PATIENT RESPONSE TO TRANSFER FROM THE INTENSIVE CORONARY CARE UNIT

by

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A Thesis Submitted to the Faculty of the COLLEGE OF NURSING
In Partial Fulfillment of the Requirements For the Degree of MASTER OF SCIENCE In the Graduate College THE UNIVERSITY OF ARIZONA

1975
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DEDICATION

This manuscript is affectionately dedicated to my devoted parents,

FRED S. AND LORRAINE F. BERTSCH

who have always impressed upon their daughter the value of education and have in every way encouraged the pursuit of knowledge and understanding.
ACKNOWLEDGMENTS

The researcher would like to extend appreciation to her thesis committee: Dr. Arlene Putt, Chairman; Ms. Karen Dadich; and Ms. Joyce Verran.

Acknowledgment is given to the fourteen physicians who gave their consent to have their patients participate in the study.

For their cooperation during the investigation phase of this work, the author is indebted to the nursing staff of the intensive coronary care unit and the progressive coronary care unit used in the study.

The researcher is especially grateful to the fifteen patients who participated in the study for their time and interest in furthering nursing knowledge.

Finally, a special note of thanks to Ms. Cindy Kohn for her assistance in gathering data and her support during the entire project.
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ABSTRACT

Psychological stress theory was used as the theoretical framework for this study to determine psychological reactions of patients transferred from an intensive coronary care unit to a progressive coronary care unit.

Psychological tests of anxiety and attitude were given to fifteen patients pre- and post-transfer.

The findings supported the belief that transfer from an intensive coronary care unit to a progressive coronary care unit can precipitate the perception of a threat to security and result in a high anxiety level for the patient. The study also supported the belief that the perceived threat may be related to a number of different variables associated with the transfer process. High anxiety levels were not positively associated with more negative attitudes toward the progressive coronary care unit.

Recommendations for further study include replication of this study in different hospitals with larger and more heterogenous samples, and different primary medical care arrangements; investigation of methods to develop supportive nurse-patient relationships; and further investigation of variables which may increase anxiety after transfer from one patient care area to another.
CHAPTER 1

PRESENTATION OF THE PROBLEM

In the 1950's, health professionals, striving to improve the deliverance of care to all patients developed the concept of progressive patient care. Progressive patient care as defined by Abdellah and Strachman (1959) and Haldeman (1959), is a system whereby patients are grouped by their overall medical and nursing needs, rather than by their category of illness or by the type of room accommodation. Progressive care consists of five elements: intensive care, intermediate care, self-care, long term care, and home care. Since then progressive patient care has been adopted in whole or at least in part by most hospitals in the United States. This approach has been very successful in providing maximum physical care for the patient; however, very little research has been done on the psychosocial aspects of this patient care concept.

Since the advent of the intensive coronary care unit most hospitals have incorporated some sort of coronary care unit into their setting and the hospitals that do not have a coronary care unit are making plans for the development of one. The coronary care unit concept was developed primarily as a way to provide care for the acute coronary patient and
has evolved to have as its primary purpose or objective the prevention of complications (White, 1971). With considerable evidence that emotional factors, especially anxiety, lead to coronary complications, health practitioners need to ascertain which elements of the intensive care process stimulated anxiety and attempt to eliminate them.

Transfer from the intensive coronary care unit has long been suspected of stimulating anxiety in the patient.

**Purpose of the Study**

The purpose of this study is to further knowledge of the psychological aspects of patients' reactions to transfer from one type of nursing unit to another as the concept of progressive care implies. Specifically, the study attempts to compare patient reactions to transfer from an intensive coronary care unit to a specifically designed progressive coronary care unit versus a general medical intermediate care unit.

**Statement of the Problem**

This study involves the investigation of the anxiety level of the patient and his attitude toward the nursing unit while in the intensive coronary care unit and after his transfer to the progressive coronary care unit, and a comparison of these results with an investigation done by Verran (1970), who studied patient responses to transfer
directly to a general medical intermediate care unit. The research attempts to answer the following questions: Do patients who are moved from an intensive coronary care unit have a higher level of anxiety following transfer than before transfer? Do patients who are moved from an intensive coronary care unit to a progressive coronary care unit have a lower level of anxiety following transfer than patients who are transferred to a general intermediate care unit? Are measured anxiety levels related to the patient's positive or negative attitude toward each type of patient care unit?

**Significance of the Problem**

The area of studying patient responses to intensive care and their subsequent transfer to progressive care units is worthy of study in this time of increasing specialization and the reliance on more mechanical and technical methods of dealing with patient care.

The progressive care concept has been studied extensively and proven to be efficient and extremely beneficial in providing for the physical care of patients. The concept of intensive coronary care has been investigated by many and the documentation of lives saved and complications prevented is impressive. White (1971) estimated that coronary care units have saved over 100,000 lives annually in the United States.
Numerous research studies (Wahl, 1973; Wright and Fredrickson, 1971) have clearly demonstrated that the psychological state of the patient has definite effects not only on his cardiovascular functioning, but on the entire course of his rehabilitation. Despite increasing sophistication in the technical realm of treating coronary patients and recognition of the effects of the psychological state of these patients, little has been done to reveal the most threatening aspects of treatment to these patients and what health professionals can do to assist the patient in dealing with them.

The problems are significant to the patient because of the deleterious effects that stress and anxiety can have on the cardiovascular system, especially the system that has already been compromised by disease.

The problems this research seeks to solve are specifically significant to the increasing number of coronary care nurses because the type of nursing care given to the patient suffering from coronary disease will be affected by determination of anxiety-producing factors, especially the transfer process.

For nurses, "the caring professionals," to neglect the study of the psychological aspects of the progressive care concept, specifically the anxiety of the patient associated with the transfer from one unit to another would
be an omission of an essential part of the accepted mission to provide "individualized, total patient care."

**Hypotheses to be Tested**

The following hypotheses were tested in this study:

1. The mean of scores on the Institute for Personality and Ability (IPAT) Anxiety Scale is significantly higher after transfer from the intensive coronary care unit to the progressive coronary care unit than the mean of scores before transfer.

2. The mean of scores on the Institute for Personality and Ability Testing Anxiety Scale (using results reported by Verran, 1970) is significantly higher after transfer from the intensive coronary care unit to the general medical intermediate care unit than the mean of scores after transfer to a progressive coronary care unit.

3. High scores on the Institute for Personality and Ability Testing Anxiety Scale are positively correlated to a significant degree with high scores on the Patient Attitude Scale used in this study.

The first hypothesis answered the first problem of the study, the second hypothesis answered the second problem of the study and the third hypothesis answered the third problem of the study.
Theoretical Framework

The conceptual framework for this study was Lazarus' (1966) psychological stress theory as outlined in his book, *Psychological Stress and the Coping Process*. In the following sections this general theory and its support by other noted psychologists, will be defined and applied to the specific research situation.

General Theory

Lazarus (1966) proposed that the common denominator of stress situations is a reaction to circumstances of threatening significance to the organism. He defined stress as any stimulus that endangers or disrupts the most important values and goals of the organism. When an individual feels threatened or blocked in the pursuit or attainment of his goals, his failure to adapt is manifested in a vague, uneasy feeling best described as anxiety (Wolf and Goodell, 1968).

Fear is typically the most predominant component of the complex emotion called "anxiety." Most theorists agree that anxiety follows from appraisal or the perception of the threat of occurrence of a danger situation (Izard, 1972). Anticipation of a harmful event is brought about by the cognitive processes involving perception, learning, memory, judgment, and thought. Therefore, although the characteristics of a situation may act as a stimulus to
produce anxiety, the exact nature of the response will depend on the appraisal process that intervenes between the stimulus and the emotional reaction. Threat appraisal may not be conscious or in full awareness and ambiguity concerning the significance of the stimulus configuration will usually intensify the threat because it limits the individual's sense of control or increases the sense of helplessness over the danger (Lazarus, 1966).

Security has been identified as an important need in modern complex societies (Morgan and King, 1966). A feeling of security involves being able to hold on to what one has and being sure that one will fare in the future as well as he has in the past (Lazarus, 1963, p. 4).

This means that a person's security may often be threatened or lost through no fault of his own or by conditions over which he has no control. If the striving behavior of an organism to preserve or regain a basic need, such as security, is blocked, further stress is evoked. The resulting protective adaptive reaction, when sustained, may be far more damaging to the individual than the effects of the noxious agent per se (Wolf and Goodell, 1968).

Application of Theory to the Research Situation

This study applied the psychological stress theory to the responses of patients transferred from the intensive coronary care unit to the progressive coronary care unit
and the general medical intermediate care unit. The researcher proposed that the patient cared for on the intensive coronary care unit perceived the transfer from the intensive coronary care unit as a threat to his physical security. The close and continuous patient observation, including cardiac monitoring, and the frequent nurse-patient contact in the intensive coronary care unit give the patient a feeling of physical security. When he is transferred to a unit of less intensive care he perceives this as a threat to his physical security. The patient's appraisal of the change in type and degree of nursing care he receives after transfer is reflected in his attitude toward the new patient unit.

