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The relationships of instructional methodologies and anxiety levels in family members of cardiac care patients

Richa Cox Russell

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To the Graduate Council:

I am submitting herewith a dissertation written by Richa Cox Russell entitled "The relationships of instructional methodologies and anxiety levels in family members of cardiac care patients." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

Gerald Cheek, Major Professor

We have read this dissertation and recommend its acceptance:

Roger W. Haskell, John I. Matthews, Mildred M. Fenske

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

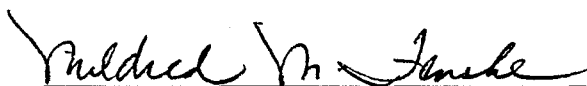
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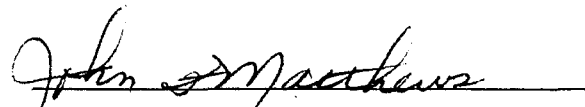
I am submitting herewith a dissertation written by Richa Cox Russell entitled "The Relationships of Instructional Methodologies and Anxiety Levels in Family Members of Cardiac Care Unit Patients." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

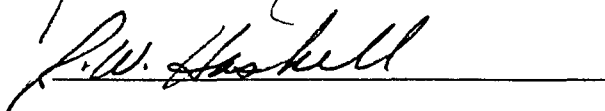


Gerald Cheek, Major Professor

We have read this dissertation
and recommend its acceptance:







Accepted for the Council:



Vice Provost
and Dean of The Graduate School

THE RELATIONSHIPS OF INSTRUCTIONAL METHODOLOGIES AND ANXIETY
LEVELS IN FAMILY MEMBERS OF CARDIAC CARE PATIENTS

A Dissertation
Presented for the
Doctor of Philosophy
Degree

The University of Tennessee, Knoxville

Richa Cox Russell

December 1987

DEDICATION

This study is dedicated to my children; in honor of Lee Ann Russell and in memory of Brett James Russell.

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Lee Ann.

ABSTRACT

The emergence of health education as an important area for research has received minimal attention. This study was conducted to ascertain the effects that two methods of instruction had on the anxiety scores of family members of patients hospitalized in the cardiac care units at Fort Sanders Regional Medical Center in Knoxville, Tennessee.

Experimental subjects were assigned to three groups determined by the date of the admission of the patient to the hospital. The treatment was a family health education program specific to the cardiac care units. The Spielberger State-Trait Anxiety Inventory STAI (Form Y) was used to posttest the family members. Posttest scores were tested in a one-way analysis of variance (ANOVA) for each group. In order to identify any major intervening variables affecting anxiety posttest scores, multiple regression analysis was applied. The variables of age, sex, relationship to patient, educational level, occupation and state anxiety scores were correlated.

It was concluded that the stress levels of family members of cardiac care unit patients are not significantly affected by the method of instruction used in health education programs. However, intervening variables are likely to be significantly related to anxiety scores. Females demonstrated significantly higher state anxiety scores than males in the same crisis situation. Young females with low education levels exhibit high levels of stress and require additional assistance

until the crisis no longer threatens the family support system.

Recommendations were that future studies be conducted to determine the needs specific to females visiting family members of acutely hospitalized patients.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.	1
Statement of the Problem.	6
Purpose of the Study.	6
Importance of the Study	7
Theoretical Framework	7
Hypotheses.	9
Assumptions	9
Definition of Terms	10
Scope of the Study.	12
Organization of the Study	13
II. REVIEW OF RELATED LITERATURE.	15
Stress--Definition and Theory	15
Stressor--Measurement	17
Stress--Normal Body Responses	19
Stress--Intervention.	20
Health Education in Hospitals (Overview).	21
Methods of Instruction in Health Education.	23
Families of Critically Ill Patients and Perception of Need.	25
Summary	28
III. METHODOLOGY AND PROCEDURE	30
Sample.	30
Design.	34
Materials Development	35
Data and Instrumentation.	39
Demographic Data Sheet.	40
Procedures.	41
Data Analysis	42
IV. ANALYSES OF THE DATA.	45
Findings.	54
Summary of Analyses of Data	65
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	66
Summary of Study.	66
Summary of Findings	67
Discussion.	68
Conclusions	70
Recommendations	71
Concluding Remarks.	72
REFERENCES.	74

CHAPTER	PAGE
APPENDICES.	81
APPENDIX A.	82
APPENDIX B.	84
APPENDIX C.	86
APPENDIX D.	89
APPENDIX E.	91
APPENDIX F.	93
VITA.	95

LIST OF TABLES

TABLE	PAGE
I. Summary of 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Members in the Study Sample Indicating State Anxiety Mean Scores by Sex and Instruction Group	46
II. Summary of 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Members in the Study Sample Indicating State Anxiety Scores by Age and Instruction Group.	48
III. Summary of 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Members in the Study Sample Indicating State Anxiety Mean Score by Relationship and Instructional Group.	50
IV. Summary of 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Members in the Study Sample Indicating State Anxiety Mean Score by Educational Level and Instructional Group	52
V. Summary of 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Members in the Study Sample Indicating State Anxiety Mean Score by Occupational Status and Instructional Group	53
VI. Spielberger State Anxiety Mean Scores, Standard Deviations, and Score Range for Family Members of Cardiac Care Unit Patients at Fort Sanders Regional Medical Center in the 1984-85 Study Sample	55
VII. Summary of One-Way Analysis of Variance (ANOVA) of Posttest Mean Scores on Spielberger Anxiety Inventory--Form Y--for Family Members of Patients Hospitalized in Cardiac Care Units at Fort Sanders Regional Medical Center in 1984-85 in the Study Sample.	56
VIII. Correlation Coefficients between the Independent Variables and Posttest Anxiety Scores for the 1984-85 Fort Sanders Regional Medical Center Cardiac Care Unit Family Member in the Study Sample	58
IX. Mean Anxiety State Scores for Family Members of Cardiac Care Unit Patients at Fort Sanders Regional Medical Center in 1984-85 in the Study Sample by Instruction Group.	64

CHAPTER I

INTRODUCTION

The emergence of health education as an important area of emphasis in health care systems has received increased attention (American Hospital Association [AHA], 1986; Redman, 1984; Ritchie, 1981). Numerous factors have converged to bring health teaching into public focus. The wellness concept, with emphasis on health maintenance rather than disease treatment, has gained prominence. Changes in federal funding, third party reimbursement, the recent national focus on lifelong learning, and the shortened average length of acute hospital stays have combined to impact on health instruction in health care institutions (AHA, 1986).

Health education defined as the promotion of wellness behaviors and the prevention of disease has a focus on groups or communities. As a sub-set of this broad educational category, patient education is defined as the influencing of behavior producing changes in knowledge, skills and attitudes required to maintain or improve health. The focus in patient education is toward health care facility clients and their families (Simonds, 1979). Health education incorporates both nursing and teaching. Each discipline, as a helping relationship, has, as an object, the development of clients that function independently.

The Patient's Bill of Rights, developed and approved by the American Hospital Association (AHA), affirms the client's right to obtain current information concerning diagnosis, treatment, and

prognosis (AHA, 1972). Not only have health care institutions centralized emphasis on health education, but significant changes have occurred in medical ethics, relative to health education. The American Medical Association's updated version of Principles of Medical Ethics approved July, 1980, indicates physicians must make relevant information available to clients. This statement demonstrates the recognition of patient rights and the need for patient participation in health care decision making.

Theoretically and legally, nursing has been committed to a health teaching role. The Nurse Practice Act in most states mandates the nurse's involvement in health education. The American Nurses' Association (ANA) Model Nurse Practice Act defines health education as a component of the registered nurse's (RN) practice (ANA, 1979). The ANA paper entitled The Professional Nurse and Health Education identifies the professional nurse as having a responsibility to teach the patient and family relevant health care facts while supporting appropriate behavior changes (ANA, 1975).

However, health education involves unique obstacles. A major detriment to independent functioning for the health care consumer is the health care system's series of transient environments. Health educators agree that a large proportion of health teaching is done on an informal one-to-one basis by health care professionals and frequently under severe time constraints, with neither in-depth coverage of the instructional material nor follow-up evaluation of learning (Redman, 1984).

Learning is viewed as a complex activity. Nurses are commonly involved in situations which require a variety of teaching methods and judgments about learning priorities. Critics of the health education movement charge that large amounts of funds are spent haphazardly with little known about the efficiency and/or effectiveness of health teaching (AHA, 1980; Green, 1976; Warner, 1983). Confusion about health teaching done by nurses results from a lack of clarity about the method of instruction to be used, not only during the different phases of illness, but for specific target groups in different health care settings. Empirical evidence of the effects of health teaching in various settings for the achievement of educative goals, although limited, is found in the literature and supported by theory (AHA, 1986; Gregor, 1981; Moss, 1986; Visser, 1980). While the knowledge of learning outcomes is crucial to the health teaching effort, the effectiveness of health education, generally, is not well known.

Hospitalized patients and their families enter health care systems and find complex, sophisticated settings. A fear of the unknown and, often, a sense of helplessness confront the individuals interacting within the hospital environment (Beglinger, 1983; Hampe, 1975; Mathis, 1984). One group, families of patients in critical care units, has specific health teaching needs. These family members must respond to the critical care environment and to changes in usual daily routines and expectations related to the hospitalization of loved ones. Needless to say, stress affects responses to educational information (Rasie, 1980; Redman, 1984).

Although the word stress is commonly used in everyday conversation, it has different meanings. Selye defined stress as "the nonspecific response of the body to any demand" (1978, p. 1). Holmes and Rahe (1967) further identified stress in terms of social readjustment necessary to regain equilibrium. Also, there has been increasing research into the relationships of stress responses and the stressors (Cohen, 1981; Kimball, 1982).

Families ordinarily respond to life situation crises resulting from patient's entries into a hospital critical care unit by staying in the hospital to be near their loved ones for varying, but often prolonged, lengths of time (Beglinger, 1983; Jillings, 1981). The situational source of stress (critical illness of one family member) affects the total family system (Redman, 1984). Critical care units pose a unique threat to the integrity of the family system and to each individual family member (Leske, 1986; Mathis, 1984; Rodgers, 1983). Family members interact mutually with each other and with the environment experienced. Critical illness is a disruption leading to disequilibrium of the steady state of the family system (Fawcett, 1985; Leavitt, 1982; Mathis, 1984; Rodgers, 1983).

Social support throughout the stressful situation has been identified as the imparting of information to the individual to promote independent functioning and to restore esteem (Cohen, 1981; Holmes & Rahe, 1967; Ritchie, 1981). Simon and Poelker (1980) demonstrated the need to develop and implement health educational programs designed for social support of families of critical care patients. They assert:

1. Family members are an important part of a patient's support and environment during the critical care stay. The interaction between the family, patient, and health care personnel can be a positive or negative factor in the equilibrium within the environment.
2. The loved one is seriously ill and the family has specific needs due to altered daily routines and the concurrent possibility of the crisis of the loved one's death.
3. Orientation of family members to the critical care rules, regulations and environment serves to decrease misinformation and myths that develop among families interacting in the waiting room.

