

RELATIONSHIP BETWEEN RELAXATION THERAPY AND
LEVELS OF ANXIETY

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DEDICATION

To Bill,
Forever

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CHAPTER 1

INTRODUCTION

Anxiety appears to be a pervasive aspect of contemporary life. It arises from dangers in the outer world such as threats of war, monetary inflation, and the energy crisis. Or, it arises from within the individual such as when one experiences inner confusion, conflicting values, role diffusion, and personal frustration. Although the concept of anxiety is timeless, its impact on human life has been realized only in recent years. The 20th century has been called the "Age of Anxiety" (Stuart & Sundeen, 1979).

Anxiety is not pleasurable and the energy generated by it is discharged into overt and covert behavior. As an individual's anxiety level increases, and if he is unable to counteract its effect, different physiological and interpersonal behaviors are manifested. These may include palpitations, tachycardia, insomnia, and an inability to relate to others. Nurses can be instrumental in assisting individuals to cope with anxiety. An intervention which is considered to be beneficial for the tense, anxious person is relaxation therapy (Canter, Kando, & Knott, 1975). Nurses are in a unique position to teach relaxation because of the

intensive interacting, counseling, and learning opportunities inherent in the professional relationship (Sweeney, 1978). To teach clients how to relax neither requires medical initiation nor invades the territorial rights of other health professionals.

Information gained from nurses investigating relaxation and its effect on health could provide alternative nursing interventions to assist clients to achieve their optimal level of health. Thus, it was the purpose of this research to determine if the anxiety levels of hospitalized psychiatric clients would be decreased by the implementation of relaxation therapy.

Statement of Problem

The problem which was researched is as follows: What relationship, if any, exists between relaxation therapy as a nursing intervention and the level of anxiety of hospitalized psychiatric patients?

Justification of Problem

The central focus of nursing is to care for people who need help in coping with problems along the continuum of health-illness. Although nursing encompasses a variety of intervention modalities, all are designed to enhance each individual's health seeking behavior and to promote productive use of his/her own inherent capabilities to restore

health (Schlotfeldt, 1971). The theoretical constructs upon which these interventions are based have been borrowed from other disciplines (Schlotfeldt, 1971). Therefore, nurses must generate empirical research to improve nursing practice. Anxiety and its relationship to relaxation therapy remains a major source for the development and implementation of nursing research studies (Sweeney, 1978). Relaxation techniques have been reported as successful interventions in studies associated with pain, comfort level after surgery, anxiety, and hypertension (Aiken & Henricks, 1971; Daniels, 1975; Flaherty & Fitzpatrick, 1978; Raskin, Johnson, & Rondestvedt, 1973; Tamez, Moore, & Brown, 1978). Relaxation is considered to be beneficial for the tense, anxious person and in this sense has general applicability to many psychiatric patients. A non-drug method of inducing relaxation has little if any risk and therefore may be preferred over drug methods (Canter et al., 1975). This study was proposed for the following reasons: (1) relatively few nursing studies have dealt with the concept of relaxation as a therapy; and (2) critical examination of interventions which lower anxiety levels may lead to improved patient welfare.

Conceptual Framework

Behavioral theory and the concept of anxiety provide a framework for testing the relationship between relaxation therapy and the levels of anxiety in clients. Many theorists conceptualize anxiety as falling along a continuum from mild anxiety to panic. Each level of anxiety influences a person's functioning and there are specific observable behaviors at each stage or level. These levels include: (1) mild anxiety--the individual is alert and perceives more than when not anxious. Awareness, attention, and the ability to make connections are heightened; (2) moderate anxiety--narrowing of the perceptual field. The individual has a reduced ability to perceive but can be directed to problem solve and pay attention; (3) severe anxiety--perceptual field is reduced. The person focuses on scattered details and has selective inattentions; (4) panic anxiety--individual attempts to escape. Learning and adaptations are focused on relief. This anxiety continuum promotes understanding of the constructive and destructive effects of anxiety on behavior (Haber, Leach, Schudy, & Sideleau, 1978; Hays, 1961; Peplau, 1952; Sullivan, 1953).

Psychologically, anxiety is an internal feeling tone that is experienced as an unpleasant apprehensiveness in anticipation of unknown nonspecific, impending danger

(Peplau, 1952). It underlies such observable irritations as restlessness, sleeplessness, suspiciousness, belittling, and misunderstandings. It also underlies persistent behaviors such as curiosity, repetitive questioning, attention seeking, and approval seeking (Wilson & Kneisl, 1979).

Accompanying the psychological responses to anxiety are various physiological symptoms that are regulated by the autonomic nervous system. These may include palpitations, tachycardia, sweating, urinary frequency, vertigo, chest pain, headache, dryness of the mouth, diarrhea, anorexia or excessive eating, and increasing rate and depth of respirations (Haber et al., 1978). Intellectually, anxiety may be manifested by forgetfulness, preoccupation, rumination, mathematical and grammatical errors, blocking, lack of concentration, lack of attention to details, reduced creativity, and diminished productivity (Wilson & Kneisl, 1979).

Wolpe (1956), a behavioral theorist, viewed all behavior as being learned and anxiety as a conditioned response to behavior. Conditioned response is defined as occurring when a stimulus is presented, a response occurs, and the response is rewarded or reinforced. Positive reinforcement or reward strengthens the connection or bond between the stimulus and response, which means that the next time the stimulus occurs the same response is likely

to occur. Negative reinforcement, or punishment, reduces the probability that an established response will occur the next time the stimulus appears (Haber & Fried, 1975). The motivation for behavior is habit, or responding to stimuli in longstanding patterns. Maladaptive behaviors are thought to have begun in response to uncomfortable levels of anxiety and to have been rewarded by the decreased anxiety level. These maladaptive behaviors having been learned can be modified or unlearned. This occurs when stimulus variables are manipulated in ways that induce specific forms of behavior change (Coleman, 1964). Stimulus response bonds that are causing anxiety or difficulties are identified. Reconditioning or counterconditioning is then used to provide a new and more adaptive response to the stimulus that originally caused anxiety (Coleman, 1964).

Based on behavioral theory, Wolpe (1956) developed an intervention called "Reciprocal Inhibition." When a response inhibiting anxiety occurs in the presence of an anxiety-producing stimulus, the bond between the stimulus and the anxiety weakens (Wolpe, 1956). Relaxation is considered incompatible with anxiety and therefore effective in inhibiting it. A client could be counterconditioned to relax in an anxiety producing situation. One of these techniques is systematic desensitization. Systematic desensitization is a step-by-step use of a counteracting

emotion to overcome an undesirable emotional habit. This occurs in four steps: (a) training in deep muscle relaxation, (b) use of a scale of subjective anxiety, (c) construction of anxiety hierarchies, and (d) use of relaxation training in conjunction with these anxiety hierarchies (Wolpe, 1973).

Relaxation leads to localized or generalized conscious relaxation in specific body regions. Extraneous tensions associated with attention and thinking are reduced as localized tensions are released (Jacobson, 1938). Physiologically, relaxation leads to reduction of oxygen consumption, carbon dioxide production, respiratory rate, and cardiac rate (Beary, Benson, & Klemchuck, 1974). These physiologic changes are consistent with an integrated hypothalamic response, recently termed the "relaxation response." Man can control his reaction to stress and anxiety through purposeful elicitation of the relaxation response (Benson & Klipper, 1975).

Relaxation can be evoked by many methods. Jacobson (1938) developed a technique of progressive relaxation which involves training the client to systematically and progressively tense and release specific groups of muscles while discriminating sensations associated with tension and relaxation. Eventually the client is able to learn

self-induction of relaxation to alleviate anxiety by simple rehearsal, first with, and later without, the therapist.

The application of behavioral theory and the concept of anxiety provides a conceptual framework through which relaxation therapy can be studied. Relaxation is considered to be incompatible with anxiety and therefore, effective in inhibiting it. Individuals can learn to weaken the bond between stimuli which produce anxiety and their response to it by practicing relaxation techniques.

Assumptions

For the purpose of this study the following assumptions were derived from the conceptual framework:

1. Individuals are what they do and what they are reinforced for doing by conditions in their environment (Wilson & Kneisl, 1979).
2. Change is affected by identifying events which have been stimuli for behavior and arranging interventions to extinguish or modify those behaviors (Wolpe, 1973).
3. Relaxation therapy as a nursing intervention is designed to promote and enhance health (Sweeney, 1978).