The patient's ability to adapt to the stress generated by transfer is reduced because he senses a loss of control over his own situation. He is dependent on the hospital, its staff, and its environment for his care. Because of the threat of his illness he is unable to remove himself from the situation and he is unable to reduce the frustrating aspects of the environment because the type and degree of care he receives are not under his conscious control. The response of the patient to this situation is an increased anxiety level as measured by psychological testing devices (Verran, 1970).

In this research, increased anxiety levels after transfer from the intensive coronary care unit will be
considered an indication of the patient's inability to cope with the stress perceived as a threat to his physical security. A negative attitude toward the new patient unit will be considered to be a result of the patient's reaction to the perceived loss of security due to a change in the type and degree of care he receives. Figure 1 shows the application of the psychological stress theory integrated with the specific situation of transfer from the intensive coronary care unit.

Assumptions

In the application of the above theoretical framework to this research the following general assumptions were made:

1. Patients in the intensive coronary care unit receive a more intensive, individualized type of care than do patients on the progressive coronary care unit or the general medical intermediate care unit.

2. The intensive care and almost constant nurse-patient contact in the intensive coronary care unit provides the patient with a physical and psychological security.

3. Patients in the progressive coronary care unit receive a type of nursing care geared more closely to their specific illness by nurses equally well
Figure 1. Diagram of the Psychological Stress Theory Integrated with the Specific Situation of Transfer from the Intensive Coronary Care Unit (Verran, 1970, p. 7).
trained in coronary care as the intensive coronary care unit nurses and this provides more security for the acute myocardial infarction patient than does the type of nursing care rendered on the general medical intermediate care unit.

4. Policies for care as established in the intensive coronary care unit, the progressive coronary care unit, and the general medical intermediate care unit are inacted for each patient on the unit.

5. Policies for care as established on the intensive coronary care unit and the general medical intermediate care unit are essentially unchanged from those in force when Verran conducted her study in 1970.

**Definitions**

The following definitions of terms are used in this study.

1. **Nursing Unit**: A nursing unit is any self-contained patient area.

2. **Intensive Coronary Care Unit**: An Intensive Coronary Care Unit is a specially designed, equipped, and staffed area within the hospital that has as its main objective the prevention of complications in the patient with an acute coronary problem. The basic elements of the intensive coronary care unit
are close and continuous patient observation including cardiac monitoring, and constant supervision and specific care by specially trained personnel.

3. **Progressive Coronary Care Unit:** A progressive coronary care unit is a specially equipped and staffed patient area adjacent to or in close proximity to the intensive coronary care unit where continuous monitoring may be but is not necessarily continued. The major difference between the intensive coronary care unit and the progressive coronary care unit is the intensity and constancy of the surveillance of cardiac rhythm. The training and capabilities of the staff are equivalent but the nurse-patient ratio is lower than in the intensive coronary care unit.

4. **General Medical Intermediate Care Unit:** A general medical intermediate care unit is an area for the patient whose condition has stabilized but requires remedial care and a moderate amount of nursing care. The ratio of nursing staff to patients is far lower than on the intensive coronary care unit and somewhat lower than the staffing ratio on the progressive coronary care unit.
5. **Stress**: Stress is any threat or perceived threat to the fulfillment of basic needs which evokes a certain physiological or psychological state.

6. **Anxiety**: Anxiety is a pattern of emotion the major component of which is fear and consists of a diffuse, unpleasant, often vague feeling of apprehension accompanied by one or more recurring bodily sensations. Anxiety is the consequence of stress. It is the "free-floating manifest concern or uneasiness as measured by the Institute for Personality and Ability (IPAT) Anxiety Scale" (Cattell and Scheier, 1963, p. 13).

7. **Attitude**: Attitude is the "degree of positive or negative affect associated with some psychological object" (Edwards, 1970, p. 2). "A psychological object is any symbol, phrase, slogan, person, institution, ideal, or idea toward which people can differ with respect to positive or negative affect" (Verran, 1970, p. 9).

8. **Attitude Toward the Nursing Unit**: "Positive and negative attitudes toward a nursing unit are measured by the Patient Attitude Scale. An individual who has associated a positive attitude with some psychological object is said to have a favorable feeling toward that object" (Verran, 1970, p. 10).
9. **Transfer Process:** The transfer process is considered to be the time period involved from the point when the patient is informed of eminent transfer from the intensive coronary care unit, the actual transfer, and the first day spent on the progressive coronary care unit or the general medical intermediate care unit after transfer.

10. **Professional Nurse Researcher:** The professional nurse researcher, in this study, is a registered nurse currently enrolled in a program of study leading to a Master of Science degree of Nursing, who has had eight years of experience in medical-surgical nursing in a large variety of clinical settings including five years of experience in large intensive care units. The researcher has had two years of experience as the head nurse of a ten bed intensive coronary care unit.

**Limitations**

In testing the stated hypotheses, this study is restricted by the following factors:

1. This study is a field experiment with limitations on the control of variables.
2. This study is being carried out with limited time and a limited sampling area.
3. The study is limited to the use of the same hospital used by Verran (1970) in her investigation so that a comparison of the two studies may be made.

4. The researcher has no control over the nursing care given to the patient on each of the patient care units.

5. The patient's anxiety level may be affected by other factors than those considered in the study.

6. The sample will be limited to literate, English speaking patients.

Organization of the Study

This chapter has delineated the background concepts of this study, the problems to be studied, the hypotheses to be tested, and the theoretical framework of the study.

Chapter 2 contains a review of the literature to include the effects of anxiety on the cardiovascular system, the concept of progressive patient care, intensive coronary care, the progressive coronary care unit, and the general medical intermediate care unit, and literature relating to the transfer process from the intensive coronary care unit to the progressive coronary care unit or the intermediate care unit.

The design of the research project, the measurement instruments to be used, and a description of the sample used for the study will be dealt with in Chapter 3.
Chapter 4 will be a presentation of the data and analysis of the data. A comparison will be made of the data collected in this study with the findings of Verran.

Application of the theoretical framework to the findings of the study and recommendations for further study will be related in Chapter 5.

A summary of the information given in the five preceding chapters is presented in Chapter 6.
CHAPTER 2

REVIEW OF LITERATURE

The following chapter contains a review of the published literature that relates to the problems of this study. First, summary of the reported studies done to determine the effects of stress and anxiety on the cardiovascular system will be presented. Second, a survey of articles and studies relating to the concept of progressive care, the intensive coronary care unit, the progressive coronary care unit, and the general medical intermediate care unit will be discussed. Third, articles specifically related to the transfer process from the intensive coronary care unit will be cited.

The Effects of Stress and Anxiety on the Cardiovascular System

The documentation of evidence relating the deleterious effects of psychological stress on cardiovascular function is impressive and the mechanisms, both biochemical and humoral, by which stress affects cardiac function and structure have become increasingly well understood (Wahl, 1973).
Menninger and Menninger (1936) reported extrasystole, paroxysmal tachycardia, and precordial pain produced by psychic stimuli.

Wolf et al. (1946) made extensive daily observations on normal individuals subjected to persistent low-grade stresses of every-day living and demonstrated increased heart rate, increased blood pressure, and increased cardiac output when the subject was placed in an anxiety-producing situation. The authors concluded that these findings indicated costly coronary performance and that an attempt should be made to avoid emotional situations.

Katz (1947) demonstrated that almost every kind of arrhythmia; including sinus tachycardia, sinus bradycardia, paroxysmal atrial tachycardia, ventricular tachycardia, and various forms of heart block could be induced by manipulation of the psychic state.

Hickman, Cargill, and Golden (1948) showed by direct measurement techniques that there is a marked diminution of coronary flow in anxious and depressed states which could be induced experimentally.

Alterations in cardiac function and circulatory efficiency as evidenced by changes in the rate, rhythm, electrocardiographic pattern, and output of the heart in individuals with cardiovascular disease under stress was documented by Stevenson, Duncan, and Ripley (1951).
Brod et al. (1959) also demonstrated that hemodynamic changes resulting in elevated arterial pressure, reduced renal flow, and increased blood viscosity occurred as a part of an individual's adaptation to the problems and challenges in his daily life. The findings of Brod et al. were substantiated by documentation of similar results by Gordon and Whalen (1963).

Numerous researchers have shown that anxiety-producing life experiences are capable of evoking hypercholesteremia. Studies by Thomas and Murphy (1958); Friedman, Rosenman, and Carroll (1958); Dreyfuss and Czaczkes (1959); Groen (1959); and Wolf et al. (1962) all demonstrated a significant increase in serum cholesterol levels in individuals subjected to emotional stress.

In a study, Ax (1953) demonstrated that anger stimulates a combination of an epinephrine and norepinephrine response, while fear stimulates an epinephrine-like response. Jost et al. (1952) obtained similar results in their research of individuals under stress.

