anxiety is noted to change reflectively with the situation, increasing as the situation becomes more anxiety producing and decreasing with the relaxation response (Speilberger, 1983). Because of this, the STAI was selected for use in this study.

Progressive Relaxation Technique

Edmond Jacobson, a Chicago physician, began working with the idea of tension and anxiety being the opposite of muscle relaxation. His book, Progressive Relaxation, published in 1938, describes a long detailed procedure for progressive muscle relaxation which outlines specific muscle groups. He taught subjects to recognize the slightest muscle tension.

One drawback with Jacobson's method is that it required anywhere from one to nine sessions per day for a total of fifty-six training sessions (Patterson, 1979).

Herbert Benson (1975) described the relaxation response as being opposed to the fight-or-flight stress reaction. He noted that the relaxation response is innate in man but must be initiated purposefully. Benson introduced a secular noncultic procedure for relaxation. He identified four components which he found present in all techniques which induce the relaxation response. These elements are a quiet environment, a comfortable position, a focus of concentration and passive attitude. Benson's technique consisted of having the person sit quietly in a comfortable position with eyes closed, then deeply relaxing all muscles beginning with the feet and progressing to the face. The person then breathes in through his nose and as he breathes out, he says "one" silently to himself. The muscles are to be maintained in the relaxed state while continuing the easy breathing for ten to twenty minutes, thinking the word "one" as he exhales. Benson recommends practicing the technique daily (Benson, 1975).

The advantage of Benson's technique is that it is simple and easy to learn. Once the basic technique is achieved, it can be practiced almost anywhere without a coach or special equipment. Some of the physiological and physical changes reported by Benson included a decrease in oxygen consumption, serum lactate, blood pressure, respirations and skeletal muscle tone. Benson noted a psychologic response of decreased anxiety and an increased sense of well-being in response to the relaxation response. He felt these changes were due to a decrease in serum lactate levels (Benson, 1975).

Relaxation techniques have been integrated in clinical practice in various ways. It is generally accepted that relaxation techniques are beneficial in dealing with daily stress and assisting in the management of certain problems such as hypertension. However, relaxation techniques are not a "cure-all" for medical problems and therefore may be considered an adjunct to medical and nursing care of the patient (Patterson, 1979).

Research has been conducted utilizing various forms of relaxation techniques. Those studies which

are relevant to cardiovascular medical or surgical patients will be presented next.

Bohachick (1984) conducted a study to investigate the effects of PRT as a stress management intervention for cardiac rehabilitation patients. Eighteen patients were given three weeks of PRT in addition to the usual program. Results demonstrated a significant reduction in anxiety as measured by Spielberger State-Anxiety Scale and a Symptom Checklist to measure psychologic symptoms. Patients in the PRT group reported significantly less anxiety, depression and somatization than the control group who received the usual program without PRT.

Studies document the effect of relaxation techniques on the blood pressure and oxygen consumption. Beary and Benson (1974) conducted a study using 17 adults to determine the effects of the relaxation response versus sitting quietly with eyes closed on oxygen consumption and carbon dioxide elimination. The relaxation response intervention group demonstrated a 13 percent reduction in oxygen consumption and a 12 percent decrease in carbon dioxide elimination.

Chenella (1981) conducted a study using 16 subjects with coronary artery disease. The

experimental group practiced a relaxation technique for 15 minutes, twice each day for five days. They demonstrated a reduction in heart rate, blood pressure, and required fewer medications than the control group.

Peters, Benson, and Peters (1977) studied the effects of the relaxation response on normotensive people. Using 126 workers as subjects, they demonstrated a reduction in both systolic and diastolic blood pressure after eliciting the relaxation response.

Horowitz, Fitzpatrick, and Flaherty (1984) conducted a study using relaxation techniques to increase the comfort of initial ambulation postoperatively in open heart surgical patients. This study (n=30) compared Benson's general relaxation technique to a jaw relaxation technique developed by the authors. The subjects performed one of the two relaxation techniques prior to ambulation then rated their pain level on returning to bed. The generalized relaxation group reported less pain and distress after ambulation than the jaw relaxation group. Both groups had a significant reduction in systolic blood pressure and the general relaxation group had a significant reduction in respiratory rate. The amount of pain medication did not change. These authors recommend

relaxation techniques as a safe, natural intervention in painful, high anxiety situations such as with diagnostic procedures or surgery. They suggest that relaxation techniques give the patient a sense of control over the critical care environment, pain and anxiety (Horowitz, Fitzpatrick & Flaherty, 1984).

Brandon and Poppen (1985) conducted a study (n=33) using well, college students. They compared Benson's relaxation technique, a behavioral relaxation training program which included modeling, instructions and feedback, to a placebo procedure which consisted of listening to taped environmental sounds. All three groups showed some degree of relaxation and there was no evidence strong enough to conclude that one was superior. These authors suggest no one technique is best as long as it has the four basic nonspecific elements of Benson.

Frenn, Fehring and Kartes (1986) conducted a study to determine if practicing Benson's relaxation technique before cardiac catheterization would reduce the patients' stress response as measured by pulse, blood pressure, respiration and state-anxiety scores. The experimental group (n=10) was taught the Benson's relaxation technique the day before the catheterization.

They practiced it at bedtime and just prior to the procedure the next morning. The control group (n=10) received only the usual standard preoperative teaching. Eight of the ten patients reported that practicing relaxation helped and there were slight decreases in state anxiety. This was not statistically significant.

In a study of relaxation and its use in pain control, subjects (n=45) completing a 12 week pain control program rated the interventions used. Fifty-seven percent rated relaxation training as "very helpful." In rank ordering interventions, relaxation training was ranked higher than pain medications (Kulich & Warfield, 1985).

Wallace, Bratt-Wyton, Jones and Wingett (1982) conducted a group relaxation program for MI patients. The patients were taught relaxation techniques one week prior to discharge. The survey (n=54) revealed that 38% wanted more practice before discharge, 32% had used taped instructions and 28%, written instructions. Five percent did not continue relaxation training. Patients reported feeling more in control and better able to cope when they used relaxation techniques.