Recently, health care systems have changed the focus from the individual patient and now include the patient's family. Critical care unit nurses have identified the need for family integrity and communication within the family system as avenues for health promotion and illness coping (Jillings, 1981; Lust, 1984; Mathis, 1984; Ritchie, 1981). Family members whose loved ones are hospitalized in critical care units have specific personal needs (Molter, 1979; Ritchie, 1981; Rodgers, 1983; Williams, 1978). These personal requirements must be satisfied in order to promote "realistically planned nursing interventions to aid individual family members" (Mathis, 1984, p. 37). Specifically, the nursing intervention of health teaching strives to promote effective communication within the holistic family system.

With the many complex functions involved in critical care nursing, health education must focus on the care provided by nurses to promote family integrity and equilibrium. The role of health education within the critical care setting must focus on family needs. Nurses actively involved in health education provide the patient and the family opportunities to learn, adapt, and function independently within the health care system. Well informed family members will be more

likely to participate in the care of their loved ones, understand when to be genuinely concerned, and demonstrate increased knowledge regarding the loved one's health needs (AHA, 1986; Bozett & Gibbons, 1983; Leske, 1986; Visser, 1980).

I. Statement of the Problem

Family members of critically ill, acutely ill hospitalized patients experience situational crises producing stress. When family members express high levels of stress, both the patients' and nurses' stress levels increase due to family members' frequent inquiries concerning the health care system, resources available to them within the system, and anticipated outcomes of their loved ones. Family members use a variety of coping mechanisms to adapt to the perceived crisis. They attempt to gather adequate information to know what to expect and what to do as one mechanism of coping. Health educators must provide this needed information in clear, concise, and timely programs. Although various instructional methods may be used in family health education, the general goals for health education programs are to reduce stress which benefits both the family and the patient and, ultimately, the nurse.

II. Purpose of the Study

The purpose of this study was to investigate a mediated versus a nonmediated instructional method for the presentation of health education information, to determine the effects, if any, of the instructional method on the anxiety level of the family members of

critical care unit patients at Fort Sanders Regional Medical Center, Knoxville, Tennessee.

III. Importance of the Study

Data collected in this study may be utilized as a guidance tool in an effort to help others select the most effective method of instruction when presenting family education materials in hospital settings. Results of this study also may stimulate others to conduct additional research.

IV. Theoretical Framework

The theoretical framework for this study was drawn from "systems theory." Systems theory has been widely utilized by various disciplines and has been applied to nursing practice (Fawcett, 1975; King, 1971; Putt, 1979). A current definition of systems theory may be found in John Donne's age-old poetic phrase "no man is an island" (Narrow, 1979, p. 16).

The operationalization of systems theory examines basic concepts. Defined, a system is "an assemblage of interdependent parts, persons or objects that [is] united by some form or order into a recognizable unit and in equilibrium" (Murray & Zentner, 1979, p. 6). Since the parts of the system are interrelated, the happenings to one part affect one or more of the system parts, as well as the system functioning. Narrow (1979) identified the basic concepts of systems theory to include the system as "a component of a larger system and, since all systems are

interrelated, the boundaries between systems are established arbitrarily at any time" (Narrow, 1979, p. 18).

Input, the introduction of information or energy into the system, may come from a system component or from outside the system. Output results from the interdependent and interactive processes within the system. Feedback describes the state of the system and promotes system regulation (Narrow, 1979).

Systems theory encourages and allows nurses to assess the total family system rather than dealing exclusively with the patient. All living systems are referred to as "open systems" which implies that the systems are dynamic with input and output across system boundaries. Man, as a living system, interacts with the environment while maintaining a steady state (Putt, 1979).

Using a systems perspective, the health educator views the patient and other family members as a composite system. The patient is a component of the family system. Families, as systems, possess structure, processes, and functions (Beavers, 1977; Fawcett, 1975; Satir, 1972; Stevenson, 1977). The positive and negative functionings of systems are dependent upon the input, output and feedback. Family systems confronted with situational crises of member illness or life-death sick role must be able to adapt via feedback in order to return to steady states and avoid disequilibrium.

The family interfacing with the health institution is a personal system (King, 1971). The patient, the family, and the nurse comprise interpersonal and social systems. Family members interact independently and interdependently with each other and the environment.

When disruptions of steady states of the family systems occur, states of disequilibrium result. Change or disruption within family systems involve constant restructuring and adjustment (King, 1981; Putt, 1979).

The individual subsystems within family systems function through interpersonal relationships relative to perception (King, 1971). Feedback allows systems to correct or alter output and achieve equilibrium. Equilibrium states of family systems are restored and maintained as physiological, psychological, and social needs perceived by family systems are satisfied (Putt, 1979).

V. Hypotheses

The following null hypotheses were formulated and tested:

- H₀₁: There are no statistically significant differences in the state anxiety mean scores for family members of acutely hospitalized cardiac patients when mediated and nonmediated instructional systems are utilized for presentation of critical care unit policy/orientation information.
- H₀₂: There are no statistically significant relationships between state anxiety scores and variables of sex, age, relationship to patient, educational levels, and categories of occupation.

VI. Assumptions

For the purposes of this study, the following assumptions were made:

1. The health agency in which the study was conducted reflects

the patient population and cardiac care nursing availability and expertise of major accredited health institutions within the region.

2. Because of their professional integrity and concern, the health personnel interfacing with the family answered all questions honestly and accurately.

3. After training, the health personnel, specifically the professional nursing staff, of acute hospitals have the necessary skills and the desire to implement successful patient/family health education programs.

4. By definition of systems, the family is a unified, open, interpersonal system, possessing its own integrity, characteristics, and interactions with the external environment.

5. A situational crisis exists for the family members of critically ill, acutely hospitalized patients.

VII. Definition of Terms

The following terms are used throughout this study and are operationally defined for clarity and understanding.

Anxiety: A state of uneasiness relative to perception.

Assessment. The systematic process of data collection used by nurses to develop a nursing care plan.

Atherosclerotic Coronary Heart Disease (ACHD). Defined as any of the following: angina, myocardial infarction (heart attack), or coronary artery bypass surgery.

Cardiac care unit (CCU). A distinct organizational entity within an acute health care agency which provides individualized, goal-

oriented, and comprehensive services to patients having atherosclerotic coronary heart disease.

Correspondent. The individual named on the medical record for purpose of interaction regarding the hospitalized patient, usually next-of-kin.

Critical care unit. A distinct organizational entity within a health care agency which provides individualized, goal-oriented, and comprehensive services designed to maximize life-saving efforts.

Critically ill patient. An individual hospitalized in a critical care or cardiac care unit within an acute care health care agency because of a life-threatening health problem.

Disequilibrium. An unsteady state; an unbalanced state.

Equilibrium. A steady state; a state of balance.

Family. An open system of interacting personalities having interrelated positions and roles.

Health educator. An individual responsible for the assessment, planning, implementation, and evaluation of health programs for a specific population of patients and families in an acute care health care agency.

Instructional methods. Teaching strategies, formats, and activities designed to achieve learning objectives.

Nonprint materials. In education, instructional materials presented in forms other than written documents and which do not require reading ability.

Patient's Bill of Rights. The document developed and approved by

the American Hospital Association outlining what the patient may expect as standards of health care in health care institutions.

Print materials. In health education, written instructional materials which require ability to read.

Significant other. An individual interacting in the usual social unit position or role of the family member, but not related to the patient by origin or marriage.

State anxiety. A transitory condition of perceived tension (Katkin, 1978).

Stress. Bodily response, nonspecific, to any demand (Selye, 1975).

Stressor. The stress-producing stimulus.

Systems theory. Views man and environment from the smallest to the largest parts with attention to integrated system properties; encourages assessment of the total patient and his family (Narrow, 1979).

Trait anxiety. A stable condition of apprehension proneness (Katkin, 1978).

VIII. Scope of the Study

This study was confined to a single acute care, comprehensive health agency, Fort Sanders Regional Medical Center (FSRMC), Knoxville, Tennessee. The sample included the family members of critically ill patients having atherosclerotic coronary heart disease (ACHD), hospitalized during the time of September 1984 - March 1985, in the nursing areas designated as the cardiac care units. Two instructional

systems were evaluated for the study. Each instructional system presented Basic Heart, an already established family education program developed by Fort Sanders Regional Medical Center in 1984. In addition to the Basic Heart program, a family orientation program was developed and presented to the subjects of this study. Three separate family member groups were identified for the study. The Basic Heart program and the family orientation program were presented twice weekly. Each instructional system required approximately 3 hours of family member participation. In addition to Basic Heart and the family orientation materials, the cardiopulmonary resuscitation course, The Heart Saver, developed by the American Heart Association, was provided weekly. The subjects were surveyed prior to attending the mediated cardiopulmonary resuscitation course. The reason for this practice was to maintain separateness of treatment groups.

IX. Organization of the Study

This study consists of five chapters. The following chapter format was used:

Chapter I contains the introduction, which includes the statement of the problem, purpose of the study, theoretical framework, hypotheses, assumptions, definitions of terms, scope and limitations of the study, and organization of the study.

Chapter II contains a review of related literature including information about stress and stressor measurement, information about health education generally and methods of learning in health education,

related studies as they contribute to this study, and a summary written to unite the subsections with the theoretical framework.

Chapter III contains the methodology and procedures used in the study, the population and sample, the design, the data and instrumentation, special procedures, and the method of data analysis.

Chapter IV contains the analyses of data collected in the study.

Chapter V contains the summary of overall findings, conclusions drawn by the researcher, and her recommendations. In addition, a list of references and a set of appendices are included.

CHAPTER II

REVIEW OF RELATED LITERATURE

A great deal has been written regarding health education and its use in nursing practice (AHA, 1986; ANA, 1975, 1979; Hoffman, 1976; Redman, 1984). However, little research has been conducted in this area to validate the effectiveness of the research findings as demonstrated by this review of the current literature. Conversely, research regarding the relationship between stress and illness abounds (Bozett & Gibbons, 1983; Cohen, 1981; Dohrenwend & Dohrenwend, 1974; Hampe, 1975; Jillings, 1981; Lust, 1984).

A review of the available literature and available research pertaining to the study has been conducted by this researcher. This review of literature deals with the following primary areas: (I) stress--definition and theory, (II) stressor measurement, (III) stress--normal body responses, (IV) stress--intervention, (V) health education in hospitals, (VI) methods of instruction in health education, and (VII) health education specific to family members of cardiac care unit patients. journals, textbooks, monographs, and other literature published in the field of family health education reported the most current activities and trends.

I. Stress--Definition and Theory

Interest in stress, stress measurement, and stress management has been kindled by the work of Dr. Hans Selye, particularly by his

popular book, The Stress of Life (1st ed., 1956; 2nd ed., 1976). Selye defined the term "stress" and differentiated between "stress" and "stressor," which distinguishes the former as a result and the latter as an agent. He prefers to define stress as the body's "nonspecific response to any demand" (Selye, 1975, p. 38). He also cautions that the same stressor can elicit different responses or manifestations in different individuals.

In his early medical research, Selye (1936) theorized a syndrome that later became known as the General Adaptation Syndrome (GAS) or biologic stress syndrome (Selye, 1976). The GAS depicts three stages of response to continuing stressors: alarm reaction, state of resistance, and stage of exhaustion. Selye (1976) defined the stages as follows:

Alarm Reaction: The body shows the changes characteristic of the first exposure to a stressor. At the same time, resistance is diminished and, if the stressor is sufficiently strong (severe burns, extremes of temperature), death may result.

Resistance: Ensues if continued exposure to the stressor is compatible with adaptation. Bodily signs characteristic of the alarm reaction have virtually disappeared and resistance rises above normal.