Gentry, Musante, and Harvey (1973) have completed several studies using increased urinary sodium retention and increased potassium output leading to a decreasing sodium/potassium value as definitive indicators of the positive relationship between psychologic and physiologic stress in myocardial infarction patients. Their data suggest mechanisms by which psychological stress leads to
increased morbidity and mortality in myocardial infarction patients via increased adrenocortical and adrenergic activity.

After thorough studies conducted in both animal and human subjects, Wolf (1966) concluded that all elements of the circulator apparatus are connected with and capable of reacting to impulses from the cerebral hemispheres, the interpretive areas of the brain. He stated, "It is clear that symbolic stimuli arising out of troublesome events may aggravate the disability of the diseased heart" (p. 42).

Studies by Adler and Hammett (1971) demonstrated that regardless of the origin or the type of stress, its influence in terms of serum cholesterol or blood viscosity is dependent on the functioning of the sympathetic nervous system.

After documenting hypertension, tachycardia, and augmented vigor of contraction as responses to emotional stress, Gorlin and Herman (1972) concluded that emotion, through autonomic nervous system stimuli to the heart, can be even more detrimental than physical effort in provoking myocardial ischemia.

Blumgart (1961, p. 4) succinctly summarized the research into the physiological effects of stress on the cardiovascular system:

The emotional reactions of the patient to the advent of coronary disease may strongly influence his physiological function. A significant role
has been ascribed to emotions in the precipitation of one half of all cases of myocardial infarction. Emotional reactions or mental stresses elevate blood fats, also, they increase the daytime production of epinephrine and norepinephrine, they increase the systolic tension time index, i.e., myocardial oxygen consumption, and possibly enhance the blood clotting. There is little reason to doubt that emotional reactions of the coronary patient to his illness may have a significant effect on his heart function and workload even during rest, especially if excursions of pulse rate and blood pressure are evoked by anxiety and frustrations. Emotional reactions are as integral a part of coronary disease as the organic lesion.

**Progressive Patient Care**

Articles and studies will be cited on the progressive care concept, the intensive coronary care unit, the progressive coronary care unit, and the general medical intermediate care unit in this section.

The progressive care concept has proven to be effective in providing care to the patient through all phases of illness.

Myocardial infarction which causes over 650,000 deaths a year, is the chief source of mortality in the United States (Corday and Swan, 1973, p. 4). As an element of progressive care, the intensive coronary care unit has become popular due to the number of lives saved and the complications prevented.

Lown, Vassaux, and Hood (1967) demonstrated that by close monitoring, observation, and prompt treatment,
arrhythmias could be controlled and thereby prevent some sudden and unexpected deaths.

Lawrie et al. (1967) documented a 20 percent reduction in death rate of acute myocardial infarction patients treated on the intensive coronary care unit rather than the general medical care unit. In a study by Meltzer (1967), conducted at Presbyterian Hospital in Philadelphia, it was found that the death rate of patients treated in the intensive coronary care unit was thirty percent lower than those treated in the general medical care unit. White (1971) stated that the essential function of the intensive coronary care unit is prevention and estimated that over 100,000 lives are saved annually in the United States due to their use.

In addition to the physical security advantages the intensive coronary care unit has for the patient, the following authors, among others, have pointed out how the intensive coronary care unit provides for the emotional security of the patient.

Pinneo (1965) noted that the high nurse-patient ratio on the intensive coronary care unit provides security for the cardiac patient because his needs are met immediately and he views the nurses as being experts in cardiac monitoring and delivering specialized care.

Sobel (1969) found that the patient in the intensive care unit viewed the nurses as being more "open, honest,
and candid," and that this made the patient feel more "cared for."

In a review of 441 psychiatric patient consultations on an intensive coronary care unit, Cassem and Hackett (1971) stated that most patients regarded the extensive equipment, close medical attention, and frequent assessment by the nurses, as "a guard" against the threat to their lives, which provided them with a sense of security.

Nevertheless, psychological hazards of the intensive coronary care unit have also been identified. Hackett, Cassem, and Wishnie (1968) described confinement to the intensive coronary care unit as "an ordeal," and although patients rarely admitted to being anxious, after questioning they usually admitted to some anxiety, which could be attributed to organic factors and to the atmosphere of the ward.

With further implementation of the progressive care concept has come the advent of the progressive coronary care unit. Lawrie et al. (1967) described the study of a progressive coronary care unit that indicated that deaths after transfer from the intensive coronary care unit could be reduced by twenty percent when the patient was transferred to a progressive coronary care unit rather than a general medical care unit.
Wright and Fredrickson (1971) described the progressive coronary care unit as a fully integrated area with the intensive coronary care unit where patients could be transferred when complications, especially ventricular arrhythmias, have diminished. The essential difference between the intensive coronary care unit and the progressive coronary care unit is the intensity and constancy of surveillance of cardiac rhythm. However, because the nurses and personnel in both areas have the same responsibility and the same goal in caring for the patient, the continuity of care is insured and the anxiety of transfer from one unit to another for the patient is reduced.

Grace and Yarvote (1971) studied 117 patients on a progressive coronary care unit. They noted that by applying the stated principles of the coronary care unit in the early stage of mobilization of the patient it might be possible to detect and treat early warning symptoms occurring after transfer from the intensive coronary care unit and prevent further physical complications.

The Transfer Process

Davis (1972) stated that there are two points of transition for the patient—into and out of the intensive coronary care unit. Both transitions are stress generating. When the patient is transferred from the intensive coronary care unit he may still view himself as being seriously ill,
Abdellah and Strachman (1959) stated that it is easier to determine a patient's physical readiness than his emotional readiness for transfer to another unit and for this reason, some patients may be moved while they are still psychologically unprepared for the transfer.

Royale (1973) indicated many misconceptions for both the patient and his family regarding the transfer from the intensive coronary care unit. These patients and their families had developed feelings of dependency on the intensive coronary care unit and perceived a lack of ability to influence what was happening to them. Three out of four patients had gained reassurance from the cardiac monitor and four out of five had overtly expressed fears of being transferred to another unit.

Hackett et al. (1968) interviewed fifty patients who had experienced myocardial infarctions and had been transferred from the intensive coronary care unit to a general medical intermediate unit. They found that although these patients were somewhat reassured by being transferred from the intensive coronary care unit, they missed the attention they received on the intensive coronary care unit and felt a loss of security.

Insomnia, restlessness, irritability, and unnecessary dependence of patients transferred from the intensive coronary care unit were reported by Kornfeld, Maxwell, and Momrow (1968). In another study by Druss and Kornfeld
(1967) twenty patients were found to have long-standing emotional problems including insomnia, irritability, and activity restrictions beyond what was medically appropriate after transfer from the intensive coronary care unit.

Sharp and Rabin (1968) related that although the patient's stay in the intensive coronary care unit is generally limited, he may, nevertheless, become dependent and afraid to leave the unit. She stated that the patient's reaction to transfer is dependent on his feelings of security and the degree to which he understands his illness. Therefore, preparation for the patient's transfer should be included in the nursing care plan and the patient should actively participate in the plan.

Shannon (1973) reviewed the obligations of the coronary care nurse and emphasized the need for the nurse to prepare the patient for both the physical and the psychological effects of being transferred from the intensive coronary care unit to another ward. She related a number of measures designed to make the transfer process a more positive experience for the patient. She stressed the importance of keeping not only the patient, but his family well informed of all the aspects of coronary care, including information that the stay on the intensive coronary care unit is temporary, that the time of transfer is often unpredictable and that transfer to the new unit is indicative of the patient's improved condition.
The studies and articles reviewed in this chapter indicate the deleterious effects stress and anxiety can have on the cardiovascular system. These studies have used physiological indices to measure psychological stress.

Articles reporting the success of the progressive patient care concept and the value of the intensive coronary care unit were surveyed. Several studies using unstructured interview techniques to reveal how patients develop both physical and emotional security in the intensive coronary care unit and the possible psychological responses to transfer from the intensive coronary care unit were cited.

Several authors related the speculated psychological stress that is generated by the transfer process and how some type of nursing intervention may alleviate this stress, but no nursing study has been published that describes a complete research project to investigate and actually measure the patient's reaction to leaving an intensive care unit.

Verran (1970) reported in an unpublished master's thesis on ten patients who were given pre- and post-transfer psychological tests of anxiety and attitude. Her findings supported the belief that anxiety is significantly higher after transfer from the intensive coronary care unit to the general medical intermediate care unit and that
higher anxiety levels are positively associated with more negative attitudes toward the general medical ward.
CHAPTER 3

RESEARCH PROCEDURES

This study concentrates on the anxiety developed by patients transferred from an intensive coronary care unit to a progressive coronary care unit. The first hypothesis states that anxiety levels will be lower on the intensive coronary care unit than on the progressive coronary care unit and that in comparison with Verran's (1970) study, the anxiety levels of patients transferred to the progressive coronary care unit will be lower than the anxiety levels of patients transferred directly to the general intermediate medical care unit. The second hypothesis states that the lower anxiety levels on the intensive coronary care unit will be associated with a positive attitude toward the intensive coronary care unit, and that the patient's attitude toward the progressive coronary care unit will be more favorable than the patient's attitude toward the general medical care unit as reported by Verran (1970).