Hypotheses

For the purpose of examining relaxation therapy as a nursing intervention, the following hypotheses were formulated:

1. Psychiatric patients who receive relaxation therapy have significantly lower state anxiety levels than those patients who do not receive relaxation therapy.
2. Psychiatric patients who receive relaxation therapy have significantly lower trait anxiety levels than those patients who do not receive relaxation therapy.
3. Psychiatric patients who receive relaxation therapy have significantly lower respiratory rates than those patients who do not receive relaxation therapy.
4. Psychiatric patients who receive relaxation therapy have significantly lower pulse rates than those patients who do not receive relaxation therapy.
5. Psychiatric patients who receive relaxation therapy have significantly lower systolic blood pressure measurements than those patients who do not receive relaxation therapy.
6. Psychiatric patients who receive relaxation therapy have significantly lower diastolic blood pressure measurements than those patients who do not receive relaxation therapy.

Definition of Terms

For the purpose of this research study the following terms have been defined:

Anxiety: A state of unpleasant apprehensiveness in anticipation of unknown, specific, impending danger usually accompanied by signs of physiological arousal such as tachycardia, tremulousness, and increased respirations (Peplau, 1952; Wilson & Kneisl, 1979). Anxiety levels were measured psychologically by scores on the State-Trait Anxiety Inventory (STAI) (Spielberger, 1968) and physiologically by blood pressure, pulse, and respiratory measurements.

Physiological Measurements: The physiological state of anxiety was measured by: pulse taken at the left radial pulse point; blood pressure taken on the left arm and measured by auscultation; and respirations taken by watching the rise and fall of the diaphragm. The pulse and respiratory rate were counted for 60 seconds each.

Psychiatric Patients: Any hospitalized patient with a psychiatric diagnosis. Excluded were patients with the diagnosis of acute psychotic episode and affective impairment which would prevent comprehension of instructions.

Relaxation Therapy: Planned implementation of the Relaxation Group Therapy Protocol which is described under "Instrumentation."

Limitations

The investigator recognizes that the following factors may have affected results and generalizability of the study:

1. Previous exposure to biofeedback with negative results may bias the subject's response to relaxation therapy.
2. The performance of the subjects may have been affected by characteristics of the investigator who may have unconsciously communicated expectations and there bias results.
3. The use of a nonprobability sampling technique prevented generalization of the results beyond the units sampled.

Summary

It was the purpose of this research to determine if the anxiety levels of hospitalized psychiatric patients would be decreased by the implementation of relaxation therapy. Behavioral theory and the concept of anxiety provided a conceptual framework for testing the relationship between relaxation therapy and levels of anxiety.

Chapter 2 provides a review of the literature. The procedure for collection and treatment of data is in Chapter 3. The analysis of data is presented in Chapter 4. The summary of the study is found in Chapter 5.

CHAPTER 2

REVIEW OF THE LITERATURE

Anxiety is a component of everyday life, posing a potential threat to man by upsetting the equilibrium that he is continually struggling to maintain. Anxiety is becoming one of the foremost factors singled out as causing both physiological and psychological illness (Benson & Klipper, 1975). Nurses are constantly faced with patients who have high anxiety levels and must intervene to reduce this anxiety to manageable proportions.

In this chapter the literature was reviewed and examined in the following areas: the concept of anxiety; stress theory; behavioral theory and anxiety; nursing interventions for reducing anxiety; relaxation; relaxation techniques; and the nurse and relaxation theory.

Concept of Anxiety

The concept of anxiety has been defined in various ways. Freud (1920, 1924) described anxiety as something that was felt by the individual and was characterized by an unpleasant affective state. He first proposed that anxiety resulted from a conversion of libidinal feelings; however, he later modified this view to regard anxiety as

a signal indicative of danger. Three types of anxiety were identified by Freud (1924)': objective, neurotic, and moral anxiety. Objective anxiety or fear was evoked by facing real dangers in the external world. Neurotic anxiety was evoked by the individual's unacceptable and aggressive impulses which had been severely and consistently punished during the childhood phase. Moral anxiety or guilt resulted when one's behavior violated the code of the individual's conscience.

Sullivan (1953) proposed that the origin of anxiety occurs in the early bond between the infant and mother. Through this close, emotional bond, anxiety is first conveyed by the mother to the infant, who responds as if he and his mother were one unit. As the child grows older he perceives his mother as approving or disapproving of his behavior. Sullivan believed anxiety in later life arises in interpersonal situations in which a person perceives he will be viewed unfavorably by another person whose opinion he values.

Spielberger (1966) maintained that anxiety should be viewed using two constructs, state anxiety and trait anxiety. State anxiety is conceptualized as a transitory emotional state of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system

activity. State anxiety may vary in intensity and fluctuate over time. Trait anxiety refers to relatively stable individual differences in anxiety proneness, and the tendency for people to respond to situations perceived as threatening with elevations of state anxiety.

Lamb (1969) investigated the effects of ego and physical threats on measures of state and trait anxiety in college students enrolled in a public speaking course. During both the ego and physical induced threats, he found that state anxiety scores and heart rate increased significantly. There was no significant difference in the trait anxiety scores during the experimentally induced threats.

Anxiety can be conceptualized as a continuum from mild anxiety to panic. Each level of anxiety influences a person's functioning and there are specific observable behaviors at each level or stage. In the mild anxiety stage, the individual is alert and perceives more than when not anxious. Awareness, attention, and the ability to make connections are heightened, thus, this level is conducive to learning. Moderate anxiety precipitates narrowing of the perceptual field. The individual has a reduced ability to perceive but can be directed to problem solve and pay attention. In the severe anxiety stage, perceptual distortions of time, space, people, and the meaning of events occur. The person focuses on scattered details and has selective

inattentions. When experiencing panic anxiety, the individual attempts to escape. Learning and adaptations are focused on relief. This continuum promotes an understanding of the constructive and destructive effects of anxiety (Haber, Leach, Schudy, & Sideleau, 1978; Hays, 1961; Peplau, 1952; Sullivan, 1953).

Anxiety has been found to produce tangible effects upon the individual's emotions, thought processes, physiological makeup, and psychological patterns. Psychologically, anxiety is an internal feeling tone that is experienced as an unpleasant apprehensiveness in anticipation of unknown, nonspecific, impending danger (Peplau, 1952). Although individual psychological responses to anxiety are unique to some extent, there are broad common patterns of reacting which have been identified as defense mechanisms. Defense mechanisms have several general characteristics. First, they defend the self and protect it from injury by bolstering self-esteem. Second, they protect individuals from anxiety by distorting or masking true perceptions, memories, actions, and motivations. Sometimes, they completely block out the psychologic process as manifested by forgetfulness, preoccupation, and lack of concentration (Wilson & Kneisl, 1979).

Physiologically, the body alerts itself to anxiety by consciously perceived symptoms of tachycardia, nausea,

vomiting, anorexia, abdominal cramps, diarrhea, dryness of the mouth, and hyperventilation. Some individuals experience an urgency to urinate and may perspire excessively. Anxiety can produce dysmenorrhea and frigidity in women and impotence in man. The musculoskeletal response may be manifested as aching muscles and backache. Effects of anxiety which may not be felt as conscious symptoms include increased blood pressure, dilated pupils, sugar released by the liver, and increased adrenal production of epinephrine. These physiologic responses to anxiety may exist in varying degrees or levels, depending on the intensity of the anxiety (Haber et al., 1978; Luckmann & Sorensen, 1974).

The effects of stress and anxiety on heart rate responses were investigated by Glasser, Clark, and Spoto (1978). Subjects were monitored before, during, and after a roller coaster ride at an amusement park. Results indicated that all subjects had significant increases in their heart rate during and after the ride, with older subjects experiencing higher rates. The authors suggested that this type of fright stress or anxiety be avoided by individuals who are prone to certain diseases, especially coronary artery disease.

Stress Theory

A pioneer investigator into the implications of stress was Selye (1956) who defined stress as the nonspecific response of the body to any demand made on it. Stress is manifested in what is commonly referred to as the stress syndrome, a state of preparation by the body for flight or fight. Stress consists of changes, as well as adaptation to change. Stressors are defined as stimuli that produce tension, have potential for causing disequilibrium, a situational or maturational crisis, or the experience of stress within an individual's life (Selye, 1956).

Selye (1956) explained that when the brain signals the attack of a stressor, the adrenal and pituitary glands produce hormones which stimulate protective body reactions. The pro-inflammatory hormones are balanced by anti-inflammatory hormones which prevent the body from reacting so strongly that the reaction causes more harm than the invasion. This mechanism is called the General Adaptation Syndrome (GAS) and has three components:

1. Alarm Reaction--the body responds by stimulating the adrenal and pituitary glands to produce ACTH, glucocorticoids, and mineralocorticoids.
2. Stage of Resistance--the body uses its most appropriate channels to combat the stressor and to adapt. It attempts to limit the noxious effects of the stressor

to the smallest area of the body which is capable of dealing with them.