Relaxation techniques have been studied in a variety of situations with varying degrees of success.

They have been used to reduce pain, stress and anxiety in the cardiovascular patient. They are purported to increase the coping of patients by giving them a sense of control (Snyder, 1984). Relaxation has been used with medical as well as surgical cardiovascular patients. Relaxation techniques are reported to decrease blood pressure, pulse, respiration, pain, state anxiety and induce the relaxation response (Benson, 1975). It is suggested that we not view progressive relaxation as a "panacea for all persons and all conditions" (Snyder, 1984, p. 57) but that it be considered an adjunct to the patient's plan of care.

Therapeutic Touch

Therapeutic touch is an intervention derived from a healing practice known as the laying on of hands. Krieger states that it is a "uniquely human and quite ancient art of voluntary transfer of some undefined energy from a well person to one who is ill" (Krieger, 1975b, p. 6). Krieger called this energy system "prana," a term from Eastern cultures. This energy is said to be solar in origin and somehow connected to oxygen. It was felt that healthy people had an overabundance of prana and ill people, a deficit (Krieger, 1975b, 1979).

Krieger's interest in healing developed as she observed Oscar Estebany, a recognized healer, working with patients. In collaboration with Dora Kuntz, also a healer, Krieger found that this healing energy could be transferred through concentrated effort (Krieger, 1979). She set out to learn more about the laying on of hands and its effect through scientific research.

In 1971, Krieger conducted a pilot project to determine the effects of this healing on hemoglobin levels. Using Estebany as the healer, and sick patients as subjects, Krieger found significant increases in the hemoglobins of the experimental group as compared to the control group. She controlled for age, sex, diet, medications, and biorhythms. This pilot study demonstrated the feasibility of a larger study (Krieger, 1975b).

In 1972, Krieger conducted a large scale study with an experimental (n=43) and control group (n=33). Estebany was the healer and the same controls were maintained. There was a statistically significant increase in the hemoglobin values of the treatment group at the .01 level (Krieger, 1975b).

Krieger replicated the study in 1973, controlling for meditation and certain Yogic breathing techniques

in addition to the former variables. This study (n=75) revealed a statistically significant hemoglobin value increase at a probability exceeding the .001 level of confidence (Krieger, 1975b).

Krieger learned that healing can be taught. She taught healing which she named "therapeutic touch" (TT) in the graduate nursing program at New York University in a course called "Foundations in Nursing" (Krieger, 1979). Krieger identifies five steps or phases in TT. These steps are:

1. Centering oneself.
2. Making an assessment of patient (healee).
3. "Unruffling" the field.
4. Directing and modulating energy.
5. Recognizing when it's time to stop

(Krieger, 1979, p. 69)

Centering is defined as a "conscious meditative act wherein the channels or healers attempt to quiet their chattering minds and come to their own centers" (Fanslow, 1983, p. 76). Three conditions are identified as essential to TT. They are compassion, intentionality (the desire to help or heal) and the ability and willingness to confront oneself (Fanslow,

1983; Krieger, 1979). Boguslawski (1979) reports that the healer should be in a basic state of wellness and not be tired, angry or anxious when administering TT.

In 1974, Krieger replicated a hemoglobin study using nurses who had been taught TT, as the healers. This was a double blind study which involved 16 TT nurses and 16 nonhealer nurses. Each nurse administered a treatment to two selected patients. Pretest and posttest hemoglobins were collected. The experimental group (n=32) received TT and the control group (n=32) received only the "kinds of touch necessary to do daily procedures without any attempt to heal" (Krieger, 1975b, p. 9). The results demonstrated the hemoglobin values of the experimental group had increased ($p=.001$) and there were no significant increases in the hemoglobin values of the control group.

Referring to the Eastern concept of yin and yang, Randolph (1979) describes and explains TT as a yin modality. Yin is described as intuitive, sensitive and nurturing, as opposed to yang modalities, which are viewed as aggressive, intrusive, logical, scientific and powerful.

Krieger (1979) reported that the most significant response to TT is the relaxation response. Krieger recorded more than 100 repeated tests where an objective observer or a skeptic of TT was given a list of four objective signs to look for in a subject or "healee" after a TT treatment. This was done without the healee's or audience's knowledge. The four signs Krieger used were as follows:

1. The voice level of the healee will go down several decibels.
2. The healee's respirations will slow down and deepen.
3. There will be some audible signs of relaxation in the healee, such as a sigh or a deep breath; or the healee may say something such as, "oh, I feel so relaxed."
4. There will be an observable peripheral flush, a pinking of the skin, apparently due to dilatation of the peripheral vascular system in the healee. This peripheral flush will first be noted in the face, but it is a general effect to the whole body (Krieger, 1975a, pp. 75-76).

Krieger would ask the observer to tell the audience which signs he observed. Krieger reported that this method was 90 percent reliable. She noted this was not controlled research but these signs have been consistently noted clinically (Krieger, 1975a).

The focus of some studies has been the type of meditation called TT or healing meditation. For example, Krieger conducted TT while researchers recorded her EEG, EKG, Galvanic skin response and skin temperature. The results demonstrated an "unusual amount of fast beta EEG" (Krieger, Peper & Ancoli, 1979, p. 661). The usual meditative EEG often shows an increase in alpha and enhancement of theta waves, beta being the waking state. This may indicate Krieger's own meditative style. It may or may not be related to TT since others may have fast beta waves during meditation which are not reported. It was recommended that this project be repeated with other healers in the process of performing TT.

Researchers at UCLA Neuropsychiatric Institute used Kirlian photography to examine the energy field in healing. Kirlian photography is a method of high-voltage photography which produces an image of the energy fields surrounding the bodies of all living

things, and changes with a person's emotions, mental or physical state. Pictures were taken of the finger pads of both the healer and the patient before and after a healing treatment. The study included patients (n=12) who received eight treatments over three months. Results consistently demonstrated the healer's "corona" or energy field was larger in the pre-treatment picture as compared to the post-treatment one. The patient had an increase in the size of the energy field after treatment according to the picture. Some accept this as documentation of an energy exchange. This was supported by another study with Kirlian photography, Olga Worrall, a well known healer, treated an injured leaf. The "leaf flared brilliantly" after treatment (Miller, 1979, p. 284).

