PATIENT RESPONSE TO TRANSFER FROM THE
CORONARY CARE UNIT

by
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August 8, 1970
DEDICATION

This manuscript is fondly dedicated to the memory of my father,

MELVIN ROY VERRAN

who, with a grade-school background, impressed upon his daughter the value of education and the pursuit of knowledge, no matter how small.
ACKNOWLEDGMENTS

Individual contributions to this work are many and far too numerous to mention but a few people deserve the special notice given them here.

The researcher would like to acknowledge the willing cooperation and advice of her thesis committee: Dr. Arlene Putt, Chairman; Mrs. Mary Shields; and Miss Inez Armstrong.

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF ILLUSTRATIONS</td>
<td>ix</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>x</td>
</tr>
</tbody>
</table>

## CHAPTER

1. **PRESENTATION OF THE PROBLEM**

   - Statement of the Problem                       | 2     |
   - Hypotheses to be Tested                         | 3     |
   - Theoretical Framework                           | 4     |
   - General Theory                                  | 4     |
   - Application of Theory to Research Situation     | 6     |
   - Assumptions                                     | 8     |
   - Definitions                                     | 8     |
   - Nursing Unit                                    | 8     |
   - Coronary Care Unit                              | 8     |
   - Intermediate Care Unit                          | 9     |
   - Stress                                           | 9     |
   - Anxiety                                         | 9     |
   - Attitude                                        | 9     |
   - Attitude Toward Nursing Unit                    | 10    |
   - Professional Nurse Researcher                   | 10    |
   - Limitations                                     | 10    |
   - Organization of the Study                       | 11    |

2. **REVIEW OF LITERATURE**

   - Effects of Anxiety                              | 13    |
   - Progressive Patient Care and Coronary Care      | 16    |

3. **RESEARCH PROCEDURES**

   - Design of the Study                             | 20    |
   - Measurement Instruments                         | 21    |
   - Measure of Anxiety                              | 22    |
   - Measure of Attitude                             | 23    |
   - Target Population and Study Sample              | 26    |
TABLE OF CONTENTS—Continued

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test of Design</td>
<td>27</td>
</tr>
<tr>
<td>Analysis of Data</td>
<td>27</td>
</tr>
<tr>
<td><strong>4. PRESENTATION AND ANALYSIS OF DATA</strong></td>
<td>29</td>
</tr>
<tr>
<td>Results of Item Analysis</td>
<td>29</td>
</tr>
<tr>
<td>Characteristics of the Sample</td>
<td>30</td>
</tr>
<tr>
<td>Findings Relating to the First Hypothesis</td>
<td>33</td>
</tr>
<tr>
<td>Findings Relating to the Second Hypothesis</td>
<td>36</td>
</tr>
<tr>
<td>Comparison Between Increase in Anxiety and Possible Intervening Variables</td>
<td>38</td>
</tr>
<tr>
<td>Age</td>
<td>40</td>
</tr>
<tr>
<td>Sex</td>
<td>40</td>
</tr>
<tr>
<td>Previous Hospitalizations</td>
<td>40</td>
</tr>
<tr>
<td>Length of Time in Coronary Care Unit</td>
<td>44</td>
</tr>
<tr>
<td>Comparison of Sample with National Averages</td>
<td>44</td>
</tr>
<tr>
<td>Summary</td>
<td>47</td>
</tr>
<tr>
<td><strong>5. DISCUSSION OF FINDINGS</strong></td>
<td>49</td>
</tr>
<tr>
<td>Application of Findings to Theoretical Framework</td>
<td>49</td>
</tr>
<tr>
<td>Recommendations for Further Study</td>
<td>52</td>
</tr>
<tr>
<td><strong>6. SUMMARY</strong></td>
<td>55</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>55</td>
</tr>
<tr>
<td>Methodology</td>
<td>57</td>
</tr>
<tr>
<td>Findings</td>
<td>58</td>
</tr>
<tr>
<td>Conclusions</td>
<td>60</td>
</tr>
<tr>
<td><strong>APPENDIX A. INSTITUTE FOR PERSONALITY AND ABILITY TESTING (IPAT) ANXIETY SCALE</strong></td>
<td>62</td>
</tr>
<tr>
<td><strong>APPENDIX B. PATIENT ATTITUDE SCALE</strong></td>
<td>65</td>
</tr>
<tr>
<td><strong>APPENDIX C. SAMPLE RAW DATA SHEET</strong></td>
<td>67</td>
</tr>
<tr>
<td>REFERENCES CITED</td>
<td>68</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Item Analysis of Patient Attitude Scale</td>
<td>31</td>
</tr>
<tr>
<td>2. Characteristics of Sample</td>
<td>32</td>
</tr>
<tr>
<td>3. IPAT Anxiety Scale Pre- and Post-Test Results Compared by t Test and Correlation</td>
<td>34</td>
</tr>
<tr>
<td>4. Patient Attitude Scale Pre- and Post-Test Results Compared by t Test and Correlation</td>
<td>37</td>
</tr>
<tr>
<td>5. Increases in Anxiety Scale Total Post-Test Scores Compared With Variables of Age, Sex, Previous Hospitalizations, and Hours in Coronary Care Unit</td>
<td>41</td>
</tr>
<tr>
<td>6. Conversion of Total Anxiety Scores to Stens and Percentiles</td>
<td>46</td>
</tr>
</tbody>
</table>
## LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Diagram of General Theory</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>Diagram of Specific Application of Theory</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Scattergram for IPAT Scores Compared with Attitude Scale Scores ($r = +.72$)</td>
<td>39</td>
</tr>
<tr>
<td>4.</td>
<td>Scattergram Comparing Increase in Total Anxiety Scores with Age</td>
<td>42</td>
</tr>
<tr>
<td>5.</td>
<td>Scattergram Comparing Increases in Total Anxiety Score with Total Previous Hospitalizations</td>
<td>43</td>
</tr>
<tr>
<td>6.</td>
<td>Scattergram Comparing Increase in Total Anxiety Score with Number of Hours in the Coronary Care Unit</td>
<td>45</td>
</tr>
</tbody>
</table>
ABSTRACT

Psychological stress theory was used as a framework in determining whether transfer from a coronary care unit to an intermediate care unit resulted in increased anxiety levels and a more negative attitude toward the intermediate care unit.

Ten patients were given pre- and post-transfer psychological tests of anxiety and attitude. The findings supported the hypotheses that anxiety is significantly higher after transfer, and that higher anxiety levels are positively associated with more negative attitudes toward the intermediate care unit.

The study's results support the belief that transfer from an intensive coronary care unit to an intermediate care unit can precipitate the perception of a threat to security and result in high levels of anxiety. The threat associated with this move is perceived to be related to the change in nursing care the patient receives. The change in nursing care and the type of unit after transfer leads to more negative attitudes toward the intermediate care unit than toward the coronary care unit.