Design of the Study

Pre-transfer and post-transfer tests were used to measure the patient's anxiety and attitude toward the unit while in the intensive coronary care unit and after
transfer to the progressive coronary care unit. This design allowed for a comparison between anxiety levels and attitude before and after transfer from the intensive coronary care unit. A comparison of the results from this study was then made with the results obtained by Verran (1970).

Anxiety levels were measured with the IPAT Anxiety Scale administered both pre- and post-transfer. A Likert-type attitude scale, devised by Verran (1970), was administered at the same time as the IPAT Anxiety Scale to measure the patient's attitude toward the nursing care unit.

The tests were self-administered by the patients and given at the first point that the patient was well enough to sit up and read the forms. This was determined by the patient's physician, the nurse researcher, and the patient himself.

Since transfers were usually unplanned, it was impossible to set a time-span before the actual transfer for the administration of pretests. Patients were moved from the intensive coronary care unit as the need for space demanded and as their condition improved.

The post-transfer tests were given at least twenty-four hours after the transfer to the progressive coronary care unit, in order to give the patient time to become accustomed to the new nursing unit and the type of nursing care he would receive.
The Measurement Instruments

Research studies that use a psychological theory of stress and anxiety as a framework must also utilize psychological measures (Lazarus, 1967). The psychological tests selected for use in this study measure anxiety and attitude. These two instruments are paper and pencil tests that require an average of twenty minutes to complete.

Measure of Anxiety

The IPAT Anxiety Scale is a brief factor-analytically derived inventory in questionnaire form of forty items which is practically self-administering, and takes approximately ten minutes to complete. The IPAT Anxiety scale is based on extensive research with both normal and clinical cases leading to a sound knowledge of anxiety structure (Cattell and Scheier, 1963).

Cohen (1965) reported that the IPAT Anxiety Scale, as a device for quick measurement of free anxiety in literate adults, has no peer.

The IPAT Anxiety Scale has both construct and external, concrete validity on the criterion of psychiatric evaluations of anxiety. The construct validity is estimated at +.85 to +.90 for the total scale. "Clinical judgments of anxiety and diagnostic classifications of patients are the main external validating criteria" (Cattell and Scheier, 1963, p. 13).
The reliability of the IPAT Anxiety Scale has been determined to be +.93 for test-retest after one week. After a two week interval the reliability for test-retest is +.87. The reliability of this test is highly satisfactory according to Cattell and Scheier (1963).

The IPAT Anxiety Scale is shown in Appendix A.

Measure of Attitude

The Patient Attitude Scale used in this study was developed by Verran (1970), to measure the patient's attitude toward the nursing unit. The Patient Attitude Scale is a Likert-type attitude scale, a summated scale consisting of a series of statements or items to which the subject is asked to react along a continuum.

Osgood, Suci, and Tannenbaum (1957) stated that meaning is a concept that involves the relationship or process of associating signs with significant objects or concepts. Meaning is represented as an unknown space of multidimensions. "The semantic differential is essentially a combination of controlled associations and a scaling procedure" (Osgood et al., 1957, p. 20). "By semantic differentiation, then, we mean the successive allocation of a concept to a point in the multidimensional semantic space by selection from a set of given scaled semantic alternatives" (Osgood et al., 1957, p. 26).
Palmer (1965, pp. 100-101) described the validity and reliability of a Likert-type scale:

The ordering of items along a continuum results in converting qualitative facts into quantitative series. . . . Fine discriminations in measurement, then, can be ascertained. The nature of the continuum is inferred from the character of the statements or items which compose the scale. The arbitrary method of scoring item responses treats them as though the distances between items was equal. The weights are uniform for all items. This is called the method of equal-appearing intervals. Murphy and Likert, and Rundquist and Sletto found negligible distortion when they compared the sigma method of scoring with the arbitrary assignment of scoring item responses. The sigma method of scoring is a more complicated method of scoring which involves the converting of the proportion of time each response was checked for each item into the corresponding sigma value on the base line of the unit normal curve (McNemar, 1946). Substantially the same results were obtained by these authors when the responses scored by both these methods were correlated, Rundquist and Sletto obtained correlations between +.946 and +.987. Murphy and Likert obtained a correlation of +.99. Since the arbitrary method of scoring is less time consuming and yields high reliability, it is often preferred to the sigma method of scoring.

Miller (1964) reported that the reliability of the semantic differential in measuring the authors' concept of meaning is, on test-retest +.85 and in measuring attitudes +.91.

The Patient Attitude Scale is shown in Appendix B. A detailed description of how this attitude scale was developed is included in Verran's (1970) unpublished master's thesis.

A five-point scale was used in order to obtain adequate differentiation between degrees of favorableness.
Positions on the continuum are scored from one to five with the score of one indicating a highly favorable attitude (Verran, 1970, p. 23).

The Patient Attitude Scale as interpreted by Verran (1970) yields three possible scores from the twenty scale items: (1) total score, (2) nurse subscore, and (3) unit subscore. The total score for each subject is the sum of the weights of responses to all twenty items on the scale and is interpreted as the patient's attitude toward the unit. The patient's attitude toward the design and equipment of the unit is a sum of the weights of responses to items 1, 2, 10, 12, 17, 19, and 20. The sum of the weights of responses to all the other items is the nurse subscore, the patient's attitude toward the nursing staff and the care they give.

The Target Population

The target population for the study was composed of all patients who met the following criteria by being:

1. Admitted to the intensive coronary care unit of the one 600-bed general hospital used in the study between March 3, 1975 and March 30, 1975.
2. Subsequently transferred to the progressive coronary care unit after being in the coronary care unit at least thirty-six hours.
3. Between the ages of 30 and 80.
4. Under the care of one of the fourteen private physicians who consented to have patients included in the study.

5. Literate in English and willing to participate in the study.

A total of fifteen patients met these criteria and were the selected study sample. The attrition rate for the same was zero.

**Analysis of the Data**

The personal information and the test score results for each patient were recorded on the raw data form shown in Appendix C. The data were then transferred to data processing cards for computer analysis.

Data were analyzed by the same process used by Verran (1970). Data from the IPAT Anxiety Scale and the Patient Attitude Scale were analyzed by a one-tailed student's t based on the difference between means of test-retest scores. Scores from the Patient Attitude Scale were correlated with scores from the IPAT Anxiety Scale by the Pearson product-moment correlation coefficient. Variables of age, number of previous hospitalizations, and length of time in the intensive coronary care unit were correlated with the percent of increase (based on pretest means) in total anxiety to disclose any trends that would affect post-transfer anxiety. Scattergrams were constructed
for all correlation analyses to check for the existence of linear or curvilinear relationship between the two variables. The significance level for all analyses was set at .05.

Data from this study were then correlated with data obtained by Verran (1970), and analyzed in the same manner.

**Protection of Human Rights**

The design of the study was submitted to and approved by the Human Subjects Committee and The University of Arizona.

Only patients who consented to participate in this study were used. The subject consent form is shown in Appendix D. The purpose of the study was explained to each patient and each patient was assured that he could withdraw from the study at any time and that withdrawal from the study would in no way affect the care he received. The confidentiality of information obtained was insured by assigning each case a number. The data obtained are used for research purposes only and no reference to a specific patient is made. Consent for the patient to participate in the study was also obtained from his physician.
CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

The findings and the statistical analysis of the data collected from the study described in preceding chapters are presented in this chapter. First, is a description of sample characteristics. Next, the data related to the stated study hypotheses are presented. The data from this study and from Verran's (1970) research are then compared and analyzed. Third, data from the study are analyzed and correlated with age, number of hospitalizations, and length of stay in the intensive coronary care unit. The final section of the chapter compares the results of the IPAT Anxiety Scale with the national averages, as given by the Institute for Personality and Ability Testing. Subsequent chapters contain a discussion of the interpretation of the findings and recommendations for further study.

Characteristics of the Sample

The biographical data obtained for the patients in the study are summarized in Table 1. The sample was composed of 8 male and 7 female patients with a mean age of 65.53. The female group had a mean age of 67.71 while the male group averaged 63.62 years. All subjects had been hospitalized previous to this illness and all but four had
Table 1. Characteristics of the Sample by Sex, Age, Number of Hospitalizations, and Mean Hours Spent in ICCU.

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean Age</th>
<th>Mean Number of Hospitalizations</th>
<th>Mean Hours in ICCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>8</td>
<td>63.625</td>
<td>1</td>
<td>146.625</td>
</tr>
<tr>
<td>Females</td>
<td>7</td>
<td>67.71</td>
<td>1.571</td>
<td>99.428</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>65.53</td>
<td>1.267</td>
<td>124.6</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.702</td>
<td>.961</td>
<td>1.457</td>
<td>87.065</td>
</tr>
</tbody>
</table>

been in the hospital for a coronary problem. The mean number of total hospitalizations was 2.46. Four of the patients had been in the intensive coronary care unit previous to this admission. There was a wide range, 48-360 hours, of time spent in the intensive coronary care unit, with mean time at 124.6 hours and a standard deviation of 87.06. Men in this sample were in the intensive coronary care unit for a comparatively longer length of time (146.62 hours) than were the women (99.42 hours).