Studies with TT

Heidt (1981) conducted research in a cardiovascular unit to determine the effects of TT on state anxiety. This pretest, posttest research design used Spielberger's state anxiety tool. The subjects (n=90) were divided into three groups. The five minute interventions were (1) TT, (2) casual touch which involved taking the pulse, and (3) casual conversation

with no touch. Results revealed greater reductions in state anxiety in the TT group (Heidt, 1981).

Quinn (1982) conducted research to determine if TT without physical contact would produce the same effect as previous research involving TT with physical contact. Utilizing a pretest posttest design with Spielberger's state anxiety tool, cardiovascular subjects (n=60) received TT by experienced practitioners. The TT intervention followed the steps of centering, assessment, unruffling the energy field, and then directing energy into the solar plexus area (just below the waist) for two minutes. The total time for the intervention was five minutes. The control group received a procedure which appeared identical to the treatment group by nurses who had no knowledge of TT. To prevent concentrating on TT, these nurses mentally subtracted from 100 by sevens and by counting backwards from 240 to zero. A panel of judges could not visually differentiate between the two interventions. The subjects receiving noncontact TT by experienced practitioners had significant reductions in the post test anxiety level as compared to the control group who received the treatment by nurses with no knowledge of TT (Quinn, 1984). In comparison of the

Quinn study to that of Heidt, there appears to be approximately a 17 percent decrease in state anxiety when using TT on cardiovascular patients.

Keller (1984) conducted a study on the effects of TT on tension headaches. The study involved 60 subjects with tension headaches who were divided into two groups. The experimental group received noncontact TT and the control group received a procedure which simulated the experimental intervention. The interventions were conducted with the same procedure as Quinn (1982) used. Based on pain scores as measured by the McGill-Melzack Pain Questionnaire, 90 percent of the TT subjects reported a 70 percent reduction in pain. The pain relief was sustained for more than a four hour period.

Many articles have been written on the uses of therapeutic touch based on subjective experiences. They are written to practicing nurses. For example, Raucheisen relates her experiences of implementing TT in the hospital after attending a workshop. She reported successful results in decreasing nausea due to chemotherapy, increasing circulation and warmth in an extremity with arterial insufficiency, as well as decreasing anxiety (Raucheisen, 1984).

Stern (1985) relates the use of TT in labor to smooth out the energy field during contractions. Patients reported the contractions were smoother when TT was administered. One Lamaze instructor reported that it helped to relax the coach. Stern reports that "couples can distinguish between the mother's and baby's energy fields (Stern, 1985, p. 47).

Bulbrook, (1984) reports case studies of decreasing pain, anxiety, and increasing the healing process. Bulbrook relates a procedure of energy field assessment with the hands being held at varying distances from the body--three, six, 12 and 18 inches. Bulbrook proposes the first level of the energy field from three to six inches reveals a physical disturbance; the second level from six to 12 inches an emotional disturbance; and the third level from 12 to 18 inches, a spiritual disturbance. TT may be used on almost any condition or illness. Bulbrook recommends that nurse researchers need to become "more knowledgeable about sophisticated measurement methods" in order to document and improve their research (Bulbrook, 1984, p. 34).

Dr. John Zimmerman, in his study of biomagnetism, found the body is surrounded by a magnetic field which

fluctuates. He detected this field with a non-invasive device called SQUID or superconducting quantum interference device. The SQUID detects very weak magnetic fields and produces graphic images. Zimmerman conducted a pilot test of three healers and a TT healer during the healing process. He found signals several hundred times higher than background noises. When non-healers were tested, he found no signal present. Dr. Zimmerman theorizes that healers "tune in to their patients' resonant frequency and exchange information through biomagnetic waves that aid in healing" (True, 1986, p. 3). Dr. Zimmerman believes that we may soon discover the scientific basis of TT and that he may be able to see disrupted energy patterns prior to the development of disease (True, 1986).

In summary, therapeutic touch has been reported to reduce state anxiety, blood pressure, pulse, respirations and pain, and to increase hemoglobin. It may assist women in labor and relax the husbands during Lamaze.

The explanations of the human energy field are controversial and subjective. The Eastern concept of prana which Krieger uses to explain the energy system and transfer of energy, is most often related to a

spiritual experience and mysticism. The Rogerian model is accepted by some as explanation for TT and its effect. There is no concrete evidence that an energy field interaction is responsible for the reported effects of TT. The practice of TT remains primarily a subjective experience such as the notion of centering and energy assessment. The reports by patients are also generally vague and subjective (Jurgens, Meeham, & Wilson, 1987). Krieger calls for a "new scientific framework that can qualitatively measure such slippery concepts as energy transfer and conscious intent" (Abramson, 1985, p. 47).

Based on the review of literature both TT and PRT have reported effects in reducing state anxiety and inducing a relaxation response in patients. In spite of the subjective nature of these interventions, they appear to be effective in a variety of situations. Both are within the scope and practice of nursing and are skills which may be learned in a variety of settings from informal study to structured classes. Even while TT is growing in acceptance as evidenced by the numbers of nurses attending workshops, it remains limited in its validation by research.

Chapter III

Methodology

This chapter presents the design of this study, the sample, tools and procedure for data collection and data analysis.

Design

This study used a pretest-posttest experimental design. Two intervention groups were formed for this investigation. One group received progressive relaxation technique and the second, therapeutic touch.

Sample

The subjects in this study consisted of a convenience sample of patients in the step-down cardiovascular unit of a 500-bed hospital in the eastern United States. The population included medical patients with admitting diagnoses such as myocardial infarction, angina, coronary artery disease and congestive heart failure. It also included patients having procedures such as coronary angioplasty, coronary artery bypass graft and cardiac catheterization. Data were collected for six weeks from the patients admitted to the unit by the consenting cardiologists. From the eligible patients,

the subject population was drawn utilizing the following criteria:

1. Can read and complete the English version of the Self-Evaluation Questionnaire STAI Form Y-1 (Speilberger, 1983).
2. Are alert and able to give informed consent.
3. Not taking a pain medication, tranquilizer or sedative for preceeding three hours.
4. Feels well enough and wants to participate (no pain or respiratory distress).
5. Does not meditate or practice relaxation techniques.