Recommendations for further study include the replication of this research in different settings with larger, more heterogenous samples and experiments conducted
to test the effectiveness of nursing intervention on the reduction of anxiety.
CHAPTER 1

PRESENTATION OF THE PROBLEM

In the late 1950's, the concept of progressive patient care presented a challenge to hospitals and health agencies. The central theme of this concept is that by organizing facilities, services, and staff around the medical and nursing needs of the patient, better care can be given (Haldeman, 1959). Patients are grouped according to their illness and need for care. Five elements are usually associated with progressive patient care in the general hospital: intensive care, intermediate care, self-care, long-term care, and home care programs. Today most hospitals have at least intensive care and intermediate care incorporated into their structures.

A relatively new development in the trend toward progressive patient care is the establishment of the coronary care unit, defined by Meltzer, Pinneo, and Kitchell (1965) as a system for preventing deaths from the complications of coronary heart disease, primarily by means of specialized nursing. Since the first unit at Bethany Hospital in Kansas City, which was opened in May, 1962, the concept of coronary care has been accepted as an
integral part of the hospital setting (Public Health Department, 1967).

The purpose of this study is to further knowledge about hospitalized patients' reactions to transfer from one patient area to another as the concept of progressive patient care implies. Specifically, the study attempts to ascertain patient reactions to transfer from an intensive coronary care unit to an intermediate care area.

Statement of the Problem

This study involves the investigation of two possible patient reactions to transfer from one patient care unit to another--anxiety level and attitude toward the unit. The research attempts to answer the following questions: Do patients who are moved from an intensive coronary care area to an intermediate care unit have a higher level of anxiety following the transfer than before the transfer? Are measured anxiety levels related to the patient's positive or negative attitude toward each type of patient care unit?

The problems this research seeks to solve are significant to nursing because the answers will affect the type of nursing care given to patients before and after they are moved from the coronary care unit.
The problems are significant to the patients because of the effects that a state of emotional tension and anxiety can have on cardiovascular functioning.

Finally, the problems are also significant because of the increasing number of coronary care units that are opening. As more and more hospitals incorporate the coronary care concept into their structure, the problems associated with transfer will become more and more important to the patient, his family, and the medical and nursing staffs.

For nursing to neglect the study of emotional factors, specifically anxiety, associated with transfer from the coronary care unit to the general ward, would mean the omission of an essential part of the clinical picture which enters into the care and treatment of the patient with coronary disease.

**Hypotheses to be Tested**

The following hypotheses will be tested in this study:

1. The mean of scores on the Institute for Personality and Ability Testing (IPAT) Anxiety Scale is significantly higher after transfer from the coronary care unit than the mean of scores before transfer.
2. High scores on the Institute for Personality and Ability Testing (IPAT) Anxiety Scale are positively correlated to a significant degree with high scores on the Patient Attitude Scale as used in this study.

The first hypothesis will help answer the first problem of the study and the second hypothesis will help answer the second problem of the study.

Theoretical Framework

The general framework within which the research is conducted is a theory of psychological stress based on the work of Lazarus (1966). In the following sections this general theory is defined and applied to the specific research situation.

General Theory

Psychological stress theory proposes that the common denominator of stress situations is reaction to circumstances of threatening significance to the organism (Lazarus, 1966). The characteristics of a situation acting as a stimulus may activate, but do not determine the nature of the physiological response. The exact response will depend upon the way the threatened organism perceives the situation. Lagerlof (1967) stated that anxiety is often aroused when a person does not know how to handle a
threatening situation or perceives that his usual modes of action are blocked by obstacles.

Psychological studies have shown that a feeling of security is an important need in modern complex societies (Morgan and King, 1966). This feeling involves being able to hold on to what one has and being sure that one will fare as well in the future as in the past. In a society as highly organized as Western culture, a person depends upon many other people and upon conditions in general for his security. 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.

Since security is a basic need, an organism is motivated to maintain his secure status if it is threatened. Deprivation of a basic human need is usually accompanied by a striving to reach a goal that would appear to satisfy the need. If striving behavior of a motivated organism is perceived to be blocked or thwarted by obstacles, the organism is placed under further stress. Stress caused by barriers in the environment can be termed environmental stress. Figure 1 is a diagrammatical representation of this general theory of psychological stress with striving behavior blocked by environmental obstacles.
Application of Theory to Research Situation

This study applies psychological theory of stress to the patient transferred from an intensive coronary care unit to an intermediate care area. The researcher proposes that the patient from a coronary care unit perceives that his physical security is threatened when he is cared for on an intermediate care area. Intensive nursing care, as received in the coronary care unit gives the patient a feeling of physical security. He perceives this security as threatened when he is transferred to a unit where his care is less intensive. The patient's ability to recognize the change in this type and degree of care he receives is reflected in his attitude toward the patient unit. The patient is unable to reduce the threat to his security because he is dependent on the hospital and its environment for his care. His usual methods of coping with environmental stress are inadequate in this situation for two reasons: (1) he is physically unable to remove himself from the threat because of his illness, and (2) 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 patient responds to this situation with an increased anxiety level as measured by psychological testing devices.

In this research, a high anxiety level after transfer from a coronary care unit will be considered to be an indication of the patient's response to stress resulting from a threat to his security with which he is unable to cope. A negative attitude toward the intermediate patient care 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 2 shows the application of psychological stress theory to the specific situation of transfer from the coronary care unit.

Figure 2. Diagram of Specific Application of Theory
Assumptions

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

1. Patients in a coronary care unit receive a more intensive, individualized type of nursing care than do patients on an intermediate care unit.
2. This intensive care gives the patient a feeling of physical and psychological security.
3. Policies for care as established by the coronary care unit are inacted for each patient in the unit.

Definitions

For the purposes of this study, the following definitions of terms are used.

Nursing Unit

A nursing unit, as utilized in this research study is considered to be any self-contained patient care area.

Coronary Care Unit

A coronary care unit is a separate area within the hospital, specifically designed, equipped, and staffed to meet all the anticipated needs of the patient with coronary disease. It is composed of private rooms and staffed by registered nurses and licensed practical nurses at a ratio of two patients to one nurse.
Intermediate Care Unit

An intermediate care unit is a general medical area for the patient whose condition has stabilized and who requires remedial care. Rooms are semi-private and the staff is composed of registered nurses, licensed practical nurses, and nursing aides. Ratios of nursing staff to patients is far lower than in the coronary care unit, but this ratio varies from day to day and shift to shift.

Stress

Stress has been used to refer to the factors that evoke a certain physiological or psychological state as well as the states thus evoked. In this study, the term is used to mean the state caused by situations of threatening or disruptive significance to the organism.

Anxiety

Anxiety refers to one consequence of stress and is defined as "the free-floating manifest concern or uneasiness" (Cattell and Scheier, 1963, p. 13) as measured by the Institute for Personality and Ability Testing (IPAT) Anxiety Scale.