3. Stage of Exhaustion--during the final phase of the GAS the appropriate channels that have attempted to control the stressors become exhausted and break down as a result of wear and tear. The organism becomes exhausted and ultimately death occurs (Selye, 1956, pp. 31-32).

The fact that the same stressor can cause different lesions in different individuals has been traced to conditioning factors that can selectively enhance or inhibit one or the other stress effects. This conditioning may be endogenous, for example, age, or exogenous, for example, drugs. Under the influence of such conditioning factors, a normally well tolerated degree of stress can become pathogenic and cause diseases of adaptation (Selye, 1970).

Selye (1970) investigated conditioning factors and diseases of adaptation in various animal species by performing nephrectomies and administering excess doses of sodium chloride to induce experimental hypertension (Selye, 1970). In other laboratory experiments, Selye discovered that when animals were exposed to a constant amount of stress, they developed hyperactivity of the adrenal cortex, atrophy of the thymus gland, and gastrointestinal ulcers (Selye, 1974).

Solomon (1969) investigated the area of stress and its impact on the immune system. He found that laboratory

induced stress and pharmacologic levels of adrenocortical hormone suppressed the synthesis of interferon in rats, thus reducing the primary and secondary antibody responses.

Selye (1956, 1965) advocated that stress is not only a killer by causing organisms to become targets for disease, but also a drastic aging force. Different men have different hereditary capacities to withstand stress, but once each man's adaptation energy has been expended, there is no way yet known to replenish it.

Behavioral Theory and Anxiety

Wolpe (1956), a behavioral theorist, viewed all behavior as being learned and anxiety as a conditioned response to behavior. The paradigm for conditioning is the presence of an unconditioned stimulus that automatically evokes an unconditioned response. A conditioned stimulus that evokes a conditioned response is paired with and presented shortly before the unconditioned stimulus. Conditioned response is defined as occurring when the stimulus is presented, a response occurs, and the response is rewarded or reinforced. Positive reinforcement or reward strengthens the connection or bond between the stimulus and response, which means that the next time the stimulus is evoked the same response is likely to occur. Negative reinforcement, or punishment, reduces the probability that an

established response will occur the next time the stimulus appears (Haber & Fried, 1975).

Maladaptive behaviors are thought to begin in response to uncomfortable levels of anxiety and to be rewarded by the decreased anxiety level. These maladaptive behaviors, having been learned, can be modified or unlearned. This occurs when stimulus variables are manipulated in ways that induce specific forms of behavior change. Stimulus response bonds that are causing anxiety or difficulties are identified. Reconditioning or counterconditioning is then used to provide a new or more adaptive response to the stimulus that originally caused anxiety (Coleman, 1964).

There are several criticisms of behavioral theory as an approach to reducing anxiety. Lazarus (1971) pointed out that although there is considerable evidence that neurotic or anxious behavior is learned, it is still a hypothesis and not an established fact. There is a "narrowness of approach, which treats human beings as animals, without a cerebral cortex" (Lazarus, 1971, p. 6). Patterson (1980) proposed that while the behavioristic principles of conditioning may apply to certain very limited aspects of human behavior, they are inadequate to explain the great bulk of human behavior. Behaviorism is not false; it is simply limited and inadequate as a theory of human behavior.

Some behavior therapists have acknowledged the presence of cognitive methods and elements and attempted to incorporate these cognitive approaches into their practice. Dollard and Miller (1950) included methods such as transference, labeling, approach-avoidance conflicts, and talking into their theory. Wolpe (1973) cited systematic desensitization which involves imagination and language as an example of the cognitive elements in his therapy.

Nursing Interventions for Reducing Anxiety

Wilson and Kneisl (1979) advocated the following nursing interventions to reduce anxiety: offering self, encouraging a patient to laugh or cry, and speaking in a clear, firm, nonthreatening voice. Sentences should be short and directions clear since the anxious person easily misunderstands what is said to him.

Peplau (1964) proposed that anxious individuals adapt their behavior to reduce anxiety in one of four acting-out behavior patterns. These are the overt or covert use of anger to prevent the individual's recognition of anxiety; the process of somatization where anxiety is converted into physical symptoms; and finally, anxiety which is transformed into flight behavior in the form of withdrawal or depression. Nurses must identify which behavior pattern the patient is using and intervene accordingly.

Most of the clinical research studies for reducing anxiety utilized medical-surgical patients. Pride (1968) studied 108 hospitalized medical patients to determine if the amount of potassium excreted could serve as a criterion measure of nursing interventions aimed at reducing stress. Patient teaching aimed at reducing stress was measured by concomitant decreases in urinary potassium. The author concluded that hospitalization stress was reduced through an interpersonal nursing teaching approach. Similarly, Foster (1974) studied 12 hospitalized patients with atherosclerotic cardiovascular disease to determine the effect of interpersonal teaching on the sodium/potassium output ratios. Results indicated that nursing health teaching significantly reduced patient anxiety as measured by sodium/potassium ratios; there was no difference as measured by STAI scores.

Doerr and Jones (1979) examined the effect of family preparation on the state anxiety level of 12 coronary care unit patients. Family members of patients in the experimental group were given an information booklet and an opportunity to ask questions of a registered nurse. Family members of the control group were not given a booklet or the opportunity to ask questions. Patients were pre and posttested using the STAI. Results indicated that family preparation significantly reduced the amount of anxiety transferred from the family members to the CCU patient.

Toth (1980) compared the effect of teaching methods on patient anxiety after leaving the coronary care unit. Twenty patients were studied; half received structured pre-transfer teaching, and half unstructured pretransfer teaching. No statistical differences were found in patient anxiety between groups at the time of transfer as measured by the IPAT Questionnaire Scale. However, systolic blood pressure and heart rate were significantly lower for the group who received the structured pretransfer teaching.

Several nursing authors (Haber et al., 1978; Peplau, 1962; Stuart & Sundeen, 1979; Wilson & Kneisl, 1979) suggested that the most effective way for the nurse to decrease anxiety is to verbally acknowledge the patient's anxiety and then attempt to have the patient talk about it. The nurse should have the patient attempt to identify the source of his anxiety and encourage him to utilize coping behaviors that have effectively reduced anxiety in the past. However, many times the nurse must take this one step beyond and assist the patient to learn more satisfying and effective ways to deal with anxiety and stress.

The effect of nursing reassurance on patient vocal stress or anxiety levels was studied by Brockway, Plummer, and Lowe (1976). Subjects with confirmed pregnancies were interviewed by nurses regarding their concerns about hospitalization and received either "knowledgeable" reassurance

or "superficial" reassurance. Results indicated that both types of nursing reassurance seemed to be effective with regard to vocal stress patterns. The authors suggested that knowledgeable reassurance may be more beneficial regarding the reduction of stress than superficial reassurance, but only for subjects who do not utilize denial or avoidance as a coping mechanism. The study indicated that, for the majority, one of the benefits of knowledgeable reassurance is probably not the immediate reduction of anxiety or stress.

Some authors (Robinson, 1977; Stuart & Sundeen, 1979) identified interventions which could increase the already high anxiety of severely anxious patients. These included pressuring the patient to change prematurely, being verbally disapproving of the patient's behavior, putting the patient on the defensive, focusing on the patient in a critical way, and withdrawing from or rejecting the patient.

Relaxation

Examination of the literature disclosed a number of clinical studies employing some method of relaxation therapy as the independent variable. This section begins with an operational and conceptual definition of relaxation.

Relaxation has been defined in both physiological and psychological contexts, but in making it operational,

physiological criteria have generally been used. Jacobson (1967) defined relaxation as a "muscular lengthening as it occurs within a common, natural, physiological process requiring internal energy expenditure and giving off heat" (p. 7). Relaxation has been defined as a hypometabolic or hypothalamic response representing decreased sympathetic nervous system activity. This reduction results in decreased oxygen consumption, carbon dioxide production, respiration, cardiac rate, and arterial blood lactate, ph, and base excess levels. During relaxation there is also an increase in the frequency and intensity of alpha and theta waves, which are associated with deep rest, and some increased muscle blood flow (Beary, Benson, & Klemchuck, 1974; Benson, Greenwood, & Klemchuck, 1975; Benson & Klipper, 1975).