Demographic data were collected from the chart as well as from the subject. The data included the following: sex, age, ethnic group, religious preference, marital status, education, admitting diagnosis, diagnostic procedure to be done, number of previous admissions related to heart problems, position (in bed or recliner) for this intervention, and whether the patient was waiting for a procedure to be done or if it had been completed. Each subject signed a consent form prior to entering the study.

Instrument

The Self-Evaluation Questionnaire, STAI Form Y-1 (Speilberger, 1983) was used to measure state anxiety before and after each intervention for both treatment groups. The State Anxiety Scale (STAI Form Y-1) consists of 20 statements which the subjects rated how they "feel right now . . . at this moment" (Speilberger, 1983, p. 2). Subjects responded to statements such as "I feel calm," "I feel tense," and "I am jittery" using a scale of "not at all," "somewhat," "moderately so" and "very much so."

The STAI has been used widely in assessing the current anxiety states of patients in a variety of settings which include medical, surgical and psychiatric settings. More than 2,000 studies have utilized this tool.

Normative data are available for working adults, college and high school students, and military recruits. The data also provide statistics for males and females in each group as well as age groupings. According to Speilberger (1983), the normative data based on the Form X can be generalized to Form Y and the two forms may be "considered essentially equivalent for the assessment of anxiety" (Speilberger, 1983, p. 10). In

the standardization of Form Y, over 5,000 subjects were tested. The wording was changed for clearer identification of state versus trait anxiety.

The mean state anxiety for general medical and surgical patients (n=161) is 42.38 with a standard deviation of 13.79. The mean educational level of this group was tenth grade.

Test-retest correlations were done with high school students being retested at 30 and 60 day intervals. College students were retested at one hour, 20 and 104 day intervals. Test-retest correlations for the state anxiety were low with the stability coefficients for college and high school students ranging from .16 to .62 with a median reliability coefficient of .33. The state anxiety is expected to change due to its transitory nature and the changing conditions surrounding the test administration, which measures how the subject feels "now" (Speilberger, 1983).

Construct validity was reported through comparison of the state anxiety scores under the four conditions of high anxiety, low anxiety, normal and relaxed conditions. The mean state anxiety scores were lowest in the relaxed condition (for males 32.70, for females

29.60). Under normal conditions, the means were 36.99 for males and 37.24 for females.

The mean state anxiety scores increased from the low-stress to the high-stress conditions for males at 43.01 and 50.03 respectively, and females scoring 43.69 and 60.94 respectively (Speilberger, 1983). These findings suggest that the State-Anxiety scale may be used under a variety of stressful conditions as well as reflecting a decrease in anxiety under a relaxed condition as compared to the normal state. The data collection worksheet used in this study may be found in the Appendix E.

Procedure for Data Collection

The investigator collected the data from the patients' records and by brief interview. After the criteria were met, subjects signed the consent form (see Appendix D). They were assigned to either the TT or PRT intervention group by the list of numbers taken from a table of random numbers and the sequence by which they entered the study. There were 17 subjects in each group. The procedure is described as follows:

1. Written consent was obtained.

2. The investigator gave each subject the state anxiety questionnaire and left the room for ten minutes.
3. A "Do Not Disturb" sign was placed on the door.
4. The completed pretest was placed in a folder.
5. The ten minute intervention was provided by the investigator.
6. The investigator gave the subject another state anxiety questionnaire and left the room for ten minutes.
7. The posttest questionnaire was collected and placed in a folder.
8. Questions of the subjects were answered.
9. The subjects were thanked for their participation in the study.

Intervention Groups

Progressive Relaxation Technique Group

In treating subjects with PRT, a taped recording of a progressive relaxation technique utilizing the investigator's voice without background music was used. The investigator stayed in the room and sat quietly during the intervention session to control for the placebo effect of having a health care person present. The PRT was developed by the investigator as part of a

stress reduction program for cardiac rehabilitation clients. It was modeled after Benson's Relaxation technique. It instructed subjects to focus their attention on specified areas, to gently tense that area, experience the tension and then relax that part. It concluded with instructions to "breathe in, breathe out and think the word one." Subjects continued this pattern for a total intervention time of ten minutes.

Therapeutic Touch Group

Therapeutic touch was administered by the investigator due to a limited number of TT practitioners in the area. The investigator has six years experience with TT, teaches basic TT workshops, and attended the 1986 East Coast Invitational Advanced TT Seminar in New York conducted by Dr. Dolores Krieger and Dora Kuntz.

The TT intervention followed the steps as identified by Krieger (1979) of centering, assessment, clearing the energy field, directing energy to achieve balance and then placing the hands four to six inches over the subject's solar plexus (just below the waist). The ten minute TT intervention was conducted without physical touch. It was designed in this manner to closely simulate the way TT is practiced (Macrae, 1988).

Ten minutes was timed using a standard watch with a second hand.

The following explanation was given to TT subjects:

Therapeutic touch is a method of balancing the human energy field. Assume a comfortable position. You may close your eyes. I am going to use my hands and pass them over your body in a way that has been taught to me. I will let you know when I am through.

Plan of Analysis

STAI tests were hand scored according to the publisher's manual for the State-Trait Anxiety Inventory (Spielberger, 1983). Pretest and Posttest scores were calculated after all data were collected.

Dependent sample t-tests were done within each treatment group, to assess changes from pretest to posttest scores. An independent sample t-test was used to see whether pretest-posttest differences were equivalent for the therapeutic touch group versus the progressive relaxation group. All tests were performed at the .05 level of significance.

Two way analyses of the variance were used to determine if a relationship existed among the subjects'

sex, age, ethnic group, educational level, religious preference, diagnosis, diagnostic procedure, number of previous cardiac admissions, and the subject's response to treatment by PRT or TT as measured by a reduction in the state anxiety scores.