Attitude

Attitude is the "degree of positive or negative affect associated with some psychological object" (Edwards, 1957, 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.

Attitude Toward 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.

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 seven years experience in medical nursing at a large general hospital in a major metropolitan area.

Limitations

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

1. The study is a field experiment with limitations on the control of variables.

2. The study sample is composed of ten patients admitted to a coronary care unit of one general hospital in one urban community during a sixty day
period, who met the sample criteria and who agreed to participate in the study.

3. The patients were under the care of one of six physicians chosen on the basis of their use of the coronary care unit in the hospital selected.

4. The patient received the type of hospital care as given on each nursing unit and the researcher had no control over this care.

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

Organization of the Study

This chapter has delineated the background concepts of progressive patient care and coronary care, the problems to be studied, hypotheses to be tested, and the theoretical framework within which the research will be conducted.

The following chapter reviews literature related to the effects of anxiety on the cardiovascular system and literature relating to transfer from progressive patient care units, purposes of coronary care, and the nursing care received in these units.

Chapter 3 discusses the research design, the measurement instruments selected for use, and the study sample.

Chapter 4 presents and analyzes the data collected during the research.
Chapter 5 relates the findings of the study to the theoretical framework. Recommendations for further study are also presented in this chapter.

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

The following chapter reports on two areas of published material that relate to the problems of this study. First, pertinent studies on the effects of anxiety on the cardiovascular system are reviewed. Next, there is a discussion of articles and studies relating directly to the coronary care unit and progressive patient care.

Effects of Anxiety

Morris (1935) conducted a study to compare a state of excitement to a state of calm in regards to the physiological variables of pulse, blood pressure, and blood sugar. Morris' findings indicated that hyperglycemia develops in prolonged and severe emotional excitement; systolic blood pressure increases with slight excitement and there are less consistent but definite rises in diastolic blood pressure.

Dreyfuss and Czaczkes (1959) and Wolff, as reported in Wolf and Goodell (1968), found that blood cholesterol increases correlated significantly with periods of emotional stress. In the first study, serum cholesterol levels were higher in twenty out of twenty-one medical students during
their final examination than the same levels in a control test.

Wolf and Wolff (1946) made day to day observations for more than a year on a limited number of subjects. Their emphasis, in this study, was on the reactions of the subjects to persistent low-grade stresses and strains that are a part of everyday living. The results show that responses of the cardiovascular system to stress-producing situations include a change in the heart rate, rise in the blood pressure, and an increase in cardiac output. The authors concluded that these findings indicate costly coronary performance when the individual is placed in an emotional situation.

Ax (1953) conducted a study to determine the physiological differences between fear and anger. The results show the existence of two reaction patterns. Anger stimulates a combination of an epinephrine and a non-epinephrine response, while fear stimulates an epinephrine-like response. The author concluded that these results give further evidence to the psychophysiological unity of the body since even the finest psychological events have a differentiation at the physiological level.

Jost et al. (1952) obtained results similar to those of Ax, while attempting to measure the central and automatic nervous systems' activity under physical and psychic (frustration) stress. Their findings showed that
the physiologic changes of increased heart and respiratory rates occurred during periods of psychic stress.

In summarizing research into the physiological effects of stress on cardiovascular response, Caffrey (1967) stated that "... consistent relationships are found between intrapersonal 'stress' and parameters theoretically related to coronary heart disease" (p. 129).

Weiss et al. (1957) after studying forty-three patients with coronary occlusion, concluded that gradually mounting stress and acute emotional stress play a definite role in precipitating a coronary attack.

A study of one hundred patients by Russek (1959) disclosed that a period of prolonged emotional strain associated with occupational responsibilities preceded the coronary attack in ninety-one out of the one hundred patients.

Cleveland and Johnson (1962) administered psychological tests to twenty-five young males hospitalized for a recent myocardial infarction and discovered that the men studied had a great deal of anxiety and fear mobilized about the threat of death and/or the loss of physical capacity.

The reports summarized above indicate the deleterious effects that anxiety or a state of prolonged stress can have on the cardiovascular system. Two studies have been cited that point to prolonged fear and stress as
factors that precipitate a coronary attack. In addition, one study noted that patients convalescing from a myocardial infarction were fearful and anxious over the threat of death or possible incapacitation.

**Progressive Patient Care and Coronary Care**

Pinneo (1967) pointed out that the primary reason for the popularity of the coronary care unit is that lives have been saved through its use.

A study conducted at Presbyterian Hospital in Philadelphia by Meltzer (1967) found that patients receiving the specialized care of the coronary care unit had a 30 percent lower death rate than did those treated under normal hospital conditions.

Lown et al. (1967) reported on research of one hundred eighty patients in a coronary care unit. The results of this study supported the thesis that if arrhythmias are controlled, sudden and unexpected deaths from arrhythmias can be nearly completely prevented.

Progressive patient care does provide better health service, but Abdellah and Strachan (1959) stated that it is easier to determine the patient's physical readiness to move to another unit than it is to determine his emotional readiness. For this reason, some patients may be moved while they are still emotionally unprepared for the transfer.
George (1967) remarked that the patient from an intensive care unit or a coronary care unit may find his security threatened on the general ward where the majority of his care is given by aides rather than the registered nurses with whom he had been surrounded in the other unit.

Kornfeld, Maxwell, and Morrow (1968) reported that patients discharged from the coronary care unit suffered from insomnia, restlessness, irritability, and unnecessary dependence. In another study Druss and Kornfeld (1967) found that twenty patients who had been treated in a coronary care unit showed long-standing emotional problems including insomnia, irritability, and activity restrictions beyond what was medically appropriate.

Klein et al. (1968) conducted a study of fourteen patients from the coronary care unit in which seven patients exhibited an emotional reaction and cardiovascular complications on the general ward. The seven patients who received a treatment, designed to reduce stress, before and after transfer, showed no adverse effects on the general ward. The treatment used included preparation in advance and follow-up care by a nurse and physician from the coronary care unit. The authors concluded that psychological stress in the immediate post infarct period may increase adrenergic nervous activity and contribute to cardiovascular complications.
Cassem et al. (1970) in a recent study of one hundred patients, found that 50 percent of patients transferred from the coronary care unit experienced a sense of loss upon leaving the unit. The authors concluded that the constant vigilance of the coronary care unit nurse, more than any other factor, provided the patient with a sense of security from harm.

Sobel (1969) stated that the nurses in the coronary care unit responded to their patients in a personal, rather than mechanized, manner, and that they were open to the emotional as well as the physical discomfort of the patient.

Pinneo (1965) noted that patients from the coronary care unit indicated that they derived security and confidence from cardiac monitoring and that their needs were immediately met by the nurses who showed good judgment and gave excellent nursing care.

Imboden and Wynn (1965) indicated that the nurse-patient relationship developed in the coronary care unit is one of trust because the patient is aware that the nurse will be the first person to respond to his immediate needs.