→ Sweeney (1978) conceptually defined relaxation as a positively perceived state or response by an individual in attaining relative freedom from tension, toil, or strain. It may be psychological or physiological in origin, however it is psychological in control. Relaxation is an active and conscious process and can be influenced by both internal and external stimuli. Suggestions for operationalizing relaxation include a client's self-report, paper and pencil tests or scales, physical data measurements, and electro-myographic or electroencephalographic equipment.

Relaxation therapy and techniques have been reported as successful interventions in studies dealing with the treatment of anxiety, pain, hypertension, comfort level, insomnia, and frequency of pro-re-nata medication intake. The treatment of hypertension using medication and relaxation therapy was tested by Benson and Klipper (1975). Baseline blood pressures were obtained six weeks before therapy was begun. The 86 subjects were taught to practice relaxation twice a day. Results demonstrated significant decreases in systolic and diastolic pressures. The decrease lasted as long as the subjects practiced regularly. Hauri (1976) concurred that relaxation therapy is effective in decreasing hypertension, but suggested that the halo effect may be creating a spurious influence on the results of some of the hypertensive studies. He maintained that clients enroll in such studies when their blood pressure is high and questioned whether the mere fact that they are actively doing something about their hypertension relieves anxiety and in itself lowers the blood pressure.

The effects of muscle relaxation achieved through biofeedback on the symptoms of 10 chronically anxious patients were studied by Raskin and others (1973). All 10 subjects successfully learned to sustain 25 minutes of profound relaxation of the frontalis muscle with or without feedback. The most striking results occurred when a patient

learned to use relaxation techniques at critical times. Three patients learned to use partial relaxation to control previously intolerable situational anxiety, and four patients learned to abort tension headaches in the same manner. Patients with insomnia learned to put themselves to sleep by relaxing but continued to experience frequent awakenings. There was no control or comparison group used in this study.

Daniels (1975) reported a case study of a fourth-year graduate student who was experiencing nausea, frequent headaches, loss of appetite, tenseness of the throat which inhibited speech, and intense anxiety. In addition she had duodenal ulcer pains. The treatment regime was systematic desensitization relaxation training. After five sessions there was a dramatic diminution of anxiety and stress and a complete remission of physiological symptoms.

The value of systematic relaxation as a preoperative nursing intervention was studied by Aiken and Henricks (1971). The study used the incidence of psychiatric reactions that occurred postoperatively as one measurement and included a comparison of the incidence of mortality in patients who participated in systematic relaxation with those in a control group. The incidence of postoperative psychotic episodes in the experimental group was lower than

had been expected. The mortality rate was the same for both groups.

The effectiveness of relaxation therapy to increase the comfort level of patients in their first attempt at getting out of bed after elective surgery was tested by Flaherty and Fitzpatrick (1978). Subjects' reports of incisional pain and bodily distress were measured by a pain and distress scale after their attempt at getting out of bed. The results indicated that use of relaxation therapy increased the comfort levels of postoperative patients. There were significant differences between groups with regard to incisional pain, body distress, and analgesic usage. However, there was no significant difference between groups with regard to blood pressure and pulse.

Tamez, Moore, and Brown (1978) studied the effects of relaxation techniques on the frequency of intake of pro-re-nata medications for relief of tension in 60 inpatient subjects. The results showed no significant decrease in medication usage; however, experimental subjects demonstrated a significant decrease in blood pressure, pulse, and respiratory rate.

Johnson and Spielberger (1968) studied the effects of relaxation on state and trait anxiety. Subjects were 48 hospitalized male psychiatric patients between the ages of 25 and 55 who all received the experimental treatment.

Results indicated that scores on all three state-anxiety measures, blood pressure, pulse, and the Affect Adjective Check List, declined significantly in response to relaxation training. In contrast, scores on the trait-anxiety measures, the Taylor Manifest Anxiety Scale and the General Affect Adjective Check List, were essentially unaffected by relaxation training. The authors concluded that relaxation therapy training reduces the level of subjective anxiety, but has no influence on anxiety proneness or trait-anxiety.

A comparison of biofeedback relaxation and group therapy in the treatment of chronic anxiety was studied by Townsend and others (1975). The 30 subjects were randomly assigned to either the biofeedback group or to the comparison group. Biofeedback subjects were given two weeks of training followed by two weeks of self-practice. Significant decreases were found in the biofeedback group in electromyogram levels, mood disturbance, and state anxiety; no such decreases occurred in the control group.

Relaxation Techniques

Some researchers (Beary et al., 1974; Benson et al., 1975; Bernstein & Borkovic, 1973; Canter, Kando, & Knott, 1975; Jacobson, 1938; Wolpe, 1973) have used subtly differing procedures for relaxation training. Such differences have involved the amount of time per therapy hour, the

sequences of muscles used in tension release cycles, and the use of suggestions. The literature supported all of these methods or procedures as being effective in producing relaxation.

Jacobson (1938) developed a technique of progressive relaxation which involves training the client to systematically and progressively tense and release specific groups of muscles while discriminating sensations associated with tension and relaxation. If a muscle is tensed it will relax more deeply when released. Eventually, the client is able to learn self-induction of relaxation to alleviate anxiety by simple rehearsal, first with, and later without, the therapist.

Canter and others (1975) compared biofeedback and progressive relaxation training in 14 adult psychiatric patients with the diagnosis of anxiety. One group of subjects received biofeedback and the other group received Jacobson's progressive relaxation method. The frontalis muscle was chosen as the measurement of tension reduction in both groups. Results of the study indicated that both biofeedback and the progressive muscle training produced significant reductions in frontalis tension levels. However, greater reductions were produced with the biofeedback method.

Four basic elements, common to almost all of the techniques, appear necessary for the elicitation of relaxation. They are:

1. A Mental Device--There should be a constant stimulus, a soft word, or phrase repeated silently or audibly, or fixed gazing at an object. The purpose of this procedure is to minimize one's attention to other stimuli.
2. A Passive Attitude--If distracting thoughts occur during the repetition of gazing, they should be disregarded and one's attention should be redirected to the technique. One should not worry about how well he/she is performing the technique.
3. Decreased Muscle Tonus--The subject should be in a comfortable posture so that minimal muscular work is required.
4. Quiet Environment--A quiet environment with decreased environmental stimuli should be used. Most techniques instruct the practitioner to close his eyes (Beary et al., 1974; Benson et al., 1975; Stress Management, 1977).

Bernstein and Borkovic (1973) maintained that relaxation training should not be employed as a mechanical procedure taking place in an affectively neutral setting. Rather it should be a joint effort by therapist and patient, within

the context of a positive therapeutic relationship, to develop in the patient new skills for dealing with his/her problems.

Wolpe (1973) used language and imagination with relaxation techniques in a procedure called systematic desensitization. Systematic desensitization is the breakdown of anxiety response habits through the use of a hierarchy of fearful situations or stimuli. These situations need not be experienced, but can be imaginary situations. Since relaxation is incompatible with anxiety, the use of this relaxation technique is effective in reducing high levels of anxiety. Unfortunately, most of Wolpe's evidence that this method is effective is in case reports of individual patients and not empirical studies.

Paul and Trimble (1970) investigated the efficacy of tape recorded versus live (therapist present) relaxation training in 30 female college students. The data from the tape-instructed group were compared to the live instructed group. Results revealed that taped relaxation training was significantly inferior to live relaxation training. The authors strongly advised against the routine use of taped relaxation techniques in either the clinical or research setting.

Nursing and the Concept of Relaxation

If relaxation is to be useful as a nursing intervention for solving specific patient problems of either physiological or psychological origin, then its application as a nursing intervention must be tested and evaluated by means of the scientific method. As aforementioned, the literature revealed many clinical studies with relaxation therapy as the independent variable, yet relatively few nurses have been the investigators in these studies.

Nurses are in a unique position to pursue research dealing with the concept of relaxation because of the extensive interaction, counseling, and teaching opportunities inherent in professional nurse-patient relationships. To teach patients how to relax neither requires medical initiation nor invades the territorial rights of other health professionals. Relaxation is an adaptive, coping process which lends itself to nursing interventions designed to promote and enhance health (Sweeney, 1978). Nurses must generate empirical research to improve nursing practice and no longer rely on other disciplines to provide the theoretical constructs upon which nursing interventions are based (Schlotfeldt, 1971). Anxiety and its relationship to relaxation therapy remains a major source for the development and implementation of nursing research studies (Sweeney, 1978).