Findings Related to the First Hypothesis

The first hypothesis of this study stated that the mean of scores on the Institute for Personality and Ability (IPAT) Anxiety Scale is significantly higher after transfer
from the intensive coronary care unit to the progressive coronary care unit than the mean of scores before transfer.

The data from the IPAT Anxiety Scale pre- and posttests are summarized in Table 2. The mean for total anxiety scores was 31.80 and the standard deviation was 8.86 on the pretest. On the posttest, the mean of scores was 35.80 and the standard deviation was 9.99. These data were analyzed using a student's t for the difference between means for correlated data. A t of 2.63 was computed. This is statistically significant at greater than the .02 level of 2.14 for a one-tailed test with fourteen degrees of freedom. The analysis supports the first hypothesis of this study.

Information of the subscores for overt and covert anxiety as measured by the IPAT Anxiety Scale is given in Table 2.

For the A score, covert anxiety, the mean of scores on the pretest was 16.06 and the standard deviation was 3.82. The posttest mean for the A score was 18.40 and the standard deviation 5.15. The t test for these data is 2.14 which is statistically significant at greater than the .05 level of 1.76 with fourteen degrees of freedom. The B score, overt anxiety, had a mean of 15.73 and a standard deviation of 5.91 on the pretest. On the posttest, the B score mean was 17.40 and the standard deviation was 6.08. The t of 3.03 computed for the B score data is statistically
Table 2. IPAT Anxiety Pre- and Posttest Results Compared by t Test and Correlation

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>Subscore</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Pretest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>31.80</td>
<td>16.06</td>
<td>15.73</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8.86</td>
<td>3.82</td>
<td>5.91</td>
</tr>
<tr>
<td>Posttest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>35.80</td>
<td>18.40</td>
<td>17.40</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.99</td>
<td>5.15</td>
<td>6.08</td>
</tr>
<tr>
<td>t-Test</td>
<td>2.63</td>
<td>2.14</td>
<td>3.03</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Probability</td>
<td>&gt; .02</td>
<td>&gt; .05</td>
<td>&gt; .01</td>
</tr>
<tr>
<td>Correlation</td>
<td>+ .81</td>
<td>+ .59</td>
<td>+ .93</td>
</tr>
</tbody>
</table>

significant at the .01 level at 2.97 with fourteen degrees of freedom,

Findings Relating to the Second Hypothesis

The second hypothesis of this study stated that the mean of scores on the Institute for Personality and Ability Testing Anxiety Scale (using results reported by Verran, 1970), is significantly higher after transfer from the intensive coronary care unit to the general medical
intermediate care unit than the mean of scores after transfer to a progressive coronary care unit.

Data from post-transfer IPAT Anxiety Scale Tests of patients transferred to a general medical intermediate care unit from the intensive coronary care unit as reported by Verran (1970) are summarized in Table 3. Data from the post-transfer IPAT Anxiety Scale Tests of patients transferred from the intensive coronary care unit to the progressive coronary care unit as reported in this study is also given in Table 3.

The mean of total posttest Anxiety Scale Scores for patients transferred to the general intermediate care unit as reported by Verran (1970) was 48.80 and the standard deviation was 9.94. The mean of total posttest Anxiety Scale scores for patients transferred to the progressive coronary care unit was 35.80 and the standard deviation was 9.99. These data were analyzed using a student's t for the difference between two sample means. A t of 3.34 was computed. This is statistically significant at greater than the .01 level of 2.80 for a one-tailed test with twenty-three degrees of freedom. The analysis supports the second hypothesis of this study.

Information about the subscores for overt and covert anxiety as measured by the IPAT Anxiety Scale for patients transferred to the intermediate general care unit and the progressive coronary care unit is given in Table 3,
Table 3. Post-transfer IPAT Anxiety Scale Scores of Patients Transferred from the Intensive Coronary Care Unit to the General Medical Intermediate Care Unit Versus the Progressive Coronary Care Unit

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest Intermediate Care Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>48.80</td>
<td>23.90</td>
<td>24.90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.94</td>
<td>6.01</td>
<td>4.70</td>
</tr>
<tr>
<td>Posttest Progressive Coronary Care Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>35.80</td>
<td>18.40</td>
<td>17.40</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.99</td>
<td>5.15</td>
<td>6.08</td>
</tr>
<tr>
<td>t-Test</td>
<td>3.34</td>
<td>3.06</td>
<td>4.29</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Probability</td>
<td>&gt; .01</td>
<td>&gt; .01</td>
<td>&gt; .01</td>
</tr>
</tbody>
</table>

For the A score, covert anxiety, the mean of scores on the posttest for patients transferred to the intermediate general care unit as reported by Verran (1970) was 23.90 and the standard deviation was 6.01. For patients transferred to the progressive coronary care unit the mean of posttest covert anxiety scores was 18.40 and the standard deviation was 5.15. The t of 3.06 computed for the A scores
data is statistically significant at greater than the .01 level at 2.80 with twenty-three degrees of freedom.

For the B score, overt anxiety, the mean of scores on the posttest for patients transferred to the intermediate general care unit as reported by Verran (1970) was 24.90 and the standard deviation was 4.70. For patients transferred to the progressive coronary care unit the mean of posttest covert anxiety scores was 17.40 and the standard deviation was 6.08. The t of 4.29 was statistically significant at 3.76 with twenty-three degrees of freedom.

Findings Related to the Third Hypothesis

Data from the Patient Attitude Scale are given in Table 4. A mean of 29.40 and a standard deviation of 5.92 were obtained from the pretest attitude scale total score and a mean of 34.66 and a standard deviation of 1.30 for the posttest. The higher the score on the Patient Attitude Scale the more negative the attitude toward the nursing unit. The t for the difference between means, computed at 3.69 is significant at greater than the .01 level using a one-tailed test.

Data from the nurse and unit subscales on the Patient Attitude Scale are also given in Table 4. The nurse and unit subscales had pretest means of 16.33 and 13.06 respectively. The standard deviation for the pretest nurse subscore was 3.65 and for the pretest unit subscore
Table 4. Patient Attitude Pre- and Posttest Results Compared by t Test and Correlation

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pretests</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>29.4</td>
<td>16.33</td>
<td>13.06</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>5.926</td>
<td>3.658</td>
<td>2.549</td>
</tr>
<tr>
<td><strong>Posttests</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>34.66</td>
<td>19.80</td>
<td>14.73</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.655</td>
<td>3.448</td>
<td>2.314</td>
</tr>
<tr>
<td>t-Test</td>
<td>3.6</td>
<td>3.15</td>
<td>2.56</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Probability</td>
<td>&gt; .002</td>
<td>&gt; .007</td>
<td>&gt; .023</td>
</tr>
<tr>
<td>Correlation</td>
<td>+ .474</td>
<td>+ .283</td>
<td>+ .464</td>
</tr>
</tbody>
</table>

was 2.54. The posttest means and standard deviations were 19.80 and 3.44 for the nurse subscale and 14.73 and 2.31 for the unit subscale. The t test for the nurse subscale, computed at 3.15 is statistically significant at a point greater than the .01 level. For the unit subscale, the t of 2.56 is statistically significant at a point greater than the .02 level.

The third study hypothesis stated that high scores on the Institute for Personality and Ability Testing Anxiety
Scale are positively correlated to a significant degree with high scores on the Patient Attitude Scale.

A correlation coefficient of +.20, computed by using the Pearson product-moment correlation formula was obtained when pre- and posttest IPAT total scores were correlated with attitude scale pre- and posttest total scores. This coefficient is not statistically significant at .05 for a one-tailed test with twenty-eight degrees of freedom; therefore, the third hypothesis of this study was rejected.

Verran (1970) reported a correlation coefficient of +.72 for correlation of pre- and post-IPAT scores correlated with attitude scale pre- and post-total scores.

The mean of post-transfer attitude scores for patients transferred to an intermediate general care unit as reported by Verran (1970) was 48.70 and the standard deviation was 1.30. The mean of post-transfer attitude scale scores for patients transferred to the progressive coronary care unit was 34.66 and the standard deviation was 4.65. The t of 11.13 computed for the post-transfer attitude scale scores is statistically significant at greater than .01 with twenty-three degrees of freedom.

Comparison Between Increase in Anxiety and Possible Intervening Variables

In this section, the four variables of age, sex, previous hospitalizations, and length of time in the intensive coronary care unit are compared to the percent
of increase in total IPAT anxiety scores. This analysis is conducted in order to determine if one or more of the variables could be a factor associated with the higher anxiety scores after transfer.

For the analysis, the amount of increase between the pre- and posttest total anxiety scale scores for each subject was converted to a percent of increase over the subject's pretest score.

The percent of increase on the IPAT Anxiety Scale for each subject is given in Table 5. The remaining sections of the table give information on the mean and standard deviation for the variables of age, sex, hours in the intensive coronary care unit, and previous hospitalizations for each subject.