George (1966) noted that the patient in a coronary care unit soon learns that at any time the cardiac monitor alarm is triggered he has instant nursing attention. Some patients become dependent on this constant vigilance and exhibit various physiological and psychological reactions when transferred from the unit.
The articles surveyed above point out the security patients develop while in the coronary care unit, the possible emotional and physiological responses to transfer, and the reasons for the development of the coronary care concept.

Although nurses have speculated on the effects of transfer, no nursing study has been published that attempts to investigate patient reaction to leaving a unit that provides some type of intensive nursing care.

The few studies that have been reported in the literature relating to the specific problems of this research have also been reviewed above. These reports have either studied physiological stress or have used physiological indices to measure psychological stress. Unstructured interview techniques were also used in conjunction with these physiological measures.
CHAPTER 3

RESEARCH PROCEDURES

This study concentrates on the transfer of patients from a coronary care unit to an intermediate care area and the development of anxiety. It is hypothesized that anxiety levels will be lower in the coronary care unit than the intermediate care unit and that these lower levels are associated with more favorable attitudes toward the coronary unit. This chapter will describe the design, the procedures, and the instruments used to achieve the purpose of the study.

Design of the Study

To test the reactions of patients moved from a coronary care unit a design involving the administration of pre-transfer and post-transfer tests was selected. This design allowed a comparison between anxiety levels and attitude while in the coronary care unit and after transfer to an intermediate care unit.

Anxiety levels were measured with the IPAT Anxiety Scale which was administered pre- and post-transfer. Attitudes were measured by a Likert-type attitude scale, devised by the researcher, administered at the same time as the IPAT Anxiety Scale.
The pre-transfer tests were given at least thirty-six hours after the patient had been in the coronary care unit, in order to give him time to become accustomed to the unit and the type of nursing care. In addition, the researcher believed that the initial impact of the diagnosis would be lessened after a period of thirty-six hours had elapsed. Since transfers were usually unplanned, it was impossible to set a time-span before the actual transfer for the administration of pre-tests. Patients were moved from the coronary care unit as the need for space demanded and as their condition improved. Tests were self-administered by the patients and, therefore, were given at the first point 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.

**Measurement Instruments**

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

The IPAT Anxiety Scale is based on extensive statistical, factor analytic research with normal and clinical cases, leading to a knowledge of anxiety structure. The test is in questionnaire form, is practically self-administering, and takes only five to ten minutes of the patient's time (Cattell and Scheier, 1963).

Cohen (1965) reported that the IPAT Anxiety Scale has no peer as a quick measure of anxiety and Cooley and Hutton (1965) found a test-retest coefficient of +.78 over a three day interval.

The IPAT Anxiety Scale, which is shown in Appendix A, consists of forty questions distributed among five anxiety components. The scores obtained from the scale consist of: (1) a total anxiety score composed of all forty items; (2) a covert or hidden anxiety score composed of the first twenty test items (A score); (3) an overt, symptomatic, or conscious anxiety score composed of the last twenty test items (B score); (4) a lack of self sentiment or defective integration score composed of questions 1-4 and 21-24 (Q3); (5) an ego weakness score composed of items 5-7 and 25-27 (C); (6) a paranoid insecurity score composed of items 8, 9, 28, and 29 (L); (7) a guilt proneness score composed of items 10-15 and 30-35 (O); and (8) a frustration tension or id pressure score composed of items 16-20 and 36-40 (Q4).
Measure of Attitude

The Patient Attitude Scale, constructed by the researcher, is designed to measure the patient's attitude toward both the coronary care unit and the intermediate care unit. Edwards (1957) has stated that attitude scales provide a quick and convenient measure of attitudes and give an efficient means of obtaining an assessment of the degree of effect that individuals may associate with some psychological object.

A Likert-type attitude scale is a summated scale consisting of a series of statements or items to which the subject is asked to react along a continuum. The nature of the continuum is inferred from the type of statements which compose the scale (Palmer, 1965).

The Patient Attitude Scale was constructed by first selecting the type of continuum appropriate for the variable being measured. The continuum selected to measure the patient's attitude toward the unit was agreement-disagreement.

A five-point scale was used in order to obtain an 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 toward the unit.

Statements for the scale were obtained from the personal observation of the researcher, the experience of
associates, and literature on the attitude being measured. Both negative and positive items were included on the scale, therefore, agreement with some statements indicated a favorable attitude, while agreement with others indicated an unfavorable attitude.

A patient's attitude toward a unit may be considered a composite of his opinions on the nursing staff, the care they give, the equipment in the unit, and the design of the unit. Statements selected for the scale reflect the patient's opinions on these items.

Forty statements were submitted to a panel of professional nurse judges with working experience in units similar to those in the study. Each nurse on the panel had her baccalaureate degree in nursing. Three of the judges were enrolled in a Master's program in nursing and two were working toward a doctoral degree in sociology. The content validity of the scale was established on the basis of the opinions of these panel members. Twenty statements chosen by the unanimous vote of the judges were included in the final attitude scale administered to the study sample.

The equal-appearing interval method of scoring was used with the Patient Attitude Scale. This method treats item responses as though the distances between them were equal and the weights are uniform for all items (Palmer, 1965). Researchers (Murphy and Likert, 1938; Runquist and Sletto, 1936) have found little distortion when scoring
summated scales by the method of equal intervals. Edwards (1957) stated that an examination of past evidence shows that scales constructed by the method of summated ratings will give reliability coefficients as high or higher than those from scales constructed by the method of equal-appearing intervals.

The twenty scale items, shown in Appendix B, yield three possible scores: (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 sum of the weights of responses to items 1, 2, 10, 12, 17, 19, and 20 is the unit subscore and is considered the patient's attitude toward the design and equipment of the unit. The nurse subscore is the sum of the weights of responses to all other scale items and is the patient's attitude toward the nursing staff and the care they give.

The internal consistency of the scale was determined by an item analysis done after it had been given to the patients in the study. Using a procedure described by Selltiz et al. (1959) the completed papers were divided into two groups—those scored high and those scored low—on the basis of the total score. For an item to be considered consistent with the complete set of items, the proportion of low scorers who answered the item favorably had
to be significantly different from the corresponding proportion of high scorers. The data obtained from the resulting analysis is reported in Chapter 4.

**Target Population and Study Sample**

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

1. Admitted to the coronary care unit of the one 475-bed general hospital to be used in the study, between February 4, 1970 and April 16, 1970.
2. Between the ages of 20-70.
3. Under the care of one of the six physicians who consented to have patients included in the study.
4. Literate in English and willing to participate in the study.
5. Transferred to an intermediate care unit after being in the coronary care unit for at least thirty-six hours.