Summary

In summary, a review of the literature provides support for the assumption that relaxation therapy can effectively reduce levels of anxiety. There are many techniques for eliciting relaxation, all of which use subtly differing methods. The literature did not suggest or reveal any negative outcomes from relaxation therapy. On the contrary, there were many studies and reports which demonstrated the effectiveness of it.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

An experimental two group research design was used to determine if psychiatric patients who receive relaxation therapy would demonstrate lower levels of anxiety than those patients who do not receive relaxation therapy. The sample was chosen in accordance with stated criteria.

Setting

The study was conducted in a private 200 bed suburban hospital. The hospital is located in a metropolitan area with a population of 2,900,000 in the southwestern United States. There are five units within the hospital. Subjects were selected from a 28 bed general psychiatric unit.

Population and Sample

The target population was the psychiatric patients admitted to the general psychiatric unit. The patients had a variety of psychiatric problems and the average length of stay was 21-28 days. The selection criteria for participation in the study included patients who had a psychiatric diagnosis and could read, write, and understand English. Excluded from the study were patients with the diagnosis of acute

psychotic episode and an affective impairment which would prevent comprehension of instructions.

The sampling procedure was a nonprobability approach using a sample of convenience. Subjects were randomly assigned to the experimental group (Group A) or control group (Group B) using a lottery method. The names of the first 16 patients who met the predetermined criteria and consented to participate in the study were placed in a container. The investigator flipped a coin to randomly assign the first drawn subject to either the control group or the experimental group. The remaining subjects were alternated into each group as their names were drawn.

The total number of subjects in the completed study was 16, 8 in the control group and 8 in the experimental group. Most therapists consider eight members optimal for the structural organization of a therapy group. With fewer members there may be too little interaction, and with a larger group, the interaction may be too great for the members or therapist to follow (Freedman, Kaplan, & Sadock, 1976).

Protection of Human Subjects

Approvals from the Human Subjects Review Committee of Texas Woman's University and the medical and nursing

director of the study agency were obtained (Appendix A).

The subjects' rights were protected by (Diers, 1979):

1. Providing information as to the purpose of study;
2. Obtaining written consent of participant; in addition, written parental consent was obtained for subjects under 18 years of age (Appendix A);
3. Providing confidentiality through the use of code numbers and elimination of personally identifying information on the data collection form;
4. Informing participants that responses would be known as a group result;
5. Stating that each participant had the right to disengage her/himself from the study at anytime; and
6. Informing the participants of possible risks or benefits evolving from the study.

Instruments

Four instruments were used in the study. These instruments included the Patient Demographic Data Record, the State-Trait Anxiety Inventory, Relaxation Therapy Protocol, and the physiological measurements record.

Patient Demographic Data Record

This was designed to yield data on demographic variables such as patient's age, sex, level of education,

marital status, and previous psychiatric hospitalizations (Appendix B).

State-Trait Anxiety Inventory (STAI)

The Spielberger (1968) State-Trait Anxiety Inventory was used to measure subject's level of anxiety both pre-treatment and posttreatment. The STAI is a Likert-type, self-rating scale consisting of 40 items, 20 items on Form X-1 and 20 items on Form X-2. There is an equal number of positively and negatively worded statements. The scale consists of four categories of response alternatives which can be chosen. The range of scores on each test ranges from a minimum of 20 (least anxiety) to a maximum of 80 (highest anxiety) (Spielberger, Gorsuch, & Lushene, 1970).

Findings support the view that it is meaningful to test state and trait anxiety as separate and distinct anxiety constructs (Johnson & Spielberger, 1968). A-state anxiety (Form X-1) is characterized as transitory anxiety and defined as subjective, consciously perceived feelings of apprehension and tension, together with activation of the autonomic nervous system (Johnson & Spielberger, 1968). A-trait anxiety (Form X-2) is defined as a relatively stable personality trait or characteristic denoting individual degrees of anxiety-proneness. A-trait also refers to the degree to which individuals are disposed to manifest A-state

anxiety in response to various forms of stress (Johnson & Spielberger, 1968). The forms were designed for self-administration and there is no time limit. The average time for college students is 6-8 minutes per test and for less educated persons 11-12 minutes per test (Spielberger et al., 1970).

Reliability. Alpha coefficients for the STAI were computed by formula KR-20 for data obtained on three groups of students. The ranges for the reliability coefficient of A-state anxiety were $r = .83$ to $.92$; the ranges for A-trait were $r = .86$ to $.92$ (Spielberger et al., 1970).

Validity. Concurrent validity for the A-trait scale showed correlations between the STAI, the Institute of Personality and Ability Testing (IPAT) Anxiety Scale, and the Taylor Manifest Anxiety Scale (TMAS) to be $r = .75$ to $.83$. These three tests have been concluded to measure A-trait anxiety (Spielberger et al., 1970).

Relaxation Therapy Protocol

Some researchers have used subtly differing procedures in training subjects in relaxation. Such differences have involved the amount of time per therapy hour spent in training, the total number of sessions, the sequences of muscles used in tension-release cycles, and the use of suggestions

(Beary et al., 1974; Benson et al., 1975; Bernstein & Borkovic, 1973; Canter et al., 1975; Daniels, 1975; Jacobson, 1938; Johnson & Spielberger, 1968; Tamez et al., 1978).

Relaxation training should not be employed as a mechanical procedure taking place in an affectively neutral setting; rather it should be a joint effort by therapist and patient, within the context of a positive therapeutic relationship, to develop in the patient new skills for dealing with his/her problems (Bernstein & Borkovic, 1973).

The investigator used exercises and techniques described by Bernstein and Borkovic (1973) for the Relaxation Therapy Group. The investigator directed the Relaxation Therapy Group which was held Sunday through Thursday, a total of five sessions each lasting 30 minutes (Appendix C).

Physiological Measurements

The physiological measurements were the blood pressure, pulse rate, and respiratory rate. The use of these measures as estimates of physiologic responses to anxiety was well documented in the literature (Haber & Fried, 1975; Haber, Leach, Schudy, & Sideleau, 1978; Wilson & Kneisl, 1979). Also, these measurements had the advantage of being

relatively easy to measure and did not require elaborate equipment. The mean of two physiological measurements taken three hours apart after agreeing to participate in the study was the subject's pretest measurement. The mean of two physiologic measurements taken three hours apart following completion of the five group sessions was the posttest measurement. The investigator did all physiological measurements for both the control and experimental group subjects.

Data Collection

Patients admitted to the psychiatric unit during the period of investigation and who met established criteria for inclusion in the study were randomly assigned to either the control group or experimental group using a lottery method. The mean of two physiological measurements taken three hours apart was used as the physiological pretest measurement. Both control and experimental group subjects were pretested using the STAI. The investigator administered the tests and did all physiological measurements. After the pretests, subjects in the experimental group attended Relaxation Group Therapy for five days, in addition to routine unit activities and therapies. Control group subjects received no experimental treatment but did attend routine unit activities and therapies. Both groups were posttested after five

days using the State-Trait Anxiety Inventory and the mean of two physiological measurements taken three hours apart.

Data Treatment

The Patient Demographic Data Record provided descriptive information on the subjects who participated in the study. These data are presented with appropriate graphs and charts to communicate the findings in sufficient detail in Chapter 4.

Data from the STAI and the physiological measurements were analyzed using 2x2 analysis of variance techniques. Analysis of variance separates the total variability of a set of data into two components: (1) the variability resulting from the independent variable; and (2) all other variability, such as individual differences, measurement unreliability, and so on. Variation between treatment groups is contrasted to variations within groups (Polit & Hungler, 1978). A Newman-Keuls post hoc test was applied to means with a significant F ratio to determine where specific differences existed.

Summary

Nursing is concerned with assisting man to achieve his optimal level of well-being. Nurses are in a unique position to implement relaxation interventions because of the extensive interaction, counseling, and teaching opportunities

inherent in the professional relationship. This research studied the effect of relaxation therapy on the anxiety levels of hospitalized psychiatric patients.

CHAPTER 4

ANALYSIS OF DATA

This experimental two group before-after study was designed to determine if psychiatric patients who receive relaxation therapy would demonstrate lower anxiety levels than those patients who did not receive relaxation therapy. Subjects were randomly assigned to two groups, an experimental and control group, using a lottery method. Experimental group subjects (Group A) attended routine unit activities and five daily relaxation therapy sessions conducted by the investigator. Control group subjects (Group B) did not attend any relaxation therapy sessions conducted by the investigator but did attend routine unit activities. Subjects were pre and posttested using the State-Trait Anxiety Inventory and the physiological measurements of blood pressure, pulse, and respiration to determine anxiety levels. A two way analysis of variance was used to examine the difference between the experimental and control group scores. A Newman-Keuls post hoc test was applied to means with a significant F ratio to determine where specific differences existed.