Exhaustion: Following long continued exposure to the same stressor, to which the body has become adjusted, eventually adaptation energy is exhausted. The signs of the alarm reaction reappear, but now are irreversible, and the individual dies.

The nature of this theory indicates that the body's adaptability, or adaptation energy, is finite, and exhaustion ensues if under constant stress. This implies a potential relationship between stress and aging. Selye (1976) summarized the potential relationship between stress and aging as follows:

These three stages are suggestive of childhood (with its characteristic low resistance and excessive responses to any kind of stimulus), adulthood (during which the body has adapted to most commonly encountered agents and resistance is increased), and senility (characterized by loss of adaptability and eventual exhaustion).

This approach to stress has a physiological or biological orientation. Stress was defined as contingent upon a measurable response in the individual. However, the work of Holmes and Rahe (1967) began to alter this view of stress. Their research, reinforced by Kimball (1982), defined the effect of an event in terms of the amount of adjustment, or readjustment, an individual would have to undergo to return to a state of equilibrium, rather than measuring response to an event.

However, both Selye (1978) and Lazarus (1966) acknowledge that events may be stressful for one individual but may not be perceived as stressful by another. Lazarus (1966) emphasized cognitive appraisal of such events. Consequently, in extreme situations, researchers can determine that an event or stimulus will be perceived as stressful, since stress responses are dependent on an individual's appraisal that a stressor exists (Cohen, 1981). Stress, therefore, may be defined as a biological response, the readjustment required by a stressor. Stress is influenced by one's cognitive appraisal of potentially stressful events.

II. Stressor--Measurement

Life stress has been assessed most often by the use of the Schedule of Recent Experiences (SRE) or the Social Readjustment Rating

Scale (SRRS), developed by Holmes and Rahe (1967). The SRE, a checklist of 43 major life events, asks the respondent to recall whether an event occurred during a particular period of time, most frequently the past year. The SRRS weighs the score for each event, in terms of Life Change Units (LCU). A respondent's SRRS score, then, is the sum of the products of the number of occurrences multiplied by assigned LCU weights (Masuda & Holmes, 1978). Scores obtained from the SRRS have been found to be predictive of possible illness (Rahe, 1974), to include myocardial infarction (Theorell, 1974) and various psychiatric conditions (Ander, Lindstrom, & Tibblin, 1974; Dohrenwend & Dohrenwend, 1974). Therefore, physiological changes have been assessed as stress responses characterized by varying states of anxiety.

The work of Spielberger (1972) emphasized the theoretical distinction between state anxiety and trait anxiety using the State-Trait Anxiety Inventory (STAI). The instrument, utilized in many research studies, demonstrates that both high and low trait-anxious individuals may, at times, experience anxiety (Burros, 1978; Spielberger, 1972). Reviewing the instrument, Dreger (1978) observes the revised STAI as one of the best standardized anxiety measures available. The review also notes the popularity of using the test due to the high reliability factor. Katkin (1978) supports this view and cites its frequency of use in published and current research. A well written manual and a comprehensive bibliography accompanies the STAI. The manual fully describes norming procedures, samples, construct validity, concurrent validity, and test-retest reliability for this instrument (Spielberger, 1971, 1975, 1983).

The internal consistency is high for both state and trait anxiety scales. The alpha coefficients for the state portion of the form using normative samples of working adults, students, and military recruits were above .90 with a median coefficient of .93. The alpha coefficients for the trait anxiety have a median coefficient of .90. The overall median alpha coefficients for the state and trait scales in the normative samples are .92 and .90 respectively (Spielberger, 1983).

The reliability data for the instrument reveals higher alpha reliability coefficients for the STAI-S (state) anxiety scale when administered under conditions of psychological stress. For example, the alpha reliability of the state anxiety scale was .92 when administered to a group of college males immediately after a difficult test and .94 when given immediately after a distressing film (Spielberger, 1983). Respondents described both events as stressful as compared to a social, nonstressful event with the alpha coefficient of .72 (Spielberger, 1983).

III. Stress--Normal Body Responses

The normal psychophysiologic response to stress is summarized as follows: Stress responses may occur physiologically, psychologically, or socially. Physiologically, changes may occur in the autonomic nervous system. These reactions include elevated blood pressure, increased cardiac and respiratory rates, and electrical skin resistance changes. Hormonal reactions to stressors include the increased secretion of adrenocortical hormones and of adrenal-medullary hormones stimulated by sympathetic nerve activity. The immunologic system

response to stressors results in cell-mediated responses of T lymphocytes and humoral immune responses of B lymphocytes. Stressors influence the neuroregulatory responses via the release of inhibition of neurotransmitters and neuromodulators. Psychologically, humans respond to stress by changes in affect, behavior, and adaptation, including closely related social level responses to stress evidenced in social role adjustment (Cohen, 1981).

IV. Stress--Intervention

Aguilera and Messick (1982) synthesized the views of several behaviorists and theorists in their theory of crisis intervention. Crisis, perceived as a stressful event or an event involving a change in lifestyle, is determined to be situational or maturational. The threat of loss or actual loss causes disequilibrium. Three factors must be present to avert crises. These factors are realistic perception of the event, adequate resources for social supports, and adequate coping mechanisms. The steps involved in crisis intervention and summarized by Aguilera and Messick (1982) are as follows:

1. Assessing the individual and the problem.
2. Planning intervention to assist the individual to return to the precrisis level of equilibrium.
3. Intervening to assist the individual to understand the crisis; to explore methods of coping; and to regain social functioning.

Instructional resources such as planned health education programs, support groups, and one-to-one counseling provide for social support and crisis intervention.

V. Health Education in Hospitals (Overview)

One strategy to decrease stress, avert crisis, or intervene in crisis situation involves health education. Increasing evidence indicates that selected populations, with similar medical problems, provided with planned education experiences cope and adhere to medical regimes more often (Leavitt, 1982).

Currently, government-mandated shortened hospital lengths of stay restrict nursing care time. Health professionals, therefore, must intensify health knowledge education efforts. The American Association of Critical Care Nurses, in their 1981 standards of care, stated that critical care nurses must identify areas of education for family members and for significant others (Thierer et al., 1981).

Review of hospital management literature reveals an early AHA survey (1975) which emphasized the importance of an administrative policy governing the implementation of patient education in each hospital. Later studies by AHA (1979, 1980, 1986) reinforced the initial survey findings. Many hospitals initiated and continue to use multidisciplinary teams to coordinate patient education systems. A number of the hospitals routinely use patient education coordinators to monitor and supervise patient education. Since 1975, the AHA has designated a budget specifically for patient education.

The importance of documentation and audit in relation to the implementation of health education in hospitals has been emphasized (Jencks & Green (1978). Hoffman (1976) and Skillern (1977) supported extensive use of resource centers as components of a hospital health education system. The literature also lists factors that facilitate the design, implementation, and evaluation of patient education at the individual program implementation level. Redman (1981, 1984), Timmeck (1980), and Watchous, Thurston, and Carter (1980) outlined criteria for the development of health education programs for hospitalized clients. Although programs may include a variety of instructional strategies, the components for effective implementation of a health education program include assessing patient and family needs and characteristics, developing behavioral objectives and program goals, defining program outlines for content specifications, pretesting and posttesting knowledge levels, and evaluating the merits of the program.

The AHA (1979) proposed assessing of learning needs at the individual level. Based on these needs, instructional goals determine the content that will follow and suggest specific strategies for implementing the content. Instructional media are then selected on the basis of the learning objectives and taxonomic classification, content, and strategies as well as the characteristics of the intended audience. Group teaching may occur in the achievement of individual goals. The final step, evaluation of the program, is a mechanism for determining whether learning has occurred.

The AHA (1975, 1979, 1980, 1986) studies conducted to ascertain the state of patient education in U.S. hospitals found nurses most

often responsible for planning and implementing patient education programs. The studies reported that hospital employed nurses often abdicated their roles of health teachers (Syred, 1981). One cause for nurses abdicating the teaching role was identified as the lack of skill in selection of methods of instruction.

VI. Methods of Instruction in Health Education

The early 1970s were the pioneer years for health education studies of methodology. Lindemann (1972), in an early study of structured and unstructured methodologies, found that structured methodology improved client symptoms and reduced the lengths of their hospital stays when compared to unstructured presentations. Lawson (1976) studied programmed instruction using videotape cassettes and determined this instructional medium to be well suited to the needs of educationally deprived patients. A study of two methods of instruction (lecture and videotape) for myocardial infarction patients indicated that patients significantly preferred to view videotapes than attend lectures (Bracken, 1977).

The effectiveness of an instructional booklet, designed to increase the knowledge of patients with arteriosclerotic coronary heart disease, reported significantly higher posttest and retention test scores for the group using the teaching booklet than for the group using professional staff lecture. White, Lemon, and Albanex (1980) assessed the effectiveness of a team teaching approach using lecture versus one-to-one counseling for cardiac care unit patients and found no significant difference in knowledge resulting from the program.

Klos, Cummings, Graichen, and Quigley (1980) compared methods of instruction for presurgical instruction. They found reduced levels of preoperative anxiety when audio-visual methods of instruction were used. Two methods of instruction used in preparing patients for cardiac catheterization determined audio-visual instructions to be equally effective as oral personal instructions (Winslow, 1976). Williams (1978) compared written and verbal instruction methods with families of head-injured patients and indicated that verbal explanations to families produced the same satisfaction with nursing care as specific written instructions. A teaching booklet was used by Rahe, Scalri, and Shine (1975) in their study with cardiac patients to evaluate effectiveness of the print teaching tool. The findings indicated patients selectively increased knowledge according to perceived individual needs.

A study of three methods of intervention for presenting information and orientation with hospitalized patients (Visser, 1980) demonstrated that methods of instruction/intervention had no significant effect on the patient's perception of psychological well being. Hassell and Medved (1975) in addition to studying group versus individual instruction compared the effectiveness of classroom programs utilizing audio-visual methods in diabetic teaching. Patients receiving instruction in classes using audio-visual techniques significantly improved their posttest knowledge of diabetes compared to patients taught individually using the lecture method.

In a study involving patients with allergy, Sly (1975) found no significant difference in knowledge retention scores for an

experimental (slide/sound) group and a control (non-slide/sound) group. The conclusions of the study included that presentation of the general maintenance health education information to groups, not in acute distress, promoted learning but that the choice of media and the presence of an instructor did not affect the test of knowledge scores.

Research specific to health education of families of patients is limited. Moss (1986) reviewed literature specific to health education for family members of hospitalized patients. Although that literature review revealed a deficiency in studies examining the effect of instruction on family members, nursing researchers have begun recently to study health teaching for the family. Research findings can strengthen the family's unique and irreplaceable role as a source of nurturance to the hospitalized patient. The educative task in helping families lies in tapping the family potential in ways that increase the family's ability to function in crisis (Leavitt, 1982).

VII. Families of Critically Ill Patients and Perception of Need

According to Leavitt (1982), the Critical Care units evoke varied feelings and fears in the families of patients. Health care professionals impact on these feelings of anxiety, frustration, discomfort, and uncertainty by assisting the family to understand the patient's condition and to cope with the hospital environment. Until recently, critical care unit professionals did not have a family-centered focus. Also, nurses lacked clarity regarding their roles as health teachers, and health education lacked research regarding family dynamics.