A total of fourteen patients met these criteria and were the selected study sample. Four of these patients were not included in the final sample for the following reasons: two patients were transferred from the coronary care unit before pre-tests could be administered; one patient refused to continue as part of the study after his transfer; the physician caring for one patient would not
consent to his inclusion in the study. The attrition rate for the sample is 28.57 percent and is below the rate Fox (1966) considers significant, therefore the data-producing sample of ten subjects is considered to be representative of the target population.

**Test of Design**

The study design was tested with one patient and was found to meet the requirements needed to obtain the desired data. The information collected from this test is not included in the final research data.

**Analysis of Data**

The data collected for each patient were recorded on raw data sheets, shown in Appendix C, and transferred to data processing cards for computer analysis.

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 coronary care unit were correlated with the percent of increase (based on pre-test means) in total anxiety score in order to discover a possible trend that would affect post transfer anxiety. Scattergrams were
constructed for all correlation analyses to check for the existence of a curvilinear relationship between the two variables. The significance level for all analyses was set at .05.
CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the findings and the statistical analysis of the data collected from the study described in preceding chapters. First, the results of the item analysis of the Patient Attitude Scale is given. This is followed by a section on sample characteristics. Next, the data related to the stated study hypotheses are presented. Fourth, data from the study are analyzed and correlated with age, number of previous hospitalizations, and length of stay in the 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 discuss the interpretation of these findings and give recommendations for further study.

**Results of Item Analysis**

As was described earlier, the twenty completed Patient Attitude Scales were divided into two groups representing the high and low scorers. For each of the twenty scale items, the mean score of the 25 percent who scored highest and the 25 percent who scored lowest on the
total test were computed. The difference between the two means was taken as the "discriminatory power" of the item. The data that resulted from this analysis are given in Table 1. Only those items that had a discriminatory power above 1.0 were included in the final scale; thus, items 5, 6, 16, 19, and 20 were eliminated from the test (Appendix B) and scores for these items were not included in the subjects' total scores or their subscores.

Characteristics of the Sample

The biographical data obtained for the patients in the study are summarized in Table 2. The sample was composed of five male and five female patients with a mean age of 62.90. The female group had a mean age of 65.60, while the male group averaged 60.20 years. All subjects had been hospitalized previous to this illness and all but three had been in the hospital for a coronary problem. The mean number of total hospitalizations was 3.00. None of the patients had been in the coronary care unit prior to this admission. There was a wide range, 43-265 hours, of time spent in the coronary care unit, with mean time at 116.90 hours and a standard deviation of 60.67. Men in this sample were in the coronary care unit for a comparatively longer length of time (141.40 hours) than were the women (92.40 hours).
Table 1. Item Analysis of Patient Attitude Scale\textsuperscript{a}

<table>
<thead>
<tr>
<th>Item</th>
<th>Lower 25%</th>
<th>Upper 25%</th>
<th>Discriminatory Power</th>
<th>Mean for Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0</td>
<td>3.2</td>
<td>2.2</td>
<td>2.50</td>
</tr>
<tr>
<td>2</td>
<td>1.0</td>
<td>3.4</td>
<td>2.2</td>
<td>2.40</td>
</tr>
<tr>
<td>3</td>
<td>1.0</td>
<td>2.8</td>
<td>1.8</td>
<td>1.95</td>
</tr>
<tr>
<td>4</td>
<td>1.2</td>
<td>3.2</td>
<td>2.0</td>
<td>1.95</td>
</tr>
<tr>
<td>5</td>
<td>2.2</td>
<td>2.8</td>
<td>0.6</td>
<td>2.80</td>
</tr>
<tr>
<td>6</td>
<td>3.8</td>
<td>3.0</td>
<td>-0.8</td>
<td>3.06</td>
</tr>
<tr>
<td>7</td>
<td>1.4</td>
<td>4.6</td>
<td>3.2</td>
<td>2.85</td>
</tr>
<tr>
<td>8</td>
<td>1.0</td>
<td>3.8</td>
<td>2.8</td>
<td>2.25</td>
</tr>
<tr>
<td>9</td>
<td>1.0</td>
<td>3.8</td>
<td>2.8</td>
<td>2.55</td>
</tr>
<tr>
<td>10</td>
<td>1.0</td>
<td>3.2</td>
<td>2.2</td>
<td>1.00</td>
</tr>
<tr>
<td>11</td>
<td>1.2</td>
<td>3.2</td>
<td>2.0</td>
<td>2.25</td>
</tr>
<tr>
<td>12</td>
<td>3.2</td>
<td>4.6</td>
<td>1.4</td>
<td>3.40</td>
</tr>
<tr>
<td>13</td>
<td>1.6</td>
<td>3.0</td>
<td>1.4</td>
<td>2.40</td>
</tr>
<tr>
<td>14</td>
<td>2.0</td>
<td>3.2</td>
<td>1.2</td>
<td>2.40</td>
</tr>
<tr>
<td>15</td>
<td>1.2</td>
<td>3.4</td>
<td>2.2</td>
<td>2.05</td>
</tr>
<tr>
<td>16</td>
<td>2.0</td>
<td>2.8</td>
<td>0.8</td>
<td>2.75</td>
</tr>
<tr>
<td>17</td>
<td>1.2</td>
<td>4.8</td>
<td>3.6</td>
<td>2.80</td>
</tr>
<tr>
<td>18</td>
<td>1.6</td>
<td>3.6</td>
<td>2.0</td>
<td>2.40</td>
</tr>
<tr>
<td>19</td>
<td>2.0</td>
<td>2.0</td>
<td>0.0</td>
<td>3.00</td>
</tr>
<tr>
<td>20</td>
<td>3.6</td>
<td>3.0</td>
<td>-0.6</td>
<td>3.00</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Based on a sample of twenty complete tests.
Table 2. Characteristics of Sample

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean Age</th>
<th>Similar Diagnosis</th>
<th>Total</th>
<th>Mean Hours in C.C.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>5</td>
<td>60.20</td>
<td>1.00</td>
<td>2.40</td>
<td>141.40</td>
</tr>
<tr>
<td>Females</td>
<td>5</td>
<td>65.60</td>
<td>1.00</td>
<td>3.60</td>
<td>92.40</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>62.90</td>
<td>1.00</td>
<td>3.00</td>
<td>116.90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.59</td>
<td>0.89</td>
<td>1.49</td>
<td>60.67</td>
<td></td>
</tr>
</tbody>
</table>
Findings Relating to the First Hypothesis

The first hypothesis of this study stated that the mean of scores on the IPAT Anxiety Scale is significantly higher after transfer from the coronary care unit than the mean of scores before transfer.

The data from the IPAT Anxiety Scale pre- and post-tests are summarized in Table 3. The mean for total anxiety scores was 37.3 and the standard deviation was 7.06 on the pre-test. On the post-test, the mean was 48.80 and the standard deviation was 9.94. These data were analyzed, using a Student's t for the difference between means for correlated data. A t of 4.08 was computed. This is statistically significant at greater than the .005 level of 3.25 for a one-tailed test with nine degrees of freedom. The analysis supports the first hypothesis of this study.