Description of the Sample

The study sample was composed of 16 hospitalized psychiatric patients diagnosed with various psychiatric disorders. The experimental group (Group A) consisted of eight subjects; four of the subjects were males and four were females. The control group (Group B) also consisted of eight subjects. One of the subjects was male and seven were females. All of the 16 subjects were white, born in the United States, and English was their primary language.

Additional demographic data included the age, educational level, and previous psychiatric admission history for the subjects. The ages of Group A subjects ranged from 16 to 57 years with a mean age of 32.25 years; whereas, the ages of Group B subjects ranged from 16 to 78 years with a mean age of 33.4 years. Both groups were similar with regard to years of education. Group A subjects ranged from 11 to 18 years of education with a mean of 14.7; while the years of education for Group B subjects ranged from 11 to 19 years with a mean of 14.3 years. The ranges were 1 to 10 psychiatric admissions for Group A and 1 to 7 for Group B. The mean number of psychiatric hospitalizations for Group A subjects was 2.7 admissions compared to 2.3 for Group B.

Presentation of Findings

Anxiety levels of hospitalized psychiatric patients who participated in the study were measured by the State-Trait Anxiety Inventory and the physiological measurements of blood pressure, pulse, and respiration. The findings are presented according to each dependent variable.

Hypothesis 1

Psychiatric patients who receive relaxation therapy have significantly lower state anxiety levels than those patients who do not receive relaxation therapy.

The mean pretest state anxiety score for Group A was 49.63 with a standard deviation of 16.66; after completion of the study the mean was 31.37 with a standard deviation of 9.29. Group B subjects' mean pretest state anxiety score was 51.0 with a standard deviation of 11.92; after completion of the study the mean was 44.25 with a standard deviation of 10.86. The raw scores of the subjects' psychological anxiety measurements are presented in Appendix D.

A 2x2 analysis of variance was used to compare the mean scores for the state anxiety measurements. Results indicated no statistically significant difference between the groups ($p = .276$). However, there was a statistically significant difference across pre to posttest trials ($p = .001$). (See Table 1.)

Table 1

Analysis of Variance of State Anxiety Scores
for 16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	60,726.125	1	60,726.125	260.33	.000
G	300.125	1	300.125	1.29	.276
Error	3,265.750	14	233.268		
B	1,458.000	1	1,458.000	18.53	.001
BG	180.500	1	180.500	2.29	.15
Error	1,101.500	14	78.679		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

In order to locate the specific differences across trials, the group means were subjected to a Newman-Keuls post hoc test. (See Table 2.) Results indicated that there was a statistically significant difference ($p = .01$) in Group A, the experimental group, from pretest to posttest. There was no difference pre to posttest in control Group B. Since the hypothesis was accepted, it can be concluded that relaxation therapy significantly decreased the state anxiety levels of psychiatric patients.

Table 2

Newman-Keuls Test for State Anxiety Scores Across Trials
for 16 Psychiatric Patients

Means	31.37	42.25	49.63	51.00	q.99	S _E (q) ^a
31.37		10.88	18.26*	19.63*	5.32	11.76
47.25			7.38	8.75	4.89	10.80
49.63				1.37	4.21	9.30

$${}^a S_E = 2.21$$

$$*p \leq .01$$

Hypothesis 2

Psychiatric patients who receive relaxation therapy have significantly lower trait anxiety levels than those patients who do not receive relaxation therapy.

The mean pretest trait anxiety score for Group A was 44.75 with a standard deviation of 14.64; after completion of the study the mean was 40.38 with a standard deviation of 11.53. Group B subjects' mean pretest trait anxiety score was 57.00 with a standard deviation of 11.52; after completion of the study the mean was 54.30 with a standard deviation of 8.71.

A 2x2 analysis of variance was used to compare the mean scores for the trait anxiety measure. (See Table 3.) Results indicated no statistically significant difference

across pre to posttest trials ($p = .12$). The hypothesis was rejected; therefore it was concluded that relaxation therapy did not significantly decrease the trait anxiety levels of psychiatric patients. However, a statistically significant difference ($p = .03$) was found to exist between the experimental and control groups.

Table 3
Analysis of Variance of Trait Anxiety Scores
for 16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	77,126.281	1	77,126.281	332.11	.00
G	1,365.031	1	1,365.031	5.88	.03
Error	3,251.188	14	232.228		
B	101.531	1	101.531	2.82	.12
BG	5.281	1	5.281	0.15	.71
Error	503.688	14	35.978		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

Data were subjected to a Newman-Keuls post hoc test for comparison of the means. Analyses indicated that there was a significant difference ($p = .05$) between the experimental and control groups' pretest trait anxiety scores.

Group B, the control group, had a significantly higher score of 57.0 as compared to a score of 44.75 for Group A. In order to explain this finding, an analysis of variance was used to break down the subjects' trait anxiety scores according to sex. Results indicated that females had significantly higher ($p = .05$) trait anxiety scores than the male subjects. (See Table 4.) It was concluded that the higher trait anxiety scores in the control group could be explained by the predominance of females in that group ($n = 7$, $\% = 87.5$). The mean pretest trait anxiety scores of the male subjects was 39.00 with a standard deviation of 13.73, as compared to the mean pretest trait anxiety scores of the female subjects of 56.27 with a standard deviation of 10.57.

Table 4

Analysis of Variance of Trait Anxiety Scores According to Sex for 16 Psychiatric Patients

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Between Groups	1,015.00	1	1,015.00	7.56	.05
Within Groups	1,879.00	14	134.20		
Total	2,894.00	N - 1 15			

Hypothesis 3

Psychiatric patients who receive relaxation therapy have significantly lower respiratory rates than those patients who do not receive relaxation therapy.

The mean pretest respiratory measurements for Group A was 18.13 with a standard deviation of 2.17; after completion of the study the mean was 17.25 with a standard deviation of 2.12. Group B subjects' mean pretest respiratory measurement was 18.63 with a standard deviation of 3.12; after completion of the study the mean was 18.62 with a standard deviation of 3.74. The raw scores of the subjects' physiological measurements are presented in Appendix D.

A 2x2 analysis of variance was used to compare the mean scores for the respiratory measurements. Results indicated no statistically significant difference between the groups ($p = .49$) or across trials ($p = .39$). (See Table 5.) The hypothesis was rejected; therefore, it was concluded that relaxation therapy did not significantly decrease the respiratory rates of psychiatric patients.

Hypothesis 4

Psychiatric patients who receive relaxation therapy have significantly lower pulse rates than those patients who do not receive relaxation therapy.

Table 5

Analysis of Variance of Respiratory Measurements
for 16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	10,548.781	1	10,548.781	747.05	.00
G	7.031	1	7.031	.50	.49
Error	197.688	14	14.121		
B	1.531	1	1.531	.75	.39
BG	1.531	1	1.531	.75	.39
Error	28.438	14	2.031		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

The mean pretest pulse measurement for Group A was 89.5 with a standard deviation of 6.99; after completion of the study the mean was 84.88 with a standard deviation of 4.82. Group B subjects' mean pretest pulse measurement was 89.13 with a standard deviation of 8.96; after completion of the study the mean was 83.63 with a standard deviation of 7.67.

A 2x2 analysis of variance was used to compare the mean scores for the pulse measurements. Results indicated no statistically significant difference between groups

($p = .799$); however, there was a significant difference across pre to posttest trials ($p = .015$). (See Table 6.)

Table 6
Analysis of Variance of Pulse Measurements for
16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	240,991.53	1	240,991.53	3,067.47	.001
G	5.28	1	5.28	.07	.799
Error	1,101.69	14	78.69		
B	205.03	1	205.03	7.64	.015
BG	1.53	1	1.53	.06	.815
Error	417.94	14	29.85		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

In order to locate the specific differences across trials, the group means were subjected to a Newman-Keuls post hoc test. Results indicated that the difference was not in Group A or Group B from pretest to posttest trials. Since the hypothesis was rejected, it was concluded that relaxation therapy did not significantly lower the pulse rates of psychiatric patients.

Hypothesis 5

Psychiatric patients who receive relaxation therapy have significantly lower systolic blood pressure measurements than those patients who do not receive relaxation therapy.

The mean pretest systolic blood pressure measurement for Group A was 116.88 with a standard deviation of 19.07; after completion of the study the mean was 106.00 with a standard deviation of 12.08. Group B subjects' mean pretest systolic blood pressure measurement was 111.87 with a standard deviation of 18.62; after completion of the study the mean was 98.62 with a standard deviation of 12.72.