Chapter 4

Analysis of Data

The purpose of this study was to determine by experimentation whether two identified procedures, therapeutic touch and progressive relaxation technique, would be effective in reducing the state anxiety in hospitalized cardiovascular patients. This pretest-posttest study was designed to determine (a) if both TT and PRT were effective in reducing the state anxiety in hospitalized cardiovascular subjects and (b) to determine if TT was more effective than PRT in the same population. It was hypothesized that TT would be more effective than PRT since relaxation techniques are generally considered more effective when learned and then practiced over a period of time. This study looked at TT and PRT as first time interventions once the patient was admitted.

Subjects who met the criteria for inclusion in the study (see p. 32), were randomly assigned to one of two treatment groups by a list of numbers selected from a table of random numbers. The subjects were placed in a group by the numerical sequence of their entering the study (see Appendix G).

Each subject was pretested with the State Anxiety Inventory Form Y-1 and then received a ten minute intervention of either TT or PRT. Each subject was then posttested using the same format. Subjects were debriefed after the intervention and testing was completed.

The researcher administered both interventions due to the limited availability of nurses skilled in TT. A taped recording of the PRT in the researcher's voice was used to provide for consistency. The researcher sat quietly in the room during PRT to control for the presence of a health care person. The data were collected and state anxiety scores were not calculated until the research period ended in attempt to limit researcher bias.

Description of the Sample

In the six week data collection period, a convenience sample of 34 subjects (21 males and 13 females) was obtained through a group of private practice cardiologists. Two additional subjects were eliminated because they did not complete the posttest due to excessive interruptions by staff and visitors. The subjects ranged in age from 32 to 72 years, averaging 54.8 years. There were 32 (94.1%) caucasians

and two blacks (5.9%). There were 29 married subjects (85.3%) and 5 (14.7%) widowed (see Table 1).

The religious preference of the sample included 31 Protestants (91.2%), two Catholics (5.9%), and one "other" (2.9%). The educational level of the sample included two subjects who completed the sixth through the ninth grade (5.9%), 20 completed the 10-12th grade (58.8%), two completed one to two years of college (5.9%), seven completed two to four years of college (20.6%), and three subjects completed more than four years of college (8.8%) (see Table 2).

The admitting diagnoses of the subjects included seven with myocardial infarctions (20.6%), one with congestive heart failure (2.9%), 20 with angina (58.8%), one with angina plus MI (2.9%), and five with other heart related diagnoses (14.9%). Procedures which were performed during the current admission were categorized. These included cardiac catheterization, percutaneous transluminal coronary angioplasty (PTCA), and coronary artery bypass graft (CABG). Subjects entered into the study at various times in relation to their procedure to be done and accessibility to the researcher. Eleven (32.4%) were pre procedure and 22

Table 1

Sex, Age, Race and Marital Status Reported by Subjects(n=34)

Variable	Number	Percentage
<u>Sex</u>		
Male	21	61.8
Female	<u>13</u>	<u>38.2</u>
Total	34	100.0
<u>Age</u>		
30-39	2	5.9
40-49	8	23.5
50-59	7	20.6
60-69	16	47.1
70-79	<u>1</u>	<u>2.9</u>
Total	34	100.0
<u>Race Status</u>		
White	32	94.1
Black	2	5.9
Other	<u>0</u>	<u>0</u>
Total	34	100.0
<u>Marital Status</u>		
Single	0	0
Married	29	85.3
Separated	0	0
Divorced	0	0
Widowed	<u>5</u>	<u>14.7</u>
Total	34	100.0

Table 2

Religious Preference and Educational Level Reported by
Subjects in Sample

<u>Variable</u>	<u>Number</u>	<u>Percentage</u>
Religious preference		
Protestant	31	91.2
Catholic	2	5.9
Jewish	0	0
Other/No Preference	<u>1</u>	<u>2.9</u>
Total	34	100.0
Education completed		
6-9th grade	2	5.9
10-12th grade	20	58.8
1-2 years college	2	5.9
3-4 years college	7	20.6
over 4 years	<u>3</u>	<u>8.8</u>
Total	34	100.0

(64.7%) were post procedure. The pre procedural subjects were further classified as follows: pre cardiac catheterization, 15 (44.1%); pre PTCA, 3 (8.8%); pre CABG, one (2.9%); and three patients were categorized as "other" (see Tables 3 and 4).

Table 3

Number of Admissions Related to Heart Problems,
Admitting Diagnosis, and Procedure Status of Subjects
in Sample

<u>Variable</u>	<u>Number</u>	<u>Percentage</u>
Number of admission related to heart problems		
1	21	61.8
2	6	17.6
3-4	4	11.8
5-9	3	8.8
Total	34	100.0
Admitting diagnosis		
MI	7	20.6
CHF	1	2.9
Angina	20	58.8
MI plus Angina	1	2.9
Other	5	14.7
Total	34	100.0
Procedure status		
Pre-cath	6	17.6
Post-cath	15	44.1
Pre-PTCA	3	8.8
Post-PTCA	6	17.6
Pre-CABG	1	2.9
Pre-Pacemaker	1	2.9
Not for procedure	2	5.9
Total	34	100.0

Table 4

Subjects Pre Any Procedure and Post Any Procedure

(n=34)

Variable	Number	Percentage
Pre any procedure	11	32.4
Post any procedure	22	64.7
Other	<u>1</u>	<u>2.9</u>
Total	34	100.0

Based on these data, the typical subject was a 55 year old white, Protestant, married male with a twelfth grade education. His admitting diagnosis was angina and he entered the study after a cardiac catheterization. The subjects could receive the intervention in bed or recliner-type chair. Due to the nature of the procedures 32 subjects were in bed and two in the recliner.

On the State Anxiety Inventory Form Y-1 for measuring anxiety, the minimum possible score of 20 indicates the lowest level of anxiety and the maximum score of 80, the highest level of anxiety. For this sample, the prescore state anxiety ranged from 23 to 62 with a mean of 39.8 and a standard deviation of 9.5.

The postscore ranged from 20 to 52 with a mean of 34.06 with a standard deviation of 9.9 (see Appendix H).

Findings

The findings are reported according to each hypothesis and analysis of data.