Age

A comparison was made between age and the percent of increase in total anxiety. From the r of +.65 which is statistically significant at greater than the specified level of .05, it would appear that there may be a significant relationship between these two variables. Verran (1970) reported an r of -.24 for age and percent of increase in IPAT score which was a slightly negative but insignificant relationship.
Table 5. Increases in Anxiety Scale Total Posttest Scales Compared with Variables of Age, Sex, Previous Hospitalizations, and Hours in the Intensive Coronary Care Unit

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Sex</th>
<th>Age</th>
<th>IPAT Pretest</th>
<th>IPAT Posttest</th>
<th>Amount Increase</th>
<th>Previous Hospitalizations</th>
<th>Hours in ICCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>m</td>
<td>71</td>
<td>30</td>
<td>26</td>
<td>-4</td>
<td>-15</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>m</td>
<td>56</td>
<td>33</td>
<td>30</td>
<td>-3</td>
<td>-10</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>m</td>
<td>69</td>
<td>37</td>
<td>46</td>
<td>+9</td>
<td>+19</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>m</td>
<td>50</td>
<td>49</td>
<td>42</td>
<td>-7</td>
<td>-16</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>m</td>
<td>49</td>
<td>23</td>
<td>20</td>
<td>-3</td>
<td>-15</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>m</td>
<td>74</td>
<td>23</td>
<td>27</td>
<td>+4</td>
<td>+14</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>m</td>
<td>75</td>
<td>25</td>
<td>31</td>
<td>+6</td>
<td>+19</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>m</td>
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<td>+17</td>
<td>3</td>
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<tr>
<td>6</td>
<td>f</td>
<td>72</td>
<td>26</td>
<td>37</td>
<td>+11</td>
<td>+29</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>f</td>
<td>78</td>
<td>20</td>
<td>28</td>
<td>+8</td>
<td>+29</td>
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<td>8</td>
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<td>f</td>
<td>51</td>
<td>39</td>
<td>41</td>
<td>+2</td>
<td>+5</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>f</td>
<td>62</td>
<td>44</td>
<td>50</td>
<td>+6</td>
<td>+12</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>f</td>
<td>67</td>
<td>44</td>
<td>57</td>
<td>+13</td>
<td>+23</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>f</td>
<td>71</td>
<td>26</td>
<td>30</td>
<td>+4</td>
<td>+13</td>
<td>3</td>
</tr>
</tbody>
</table>
Sex

Female subjects had a mean increase of 19 percent in total anxiety scores after transfer from the intensive coronary care unit, while men averaged an increase of only 1.6 percent. Cattell and Scheier (1963) have noted that women consistently average slightly higher than men in free anxiety level, and data from this study are congruous with their findings.

Previous Hospitalizations

There was a slight positive \( r = +.21 \), but insignificant relationship between the number of total previous hospitalizations and increased anxiety. Verran (1970) reported a similar correlation of +.25.

Length of Time in the Intensive Coronary Care Unit

The computed \( r \) for the number of hours in the intensive coronary care unit compared with the percent increase in total anxiety scores is \(-.10\). This \( r \) is not statistically significant at the specified level of .05. Verran (1970) reported an \( r \) of \(-.34\) for hours in the intensive coronary care unit compared with percent increase in total anxiety score.
Comparison of Sample with National Averages

The conversion of raw IPAT total scores for each subject into the sten system and percentiles are shown in Table 6. "Sten (standard ten) scales are fixed at a range of ten points, running from 1 to 10 in equal-interval units, on the assumption of an essentially normal distribution on a mean of 5.5" (Cattell and Scheier, 1963, p. 10). Standardized norm tables for the IPAT Anxiety Scale were used as a basis for this conversion (Cattell and Scheier, 1963).

Although data from IPAT tests have shown that women consistently average higher than males in free anxiety level and that anxiety begins to rise after ages 55-60 (Cattell and Scheier, 1963), no correction has been made for these factors in Table 6. This research attempts to ascertain the subject's level of anxiety relative to all others in the population and prefers to allow age and sex related differences to contribute freely to this level as they do in life,

A mean sten of 6 is computed on the pretest. This figure rises to 6.86 on the posttest. A sten of 6 is considered to be within the normal range. A sten of 7 is considered to be within the normal range, although at borderline of high (Cattell and Scheier, 1963, p. 13).
Table 6. Conversion of Total Anxiety Scores to Stens and Percentiles

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pretests</th>
<th></th>
<th></th>
<th>Posttests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw Score</td>
<td>Sten</td>
<td>Percentile</td>
<td>Raw Score</td>
<td>Sten</td>
<td>Percentile</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>6</td>
<td>60</td>
<td>26</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>33</td>
<td>6</td>
<td>60</td>
<td>30</td>
<td>6</td>
<td>60</td>
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<tr>
<td>3</td>
<td>37</td>
<td>7</td>
<td>77</td>
<td>46</td>
<td>9</td>
<td>96</td>
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<tr>
<td>4</td>
<td>49</td>
<td>9</td>
<td>96</td>
<td>42</td>
<td>8</td>
<td>89</td>
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<tr>
<td>5</td>
<td>23</td>
<td>5</td>
<td>40</td>
<td>20</td>
<td>4</td>
<td>23</td>
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<td>6</td>
<td>23</td>
<td>5</td>
<td>40</td>
<td>27</td>
<td>5</td>
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<tr>
<td>7</td>
<td>25</td>
<td>5</td>
<td>40</td>
<td>31</td>
<td>6</td>
<td>60</td>
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<tr>
<td>8</td>
<td>29</td>
<td>6</td>
<td>60</td>
<td>35</td>
<td>7</td>
<td>77</td>
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<td>9</td>
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<td>77</td>
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<td>10</td>
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<td>4</td>
<td>23</td>
<td>28</td>
<td>6</td>
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<td>11</td>
<td>29</td>
<td>6</td>
<td>60</td>
<td>37</td>
<td>7</td>
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<tr>
<td>12</td>
<td>39</td>
<td>7</td>
<td>77</td>
<td>41</td>
<td>8</td>
<td>89</td>
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<tr>
<td>13</td>
<td>44</td>
<td>8</td>
<td>89</td>
<td>50</td>
<td>9</td>
<td>96</td>
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<tr>
<td>14</td>
<td>44</td>
<td>8</td>
<td>89</td>
<td>57</td>
<td>10</td>
<td>92</td>
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<tr>
<td>15</td>
<td>26</td>
<td>5</td>
<td>40</td>
<td>30</td>
<td>6</td>
<td>60</td>
</tr>
</tbody>
</table>

Mean 31.80 6 59.4 35.80 6.86 62.5
Summary

A one-tailed student's t was computed for the differences between means of the test-retest IPAT Anxiety Scale total scores. The t, computed at 2.63 with fourteen degrees of freedom, was significant at greater than the .02 level.

The differences between posttest means for the IPAT Anxiety Scale of patients transferred to the progressive coronary care unit and the intermediate general care unit were analyzed by computing a t score. The t of 3.34 was statistically significant at greater than the .01 level.

A t was computed for test-retest Patient Attitude Scale scores. The t computed at 3.69 was significant at greater than the .01 level.

A Pearson product-moment correlation coefficient of +.20 was obtained when total IPAT raw scores were compared with total attitude raw scores. This coefficient was not statistically significant.

These analyses support the study's first two stated hypothesis but reject the third hypothesis.

There was no significant correlation when the variables of previous hospitalizations and length of time in the intensive coronary care unit were compared with the percent of increase in total anxiety scores for each subject. There was a significant r computed of +.65 when
the variable of age was compared with the total anxiety score of each subject.

When IPAT raw scores were converted to the sten system, a mean sten of 6 was computed for the pretest and 6.86 was computed for the posttest. Both of these stens are considered to be within normal range.
CHAPTER 5
DISCUSSION OF FINDINGS

The following chapter applies the theoretical framework described in Chapter 1 to the findings of the study and gives recommendations for further study.

Application of Theoretical Framework to Findings

Psychological stress theory is a useful tool for nurses to use when evaluating situations involved with illness and hospitalization. The situation of patients with coronary disease, cared for in an intensive coronary care unit, and a progressive coronary care unit, has been explored in this study.

Security, a need which exists in all humans, is threatened by illness and hospitalization and the newly admitted patient experiences a strong motivation to have his security needs met.

The intensive coronary care unit with a high nurse-patient ratio and extensive monitoring equipment apparently meets the need for security and anxiety levels remain fairly low. When a patient's needs are not met, he feels threatened and is placed in a situation of psychological stress. Anxiety results when environmental barriers block
the patient's usual coping mechanisms. If the patient's need for security is met by a psychological object, he develops a favorable attitude toward that object. When this need is not met the patient has a negative attitude toward the object considered responsible for the threat.