A 2x2 analysis of variance was used to compare the mean scores for the systolic blood pressures. Results indicated that there was no significant difference between the groups ($p = .365$); however, there was a significant difference across pre to posttest trials ($p = .017$). (See Table 7.) A Newman-Keuls post hoc comparison of the means revealed that the difference was not in either the experimental or control groups from pretest to posttest. The hypothesis was rejected; therefore, it was concluded that relaxation therapy did not significantly lower the systolic blood pressure of psychiatric patients.

Table 7

Analysis of Variance of Systolic Blood Pressure for
16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	375,627.78	1	375,627.78	1,074.88	.001
G	306.28	1	306.28	.88	.365
Error	4,892.44	14	349.46		
B	1,164.03	1	1,164.03	7.29	.017
BG	11.28	1	11.28	.07	.794
Error	2,235.19	14	169.66		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

Hypothesis 6

Psychiatric patients who receive relaxation therapy have significantly lower diastolic blood pressure measurements than those patients who do not receive relaxation therapy.

The mean pretest diastolic blood pressure measurement of Group A was 76.00 with a standard deviation of 11.93; after completion of the study the mean was 71.25 with a standard deviation of 8.70. Group B subjects' mean pretest diastolic blood pressure measurement was 71.38 with a

standard deviation of 13.41; after completion of the study the mean was 63.50 with a standard deviation of 8.26.

A 2x2 analysis of variance was used to analyze the mean scores for the diastolic blood pressure measurements. Results indicated that there was no statistically significant difference between groups ($p = .19$) or across pre to posttest trials ($p = .052$). (See Table 8.) The hypothesis was rejected; therefore, it was concluded that relaxation therapy did not significantly lower the diastolic blood pressure of psychiatric patients.

Table 8
Analysis of Variance of Diastolic Blood Pressure
for 16 Psychiatric Patients

Source of Variation ^a	Sum of Squares	Degrees of Freedom	Mean Squares	F	p
Mean	159,189.030	1	159,189.030	981.70	.001
G	306.280	1	306.280	1.89	.190
Error	2,270.188	14	162.156		
B	318.780	1	318.780	4.49	.052
BG	19.53	1	19.53	.28	.608
Error	933.188	14	70.94		

^aG = main effect for between group interaction; B = main effect for time factor (across trials); BG = interaction within groups.

Summary of Findings

An experimental study of 16 subjects at a private hospital was undertaken to determine if psychiatric patients who received relaxation therapy would demonstrate lower anxiety levels than those patients who did not receive relaxation therapy. Subjects were randomly assigned to an experimental and control group using a lottery method.

A two-way analysis of variance was used to determine differences between the control and experimental groups' anxiety levels. A Newman-Keuls post hoc test was used to locate significant mean differences after the analysis of variance procedure. Analyses of the data revealed that there was a significant difference ($p = .01$) between the experimental and control groups' state anxiety levels after five sessions of relaxation therapy. No significant difference was found between trait anxiety levels or the physiological measurements after five sessions of relaxation therapy. It was concluded that relaxation therapy significantly decreased the state anxiety levels of those patients who attended the sessions, but the variables of trait anxiety, blood pressure, pulse, and respiration were not affected.

CHAPTER 5

SUMMARY OF THE STUDY

The purpose of this study was to investigate the effect of relaxation therapy on the anxiety levels of hospitalized psychiatric patients. Behavior theory and the concept of anxiety were used as the theoretical framework for the study. A review of the literature provided support for the assumption that relaxation therapy can effectively reduce levels of anxiety. The following sections of this chapter include a summary of the study, discussion of findings, conclusions and implications derived from the study results, and recommendations for future studies.

Summary

An experimental, two group pretest-posttest research design was used to collect the data. The study was conducted in a privately owned hospital with a 26-bed psychiatric unit. Sixteen patients who conformed with predetermined criteria were randomly assigned to an experimental and control group using a lottery method. The experimental group, which was composed of eight psychiatric patients, attended five daily relaxation therapy sessions each lasting 30 minutes. The control group, which was also composed

of eight psychiatric patients, received no experimental treatment. Both groups were pre and posttested using the State Trait Anxiety Inventory (STAI) and the mean of two physiological measurements taken three hours apart. These physiological measurements included the blood pressure, pulse, and respirations.

Each dependent variable was subjected to a two-way analysis of variance with repeated measures. A Newman-Keuls post hoc test was applied to significant analysis of variance results. The findings of this study revealed a significant difference ($p = .01$) between the experimental and control groups' state anxiety levels. No significant differences were found between trait anxiety levels or the physiological attributes in the two groups.

Discussion of Findings

The results of this study support the hypothesis that relaxation therapy, when applied as a nursing intervention, will significantly decrease the state anxiety levels of psychiatric patients. Analysis of the data revealed no difference in trait anxiety levels of patients who attended relaxation therapy sessions when compared to those patients who did not. These results are comparable to other studies that measured the relationship between relaxation therapy and anxiety levels. According to Johnson and Spielberger

(1968) and Townsend, House, and Addario (1975), patients who received relaxation therapy had significantly lower state anxiety levels than those patients who did not. Johnson and Spielberger (1968) also concluded that relaxation therapy had no significant effect on measures of trait anxiety.

Further analysis of the data indicated that neither Group A nor Group B had any significant differences with regard to the physiological measurements of blood pressure, pulse, or respirations. These results have not been supported in the literature. Benson and Klipper (1975) found significant decreases in systolic and diastolic blood pressures among subjects who practiced relaxation therapy. However, their study was conducted over a six week period. Tamez, Moore, and Brown (1978) reported that relaxation therapy produced no significant decrease in pro-re-nata medication usage, but did significantly decrease the blood pressure, pulse, and respirations of experimental group subjects over an 18-month period. In contrast, Flaherty and Fitzpatrick (1978) reported that relaxation therapy increased the comfort level of patients getting out of bed after surgery, but had no effect on blood pressure, pulse, and respiratory readings. Their subjects practiced relaxation therapy for only one day, prior to surgery.

The present study was conducted over five days, as compared to the longer periods of time in the Benson and

Klipper (1975) study and the study by Tamez and others (1978). Perhaps five days' is too short of a period of time to achieve statistically significant results regarding physiological attributes of blood pressure, pulse, and respirations.

The final finding in this study is the significantly higher pretest trait anxiety levels of female subjects as compared to male subjects. Trait anxiety was defined by Johnson and Spielberger (1968) as a relatively stable personality trait or characteristic denoting individual degrees of anxiety proneness. It also refers to the degree to which an individual is predisposed to manifest anxiety state responses to various forms of stress. The male subjects in this study reported lower levels of anxiety proneness and personality trait anxiety than the female subjects. This finding was unexpected and remains open to speculation.

One explanation might be that males were displaying sex-role behavior. Goldberg (1976) has noted the tendency for anxious males to deny or distort their emotional responses. They attempt to mask anxiety by simultaneously reporting more positive feelings. Babl (1979) reported that males respond to anxiety by using a compensatory masculinity defense; that is, males exaggerate their masculinity by denying their emotions when they experience

anxiety. This can occur when a member of the opposite sex is present, or if they feel threatened by the situation, as in a test.

Conclusions

Within the limitations and findings of this study, the following conclusions were drawn:

1. Relaxation therapy significantly decreases the state anxiety levels of psychiatric patients.
2. Relaxation therapy does not significantly decrease trait anxiety levels of psychiatric patients.
3. Relaxation therapy does not affect the physiological measurements of blood pressure, pulse, and respiration.
4. Female patients have higher trait anxiety levels than male patients.

Implications

As a result of the findings of this study, it is suggested that:

1. Nurses should consider using relaxation therapy to lower state anxiety levels of psychiatric patients.
2. Nurses can expand their roles through the use of relaxation therapy; it requires no medical approval for initiation.

3. Nurses recognize that initiation of a relaxation therapy program may lead to improved patient care by decreasing state anxiety levels of patients.

Recommendation for Further Study

Based on the results of this study, the following recommendations are made:

1. The present study should be replicated with a larger sample.
2. Further research should be conducted to determine additional methods for reducing anxiety levels of psychiatric patients.
3. A replication study should be done with a longer trial period to determine the effects of relaxation therapy on physiological attributes.
4. There is still a need to determine if relaxation therapy can significantly decrease the physiological attributes of blood pressure, pulse, and respirations.
5. Nurses should become involved in research to determine if sex role differences regarding personality traits exist between males and females.