Hypothesis I: There will be a reduction in the posttest state anxiety scores in hospitalized cardiovascular subjects who receive TT and PRT interventions relative to their pretest state anxiety scores.

In the TT group (n=17), the prescore state anxiety mean was 39.35 as contrasted with the post score mean of 32.82 for a mean difference of 6.53. The standard deviation was 5.7. The PRT group (n=17) had a prescore state anxiety mean of 40.24. The postscore mean was 35.29 with a mean difference of 4.94 for the PRT group. The standard deviation was 7.03.

The data were analyzed using dependent sample t-tests within each intervention group. The TT group had a t value of 4.69 with 16 degrees of freedom. The TT group findings were significant at the .05 level ($p < .000$). The t value of the PRT group was 2.90 with 16 degrees of freedom. This was statistically

Table 5

Comparison of Pretest State Anxiety Score, Posttest State Anxiety Score, Mean Difference, t and p Values by Intervention Groups

Intervention	Pretest Score	Posttest Score	Mean Difference	t	p
TT (n=17)	39.35	32.82	6.53	4.69	.000
PRT (n=17)	40.24	35.29	4.94	2.90	.010

significant at the .05 level ($p < .01$). Hypothesis I was supported (see Table 5).

Hypothesis II: There will be a greater reduction in the posttest state anxiety scores as related to the pretest state anxiety scores in cardiovascular subjects who receive the therapeutic touch intervention than in similar subjects who receive the progressive relaxation technique intervention. The data were analyzed using an independent sample t-test to compare the two groups. Results revealed a t value of .72 with 32 degrees of freedom ($p < 0.476$). This was not significant at the .05 level. Hypothesis II was rejected.

Other Analyses of Data

A two way analysis of the variance was used to determine if a relationship existed among the subjects'

demographic data (sex, age, ethnic group, marital status, religious preference, educational level, and diagnosis), the procedures done, and whether preprocedural or postprocedural at the time of the intervention. Statistically significant relationships ($p < .05$) were not found between intervention groups for these listed variables. Decreases in state anxiety scores were approximately the same for both interventions performed on subjects who were preprocedural and on those who were postprocedural, $F(1,29) = .319$ $p = .576$. When comparing the intervention used (TT or PRT) in subjects who were pre or post any procedure, overall there was no significant drop in anxiety scores, $F = .132$ $p = .719$ (see Tables 6 and 7).

When the drop in anxiety from pretest to posttest was examined for therapeutic touch and progressive relaxation technique, a greater drop was observed for those subjects who experienced therapeutic touch prior to their procedure (cardiac catheterization, PTCA or bypass surgery) than those who experienced TT after their procedure. The situation was reversed for those subjects who received the progressive relaxation treatment. Here the drop in state anxiety scores was

Table 6

Variation in State Anxiety Score Changes by Pre/Post
Procedures and Intervention of TT and PRT

<u>Source of Variation</u>	<u>DF</u>	<u>F</u>	<u>P</u>
Pre-Post	1,29	.319	.576
Intervention	1,29	.132	.719
Interaction of PrePost and Intervention	1,29	3.318	.079

Table 7

Cell Means Comparing Average Decreases in State Anxiety
Scores by Intervention and Timing of Intervention
Relative to Subjects Pre or Post Any Procedure

<u>Intervention</u>	<u>TT</u>	<u>PRT</u>	<u>Total Pre/Post</u>
Pre any procedure	9.29	2.75	6.91
	(7)	(4)	(11)
Post procedure	4.60	6.50	5.64
	(10)	(12)	(22)
Intervention	6.53	5.56	6.06
Total	(17)	(16)	(33)
	<u>TT</u>	<u>PRT</u>	

greater for those having progressive relaxation after their procedure than before. These differences however, were not statistically significant at the .05 level, $F(1,29)=3.318$ $p=.079$.

Summary of Findings

The hypotheses of this study were (1) that there would be a reduction in the posttest state anxiety scores in hospitalized cardiovascular subjects who receive TT and PRT interventions relative to their pretest state anxiety scores and (2) that there would be a greater reduction in the posttest state anxiety scores as related to the pretest state anxiety scores in cardiovascular subjects who receive the TT intervention than in similar subjects who receive the PRT intervention. Hypothesis I was supported at the .05 level of significance. Both interventions significantly reduced the state anxiety. Hypothesis II was not accepted at the .05 level of significance. This indicated that there was no significant difference when comparing the two interventions in their reduction of state anxiety.

Chapter 5

Summary of the Study

Based on the theories of stress by Selye (1956, 1976), Spielberger (1976) and Cannon (1932), stress is viewed as having a role in the development of and progression of illness. This is particularly true of cardiac patients who experience additional anxiety and compromise when faced with admission, procedures, transfer and discharge from the cardiac units of a hospital. Inducing the relaxation response is one safe, noninvasive alternative to drugs in combatting anxiety and stress. In addition to the routine care, nurses need to identify and implement these alternative, safe interventions which induce relaxation in their cardiac patients.

Benson (1975) identified a simple, easy-to-learn, noncultic procedure for inducing the relaxation response. Nurses can quickly and easily teach this to patients. Therapeutic touch which was developed by Krieger (1979) is recognized as inducing relaxation in subjects. TT may be learned by nurses in workshops or in several practice sessions. Therapeutic touch describes an interaction of the energy field of the nurse and the patient resulting in relaxation. Rogers'

theory of man as an energy field provides a theoretical framework for TT.

According to Rogers' theory, "professional practice in nursing seeks to promote symphonic interaction between man and environment" (Rogers, 1970, p. 122). Man is viewed as an energy field imbedded within an environmental energy field. Nursing interventions are directed towards the repatterning of these fields to reach the maximum health potential. Both TT and PRT may be explained using the theoretical framework of the Science of Unitary Man.

The nurse performing TT, especially noncontact TT such as was utilized in this study, seeks to direct and redirect the patterning of the human energy field with the hands. The principle of Resonancy denotes the "rhythmic flow of energy waves which order and reorder the human field" (Rogers, 1970, p. 122). In TT, the nurse learns to sense the characteristics of the field with his/her hands through subjective sensations. There is simultaneous interaction between the fields and possibly an energy transfer as evidenced by Kirlian photography.