Research specific to families of critically ill patients has focused on death, dying, and stress experienced by spouses. Ritchie (1981), Bozett and Gibbons (1983), Rodgers (1983), and Lust (1984) concur, in their studies of families in critical care settings, that admission of a family member to an acute care hospital critical care setting promotes a state of family crisis. Family members experience a stress reaction, characterized by anxiety. As Bozett and Gibbons (1983) found, families tend to adapt to the system disequilibrium of the family more quickly if given adequate information of daily events and of expectations. An important nursing activity determined was teaching, often requiring repetition of materials. They also found that, as family stress decreased, family support of the patient increased.

Specific nursing interventions to identify and assist in stress coping in a hospital setting (Hampe, 1975) demonstrated that stressed family members had specific concerns and personal needs. Family members in hospital settings reported a sense of helplessness. Relatives expressed feelings of guilt and sadness over past family events. Family members cried and verbally stated their stress. Personal needs included the venting of the emotions as an outlet for the family to cope with hospital events. Family members exhibited perceptions of need gratification relative to nursing intervention (Dracup & Breu, 1978) and identified the need for time to verbalize stress and unmet needs with hospital nurses. Family members also expressed the need to be informed about all aspects of the

hospitalization. Specifically, the family perceived nurses as caring when they provided health information.

A recent (1986) study by the American Hospital Association supported the need for family education in intensive care unit settings. This study determined that specific informational needs exist due to the severity of family stress. This report recommended a brief and pertinent teaching plan and documentation in the patient record of family teaching, relative to patient predicted outcomes. A probable relationship existed between the quality of patient care and health teaching.

Using descriptive research design, Molter (1979) investigated personal needs identified by family members of critically ill patients, the importance of the needs, the need gratification process, and the health care providers responsible for the process. Spatt, Ganas, Hying, Kirsch, & Koch (1986) replicated the Molter study at a Wisconsin hospital and supported the Molter findings. Mathis (1984) used Molter's tool, but limited her studies to the needs of family members of patients with and without acute brain injury. The results of all three studies indicated that family members demonstrate specific needs. Leske (1986) replicated the work of Molter (1979) and identified that nurturing of the family via education affects patient recovery. Several studies (Beglinger, 1983; Roberts, 1976) identify the struggle to maintain a sense of control as a coping task of significant others and families of the critically ill. Information and knowledge of expected events enable family members to maintain a sense of control. The maintenance of intimate family relationships provides a primary

network of support and control (Jillings, 1981). Rasie (1980) discovered that families fear that nurses will perceive them negatively when they ask for information. Therefore, family members did not freely express their desire for information because they feared offending hospital personnel. The most common method of instruction in critical care waiting areas occurred family to family. As a result, misinterpretations of information commonly existed.

According to Hymovich (1974), critical care nurses should regard families as a part of the total patient care component. Relatives should be incorporated into the plan of nursing care. Additionally, the family should be included to reduce patient stress and anxiety as well as reducing the stress and anxiety of the family unit. Studies have indicated that families, incorporated into the plan of care, influence anxiety in the critically ill patients (Barnhill, 1979).

Perceived stressors for families or critically ill patients have been reported by Bedsworth and Molen (1982). This study demonstrated that spouses of patients having a heart attack most frequently feared potential of death of the mates. Likewise, Rodgers (1983) in a descriptive study, demonstrated relatives ranked receiving assurance of probable life continuation and health care information as their highest priorities.

VIII. Summary

Health education programs are developed for specific target populations within the health care system. Methods of instruction vary according to the needs of the specific target population. The results

of research enable health educators to draw conclusions about the program development process of health teaching. Barriers to the implementation of health education such as cost; lack of time, facilities, and resources; and a lack of prepared educators are frequently cited as rationale for neglect of health education in health care institutions (AHA, 1975, 1979, 1980; Redman, 1984).

In health care institutions, health educators including nurses have served families for many years. However, health care providers have not fully recognized the influence of the family in the patient's recovery. Research findings identify ways that education can enhance the family's ability to provide a social support for hospitalized patients.

CHAPTER III

METHODOLOGY AND PROCEDURE

This study was conducted to investigate mediated versus nonmediated instructional materials for the presentation of health education information. The purpose was to determine the effects, if any, that the instructional materials had on the anxiety level of the family members of critical care unit patients at Fort Sanders Regional Medical Center, Knoxville, Tennessee. The foregoing review of literature and related research provided a foundation and direction for completing this research.

This chapter presents the procedures used in the study. The sections in this chapter include the population of the study and the samples surveyed, design, materials development, instrumentation, procedures, and method of data analysis.

I. Sample

A volunteer sample of 150 family members (the person designated on the patient record as correspondent) were selected and divided into three groups for the study. These 150 family members were a sample from the population of all family members of patients in the critical care units of Fort Sanders Regional Medical Center in Knoxville, Tennessee, during 1984-1985.

Subjects selected for the study were required to be interfacing for the first time as family members of patients hospitalized in the

cardiac care units. In the absence of family members for specific patients, and in the event that the correspondent designated on the patient record was not a family member, the individual identified as the correspondent was used as the subject for the study. As a result, the term family, as used in this study, includes the patient's "nonrelated significant others."

Two categories for exclusion of subjects from the study were identified. Illiterate family members were not included as subjects in the study but were provided with individual verbal instruction. Also, family members of patients admitted with a diagnosis of impending death were not approached for the study. However, the educational materials were provided for them.

Assignment of subjects to groups was determined by the date of the admission of the patient to the cardiac care unit. Calendar months were used as indicators to determine and to separate groups. At the end of the control and each of the experimental treatments, one calendar month elapsed prior to a new group being designated. Subjects could not be assigned randomly to groups. The formation and separation of groups by calendar months limited the practice of sharing materials by the subjects who were in close proximity with time for discussion in the critical care waiting areas.

Assignment to groups was achieved as follows: The first 50 subjects were assigned to the control group; the next 50 subjects were assigned to the nonmediated group, and the final 50 subjects received the mediated instruction. The first group of subjects ($n = 50$) received the traditional instruction. Traditional instruction included

the educational information provided to the family by the bedside nurse, the health educator in the cardiac care unit. The educational information was presented verbally by the nurse to the family during usual visiting hours. The setting most often used for presentation of information was the patient's bedside or the hospital corridor. A checklist of topics for discussion about heart problems was provided for the nurse. When a topic had been discussed with the family, the checklist was dated and signed by the nurse responsible for the discussion. Each nurse providing care for the patient had the responsibility of reviewing the checklist periodically. Topics not previously checked off were to be discussed with the family as nursing care delivery time permitted.

Of the 150 subjects included in the sample, 98 family members completed the experiment. The reasons for failure to complete the experiment varied. Since participation was voluntary, the subjects had the right to withdraw from the study. Four participants requested to withdraw. Eighteen subjects did not complete the instrument in its entirety. Three subjects became ill and were hospitalized during the time between the education presentation and the completion of the instrument. Six of the acutely hospitalized patients died and their family members did not complete the experiment. One family member became ill and died at home prior to returning the completed instrument for the study. Two subjects, both female, were unable to complete the instrument due to high anxiety evidenced by crying and inability to stay on task. One patient left the hospital against medical advice. His family member was angry and destroyed the instrument that had been

completed. Five family members, assigned to the mediated instruction group, failed to complete the educational program. However, they did complete the instrument. These instruments were not included in the study. One family member completed the educational experiment and the instrument. This individual was called out of state for another family crisis. The instrument was not returned. Eleven patients were transferred on short notice to other hospital areas. Follow-up with their family members was unsuccessful and the instruments were not returned. Because of the nature of the study, subjects were not pressured to complete the study. A total of 52 subjects were excluded from the sample.

Determination of subjects for inclusion in the study was as follows. The names of all newly admitted patients were collected daily from the critical care units. At the end of 24, but not more than 48 hours, the family members of these patients were contacted and screened regarding literacy, condition of the patient, and first-time contact with a critical care unit as a family member. Potential participants were informed that the study was completely voluntary and their participation or lack of it would not affect the care of the patient. All participants were given verbal instructions and a letter of explanation (Appendix A). Subjects signed a consent form at the time of the interview and the explanation of the study (Appendix B).

II. Design

A modification of the posttest-only control group design was used in this study. The following variables were incorporated into the design:

A. The dependent variable was the anxiety score as measured by the Spielberger Self Evaluation Questionnaire administered to the family member at the end of the instructional program.

B. The independent variables selected were the instructional methods: traditional, nonmediated, and mediated. Other secondary independent variables relating to "family" members and treated statistically were:

1. Sex
2. Age
3. Relation to patient
4. Education level
5. Occupation

A graphic presentation of the posttest-only control group, as used in this study, follows:

Treatment #1	X_1	O_1

Treatment #2	X_2	O_1

Control Group	X_3	O_1

X_1 , X_2 ,^y or X_3 indicates the treatment of the family member to an experimental variable or event. Measurement of the effects of this treatment were made using the Spielberger Evaluation Questionnaire, STAI Inventory (Appendix C).

O_1 refers to the process of observing (measuring) the effects of the treatment. In this study, the Spielberger instrument was administered to both treatment groups as well as to the control group which received neither of the instructional treatments in order to compare the anxiety scores of all three groups. Selection of subjects, although not a random selection, was not controlled by the researcher. The subjects entered the hospital environment as a result of a family member's illness. Therefore, the incident of unexpected and uncontrolled patient illness determined the presence of the subject in a critical care setting. Participation in the study was voluntary. The dotted lines in the graphic presentation denote the possibility of nonequivalent groups.

III. Materials Development

In order to conduct the study, educational materials were developed for the experiment. Materials development was done in sequence. First, a survey was conducted to determine existing family education materials used within the critical care areas at Fort Sanders Regional Medical Center. The next action was to determine the existing programs and family orientation materials used within critical care units in the surrounding Tennessee cities.

Acute hospitals (400+ beds) in the five major Tennessee cities of Chattanooga, Knoxville, Johnson City, Nashville, and Memphis were requested to share materials used for family orientation and health information pertaining to the critical care unit. This helped to facilitate a review of usual practices in the area. Institutional nonrespondents to the request for materials were contacted again. After the second request, nine hospitals responded. The agency respondents were asked to share print instruction booklets, pamphlets, or individual handouts used in cardiac teaching for families. Also, the agency respondents were asked if mediated instruction was used in family teaching. Each of the respondents reported the existence of a health educational committee to make decisions relating to policy in health education programs. All agencies reported a program planned for the specific population of heart disease patients. In all cases, family involvement in the patient program was voluntary. The usual instructional method for presentation were one-to-one lecture. Cost was identified as a factor in the low numbers of mediated programs offered. Literature and media produced by the American Heart Association were utilized most often at no charge to the health care institution.

Concurrently, a committee of eight registered nurses, the Ad Hoc Review Committee for Cardiac Care Education, was formed for the purpose of developing a general information orientation program for family members of cardiac care patients at Fort Sanders Regional Medical Center. The first action of the committee was to review the existing family orientation information used at Fort Sanders Regional Medical

Center and at the responding institutions. As a result of the review, a listing of desired family member orientation knowledge outcomes was determined by the committee and stated behaviorally. This listing, when finalized by the committee, was distributed to a sample of 30 RNs from the professional nursing staff of the critical care units. A summary was then provided for their approval and/or revision. The professional nurses returned their evaluations of the behavioral outcomes. Nonrespondents to the committee survey were contacted personally for input. Behavioral outcomes were revised until there were 19 items on the survey instrument.