The findings of this research show that anxiety levels increase significantly after the patient is transferred from the intensive coronary care unit to the progressive coronary care unit. In addition, the analysis of the data from this research and that reported by Verran (1970) suggest that anxiety levels are significantly higher for patients transferred from the intensive coronary care unit to a general intermediate care unit than for patients transferred to a progressive coronary care unit. The patients studied generally had a more positive attitude toward the coronary care unit than the progressive coronary care unit and unfavorable attitudes increased as anxiety levels increased although the reported correlation between these two test means was statistically insignificant. Verran (1970) reported a highly significant correlation between increased anxiety levels and unfavorable attitude toward the nursing care unit. Based upon the theoretical framework of the study, these findings indicate that subjects did indeed feel threatened after their transfer from the intensive coronary care unit, however, the exact nature of the perceived threat remains unclear.
The theoretical framework of the study states that this felt threat is due to an unmet need, security, and the frustration that develops when access to usual coping mechanisms is blocked.

At a conference held by the American College of Cardiology and Presbyterian-University of Pennsylvania Medical Center, Pinneo (1965) stated that the nursing personnel of the coronary care unit, because they are in constant attendance, become the key to the unit's success. Cassem and Hackett (1971), George (1967), Imboden and Wynn (1965), and Sobel (1969) have also commented on the success of the coronary care unit nurses in the reduction of emotional tension and fear of patients on the intensive coronary care unit. These authors have identified that patients admitted to the intensive coronary care unit have a need for security that the nurses are able to satisfy by their constant vigilance and knowledge. Verran (1970) concluded that

... the high amount of increase in negative attitude, indicated by the posttest nurse subscore on the Patient Attitude Scale points out that patients were more dissatisfied with the nursing care they received on the intermediate care unit than with other aspects of the unit such as the design or the equipment. These patients experienced a sense of loss and they perceived a threat to security when the type of nursing care they received changed after their transfer to the intermediate care unit (p. 68).

The results of this study appear to at least partially support this conclusion; however, it is difficult to ignore
the statistically significant increase in unfavorable attitude of patients toward design and equipment of the unit after transfer from the intensive coronary care unit in addition to the more untoward attitude toward the type of nursing care. Also significant in this study was an increased anxiety level correlated with increased age of the patient.

In conclusion, the results of this research support the belief that transfer from an intensive coronary care unit to another unit (progressive coronary care unit or general intermediate care unit) can precipitate the perception of a threat to security and result in high anxiety. The study also supports the belief that the perceived threat may be related to a number of different variables associated with the transfer process and that further study is needed to determine the exact nature of the perceived threat.

Recommendations for Further Study

As health care becomes more specialized, the patient must of necessity become more mobil. Progressing from unit to unit, the patient comes in contact with an ever-increasing number of hospital personnel who, because of increased division of labor, can spend less and less time with him as he moves on. As a result of the patient's ever-increasing isolation from any continuous, meaningful, supportive relationship with the staff, reduction of fear and
anxiety associated with illness and hospitalization has become a complex problem (Downs, 1966).

Because of this increased patient mobility, it is important for nursing research to concentrate on the identification of (1) behavioral manifestations of increased anxiety, (2) methods to develop supportive relationships with patients, and (3) variables which increase the perception of threats to the security of the hospitalized patient. Research is needed into all phases of the progressive patient care concept, and especially in the area of patient reactions to transfer from nursing care unit to another.

The problems this research has investigated need to be explored with larger and more varied samples. An attempt should be made to re-examine the relationships of variables of age, sex, previous hospitalizations, and length of time in the unit to increased anxiety after transfer. A significant correlation between age and increased anxiety was identified in this study and this needs further research. Although no significant correlation was found in this study between previous hospitalizations and length of time in the unit and increased anxiety levels, the use of a larger sample could yield valuable information on these factors that have been suspect to predisposing higher anxiety levels after transfer. Other significant health problems in addition to the admitting diagnosis of the patient were not examined in this study and may significantly contribute to
increased anxiety levels after transfer. Variables of race and socioeconomic class were not considered in this research and a future attempt should be made to obtain varied enough samples so that these variables can be examined.

This research was conducted in a hospital with a specially designed intensive coronary care unit and progressive coronary care unit. Future studies should be conducted with a larger population in a variety of hospital settings.

All patients in this study were cared for by private physicians, but future studies should include patients who are cared for by a resident medical staff in a teaching or research hospital.

An experimental study designed to test the effect of nursing intervention for the patient in the intensive coronary care unit and how the nurse may actually foster feelings of dependency should be conducted.

A study of nursing measures that are positive in assisting the patient to adapt to the environmental and personnel changes inherent in the progressive care concept should be attempted.

In conclusion, recommendations for future nursing research include the following:

1. Research aimed at identifying common behavioral manifestations of increased anxiety.

2. Investigation of methods to develop supportive nurse-patient relationships under the conditions of
the progressive patient care concept including specialized nursing care and increased patient mobility within the hospital.

3. Investigation of patient reaction to transfer from and to other elements of progressive patient care.

4. Investigation of variables both within the care setting and the patient population which increase anxiety after transfer from one patient care area to another.

5. Replication of this study in different hospital settings and different arrangements for primary medical care assignments.

6. Replication of this study with larger and more heterogeneous samples.

7. Experimental study that explores the effects of nursing intervention on anxiety levels during the various stages of progressive care including the transfer process.
CHAPTER 6

SUMMARY

The study described in the preceding chapters applied Lazarus' (1966) psychological theory of stress to a specific nursing situation. This theory proposes that the common denominator of stress situations is a reaction to circumstances of threatening significance to the organism. Security is a basic need which becomes more pronounced during illness and hospitalization. An organism is motivated to maintain his secure status and if striving behavior is blocked by environmental obstacles, failure to adapt is manifested in a vague, uneasy feeling described as anxiety. The specific situation explored in this study involved the transfer of patients from an intensive specialized care area to an area of moderate but still specialized care.

Purpose of the Study

The purpose of the study was to further knowledge about the hospitalized patient's reactions to transfer from one patient care area to another. The concept of progressive patient care developed in the 1950's implies that patients are grouped together on different units according to their
need for medical and nursing care and are transferred from area to area as their condition changes.

Specifically, the study attempted to determine patient reactions to transfer from an intensive coronary care unit to a progressive coronary care unit and involved the investigation of changes in anxiety level and attitude toward the nursing unit and its personnel as two possible reactions to the move. The problems which were studied were: Do patients who are moved from an intensive coronary care unit have a significantly higher level of anxiety following transfer than before transfer? Do patients transferred from an intensive coronary care unit to a progressive coronary care unit have significantly lower levels of anxiety than patients transferred to a general intermediate care unit? Are measured anxiety levels related to the patient's positive or negative attitude toward each type of patient care unit?

These problems are significant because (1) the answers will affect the type of nursing care given; (2) of the deleterious effects that stress and anxiety have on the cardiovascular system, especially one that has already been compromised by disease; and (3) of the ever-increasing number of coronary care units and the numbers of patients who will be cared for in this manner.

The literature summarized in Chapter 2 testifies to the injurious effects of psychological stress on the
cardiovascular system. Articles by nurses and other health professionals indicate the feelings of security that patients may develop while in the intensive coronary care unit, the possible emotional and physiological responses to transfer, and the reasons for the development of the coronary care unit concept.

Although nurses have speculated on the effects of transfer, no nursing study has been published that attempts to investigate patient reactions to moving from one care unit to another.

Methodology

The design of the study involved pre- and post-transfer administration of two psychological testing devices. The measurement instruments used were the Institute for Personality and Ability Testing (IPAT) Anxiety Scale and the Patient Attitude Scale devised by Verran (1970). The IPAT Anxiety Scale is a forty-question test designed to measure free-floating manifest anxiety. The Patient Attitude Scale was designed to measure the patient's attitude toward the nursing unit and nursing personnel. The scale is a twenty-question Likert-type attitude scale from which three scores are obtainable—a total attitude score, a nurse subscore, and a unit subscore.

The sample for the study included fifteen patients who met the following criteria by being: admitted to the
intensive coronary care unit of the one 600-bed general hospital used in the study between March 3, 1975, and March 30, 1975; subsequently transferred to the progressive coronary care unit after being in the coronary care unit at least thirty-six hours; between the ages of thirty and eighty; under the care of one of the fourteen private physicians who consented to have patients included in the study; and literate in English and willing to participate in the study.

Findings

The specific hypotheses that were tested in this study were:

1. The mean of scores on the Institute for Personality and Ability (IPAT) Anxiety Scale is significantly higher after transfer from the intensive coronary care unit to the progressive coronary care unit than the mean of scores before transfer.

2. The mean of scores on the IPAT Anxiety Testing Scale (using results reported by Verran, 1970) is significantly higher after transfer from the intensive coronary care unit to the general medical intermediate care unit than the mean of scores after transfer to a progressive coronary care unit.
3. High scores on the IPAT Anxiety Scale are positively correlated to a significant degree with high scores on the Patient Attitude Scale used in this study.

A one-tailed Student's t was computed for the differences between means of the test-retest IPAT Anxiety Scale total scores. The t, computed at 2.63 with fourteen degrees of freedom, was significant at greater than the .02 level and supports the study's first hypothesis.