PRT as an intervention may be viewed as directed at a repatterning of man and his relationship to the

environment. Rogers states that "man knowingly makes choices . . . and through awareness of himself and his environment, he is an active participant in determining the pattern of his field" (Rogers, 1970, p. 71). The nurse may teach a patient PRT. The patient may consciously decide to use PRT in order to change his interaction with certain stressful situations. This may be an energy field interaction as man changes his responses to stress. Skills such as PRT and TT are tools which may translate the theory into "socially significant service to human beings" (Rogers, 1970, p. 138).

Nurses have very little information available to guide decisions in selecting interventions. This study provided data which may help nurses select interventions to reduce the state anxiety of their patients. The purpose of this study was to determine the effectiveness of two nursing procedures, TT and PRT, in reducing the state anxiety of hospitalized cardiovascular patients. It was hypothesized (1) that there would be a reduction in the posttest state anxiety scores in hospitalized cardiovascular subjects who receive TT and PRT interventions as related to their pretest state anxiety scores and (2) that there

would be a greater reduction in the posttest state anxiety scores relative to the pretest state anxiety scores in cardiovascular subjects who receive TT than in similar subjects who receive the PRT intervention.

The data show that the first hypothesis was supported. The PRT subjects experienced a mean postscore decrease in state anxiety of 4.94 when compared to the prescore. The TT group demonstrated a 6.53 mean decrease in state anxiety when comparing the pretest to posttest. This was supported at the .05 level of significance.

The second hypothesis that TT would be more effective than PRT was not supported at the .05 level of significance. The study design was planned with a sample size of 20 patients per group so that a test of the comparative effectiveness of the two interventions, performed at the .05 level of significance, would have 8 chances out of 10 (power of .8) of detecting a difference of at least .8 standard deviation units between the two groups. Problems in subject accrual resulted in an actual sample size of 17 patients per group and an obtained difference of 1.59 score units or .25 standard deviation units between TT and PRT. If there is a real difference in state anxiety reduction

between the two groups of .25 standard deviation units, then a sample size of approximately 300 patients per group would be needed to detect such difference with power of .8. While the present sample size was nearly adequate to detect differences of the magnitude of .75 standard deviation units between groups with power of .8, it was far from adequate to detect as statistically significant differences as small as those actually found between TT and PRT in this study. Of course one may ask whether a reduction of 1.59 score units or of .25 standard deviation units in state anxiety is clinically significant. Also, no significant relationships were found among the variables between groups for sex, age, ethnic group, marital status, religious preference, educational level, diagnosis, or procedure to be done. It was also noted that for subjects in both the TT and PRT groups, decreases in anxiety were approximately the same for those subjects who were preprocedure and for those who were postprocedure.

In examining the effects of both interventions in subjects who were preprocedure versus postprocedure, a trend ($p=.07$) was noted. The subjects awaiting cardiac catheterization, PTCA or CABG, who received TT,

experienced a slightly greater decrease in state anxiety postscores as compared to prescores than the preprocedural subjects who received PRT. For postprocedural subjects the reverse trend was noted. Those subjects who received PRT responded slightly more favorably in state anxiety reduction than those who received TT. While not statistically significant, these data suggest further study.

Limitations

Some limitations of this study were identified. First is the lack of random sampling in the selection of subjects, a convenience sample was used. Second, the sample size was small. The subjects were limited to those of a selected group of physicians in private practice who had been educated about their cardiac condition and procedures. These subjects were admitted to one nursing unit of a 500 bed hospital and had a variety of admitting diagnoses; they were at varying stages in relationship to diagnostic procedures being completed (pre versus post procedure). These subjects were primarily middle age and older, representing a select group according to Rogers' theory. Rogers states the aging process is "not a winding down, but a creative process directed toward growing diversity of

field pattern and organization (Rogers, 1980, p. 337). Third, the principal investigator administered all interventions. This could be identified as a strength due to consistency of procedures, yet it also lends itself to researcher bias. Having only one person to do all the TT interventions within a limited period of time requires that person to be "centered" on demand. Fourth, patient reactance may have occurred because some subjects wanted to help the investigator as a graduate student. Generalizations need to be made with caution on the basis of the findings of this study.

Implications for Nursing

For the consideration of those nurses making decisions about appropriate interventions for anxious cardiovascular patients, the author suggests the following:

1. Either therapeutic touch or progressive relaxation techniques may be appropriate.
2. Therapeutic touch tends to be more effective for patients awaiting procedures to be completed.
3. Progressive relaxation techniques tend to be more effective for patients who have completed scheduled procedures.

Recommendations

The following are recommendations based on the findings of this study are:

1. The study be replicated with a larger sample.
2. The design of the study be revised to look at specific procedures such as subjects' precatheterization and postcatheterization.
3. The sample include subjects who already know relaxation techniques as a separate group.
4. The design be altered to provide interventions pre and post procedure to the same subjects.
5. A control group be included who receive a routine nursing procedure such as physical assessment.
6. Additional nurses trained in PRT and TT be available to provide interventions.
7. Inclusion of physiological measures such as pulse, blood pressure, respiration, and cardiac rhythm strips.
8. Inclusion of a wider range of age groups in the sample.

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APPENDIXES

Appendix A: Human Subjects Review

EAST CAROLINA UNIVERSITY
GREENVILLE, NORTH CAROLINA 27858-4354
POLICY AND REVIEW COMMITTEE ON HUMAN RESEARCH

OFFICE OF THE CHAIRMAN
BRODY BUILDING 6N-70, 6N-74
SCHOOL OF MEDICINE

Telephone (919) 551-2914 (Secretary)
(919) 551-2773 (Chairman)

MEMORANDUM

TO: Ms. Patricia P. Hooks, School of Nursing, East Carolina University
Copy to: Dr. Bonnie Duldt, School of Nursing
(Copy to Director of Sponsored Programs if in Funding Category I)

FROM: Policy and Review Committee on Human Research

SUBJECT: Review and Approval of Research Proposal

Title: A Comparison of Progressive Relaxation Technique to Therapeutic Touch
in Reducing State Anxiety in Hospitalized Cardiovascular Patients

Principal Investigator: Ms. Patricia P. Hooks
Faculty Sponsor (if P.I. not on E.C.U. faculty): Dr. Bonnie Duldt
UPRCHR Number: 87-213

This research proposal described by protocol has been reviewed by the University Policy and Review Committee on Human Research (UPRCHR) and:

approved for a 12 month period, with approval date of 3/17/88
for the period 3/17/88 through 3/16/89.