In addition to the Ad Hoc Committee work, a family survey was conducted to determine the perceptions of family members with regard to the committee-identified behavioral objectives. Survey participants were family visitors to the critical care units within a one-week period. The opinions of the survey participants were solicited as follows. Nineteen identified behavioral outcomes from the RN group were listed in a questionnaire (Appendix D). A variety of subjects was included in the questionnaire, such as the family's need for orientation to visiting times, access to telephones, dining facilities, and waiting areas. Respondents were asked to rate the importance of the 19 items listed on the questionnaire on a scale of 1 (very important) to 3 (not important). A short space at the end of the questionnaire was provided for respondents to comment on any issues not mentioned in the survey. The findings of the survey were reviewed by the committee.

Based on the committee recommendations and survey findings, a family orientation program was developed by the Patient Education Committee utilizing two teaching strategies: (1) a slide/tape audio-visual presentation; and (2) an information booklet with a sixth grade reading level. The learning booklet and the slide/tape program were field tested. The field test procedure for families included distribution or viewing of the materials. A follow-up visit with the family member was done by a member of the Ad Hoc Committee to identify problems either with the mediated or nonmediated program. After the field test was completed, the program was submitted to the Patient Education Committee for approval for use in the cardiac care units.

The Patient Education Committee at Fort Sanders Regional Medical Center has an approval process which is mandatory before materials may be used in patient/family education. The Cardiac Care Unit Family Orientation Program was submitted to the following committees as designated by the approval process:

1. Liaison Medical Staff Committee
2. Patient Education Committee
3. Critical Care Medical Staff Committee
4. Nursing Executive Committee
5. Nursing Steering Committee

After approval by these committees, the proposed research and the educational program were submitted to the Nursing Research Committee for approval. The program and the research were approved by this committee. The minutes of each of the committees reflect the approval of the program. The minutes are the property of Fort Sanders Regional

Medical Center and are retained in the Medical Staff Office and the Department of Nursing.

IV. Data and Instrumentation

During this study, data were collected using two instruments. They were: (1) Spielberger Self-Evaluation Anxiety Inventory (STAI) and (2) Demographic Data Sheet.

Spielberger Self-Evaluation Anxiety Inventory

The instrument used to measure anxiety on the posttest was the Spielberger State/Trait Anxiety Inventory (STAI Form Y). The work of Spielberger (1972) emphasized the theoretical distinction between state anxiety and trait anxiety using the State-Trait Anxiety Inventory (STAI). The instrument, utilized in many research studies, demonstrates that both high and low trait-anxious individuals may, at times, experience anxiety (Burros, 1978; Spielberger, 1972). Reviewing the instrument, Dreger (1978) observes the revised STAI as one of the best standardized anxiety measures available. The review also notes the popularity of using the test due to the high reliability factor. Katkin (1978) supports this view and explains that there is much published and ongoing research with the State-Trait Anxiety Inventory. A well written manual and a comprehensive bibliography accompanies the STAI. The manual fully describes norming procedures, samples, construct validity, concurrent validity, and test-retest reliability for this instrument (Spielberger, 1971, 1975, 1983).

The STAI is self-administering and may be administered either individually or in groups. The inventory has no time limits. Complete

instructions for the STAI are printed on the test form. The STAI has been used extensively and is noted often in research literature. The S-Anxiety (STAI Form Y-1) has 20 statements to which respondents evaluate their feelings at the precise moment of response. The qualities evaluated by the instrument are tension, worry, and apprehension. The scale has been used often to assess anxiety induced by stressful life experiences.

Each of the 20 statements on the STAI is given a score of 1 to 4. A rating of 4 indicates the respondent has the presence of high levels of anxiety for 10 of the instrument statements. These statements are termed anxiety-present statements. A high rating of 4 indicates absence of anxiety for the remaining 10 STAI statements. These statements are termed anxiety-absent statements. The scoring weights for the anxiety absent items are reversed prior to final score calculation. To obtain the score, the weighted scores are added. Scores vary from a minimum of 20 to a maximum of 80. The reading level for the instrument is the fourth grade (Spielberger, 1983).

V. Demographic Data Sheet

In order to fully answer each of the questions asked in this study, it was necessary to develop a Demographic Data Sheet. These sheets were coded to ensure anonymity of each respondent. Information elicited included: (1) age, (2) sex, (3) relation to patient, (4) highest educational level completed, and (5) occupation.

In order to test the data, the informational responses were categorized. The ages of participants were categorized into the

following: (1) 18-24 years, (2) 25-34 years, (3) 35-59 years, and (4) 60+ years. Relationships to the patient were categorized by: (1) spouse, (2) child, (3) parent, (4) sibling, and (5) other relation. Educational background was subdivided into five categories: (1) less than high school, (2) high school graduate, (3) attended college, (4) college graduate, and (5) postgraduate. Occupations were categorized into five divisions: (1) unemployed; (2) retired; (3) unskilled; (4) skilled, requiring special education and skills; and (5) professional, education and expertise at the collegiate level (Appendix E).

VI. Procedures

The initial action to facilitate this study required submission of an explanation of the research and the proposal to the chief administrative officers of Fort Sanders Regional Medical Center in Knoxville, Tennessee. The officers included the Hospital President and the Vice President for Nursing. A letter of permission to conduct the study was granted by the Hospital President (Appendix F). The Vice President for Nursing was consulted regarding this study and was supportive of the endeavor.

Secondly, educational materials for presentation of health information to families of patients, hospitalized in cardiac care units, were developed by the Patient Education Committee. These materials are the property of Fort Sanders Regional Medical Care Center. A copy of the instructional booklet and the slide/tape program are located in the offices of the Critical Care Unit Clinical Nursing Coordinator and of the Critical Care Patient Education Coordinator.

The educational materials were developed utilizing the established education developmental procedure at Fort Sanders Regional Medical Center.

Participation in the study was voluntary. At the end of 24 hours of patient hospitalization, the subjects, family members, participated in one of three educational groups. Instruction was done in groups. Upon completion of one of the three cardiac care unit educational programs, family members were asked to respond to the Spielberger instrument. Demographic data about the respondents were also collected. All participants signed a consent form. They were given the option of having a data collector present while they completed the instrument to provide additional information. The instrument was completed at the time of distribution and most were collected immediately after completion.

VII. Data Analysis

Data were used to make comparisons, find relationships, and summarized to answer the questions and test the hypotheses of the study. The mean anxiety scores on the posttest anxiety inventory were interval level data. Age, relation to the patient, occupational status, educational level, and sex of the participants were nominal level data. The Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) and the Statistical Analysis System (SAS) (Barr, Goodnight, Soll, & Helwig, 1976) were used to process and analyze the data. The analyses were accomplished in phases. The response patterns and demographic characteristics of the

three groups were compared using data from the questionnaires. The SPSS subprogram Frequencies permitted a visual comparison of descriptive statistics. The distribution of the variables among the samples was compared using SPSS subprogram Crosstabs. To determine the extent to which the independent variables discriminate among the samples, SPSS subprogram Discriminant was used. The SPSS programs Frequencies, Crosstabs, and Breakdown provided descriptive statistics and indications of the strengths of relationships.

A one-way analysis of variance (ANOVA) was applied to the posttest mean scores of each of the three groups: the mediated instruction families, the nonmediated instruction families, and the traditional instruction families with post hoc analysis. If a significant F distribution at the .05 level of significance resulted, then Duncan's Multiple-Range Test was applied to determine the groups which were significantly different (Ferguson, 1981).

To identify the independent variables having the most significant impact on the mean scores, multiple regression analysis was applied to the data. Each independent variable was compared on the basis of the mean anxiety score. Potentially, values can vary between -1.00 and +1.00. A positive correlation (usually shown without any sign) means that the two variables varied directly. This means that when one variable increases, the other variable increases. A negative correlation results when one variable decreases and the other variable increases. A negative coefficient (always preceded by a minus [-] sign) means that the two variables vary inversely. One variable

increases and the other variable decreases and vice versa. Zero indicates there is no relationship between the variables.

Data analyses and statistical calculations were processed at the computing facilities at The University of Tennessee, Knoxville. The results of these analyses and calculations are summarized and discussed in Chapter IV.

CHAPTER IV

ANALYSES OF THE DATA

The purpose of this study was to investigate mediated versus nonmediated instructional materials for the presentation of health education information. The study sought to determine the effects, if any, of selected instructional approaches upon the anxiety level scores of the family members of critical care unit patients at Fort Sanders Regional Medical Center, Knoxville, Tennessee. The study sought also to assess the interactive effect of such intervening variables as age, sex, relation to patient, educational level, and occupation with the main effect of the two different instructional methods.

Initial data were recorded on the subjects of this study, using Spielberger State-Trait Anxiety Inventory (STAI Form Y), and the demographic data sheet, a researcher-developed instrument (see Appendix E). Each subject was assigned a project identification code to assure anonymity and confidentiality.

The respondents of the study, after eliminating incomplete data for those who failed to complete the experiment, included of 98 family members of cardiac care unit patients at Fort Sanders Regional Medical Center. Of these 98 subjects, there were 25 males and 73 females, ranging in age from 18 to 60+ years. Table I gives a breakdown of the three groups by sex.

TABLE I

SUMMARY OF 1984-85 FORT SANDERS REGIONAL MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBERS
IN THE STUDY SAMPLE (n=98) INDICATING STATE ANXIETY MEAN SCORES BY SEX AND
INSTRUCTION GROUP

Instructional Group	Male Population		Female Population		Total Group	
	n	Mean Anxiety Score	n	Mean Anxiety Score	N	Mean Anxiety Score
I Traditional	7	48.71	24	58.92	31	56.61
II Nonmediated	8	44.25	26	54.50	34	52.08
III Mediated	10	46.30	23	55.52	33	52.72
Total	25	46.32	73	59.85	98	53.79

The population was composed predominantly of female family members. Group I, the traditional instruction group, had 7 males and 24 females. Group II, the nonmediated instructional group, had 8 men and 26 women. In the mediated group, Group III, 10 of the subjects were men and 23 were women.

The mean anxiety score for Group I was 56.61. Group II had a mean score of 52.08, and Group III had a mean score of 52.72. The highest mean scores were reported by women. The range of the mean scores for women was from 54.50 to 58.92. The range of the mean scores for men was from 44.25 to 48.71. The tendency of women to have higher anxiety scores was consistent for all three groups. The highest mean scores for men and for women were reported in Group I, the traditional group. The mean scores for men and for women in Groups II and III were lower than for those in Group I.

Table II provides a summary of the ages of the subjects. The age ranges for the subjects were categorized. The categorical divisions were: 18-24 years, 25-34 years, 35-59 years, and 60+ years. The range of the anxiety mean scores by age category was 50.33 to 61.50. The highest anxiety mean scores were recorded by the youngest subjects, age 18-24 years. The lowest anxiety mean scores were recorded by the 60+ years subjects. The age range 35-59 years had the largest number of subjects. The total number of subjects, ranging in age 35-59 years, was 55. This age group represented over one-half of the 98 subjects in the sample. The second largest age representation was in the 60+ years subjects. The mean anxiety scores for Group I were higher in each age category than those mean scores for Group II or Group III.