Table 3 also gives information of the subscores for overt and covert anxiety and the five anxiety components measured by the IPAT Anxiety Scale.

For the A score, covert anxiety, the mean of scores on the pre-test was 18.90 and the standard deviation was 4.72. The post-test mean for the A score was 23.90 and the standard deviation 6.01. The t test for these data is 6.37 which is statistically significant at greater than the .0005 level of 4.78 with nine degrees of freedom. The B score, overt anxiety, had a mean of 18.40 and a standard deviation of 3.47 on the pre-test. On the post-test, the
Table 3. IPAT Anxiety Scale Pre- and Post-Test Results Compared by t Test and Correlation

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>A</th>
<th>B</th>
<th>Q₃</th>
<th>C</th>
<th>L</th>
<th>O</th>
<th>Q₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>37.30</td>
<td>18.90</td>
<td>18.40</td>
<td>5.50</td>
<td>5.90</td>
<td>4.60</td>
<td>10.80</td>
<td>6.90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.06</td>
<td>4.72</td>
<td>3.47</td>
<td>1.58</td>
<td>1.97</td>
<td>2.17</td>
<td>1.23</td>
<td>2.72</td>
</tr>
<tr>
<td>Post-Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>48.80</td>
<td>23.90</td>
<td>24.90</td>
<td>7.70</td>
<td>8.20</td>
<td>5.50</td>
<td>14.00</td>
<td>13.90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.94</td>
<td>6.01</td>
<td>4.70</td>
<td>2.16</td>
<td>1.69</td>
<td>1.94</td>
<td>2.98</td>
<td>2.81</td>
</tr>
<tr>
<td>t Test</td>
<td>4.08</td>
<td>6.37</td>
<td>5.96</td>
<td>5.08</td>
<td>3.12</td>
<td>3.70</td>
<td>4.97</td>
<td>9.66</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td></td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Probability</td>
<td>&gt;.005</td>
<td>&gt;.0005</td>
<td>&gt;.0005</td>
<td>&gt;.0005</td>
<td>&gt;.025</td>
<td>&gt;.005</td>
<td>&gt;.0005</td>
<td>&gt;.0005</td>
</tr>
<tr>
<td>Correlation</td>
<td>+.90</td>
<td>+.93</td>
<td>+.72</td>
<td>+.83</td>
<td>+.27</td>
<td>+.92</td>
<td>+.91</td>
<td>+.69</td>
</tr>
</tbody>
</table>
B score mean was 24.90 and the standard deviation was 4.70. The t of 6.37 computed for the B score data is statistically significant at the .0005 level with nine degrees of freedom.

The five anxiety components, Q₃, C, L, O, and Q₄ yielded mean pre-test scores of 5.50, 5.90, 4.60, 10.80, and 6.90 respectively, and standard deviations of 1.58, 1.97, 2.17, 1.23, and 2.72 respectively. On the post-test the mean and standard deviation for Q₃ were 7.70 and 2.16; for C the mean was 8.20 and the standard deviation was 1.69; for L, the mean was 5.50 and the standard deviation 1.94; for O, the mean was 14.00 and the standard deviation 2.98; and for Q₄, the mean was 13.90 and the standard deviation was 2.81. The t tests based on the difference between means for these components are as follows: Q₃ had a t of 5.08 which is statistically significant at a level greater than .0005; C had a t of 3.12 which is statistically significant at a point greater than the .025 level of 2.26; L had a t of 3.70 which is statistically significant at a point greater than the .005 level; O had a t of 4.97 which is statistically significant at a point greater than the .0005 level; and Q₄ had a t of 9.66 which is statistically significant at a point greater than the .0005 level.

The t of 9.66 for the component Q₄, frustration tension, shows the most marked significance of the t tests computed for the eight possible IPAT Anxiety Scale scores.
Findings Relating to the Second Hypothesis

Data from the Patient Attitude Scale are given in Table 4. A mean of 25.20 and a standard deviation of 6.32 were obtained from the pre-test attitude scale total score and a mean of 48.70 and a standard deviation of 1.30 for the post-test. The t for the difference between means, computed at 6.76 is significant at a point greater than the .0005 level of 4.78 using a one-tailed test.

Data obtained from the nurse and unit subscales on the Patient Attitude Scale are given in Table 4. The nurse and unit subscales had pre-test means of 16.20 and 9.00 respectively. The standard deviation for the nurse subscale was 4.78 and 2.63 for the unit subscale. The post-test means and standard deviations were 32.50 and 5.17 for the nurse subscale and 16.20 and 3.77 for the unit subscale. The t test for the nurse subscale, computed at 7.33 is statistically significant at a point greater than the .0005 level. For the unit subscale, the t of 4.11 is statistically significant at a point greater than the .005 level.

Of the three possible scores on the Patient Attitude Scale, the t of 7.33 for the nurse subscale is the most highly significant.

1. The reader is reminded that the higher the score on the Patient Attitude Scale the more negative the attitude toward the nursing unit.
Table 4. Patient Attitude Scale Pre- and Post-Test Results Compared by t Test and Correlation

<table>
<thead>
<tr>
<th></th>
<th>Total Score&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Nurse</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Tests</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>25.20</td>
<td>16.20</td>
<td>9.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>6.32</td>
<td>4.78</td>
<td>2.63</td>
</tr>
<tr>
<td><strong>Post-Tests</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>48.70</td>
<td>32.50</td>
<td>16.20</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.30</td>
<td>5.17</td>
<td>3.77</td>
</tr>
<tr>
<td>t Test</td>
<td>6.76</td>
<td>7.33</td>
<td>4.11</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Probability</td>
<td>&gt;.0005</td>
<td>&gt;.0005</td>
<td>&gt;.005</td>
</tr>
<tr>
<td>Correlation</td>
<td>-.01</td>
<td>+.10</td>
<td>-.33</td>
</tr>
</tbody>
</table>

<sup>a</sup>The higher the score, the more negative the attitude toward the unit.
The second 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 +.72, computed by using the Pearson product-moment correlation formula, was obtained when pre- and post-IPAT total scores were correlated with attitude scale pre- and post-total scores. This coefficient is statistically significant from zero at a point greater than .0005 for a one-tailed test with eighteen degrees of freedom. The scattergram for these data is shown in Figure 3. The correlation coefficient of +.72 supports the second of the study's hypotheses.

**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 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 mean pre- and post-test total anxiety scale scores for each subject was converted to a percent of increase over the subject's pre-test mean score.
Figure 3. Scattergram for IPAT Scores Compared with Attitude Scale Scores ($r = +.72$)
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 coronary care unit, and previous hospitalizations for each subject.

Age

A comparison is made between age and the percent of increase in total anxiety scores in Figure 4. From this scattergram and the r of -.24 it appears that there is a slight negative, but insignificant, relationship between these two variables.