The research subjects are recognized by UPRCHR to be placed:

at no more than minimal risk at more than minimal risk.

A copy of all signed consent forms should be retained on file for at least 2 years after completion of the research.

Prompt written reporting is necessary of proposed changes pertaining to human subjects. Changes in approved research, during the period for which approval has already been given, may not be initiated without UPRCHR review and approval except where necessary to eliminate apparent immediate hazards to the subjects. If this project is to be continued beyond the approved period, a new Internal Processing Form UPRCHR-1:86 as a continuation proposal should be submitted in time for re-review before the termination date.

If unexpected reaction occurs or is suspected with a drug under FDA regulated research, the P.I. must report the adverse drug reaction promptly by written statement as by use of Form FDA-1639a (Adverse Reaction Report) to the Office of the UPRCHR and the Sponsoring Agency. (The latter must notify similarly the FDA, DHHS.) ["Unexpected" means an adverse drug experience that is not listed in the current labeling or identification for the drug or an unexpected severity or specificity thereof.]

Date: March 17, 1988


William H. Waugh, M.D.
Chairman

PITT COUNTY MEMORIAL HOSPITAL, Inc.**P.O. BOX 6028 / GREENVILLE / NORTH CAROLINA / 27834**

March 18, 1988

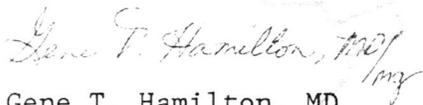
Patricia Pike Hooks
ECU School of Nursing
Greenville, NC 27834

Dear Ms. Hooks:

Thank you for submitting the research protocol entitled "A Comparison of Progressive Relaxation Technique to Therapeutic Touch in Reducing State Anxiety in Hospitalized Cardiovascular Patients." We reviewed the protocol and agree that the research is no more than minimal risk.

The study is therefore approved by me as Chairman of the Institutional Review Committee of Pitt County Memorial Hospital.

Sincerely,



Gene T. Hamilton, MD
Chairman, Institutional Review Committee

GTH/mg

IRCEXEMP

Appendix C: Physician Consent Form

PHYSICIAN CONSENT FORM

We, the undersigned physicians, agree to allow Patricia Hooks, graduate student in the East Carolina University School of Nursing, to include patients admitted to our services at Pitt Memorial Hospital, in the research study entitled "A Comparison of Progressive Relaxation Technique to Therapeutic Touch in Reducing State Anxiety in Hospitalized Cardiovascular Patients."

SIGNATURE: _____ DATE: _____

CONSENT TO PARTICIPATE IN STUDY

I am a registered nurse associated with East Carolina University School of Nursing. I am conducting a study to determine which of two interventions best help cardiac patients. Being a heart patient in a hospital may be stressful. Your input into this study will help nurses decide which intervention will best help their patients.

This study will take approximately thirty minutes of your time. You will be asked to complete a short questionnaire before and after the intervention. A number rather than your name will be used in my records so you will remain anonymous. You may withdraw from the study at any time. After the study is over, I will be glad to answer any questions you may have about it.

My name is Patricia Hooks. I may be reached by calling East Carolina University School of Nursing, 757-6061.

My signature indicates that I agree to participate in the study as described. I understand that I may withdraw from the study at any time.

NAME: _____

DATE: _____

DATA COLLECTION SHEET

Code number: _____ Intervention: 1. TT 2. PRT

Age: _____

Sex: 1. male 2. female

Race: 1. white 2. black 3. other

Marital status: 1. single 2. married 3. separated
4. divorced 5. widowed

Number of admissions related to heart: _____

Education completed: 1. 6-9th grade 2. 10-12th grade
3. 1-2 years college 4. 2-4 years college
5. over 4 years college

Religion: 1. Protestant 2. Catholic 3. Jewish 4. other

Position: 1. bed 2. chair

Diagnosis: 1. MI 2. CHF 3. angina 4. MI + angina 5. other

Surgical procedure at time of intervention:

1. pre cath
2. post cath
3. pre PTCA
4. post PTCA
5. pre CABG

PRE/POST STATUS: 1. pre any procedure 2. post any procedure

military time: _____

Prescore: _____

Postscore: _____

Comments and/or notes:

Appendix F: State Anxiety Tool

Speilberger's Self-evaluation Questionnaire, STAI Form Y-1, is a copyrighted instrument. It may be obtained from:

Consulting Psychologists Press
577 College Avenue
Palo Alto, California 94306

Appendix G: Random List of Numbers

SUBJECTS ACCEPTED INTO STUDY

<u>TT</u>	<u>PRT</u>
01	02
04	03
05	06
07	08
11	09
13	10
14	12
15	17
16	21
18	22
19	23
20	24
27	25
29	26
32	28
33	30
34	31

Numbers selected from a table
of random numbers for assign-
ment of subjects to each group.

Individual Changes from Prescore to Postscore for all Subjects on the State Anxiety Inventory Form Y-1

ID Number	Prescore	Postscore	Change
1	39	35	4
2	23	28	-5
3	50	50	0
4	27	22	5
5	36	26	10
6	50	49	1
7	54	51	3
8	46	49	-3
9	31	20	11
10	39	38	1
11	29	25	4
12	39	36	3
13	41	32	9
14	43	26	17
15	42	40	2
16	46	44	2
17	32	24	8
18	44	42	2
19	27	31	-4
20	26	21	5
21	26	24	2
22	41	44	-3
23	34	27	7
24	58	35	23
25	45	37	8
26	36	25	11
27	51	37	14
28	33	33	0
29	49	45	4
30	62	52	10
31	39	29	10
32	36	23	13
33	36	20	16
34	43	38	5