TABLE II

SUMMARY OF 1984-85 FORT SANDERS REGIONAL MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBERS
IN THE STUDY SAMPLE (n=98) INDICATING STATE ANXIETY SCORES BY AGE AND INSTRUCTION GROUP

Age in Years	Group I Traditional		Group II Nonmediated		Group III Mediated		Total Group	
	n	Mean Anxiety Score	n	Mean Anxiety Score	n	Mean Anxiety Score	N	Mean Anxiety Score
18-24	1	60.00	0	-	2	58.00	3	59.00
25-34	2	61.50	9	50.55	6	54.00	17	55.35
35-59	20	56.55	19	51.57	16	52.93	55	54.04
60+	8	55.12	6	56.50	9	50.33	23	53.98
Total	31	56.61	34	52.08	33	52.72	98	53.79

The subjects' relationships to the patient were recorded. A numerical value of 1 was used if the subject was related as a spouse. The value 2 was used if the subject was related as a child; a value of 3 indicated that the subject was the parent of the patient; 4 was assigned when the subject was related as a sibling. A 5 was assigned when the subject was not related to the patient but was identified as having a significant caring relationship and interacting with the patient in the usual family role. Table III summarizes the family members' relationships to the patient.

The group mean anxiety scores by relationship to the patient had a range of 50.75 to 54.32. The highest group mean was for the child relationship. The lowest group mean was for the parent relationship. The mean scores for each of the relationship categories were highest in Group I, the traditional group. The group mean scores for spouses was 52.28, and the mean for significant others was 52.92.

The relationship to the patient which was reported most frequently was that of child (40). The next most frequent relationship identified was for spouse (25).

Some family members were related to the patient as siblings-- brother or sister, half brother, or half sister. Twelve subjects were in this category.

Significant others, the nonrelated but social supporting individuals interfacing in the usual role of a relative with the patient, were categorized as having a relationship to the patient entitled as other. There was a total of 13 subjects in the "significant other" category.

TABLE III

SUMMARY OF 1984-85 FORT SANDERS REGIONAL MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBERS IN THE STUDY SAMPLE (n=98) INDICATING STATE ANXIETY MEAN SCORE BY RELATIONSHIP AND INSTRUCTIONAL GROUP

Family Member Relationship to Patient	Group I Traditional		Group II Nonmediated		Group III Mediated		Total Group	
	n	Mean Anxiety Score	n	Mean Anxiety Score	n	Mean Anxiety Score	N	Mean Anxiety Score
Spouse	8	52.75	5	51.80	12	52.16	25	52.28
Child	11	60.45	17	52.52	12	57.50	40	54.32
Parent	3	54.66	3	54.00	2	40.00	8	50.75
Sibling	3	56.33	6	52.16	3	46.00	12	51.66
Other	6	55.83	3	49.00	4	51.50	13	52.92
Total	31	56.61	34	52.08	33	52.72	98	53.79

The educational levels of the subjects were recorded and a summary appears in Table IV. The educational background of the subjects were similar for the three groups. Seventeen (17) did not finish high school; 45 were high school graduates; 22 attended college and 11 were college graduates. Three subjects had a graduate degree. The educational level was between high school graduate and attending some college.

Group I, the traditional instruction group, had the lowest educational level, but did not have the lowest or highest mean state anxiety score. The highest mean state anxiety scores were reported for those having the least amount of education. The mean score for those having less than a high school education was 58.38. The tendency for subjects with lower educational levels to have higher anxiety scores was consistent for all three groups.

The subjects' occupations were recorded and categorized into five coded divisions: (1) unemployed; (2) retired; (3) unskilled; (4) skilled, requiring special education and skills; and (5) professional, education and expertise at the collegiate level. The groups were evenly distributed with subjects in each category. Within the three groups, 31 subjects were unemployed; 16 subjects were retired; 20 subjects were unskilled; 20 subjects were skilled; and 11 subjects were categorized as professional. The occupational status and the anxiety scores of the family members is summarized in Table V.

The range of the mean anxiety scores for the unemployed was from 53.0 to 61.0. The tendency for the unemployed to have higher anxiety mean scores was consistent for all three groups. The highest mean

TABLE IV

SUMMARY OF 1984-85 FORT SANDERS REGIONAL MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBERS
IN THE STUDY SAMPLE (n=98) INDICATING STATE ANXIETY MEAN SCORE BY
EDUCATIONAL LEVEL AND INSTRUCTIONAL GROUP

Educational Preparation Level	Group 1 Traditional		Group 2 Nonmediated		Group 3 Mediated		Total Group	
	n	Mean Anxiety Score	n	Mean Anxiety Score	n	Mean Anxiety Score	N	Mean Anxiety Score
Less than H.S.	9	59.22	3	58.33	5	57.6	17	58.38
H.S. graduate	12	59.00	18	47.66	15	55.93	45	54.19
Some college	8	53.12	7	52.57	7	51.85	22	52.51
College graduate	1	44.00	5	60.60	5	39.00	11	47.86
Postgraduate	1	45.00	1	70.00	1	55.00	3	56.66
Total	31	56.61	34	52.08	33	52.72	98	53.79

TABLE V

SUMMARY OF 1984-85 FORT SANDERS REGIONAL MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBERS IN THE STUDY SAMPLE (n=98) INDICATING STATE ANXIETY MEAN SCORE BY OCCUPATIONAL STATUS AND INSTRUCTIONAL GROUP

Occupational Status	Group I Traditional		Group II Nonmediated		Group III Mediated		Total Group	
	n	Mean Anxiety Score	n	Mean Anxiety Score	n	Mean Anxiety Score	N	Mean Anxiety Score
Unemployed	10	61.00	10	53.00	11	58.90	31	57.63
Retired	5	52.80	4	57.50	7	48.57	16	52.95
Unskilled	8	57.37	7	41.85	5	48.00	20	49.07
Skilled	6	55.50	9	53.44	5	57.60	20	55.51
Professional	2	44.50	4	60.00	5	44.80	11	49.76
Total	31	56.61	34	52.08	33	52.72	98	53.79

anxiety score (57.63) was reported for those having the lowest occupational status.

One-half the subjects were employed. Of the working subjects, the subjects in Group I had higher mean scores than did those in Group II or Group III.

I. Findings

Each hypothesis is stated followed by findings from the statistical analyses. If there was a relationship between the scores and the treatment groups, the hypotheses were retained. A rejection of the hypotheses would indicate that significant differences or relationships existed.

H_{01} : There are no significant differences in the state anxiety mean scores for family members of acutely hospitalized cardiac patients when nonmediated and mediated instructional systems are utilized for presentation of critical care unit policy orientation information.

Table VI represents the state anxiety mean scores for family members in the three instructional groups. Simple analysis of variance was applied and an F ratio of 1.12 was obtained. In order to reject the hypothesis, the F ratio produced by the one-way ANOVA had to equal or exceed 3.09 (Table VII). The hypothesis was retained at the .05 level, with 2 and 95 degrees of freedom. There were no significant differences in the state anxiety mean scores for family members of acutely hospitalized cardiac patients when nonmediated and mediated instructional systems were utilized for presentation of critical care

TABLE VI

SPIELBERGER STATE ANXIETY MEAN SCORES, STANDARD DEVIATIONS, AND SCORE RANGE FOR FAMILY MEMBERS OF CARDIAC CARE UNIT PATIENTS AT FORT SANDERS REGIONAL MEDICAL CENTER IN THE 1984-85 STUDY SAMPLE (n=98)

Treatment Group		State Anxiety Mean Score	Standard Deviation	Minimum Score	Maximum Score
Traditional	31	56.61	9.96	32	77
Nonmediated	34	52.08	14.87	24	80
Mediated	33	52.72	13.12	26	77
	N = 98	$\bar{X} = 53.79$	$\bar{X} = 13.06$		

TABLE VII

SUMMARY OF ONE-WAY ANALYSIS OF VARIANCE (ANOVA) OF POSTTEST MEAN SCORES ON SPIELBERGER ANXIETY INVENTORY--FORM Y--FOR FAMILY MEMBERS OF PATIENTS HOSPITALIZED IN CARDIAC CARE UNITS AT FORT SANDERS REGIONAL MEDICAL CENTER IN 1984-85 IN THE STUDY SAMPLE (n=98)

Source of Variation	Sum of Squares	Degrees of Freedom	Variance Estimate	F Value
Model (between treatments)	3.82	2	191.23	1.12*
Error (within treatments)	16282.1	95	171.39	
Total	16665.1	97		

*Not statistically significant, $p > .05$.

An F ratio of 3.09 is required for significance at the $p < .05$ level for 2 and 95 degrees of freedom.

unit educational materials. The data are summarized as follows. Group I, the traditional instruction group, had the highest mean (56.61) and the lowest measure of variability, SD (9.96). Group II, the nonmediated instruction group, had the lowest mean (52.08) and the SD (14.87). Group III, the mediated group, had a mean of 52.72 and a SD of (13.12).

The subjects' scores varied from a minimum of 24 to a maximum of 80. In comparison with the Spielberger instrument, the possible minimum score was 20 and the possible maximum score was 80. Although there was no statistically significant difference in the mean scores for the three groups, the mean scores were lower for both of the groups receiving specific classroom instructions when compared with the traditional group instruction. Structured classroom instruction did result in lower mean scores than the traditional practice of bedside instruction.

The second overall null hypothesis stated:

H₀₂: There are no statistically significant relationships between state anxiety scores and variables of sex, age, relationship to patient, educational level, and categories of occupation.

In order to test this hypothesis and to identify any major intervening variables affecting anxiety posttest scores, the multiple regression analysis was applied. Table VIII presents the results of the analysis, examining the relationship between the dependent variable of posttest anxiety scores and the researcher-selected independent variables of age, sex, relationship to the patient, educational level, and

TABLE VIII

CORRELATION COEFFICIENTS BETWEEN THE INDEPENDENT VARIABLES AND
 POSTTEST ANXIETY SCORES FOR THE 1984-85 FORT SANDERS REGIONAL
 MEDICAL CENTER CARDIAC CARE UNIT FAMILY MEMBER IN
 THE STUDY SAMPLE (n=98)

	Age	Sex	Relation	Education	Occ.	S Score
Age	1.00					
Sex	-0.12	1.00				
Relation	-0.13	0.04	1.00			
Education	0.04	-0.04	-0.10	1.00		
Occupation	-0.07	-0.32*	-0.07	0.61*	1.00	
S Score	-0.025	0.33*	-0.04	-0.14	-0.14	1.00

* $r = .195$ is significant at the .05 level with 96 df.

categories of occupation. Each variable was compared to all other variables and anxiety scores. Numerical value varied between -1.00 and +1.00. A value of 1.00, whether negative or positive, represents a perfect relationship between the two variables. Since perfect relationships are not found in reality, the extent to which the relationship approaches perfection is indicated by the size of the correlation.

Age, the relationship to patient, educational level, sex, and occupational status were items included on the background questionnaire. Data were used to examine the relationship with the state anxiety mean scores.

The relationship between each variable is discussed separately. Each hypothesis is stated and a discussion follows.

Ho_{2a}: There is no statistically significant relationship between state anxiety scores and the sex of the family members.

An r value of .195 with 96 degrees of freedom was required to be significant at the .05 level. An r value of .33 was obtained. The hypothesis was rejected. Females have significantly higher state anxiety scores than do males in the same crisis situation.

The findings in this study concerning male and female respondents support the work of Spielberger. In establishing construct validity for the STAI, the inventory was given under high stress conditions to large samples of undergraduate students at Florida State University. Females had higher scores than males in a stressful situation. In one normative study, the female mean score for stressful conditions was 60.94. The male mean score was 50.03. The Spielberger findings

suggest a relationship in emotional liability and crisis situations for females (Spielberger, 1983).