APPENDIX A

APPROVALS

TEXAS WOMAN'S UNIVERSITY
HOUSTON CAMPUS
HUMAN RESEARCH REVIEW COMMITTEE
REPORT

STUDENT'S NAME Marlene K. Rankin

PROPOSAL TITLE Relationship Between Relaxation Therapy and
Levels of Anxiety

COMMENTS: _____

DATE: 12/4/80

John Myers
~~Disapprove~~ Approve

James Robertson
~~Disapprove~~ Approve

Walter J. [unclear]
~~Disapprove~~ Approve

Ernest L. [unclear]
~~Disapprove~~ Approve

R. P. Bennett
Approve

TEXAS WOMAN'S UNIVERSITY
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AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____ Signatures on File with University _____

GRANTS TO _____
a student enrolled in a program of nursing leading to a Master's Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

Relationship between Relaxation Therapy and Levels of Anxiety

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: _____

Signature of Agency Personnel

Signature of Student

Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

Consent Form
 TEXAS WOMAN'S UNIVERSITY
 HUMAN SUBJECTS REVIEW COMMITTEE

(Form B)

Title of Project: Relaxation Therapy and Levels of Anxiety

Consent to Act as A Subject for Research and Investigation:

I have received an oral description of this study, including a fair explanation of the procedures and their purpose, any associated discomforts or risks, and a description of the possible benefits. An offer has been made to me to answer all questions about the study. I understand that my name will not be used in any release of the data and that I am free to withdraw at any time. I further understand that no medical service or compensation is provided to subjects by the university as a result of injury from participation in research.

 Signature

 Date

 Witness

 Date

Certification by Person Explaining the Study:

This is to certify that I have fully informed and explained to the above named person a description of the listed elements of informed consent.

 Signature

 Date

 Position

 Witness

 Date

One copy of this form, signed and witnessed, must be given to each subject. A second copy must be retained by the investigator for filing with the Chairman of the Human Subjects Review Committee. A third copy may be made for the investigator's files.

CONSENT FORM
TEXAS WOMAN'S UNIVERSITY
HUMAN RESEARCH REVIEW COMMITTEE

GROUP A

Written description of oral presentation to subject:

1. The purpose of this study is to obtain information about relaxation techniques and levels of anxiety. The investigator is Marlene Rankin, R.N.

The procedures involve the following:

1. having the blood pressure, pulse, and respirations taken twice on the first day of the study.
 2. taking a test on feelings.
 3. attending relaxation group therapy for five days, each session lasting thirty minutes.
 4. having the blood pressure, pulse, and respirations taken twice on the last day of the study.
2. The possible risks or discomforts in this study are:
 1. some anxiety related to answering a test on feelings.
 2. loss of personal time while attending group therapy.
 3. Potential benefits to myself and others are:
 1. learning more effective ways of dealing with events perceived as stressful or anxiety-producing.
 2. expanded knowledge for society- more nurses may choose to practice relaxation therapy as a nursing intervention based upon empirical results.
 4. All questions regarding this study will be answered by the investigator. Participation in this study is totally voluntary and participants can withdraw from the study at any time. Names will be kept confidential by the investigator and no individuals will be named in the study.

CONSENT FORM
TEXAS WOMAN'S UNIVERSITY
HUMAN RESEARCH REVIEW COMMITTEE
GROUP B

Written description of oral presentation to subjects:

1. The purpose of this study is to obtain information about relaxation techniques and levels of anxiety. The investigator is Marlene Rankin, R.N.

The procedures involve the following:

1. having the blood pressure, pulse, and respirations taken twice on the first day of the study.
 2. taking a test on feelings, on the first day and five days later.
 3. having the blood pressure, pulse, and respirations taken twice on the last day of the study.
2. The possible risks or discomforts in this study are:
 1. some anxiety related to answering questions on feelings.
 3. Potential benefits to myself and others:
 1. expanded knowledge for society- more nurses may choose to practice relaxation therapy as a nursing intervention based upon empirical results.
 4. All questions regarding this study will be answered by the investigator. Participation in the study is totally voluntary and participants can withdraw from the study at any time. Names will be kept confidential by the investigator and no individuals will be named in the study.

APPENDIX B

PATIENT DEMOGRAPHIC DATA RECORD

PATIENT DEMOGRAPHIC DATA RECORD

- CODE NUMBER: _____
1. AGE: _____
2. SEX: (A) Male _____
(B) Female _____
3. RACE: (A) White _____
(B) Black _____
(C) Oriental _____
(D) Hispanic _____
(E) Other _____
4. MARITAL STATUS: (A) Married _____
(B) Single _____
(C) Widowed _____
(D) Divorced _____
5. DATE OF ADMISSION: _____
6. NUMBER OF TIMES HOSPITALIZED FOR PSYCHIATRIC ILLNESS:

7. YEARS OF FORMAL EDUCATION: _____

APPENDIX C

RELAXATION GROUP THERAPY PROTOCOL

RELAXATION GROUP THERAPY PROTOCOL

There will be five group sessions on Tuesday through Sunday for five days. The investigator will direct all group sessions which will last approximately 30 minutes.

Subjects will be introduced to the nature and treatment of stress, tension, and anxiety. Discussions will include material from a variety of topics such as "the age of anxiety," life stresses, and the "flight or fight" reactions. Learning and openness to new situations will be explained and encouraged. These discussions will last for 15 minutes at the beginning of each session.

For the next 10 minutes subjects will practice progressive relaxation techniques developed by Jacobson (1938) and Bernstein and Borkovic (1973). Progressive relaxation is induced by instructions to tense and relax the major muscle groups in the body. If a muscle is tensed it will relax more deeply when released. Deep breathing exercises are practiced to insure that respirations are regular and calm.

In teaching relaxation to patients the following sequence of events should occur with each muscle group:

1. The patient's attention should be focused on the muscle group.

2. At a predetermined signal from the therapist, the muscle group is tensed.
3. Tension is maintained for a period of five to seven seconds. (This duration is shorter in the case of feet.)
4. At a predetermined cue, the muscle group is released.
5. The patient's attention is maintained upon the muscle group as it relaxes.

The following major muscle groups will be practiced:

1. forehead
2. jaw
3. neck
4. chest, shoulders, and back
5. abdominal or stomach region
6. calf
7. foot

Post Relaxation Discussion--The last five minutes of the group session will discuss the patient's overall reaction to the relaxation procedure. Patients will be encouraged to remember the state of calm they felt when relaxed and attempt to associate it with situations perceived as stressful (Bernstein & Borkovic, 1973; Stress Management, 1977).

APPENDIX D

SUBJECTS' SCORES OF STATE-TRAIT ANXIETY INVENTORY
AND PHYSIOLOGICAL MEASUREMENTS

Table A

Pre and Posttest State Anxiety Scores

Subject #	Group A		Group B	
	Pre	Post	Pre	Post
1	41	31	54	51
2	71	46	42	34
3	37	20	49	48
4	54	28	67	34
5	41	36	38	51
6	70	41	66	58
7	59	29	36	30
8	24	20	56	32
Mean Scores	49.63	31.37	51.0	44.75

Table B

Pre and Posttest Trait Anxiety Scores

Subject #	Group A		Group B	
	Pre	Post	Pre	Post
1	53	40	51	50
2	66	54	45	44
3	35	28	65	67
4	34	48	69	49
5	38	35	52	61
6	60	53	70	62
7	49	43	43	44
8	23	22	61	57
Mean Scores	44.75	40.38	57.0	54.3

Table C

Physiological Measurements for Group A^a

Subject #	Group A					
	Pre			Post		
	BP	P	R	BP	P	R
1	119/73	82	19	94/71	79	17
2	99/60	84	15	96/61	81	16
3	150/98	98	22	129/90	89	22
4	141/86	90	19	118/73	84	17
5	107/75	95	17	108/71	90	18
6	114/79	79	19	98/63	81	17
7	106/65	93	18	105/70	83	15
8	99/72	95	16	100/70	92	16
Mean Scores	116.9/76	89.5	18.1	106/71.1	84.9	17.25

Table D

Physiological Measurements for Group B^a

Subject #	Group B					
	Pre			Post		
	BP	P	R	BP	P	R
1	111/76	81	17	90/69	89	20
2	110/61	94	20	98/58	71	17
3	100/64	103	20	100/60	95	18
4	128/80	91	20	125/81	90	19
5	90/60	81	14	90/60	82	16
6	149/99	77	24	83/55	77	27
7	100/70	97	17	98/60	84	15
8	107/61	89	17	105/65	81	17
Mean Scores	111.9/71.4	89.1	18.63	98.6/63.5	83.6	18.63

^aScores are the mean of two physiological measurements taken three hours apart.

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