Sex

Female subjects had a mean increase of 34 percent in total anxiety scores after transfer from the coronary care unit, while male subjects averaged an increase of 27 percent. Women have been noted to score higher on the IPAT Anxiety Scale than do men (Cattell and Scheier, 1963), and data from this study bear this out.

Previous Hospitalizations

There was a slight positive (r = +.25), but insignificant relationship between the number of total previous hospitalizations and increased anxiety. Figure 5 gives the scattergram constructed for these variables.
Table 5. Increases in Anxiety Scale Total Post-Test Scores Compared With Variables of Age, Sex, Previous Hospitalizations, and Hours in Coronary Care Unit

<table>
<thead>
<tr>
<th>Group</th>
<th>Subject</th>
<th>Percent of Increase</th>
<th>Age</th>
<th>Hospitalizations</th>
<th>Total Hours in C.C.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>4</td>
<td>19</td>
<td>70</td>
<td>2</td>
<td>121</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>30</td>
<td>46</td>
<td>3</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>21</td>
<td>66</td>
<td>2</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>43</td>
<td>70</td>
<td>4</td>
<td>124</td>
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<tr>
<td></td>
<td>10</td>
<td>39</td>
<td>49</td>
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<td>121</td>
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<tr>
<td>Mean</td>
<td></td>
<td>27</td>
<td>60.20</td>
<td>2.40</td>
<td>141.40</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td></td>
<td>6.14</td>
<td>1.02</td>
<td></td>
<td>63.21</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>44</td>
<td>68</td>
<td>5</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>142</td>
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<tr>
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<td></td>
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<td>70</td>
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</tr>
<tr>
<td></td>
<td>9</td>
<td>46</td>
<td>68</td>
<td>4</td>
<td>63</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>34</td>
<td>65.50</td>
<td>3.60</td>
<td>92.40</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td></td>
<td>6.34</td>
<td>1.55</td>
<td></td>
<td>35.88</td>
</tr>
<tr>
<td>Total Sample</td>
<td></td>
<td>31</td>
<td>62.90</td>
<td>3.00</td>
<td>116.90</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>9.59</td>
<td>1.49</td>
<td></td>
<td>60.67</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 4. Scattergram Comparing Increase in Total Anxiety Scores with Age -- Increase expressed as a percent of pre-test mean ($r = -0.24$).
Figure 5. Scattergram Comparing Increases in Total Anxiety Score with Total Previous Hospitalizations -- Increases expressed as a percent of pre-test mean ($r = +.25$).
Length of Time in Coronary Care Unit

The computed r for the number of hours in the coronary care unit compared with the percent increase in total anxiety test scores is -.34. This r is not statistically significant at the specified level of .05. The scattergram for these data is shown in Figure 6.

Comparison of Sample with National Averages

Table 6 shows the conversion of raw IPAT total scores for each subject into the sten system and percentiles. 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 subjects' 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 7 is computed on the pre-test. This figure rises to 8.70 and a percentile of 91.7 on the post-test. A sten of 7 is considered to be within the normal range, although it is beginning to be at the borderline of
Figure 6. Scattergram Comparing Increase in Total Anxiety Score with Number of Hours in the Coronary Care Unit -- Increases expressed as a percent of pre-test mean ($r = -.34$).
Table 6. Conversion of Total Anxiety Scores to Stens and Percentiles

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-Tests</th>
<th></th>
<th></th>
<th>Post-Tests</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>39</td>
<td>7</td>
<td>77</td>
<td>56</td>
<td>10</td>
<td>99</td>
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<tr>
<td>2</td>
<td>39</td>
<td>7</td>
<td>77</td>
<td>44</td>
<td>8</td>
<td>89</td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td>9</td>
<td>96</td>
<td>68</td>
<td>10</td>
<td>99</td>
</tr>
<tr>
<td>4</td>
<td>42</td>
<td>8</td>
<td>89</td>
<td>50</td>
<td>9</td>
<td>96</td>
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<tr>
<td>5</td>
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<td>77</td>
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<td>6</td>
<td>39</td>
<td>7</td>
<td>77</td>
<td>47</td>
<td>9</td>
<td>96</td>
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<tr>
<td>7</td>
<td>40</td>
<td>8</td>
<td>89</td>
<td>52</td>
<td>9</td>
<td>96</td>
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<tr>
<td>8</td>
<td>28</td>
<td>6</td>
<td>60</td>
<td>40</td>
<td>8</td>
<td>89</td>
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<tr>
<td>9</td>
<td>39</td>
<td>7</td>
<td>77</td>
<td>57</td>
<td>10</td>
<td>99</td>
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<tr>
<td>10</td>
<td>28</td>
<td>6</td>
<td>60</td>
<td>39</td>
<td>7</td>
<td>77</td>
</tr>
<tr>
<td>Mean</td>
<td>37.30</td>
<td>7.0</td>
<td>74.2</td>
<td>48.80</td>
<td>8.7</td>
<td>91.7</td>
</tr>
</tbody>
</table>
high. When the sten level reaches 8 or 9 "there is
definite psychological morbidity, almost certain to have
adverse effects generally on work and social-emotional
adjustment" (Cattell and Scheier, 1963, p. 13).

Summary

A one-tailed Student's t was computed for the
difference between means of the test-retest IPAT Anxiety
Scale total scores. The t, computed at 4.08 with 9 degrees
of freedom, was significant at greater than the .005
point. A Pearson product moment correlation coefficient of
+.72 was obtained when total IPAT raw scores were compared
with total attitude scale raw scores. This r is statisti­
cally significant from zero at greater than the .0005
point. These analyses support the study's stated
hypotheses.

The differences between the pre- and post-test
means for the IPAT Anxiety Scale and Patient Attitude
Scale subscores were analyzed by computing a t for each
score. All of these t tests were statistically significant
at a point far greater than the stated level of .05 but,
based on the size of the computed t tests, the component
Qh, on the IPAT Anxiety Scale, and the nurse subscale, on
the Patient Attitude Scale, had the greatest statistical
significance.
There was no significant correlation when the variables of age, previous hospitalizations, and length of time in the coronary care unit were compared with the percent of increase in total anxiety scores for each subject.

When IPAT raw scores were converted to the sten system, mean stens of 7 for the pre-test and 8.70 for the post-test were computed. A sten of 8.70 is considered to indicate a level of anxiety high enough to cause psychological morbidity, while a sten of 7, although borderline, is still 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 Findings to Theoretical Framework

A theory of psychological stress provides nursing with a useful tool for evaluating situations involved with hospitalization. One of these situations has been explored in this study.