Ho_{2b}: There is no statistically significant relationship between state anxiety mean scores and the age of the family member.

An r value of -0.02 was obtained. Since this r value did not exceed the required value for significance of $.195$ with 96 degrees of freedom at the $.05$ level, the hypothesis was retained. There was no statistically significant relationship between state anxiety scores and the age of the family member. Although not statistically significant, the mean state anxiety scores were higher for those in younger age groups. The highest mean anxiety scores were recorded by the youngest subjects. The lowest mean anxiety scores were recorded by the $60+$ years subjects. These findings are summarized in Table II, page 48.

Ho_{2c}: There is no statistically significant relationship between state anxiety mean scores and the relationship of the family member to the patient.

Relationships were categorized as previously discussed (Table III, page 50). An r value of $-.004$ was obtained. This value did not exceed the $.195$ value which was required for significance at the $.05$ level. The hypothesis was retained. There was no statistically significant relationship between state anxiety mean scores and the relationship of the family member to the patient.

Initially, this finding is questionable. A review of the family circumstances and family social groups is summarized as follows. Seventy-three subjects were classified as immediate family members with a relationship of spouse, parent, or child. The remaining 25 subjects

were classified as siblings or significant others. The significant other group is summarized. In this group, 6 respondents had state anxiety mean scores higher than the group mean scores and 7 subjects had scores that were lower. The mean score for the significant other relationship group was 52.92. The nonrelated significant others demonstrated state anxiety comparable to the state anxiety of related family members. It was demonstrated that hospitalized patients do not always have family members present. The relationships between caring individuals would affect the patient support system. Some respondents indicated heterosexual and homosexual relationships with the patients at the time of the interview. Therefore, close emotional attachment to the patient was found in the significant other group as well as in the origin and marriage related group.

It was observed that family members do not always indicate a high anxiety state when their loved ones are in life-threatening situations. Some respondents, during the interview with the investigator, demonstrated their willingness for the demise of the patient. It was observed by and stated to the investigator that monetary gain would be forthcoming for the respondent at the patient's death. Therefore, a higher anxiety state might have been observed during times of patient improvement for these individuals. Also, the diagnosis of impending death of the patient was viewed by some respondents as an orderly process which would end pain and suffering. Although the patient population was limited to patients having heart disease, the patients were admitted for hospitalization with other physical and psychological

problems. As a result, the family members, at times, demonstrated an acceptance of possible death.

Sibling relationship was reviewed. The state anxiety mean score for the sibling group was 51.66 which was lower than the group mean of 53.81. Female siblings had a mean score of 52.90 which was higher than male siblings. This finding supports the relationship of sex and higher state of anxiety in crisis.

Ho_{2d}: There is no statistically significant relationship between state anxiety scores and the educational level of the family member.

Educational levels were categorized (Table IV, page 52). An r value of -0.14 was obtained. Since this value did not exceed the .195 value required at the .05 level of significance, the hypothesis was retained. There was no statistically significant relationship between state anxiety mean scores and the educational level of the family member. However, the educational level of the family members merits discussion. Of the 98 subjects, 14 were college graduates. Seventeen did not complete high school. The 45 high school graduates comprised the largest number in the educational classification.

Ho_{2e}: There is no statistically significant relationship between state anxiety scores and the occupation of the family member.

Occupations were categorized and summarized in Table V, page 53. An r value of -0.14 was obtained. This value did not exceed the .195 value required for the .05 level of significance. The hypothesis was

retained. There was no statistically significant relationship between state anxiety scores and the occupation of the family member.

Although the purpose of this study was to examine the relationship between state anxiety and other variables, trait anxiety data were reviewed. The rationale for this review is summarized. The STAI (Spielberger instrument) is a two-part inventory. Part 1 tests the respondent for state anxiety, the way in which individuals feels at a precise moment and in a specific circumstance. This is known as transient anxiety. Part 2 of the inventory tests for trait anxiety. The trait for anxiety is a disposition toward or away from an anxious state. Trait anxiety refers to relatively stable differences found in individuals regarding anxiety-proneness. Since the trait anxiety questions were available for subject completion, the trait anxiety scores were reviewed. Table IX lists the trait mean scores and the relationship to the state anxiety scores by instructional group.

There was a high positive correlation between state anxiety scores and trait anxiety scores for this study. The correlation coefficient was .591. This was significant at the .0001 level of significance and supports the correlations reported by Spielberger in an adult population as a normative sample. Spielberger reported a correlation coefficient between state and trait anxiety for adult females as .70 and adult males as .75 (Spielberger, 1983, p. 15). The state anxiety mean scores were transient and the trait anxiety mean scores remained constant. A relationship exists between trait anxiety and state anxiety. Trait anxiety scores would be indicative and directional for state anxiety scores.

TABLE IX

MEAN ANXIETY SCORES FOR FAMILY MEMBERS OF CARDIAC CARE UNIT PATIENTS AT FORT SANDERS REGIONAL MEDICAL CENTER IN 1984-85 IN THE STUDY SAMPLE (n=98) BY INSTRUCTION GROUP

Group	N	State Anxiety Mean Score	Standard Deviation	Trait Anxiety Mean Score	Standard Deviation
I Traditional	31	56.61	9.96	48.32	7.48
II Nonmediated	34	52.08	14.87	43.41	11.25
III Mediated	33	52.72	13.12	44.09	7.34
Total	98	53.79	13.06	45.19	9.15

II. Summary of Analyses of Data

This chapter reported the findings of data obtained among 98 family members of cardiac care unit patients at Fort Sanders Regional Medical Center in Knoxville, Tennessee. The Spielberger State-Trait Anxiety (STAI Form Y) Inventory and a demographic questionnaire were administered and analyzed.

As a result of the one-way analysis of variance tests, no significant differences were observed in the posttest anxiety scores of the three treatment groups. The researcher failed to reject H_{01} . The null hypothesis was retained. There were no statistically significant differences in the state anxiety mean scores for family members of acutely hospitalized cardiac patients when nonmediated and mediated instructional systems were utilized for the presentation of critical care unit educational materials.

In order to identify any major intervening variables affecting anxiety posttest scores, multiple regression analysis was applied. The variables of age, sex, relationship to patient, educational level, occupation, and state anxiety scores were correlated. The null hypothesis was rejected. Females demonstrated significantly higher state anxiety scores than males in the same crisis situation. Since no post hoc analysis was indicated, the data received no further statistical treatment.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a brief review of the study, the major findings resulting from the data analyses, and the more important conclusions based on the findings. Finally, recommendations for further research are given.

I. Summary of Study

The primary purpose of the study was to investigate two methods of instruction to determine the effects, if any, of nonmediated versus mediated instruction in the presentation of health information to family members of cardiac care unit patients at Fort Sanders Regional Medical Center in Knoxville, Tennessee. An investigation of the relationship of the independent variables was conducted also, in order to determine any probable causal effect on posttest anxiety scores of the subjects.

A review of literature was conducted to ascertain general information regarding family health education in acute care institutions and to determine information regarding the various intervening variables or factors impacting on stress and stress reduction management. This review of literature revealed clearly the significant benefits of family health education for both the family and the hospitalized patient.

The subjects in this study consisted of 98 individuals who were interfacing with cardiac care units as family members for the first time at Fort Sanders Regional Medical Center in Knoxville, Tennessee, in 1984-85. These subjects were randomly assigned to one of three treatment groups: traditional instruction, nonmediated instruction, or mediated instruction. Following patient hospitalization and the instructional treatment, the Spielberger State Anxiety Inventory was administered to the subjects in order to determine the anxiety scores in each of the three treatment groups.

The data were tabulated and coded. Researcher-selected variables of age, sex, relation to patient, educational level, and occupation were recorded. Identity of the subjects was coded to maintain anonymity. Hypotheses were tested using appropriate statistical tests. The one-way analysis of variance (ANOVA) tests were used to identify significant differences in the anxiety scores of the three treatment groups. Multiple correlation tests were used to determine any significant relationships of independent variables to anxiety scores. No significant differences were reported from the one-way ANOVA tests. The correlation analysis indicated a significant relationship between the anxiety scores and the researcher-selected intervening variable of sex.

II. Summary of Findings

The findings of this study are reported following the two major null hypotheses:

Ho₁: There are no statistically significant differences in the state anxiety mean scores for family members of acutely hospitalized cardiac patients when mediated and nonmediated instructional systems are utilized for presentation of critical care policy/orientation information.

Using the one-way analysis of variance (ANOVA) calculations, there were no significant differences observed. Therefore, the hypothesis was not rejected.

Ho₂: There are no statistically significant relationships between methods of instruction, state anxiety scores, and variables of sex, age, relationship to patient, educational levels, and categories of occupation.

This hypothesis was rejected since significant relationships were found between the variables. Females demonstrated significantly higher state anxiety scores than males in the same crisis situation. No post hoc analysis was indicated. The data received no further statistical treatment.

III. Discussion of the Study

No statistically significant differences in the mean scores were reported between the three instructional groups. However, specific trends appeared and are noteworthy. Family members of patients hospitalized in critical care units experience a situational crisis and demonstrate varying anxiety levels. Involvement in structured, classroom educational programs was beneficial, in most instances, in anxiety reduction. Although not statistically significant, the mean

scores were lower for both of the groups receiving specific classroom instruction as compared to the traditional group approach.

The use of a checklist for the traditional instruction group may have been a factor in the data findings. Since nurses providing informal, nonstructured health information were cognizant of the ongoing study, alterations in their usual presentations were noted. The attention given to the completion of the checklist possibly brought the level of the traditional instruction in line close to the organized presentations provided in the mediated and nonmediated programs.

Extreme anxiety scores were reported for some respondents. The incidence of extreme scores in all three of the groups impacted on the data findings. Although the finding of high anxiety scores was anticipated, extreme scores were reported also in the low anxiety category. Discussions with the study participants revealed that some participants had low anxiety due to the possibility of patient death. In some instances, resolution of long standing family problems or potential monetary gain would be forthcoming if the patient died. Also, death of the patient, for some families, was seen as an orderly process to end long standing patient sickness and suffering. Additionally, lower anxiety scores may have been reported for the family member designated by the patient as correspondent for the medical record. These designated individuals, in some cases, were the family members perceived by the patient as the most stable, least anxious, and most likely to make good decisions in crisis situations. Therefore, the family member designated as correspondent may have exhibited a lower trait for anxiety than other family members. This

lower trait anxiety tendency could directly influence states of anxiety during a crisis.

Systems theory, as a theoretical framework for this study, encouraged the assessment of the total family system rather than dealing exclusively with the patient. Using the system perspective, nurses as health educators viewed the patient and family as a composite system. Family members interacted independently and interdependently within the system. Equilibrium was maintained via input, output, and feedback. Systems theory enabled the nurse to work with the family and the patient collectively and individually.

IV. Conclusions

The following conclusions were drawn as a result of the study:

1. The level of anxiety of family members of acutely hospitalized patients in critical care units are significantly related to intervening factors of sex, educational level, and occupation.
2. Females are more likely to experience high anxiety than males when family members are critically ill.
3. Females, in larger numbers than men, visit critically ill, hospitalized patients and participate in health education programs.
4. The cardiac care unit family visitor will often have an educational level of high school or below.
5. Nonrelated significant others experience anxiety states similar to family members.
6. The most frequently occurring relationship of family members to the patient in cardiac care units is that of child.