The differences between posttest means for the IPAT Anxiety Scale of patients transferred to the progressive coronary care unit and the intermediate general care unit were analyzed by computing a t score. The t of 3.34 was statistically significant at greater than the .01 level and supports the study's second hypothesis.

A Pearson product-moment correlation coefficient of +20 was obtained when total IPAT raw scores were compared with total attitude raw scores. This coefficient was not statistically significant and does not support the study's third hypothesis.

There was no significant correlation when the variables of previous hospitalizations and length of time in the intensive coronary care unit were compared with the per cent of increase in total anxiety scores for each subject, however there was a significant correlation between the variable of age and the total anxiety score of each subject.
The findings of this research show that anxiety levels increase significantly after the patient is transferred from the intensive coronary care unit to the progressive coronary care unit. In addition, the analysis of the data from this research and that reported by Verran (1970) suggest that anxiety levels are significantly higher for patients transferred from the intensive coronary care unit to a general intermediate care unit than for patients transferred to a progressive coronary care unit. Based upon the theoretical framework of the study, these findings indicate that subjects did indeed feel threatened after their transfer from the intensive coronary care unit, however, this perceived threat may be related to a number of different variables associated with the transfer process.

**Recommendations for Further Study**

Recommendations for future related nursing research include:

1. Research identifying common behavioral manifestations of increased anxiety.

2. Investigation of methods to develop supportive nurse-patient relationships under the conditions of the progressive patient care concept including specialized nursing care and increased patient mobility within the hospital.
3. Investigation of patient reaction to transfer from and to other elements of progressive patient care.

4. Investigation of variables both within the care setting and the patient population which increase anxiety after transfer from one patient care area to another.

5. Replication of this study in different hospital settings and different arrangements for primary medical care assignments.

6. Replication of this study with larger and more heterogeneous samples.

7. Experimental study that explores the effects of nursing intervention on anxiety levels during the various stages of progressive care including the transfer process.
APPENDIX A

INSTITUTE FOR PERSONALITY AND ABILITY TESTING (IPAT) ANXIETY SCALE
1. I find that my interests, in people and amusements, tend to change fairly rapidly.

2. If people think poorly of me I can still go on quite serenely in my own mind.

3. I like to wait till I am sure that what I am saying is correct, before I put forward an argument.

4. I am inclined to let my actions get swayed by feelings of jealousy.

5. If I had my life to live over again I would:
   (A) plan very differently, (B) want it the same.

6. I admire my parents in all important matters.

7. I find it hard to “take ‘no’ for an answer”, even when I know what I ask is impossible.

8. I doubt the honesty of people who are more friendly than I would naturally expect them to be.

9. In demanding and enforcing obedience my parents (or guardians) were: (A) always very reasonable, (B) often unreasonable.

10. I need my friends more than they seem to need me.

11. I feel sure that I could “pull myself together” to deal with an emergency.

12. As a child I was afraid of the dark.

13. People sometimes tell me that I show my excitement in voice and manner too obviously.

14. If people take advantage of my friendliness I:
   (A) soon forget and forgive, (B) resent it and hold it against them.

15. I find myself upset rather than helped by the kind of personal criticism that many people make.

16. Often I get angry with people too quickly.

17. I feel restless as if I want something but do not know what.

18. I sometimes doubt whether people I am talking to are really interested in what I am saying.

19. I have always been free from any vague feelings of ill-health, such as obscure pains, digestive upsets, awareness of heart action, etc.

20. In discussion with some people, I get so annoyed that I can hardly trust myself to speak.

CONTINUE ON NEXT PAGE.
21. Through getting tense I use up more energy than most people in getting things done .......................................................... True  Uncertain False

22. I make a point of not being absent-minded or forgetful of details .... True  Uncertain False

23. However difficult and unpleasant the obstacles, I always stick to my original intentions .......................................................... Yes  In between No

24. I tend to get over-excited and “rattled” in upsetting situations ........ True  Uncertain False

25. I occasionally have vivid dreams that disturb my sleep ................. True  Uncertain False

26. I always have enough energy when faced with difficulties ....................... Yes  In between No

27. I sometimes feel compelled to count things for no particular purpose .... True  Uncertain False

28. Most people are a little queer mentally, though they do not like to admit it .................................................................True  Uncertain False

29. If I make an awkward social mistake I can soon forget it .............. True  Uncertain False

30. I feel grouchy and just do not want to see people: (A) occasionally, (B) rather often .......................................................... A  In between B

31. I am brought almost to tears by having things go wrong .............. True  Uncertain False

32. In the midst of social groups I am nevertheless sometimes overcome by feelings of loneliness and worthlessness ................. True  Uncertain False

33. I wake in the night and, through worry, have some difficulty in sleeping again ................................................................. Sometimes  In between Never

34. My spirits generally stay high no matter how many troubles I meet .... True  Uncertain False

35. I sometimes get feelings of guilt or remorse over quite small matters... True  Uncertain False

36. My nerves get on edge so that certain sounds, e.g., a screechy hinge, are unbearable and give me the shivers .................................. Often  Sometimes Never

37. If something badly upsets me I generally calm down again quite quickly ................................................................. True  Uncertain False

38. I tend to tremble or perspire when I think of a difficult task ahead .... True  Uncertain False

39. I usually fall asleep quickly, in a few minutes, when I go to bed ........ True  Uncertain False

40. I sometimes get in a state of tension or turmoil as I think over my recent concerns and interests ................................................................. True  Uncertain False

STOP HERE. BE SURE YOU HAVE ANSWERED EVERY QUESTION.
APPENDIX B

PATIENT ATTITUDE SCALE

Directions: Read each item below carefully and check the phrase at the right that most nearly expresses your feeling about the statement at this time. Do not spend too much time on any item.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This is a cheerful room.</td>
<td></td>
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<td></td>
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<tr>
<td>2. I feel safe and secure here.</td>
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<tr>
<td>3. The nurses seem to have a good knowledge of my condition.</td>
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<tr>
<td>4. I feel that I'm getting the kind of care I need most at this time.</td>
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<tr>
<td>5. I'm expected to do too much for myself.</td>
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<tr>
<td>6. The nurses seem more interested in the equipment than in me.</td>
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<tr>
<td>7. It takes too long before I get what I ask for.</td>
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<tr>
<td>8. The nurses here are interested in me as a person.</td>
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<td>9. My light is answered promptly.</td>
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<tr>
<td>10. Being in this unit helps me get well faster.</td>
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<tr>
<td>11. The nurses do not seem self-assured.</td>
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<tr>
<td>12. I find it difficult to sleep in this unit.</td>
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<tr>
<td>13. The nurses never seem to know the answers to my questions.</td>
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<tr>
<td>14. The nurses appear to have a good knowledge of the equipment in this unit.</td>
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<td>15. The staff gives me good nursing care.</td>
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<td>16. I hate to ask the nurses for anything.</td>
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<td>17. I don't get enough rest here.</td>
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<tr>
<td>18. In caring for me, the nurses appear sure of themselves.</td>
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<tr>
<td>19. My visitors don't get to stay long enough.</td>
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<tr>
<td>20. I feel completely isolated in this unit.</td>
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</tbody>
</table>
APPENDIX C

SAMPLE RAW DATA SHEET

Case Number__________ Permission Obtained__________
Physician ____________ Permission Obtained__________
Age__________________ Sex_______________________
Diagnosis_______________________________________
Previous Hospitalizations______ Similar Diagnosis ____
Admitted to C.C.U.___________ Room Number__________
Transferred from C.C.U._______ To: Unit____Rm._____
Length of time in C.C.U.____________________________

Pre-Transfer Tests
Time Administered ________ Hours After Admission______
IPAT: Total Score_________ Attitude Scale: Total ____
   A_____ B_______ Nurse_____ Unit_____

Post-Transfer Tests
Time Administered__________ Hours After Transfer______
IPAT: Total score__________ Attitude Scale: Total ____
   A_____ B_______ Nurse_____ Unit_____


APPENDIX D

SUBJECT CONSENT

Patient Responses to Intensive and Progressive Coronary Care

This study is designed to test patients' responses to intensive and progressive coronary care, especially their reactions to the nurses and the environment of the ward.

It involves taking two paper and pencil tests which will take approximately twenty minutes to complete. On these tests you are asked to respond yes or no--agree or disagree--to a number of statements which best describe your history or current reactions to various situations.

You are free to decide whether or not you will participate in this study. The researcher will be present the full time you are taking the tests and you are free to ask any questions you wish. You may refuse to answer any questions individually or as a group. You may refuse to participate in this study or withdraw from the study at any time and this will in no way affect the care you receive.

All information from this study will remain strictly confidential. All cases will be assigned a number, no names will be used, and no reference will be made to any specific patient. All data from the study will be used as group information.

The two tests to be used require a minimal amount of energy and should not provide any discomfort to you. Consent from your physician for you to participate in this study will also be obtained.

This study does not involve any cost to you.

If you are willing to participate in this study, please sign below.

Date:________________ Signature__________________

Researcher__________________
Witness__________________

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REFERENCES