7. The family members most frequently present at the cardiac care unit exceed age 35 years and older.

V. Recommendations

The findings of this study and resulting conclusions form the basis for the following recommendations.

1. Studies to determine the effects of various instructional methods for presentation of educational materials to family members of cardiac care unit patients should be conducted at a later time than at 48 hours of hospitalization and in other critical care settings of intensive care units and neurosurgical care units.

2. Since there was a reduction in the anxiety levels of participants in structured, classroom, health educational programs, the effects of the method of instruction and the relationships between anxiety scores and intervening variables should be conducted involving a larger sample of subjects than was included in this study.

3. Specific educational information should be provided especially for female family members of critically ill patients since females demonstrated a trend for higher anxiety states than did males in crisis situations.

4. The results of this study should be utilized by those planning or revising educational programs for family members of cardiac care unit patients.

5. Educational materials, prepared for family members of patients hospitalized in Knoxville, Tennessee, critical care units, should be at a less than high school comprehension level.

6. Identification of the personal needs specific to visiting female family members of acutely hospitalized patients should be attempted since the female family member is in attendance in larger numbers than the male family member.

7. Since the use of a checklist by nurses utilizing the traditional method of instruction encouraged attention to specific educational topics, studies should be conducted at health care institutions which do not provide a checklist as a teaching tool.

8. Repeated instructional sessions may be necessary for family members since perceptions and learning may be altered in acute anxiety.

9. Studies to determine the effects of the age of the patient and the relationship between anxiety scores should be conducted in critical care settings.

10. A study should be designed and conducted to determine the relationship between the variable of potential monetary gain and the state of anxiety in family members of critical care unit patients.

VI. Concluding Remarks

This study provided an increasing awareness of the problems encountered by family members of critical care unit patients. These severe problems contributed to disequilibrium within the family system, causing a sense of helplessness to be experienced by the family member. The crisis situation so encompassed these family members that social support provided by the critical care unit personnel failed to reduce the family anxiety significantly.

It is evident that a family focus is a continuing educational goal in health care. Educational models must be designed to view the family as holistic. Today's educational systems and instructional processes must be directed toward meeting the needs of the entire family in order to facilitate patient recovery and a return to a state of equilibrium and improved health.

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APPENDICES

APPENDIX A

RESEARCH CONSENT FORM
FORT SANDERS REGIONAL MEDICAL CENTER

Fort Sanders Regional Medical Center has a patient/family education department. Our goal is to provide you, the family, with good health education programs. To do that, we need your help. As family members of critical care unit patients, you need to be informed about your loved ones. In order to improve our family education programs, Fort Sanders Regional Medical Center and the University of Tennessee, College of Education, are conducting a research study. Different ways of presenting family education materials are being evaluated. The two methods of education being studied are print (booklet) and nonprint (slide/tape). Family members are being asked to complete a stress inventory questionnaire. We want to see if the type of teaching tools (booklet or slide/tape) makes a difference in your knowledge and personal comfort. Your participation in the project is voluntary. All family education materials will be given to you whatever your decision regarding participation in the study. You may withdraw from the study if you desire. Your name and the name of your family member will not be asked. Your responses to the questionnaire will not be linked by name to you or your family. The time needed to complete the questionnaire will be 10-20 minutes. The research results will be the property of the University of Tennessee and will be shared with Fort Sanders Regional Medical Center.

If you have questions about the research study, please ask the unit secretary or your nurse to contact Richa Russell, RN (Extension 1205). Mrs. Russell will see you and answer any questions. Please sign the lower portion of this form and return it to the unit secretary if you agree to help with the study.

This research explanation is yours to keep.



**FORT
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MEDICAL
CENTER**

1901 Clinch Avenue
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37916

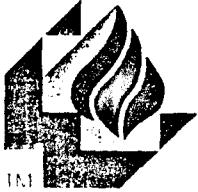
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Fort Sanders
Hospital
Cardiac and
Pulmonary
Center
Fort Sanders
Cancer Center
Diabetes and
Endocrine
Center
Fort Sanders
Eye Center
Fort Sanders
School of
Nursing
Fort Sanders
Center for
Community Health

APPENDIX B

(Please detach this portion of the form, sign and return to the unit secretary if you wish to participate in the study.)

The motto of Fort Sanders Regional Medical Center is "People helping people." Thank you for helping us.



I agree to participate in the family education study.

**FORT
SANDERS
REGIONAL
MEDICAL
CENTER**

Signature

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37916

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Family Health
Dental Services
Center
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Community Health

APPENDIX C

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
 R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs
 STAI Form Y-1

Name _____ Date _____ S _____
 Age _____ Sex: M _____ F _____ T _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
 MODERATELY
 SUBSTANTIAL
 VERY MUCH SO

- | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. I feel calm | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. I feel secure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. I am tense | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. I feel strained | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I feel at ease | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I feel upset | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. I am presently worrying over possible misfortunes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. I feel satisfied | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I feel frightened | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I feel comfortable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. I feel self-confident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I feel nervous | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. I am jittery | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I feel indecisive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15. I am relaxed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16. I feel content | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17. I am worried | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 18. I feel confused | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 19. I feel steady | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 20. I feel pleasant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Consulting Psychologists Press
 577 College Avenue, Palo Alto, California 94306

SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

ALMOST NEVER
SOMETIMES
OFTEN
ALMOST ALWAYS

- 21. I feel pleasant ① ② ③ ④
- 22. I feel nervous and restless ① ② ③ ④
- 23. I feel satisfied with myself ① ② ③ ④
- 24. I wish I could be as happy as others seem to be ① ② ③ ④
- 25. I feel like a failure ① ② ③ ④
- 26. I feel rested ① ② ③ ④
- 27. I am "calm, cool, and collected" ① ② ③ ④
- 28. I feel that difficulties are piling up so that I cannot overcome them ① ② ③ ④
- 29. I worry too much over something that really doesn't matter ① ② ③ ④
- 30. I am happy ① ② ③ ④
- 31. I have disturbing thoughts ① ② ③ ④
- 32. I lack self-confidence ① ② ③ ④
- 33. I feel secure ① ② ③ ④
- 34. I make decisions easily ① ② ③ ④
- 35. I feel inadequate ① ② ③ ④
- 36. I am content ① ② ③ ④
- 37. Some unimportant thought runs through my mind and bothers me ① ② ③ ④
- 38. I take disappointments so keenly that I can't put them out of my mind ① ② ③ ④
- 39. I am a steady person ① ② ③ ④
- 40. I get in a state of tension or turmoil as I think over my recent concerns and interests ① ② ③ ④

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APPENDIX D

FORT SANDERS REGIONAL MEDICAL CENTER
DEPARTMENT OF NURSING

CRITICAL CARE SERVICES

The nursing staff of the Critical Care Services is in the process of developing a special pamphlet of information for visitors and families of our Critical Care patients.

We would like your help in deciding what information should be contained in this pamphlet. Please rate each subject 1, 2, or 3 according to your feelings about their importance (1 = very important; 2 = somewhat important; 3 = not important). Circle the appropriate response.



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Presbyterian
Hospital
Fondly Held
by the Staff and
Patients
Each Member
of our Center
Values and
Positions
Fort Sanders
Medical Center
Fort Sanders
School of
Nursing
Fort Sanders
Center for
Community Health

1. Smoking rules	1	2	3
2. Social Services Department (location of office)	1	2	3
3. Visiting hours	1	2	3
4. Location of coffee shop	1	2	3
5. Purpose of Critical Care Department	1	2	3
6. Flower arrangements	1	2	3
7. Transfer to the General Floors (what to expect)	1	2	3
8. Special equipment used for your family	1	2	3
9. Personal items permitted	1	2	3
10. Telephone numbers to call to inquire	1	2	3
11. Change for vending machines, telephones	1	2	3
12. Outside hospital eating places	1	2	3
13. Transportation/lodging in Knoxville	1	2	3
14. Personal prescriptions	1	2	3
15. Location of elevators, Admitting Dept., Business Office, Surgical Waiting Room	1	2	3
16. Parking facilities	1	2	3
17. Linens for visitors' use	1	2	3
18. Medical words (meanings)	1	2	3
19. Eyeglasses/hearing aid repair services	1	2	3
20. Other: _____	1	2	3

APPENDIX E

FORT SANDERS REGIONAL MEDICAL CENTER

PATIENT AND FAMILY EDUCATION

DIRECTIONS: Circle the correct answer

AGE (years): 18-24 25-34 35-59 60+

RELATION TO PATIENT:

Spouse (wife husband)
Child (daughter son)
Parent (mother father)
Sibling (sister brother)
Other (state relationship _____ male/female)

EDUCATIONAL LEVELS: Circle the highest attained. (Reply is optional.)

Less than high school

High school graduate

Attended college

College graduate

Postgraduate work

OCCUPATION: (State)



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Community Health

THANK YOU FOR YOUR HELP!

APPENDIX F

May 1, 1984

Richa C. Russell, R.N., M.S., M.S.N.
Nursing Service
Fort Sanders Regional Medical Center
1901 Clinch Avenue
Knoxville, TN 37916

Dear Mrs. Russell:



**FORT
SANDERS
REGIONAL
MEDICAL
CENTER**

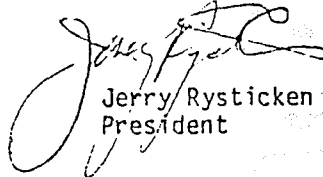
1901 Clinch Avenue
Knoxville, Tennessee
37916

615-546-2811

The purpose of my letter is to lend our strongest support for the focus of your research on instructional systems for health education at Fort Sanders Regional Medical Center. The health industry needs this level of indepth assessment of its educational programs presented for families by acute health agencies. In the last analysis, the successful accomplishment of the educational goals depends upon a delivery of services that are competent so as to maximize the results achieved.

Fort Sanders Regional Medical Center is proud to continue in its fine tradition of "people helping people." Good luck to you in this endeavor.

Sincerely,



Jerry Rysticken
President

dw

Fort Sanders
Hemodialysis
Cancer Center
Eye Center
School of Nursing
Community Health

VITA

Richa Cox Russell, daughter of Richard M. Cox and Jessie Mitchell Cox, was born in Knoxville, Tennessee, on July 6, 1948. She attended public schools in Knoxville, Tennessee, and was graduated from Fulton High School in 1966. She received the diploma in nursing from Fort Sanders Presbyterian Hospital School of Nursing in 1969. In 1975, she earned a Bachelor of Science degree in Industrial Education from The University of Tennessee, Knoxville. She received the Master of Science degree in 1979 and the Master of Science in Nursing degree in 1980 from The University of Tennessee, Knoxville. The major focus of her doctoral program was Technological and Adult Education.

A registered nurse, she was employed by Fort Sanders Regional Medical Center in 1969 and has clinical nursing experience in intensive care, neurosurgical, orthopedic, and rehabilitation nursing. Currently, she serves as a clinical nurse specialist at the Patricia Neal Rehabilitation Center at Fort Sanders Regional Medical Center.

She is a member of the American Nurses Association, the National League for Nursing, and the Association of Rehabilitation Nurses. Honor society memberships include Sigma Theta Tau, Phi Kappa Phi, and Pi Lambda Theta.

She is married to James P. (Jim) Russell, II. They have one daughter, Lee Ann, age 11. She is a member of Beaver Dam Baptist Church.