A need for security exists in all humans and becomes more pronounced when threatened by illness and hospitalization. Because of the intensive care he receives, the patient admitted to the coronary care unit finds that his initial strong motivation for security is met, and his anxiety level is low. When needs are not satisfied, the patient is threatened and placed in a situation of psychological stress. Anxiety results when environmental barriers block the patient's usual coping mechanisms. If a psychological object meets the patient's need for security, a favorable attitude toward that object develops. 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 coronary care unit to an intermediate care unit. In addition, the patients studied had a more favorable attitude toward the coronary care unit than the intermediate care unit and unfavorable attitudes increased as anxiety levels increased. Based upon the theoretical framework of the study, these findings indicate that the subjects did indeed feel threatened after their transfer from the coronary care unit.

The theoretical framework of the study states that this felt threat is due to an unmet need and the frustration that develops when access to usual coping mechanisms is blocked. As has been noted earlier, the component $Q_4$ on the IPAT Anxiety Scale had a higher t-test than did any other component. Cattell and Scheier (1963) state that frustration tension, which is measured by the subscore $Q_4$, is one of the largest and most central components in anxiety, and that it appears to represent the degree to which anxiety is generated by unsatisfied needs of all kinds. Among the needs found to be positively associated with this factor is situational fear. The large difference between the pre- and post-test means for the component $Q_4$
points to the fact that the perceived threat was due to an unsatisfied need on the intermediate care unit.

Pinneo, speaking at a conference held by the American College of Cardiology and Presbyterian-University of Pennsylvania Medical Center (1966), noted that the nursing personnel of the coronary care unit, because they are in constant attendance, become the key to the unit's success. Cassem et al. (1970), George (1966), 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 patient fear. These authors have identified that patients admitted to a coronary unit have a need for security that the nurses are able to satisfy by their constant vigilance and knowledge. In this study, the high amount of increase in negative attitude, indicated by the post-test 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 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.

In conclusion, the results of this research support the belief that transfer from an intensive coronary care area to an intermediate care unit can precipitate the
perception of a threat to security and result in high anxiety. In addition, the threat is perceived to be related to the change in nursing care the patient receives.

Recommendations for Further Study

Downs (1966) has commented that as care becomes more specialized, the patient must of necessity become more mobile. Progressing from unit to unit, he is exposed to an ever increasing number of individuals who, because of increased division of labor, can spend less and less time with him before he moves on. Reducing the fear and anxiety associated with hospitalization has become a more complicated and complex problem than ever before as a result of the patient's growing isolation from any continuous, meaningful, supportive relationship with the staff.

Because of this increased patient mobility, it is imperative that more nursing research concentrate on methods of developing supportive relationships with patients. Research is needed into all phases of the progressive patient care concept, and especially in the area of patient reaction to transfer from areas other than the coronary care unit.

The problems this research has investigated need to be explored further with larger and more varied samples. An attempt should be made to reexamine the relationship of variables of age, sex, previous hospitalizations, and
length of time in the unit to increases in anxiety after transfer. Although no significant correlation was found in this study, the use of a larger sample could yield valuable information on factors that predispose these higher anxiety levels. Variables of socioeconomic class and race were not used in this study due to the homogeneity of the sample. In future research, an attempt should be made to obtain a target population varied enough so that these variables can be considered.

This study was conducted in a hospital with a coronary care unit specifically designed for the purpose it is fulfilling. This is not always the case, as many hospitals are forced to convert already existing space. Before it is possible to generalize these findings to a larger population, studies should be conducted in a variety of hospital settings. Patients in this research were under the care of private physicians, but future studies should consider patients who are cared for by a resident medical staff in a teaching or research hospital.

Finally, an experimental study, designed to test the effect of nursing intervention on the reduction of anxiety, should be conducted. By applying the various nursing approaches that have been used to reduce distress in other areas of hospitalization, this type of study would provide valuable data that could be utilized to improve the care of patients from the coronary care unit.
In conclusion, recommendations for future nursing research include the following areas.

1. Investigation of methods to develop effective nurse-patient relationships under the conditions of specialized nursing care and increased patient transfer from units.

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

3. Replication of this study with larger and more heterogenous samples.

4. Replication of this study in different hospital settings.

5. Experimental study that explores the effects of nurse intervention on the reduction of anxiety after transfer from the coronary care unit.
CHAPTER 6

SUMMARY

The study described in the preceding chapters was an attempt to apply a psychological theory of stress to a specific nursing situation. This theory proposes that the common denominator of stress situations is the reaction to circumstances of threatening significance to the organism. A feeling of security is a priority need in modern societies and this need becomes more pronounced during illness and hospitalization. Since security is a basic need, an organism is motivated to maintain his secure status if it is threatened. If striving behavior is blocked by environmental obstacles, anxiety may develop. The specific situation explored in this study involved the transfer of patients from an area of intensive, specialized care to an area of moderate, generalized care.

Purpose of the Study

The purpose of the study was to further knowledge about hospitalized patients' reactions to transfer from one patient area to another. Progressive patient care, a concept 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 an intermediate care area and involved the investigation of two possible reactions to such a move—anxiety level and attitude toward the nursing unit. The problems which were researched were: Do patients who are moved from an intensive coronary care area to an intermediate care unit have a significantly higher level of anxiety following the transfer than before transfer? 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 effects of a state of anxiety on the cardiovascular system, and (3) of the ever increasing number of coronary care units and the numbers of patients who will be cared for in this manner.

Literature summarized in Chapter 2 indicates the deleterious effects that anxiety or a state of prolonged stress can have on the cardiovascular system and they point to prolonged fear and stress as factors that precipitate a coronary attack.

Articles by nurses and other health team members point out the security that patients develop while in the
coronary care unit, the possible emotional and physiological responses to transfer, and the reasons for the development of the coronary care concept.

Although nurses have speculated on the effects of transfer, no nursing study has been published that attempts to investigate patient reaction to leaving a unit that provides some type of intensive nursing care.

**Methodology**

The design of the study involved pre- and post-transfer administration of two psychological testing devices. The instruments used were the Institute for Personality and Ability Testing (IPAT) Anxiety Scale and the Patient Attitude Scale, which was devised by the professional nurse researcher. The IPAT Anxiety Scale is designed to measure free-floating manifest anxiety and is a forty-question scale that is divisible into a total anxiety score, an overt anxiety score, a covert anxiety score, and five subscores that measure five central anxiety components. The Patient Attitude Scale was designed to measure the patient's attitude toward the coronary care unit and the intermediate care unit. It 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 ten patients who met the following criteria by being:
1. Admitted to the coronary care unit of one 475-bed general hospital during a sixty-day period.

2. Between the ages of 20-70.

3. Under the care of one of six physicians who had consented to have patients included in the study.

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

5. Transferred to an intermediate care unit after being in the coronary care unit for at least thirty-six hours.

The sample was composed of five male and five female subjects with a mean age of 62.90. All had been hospitalized prior to this illness with an average of three hospitalizations per subject. There was a wide range of 43-265 hours spent in the coronary care unit with a mean length of time at 116.90 hours and a standard deviation of 60.67.

Findings

The specific hypotheses that were tested in this study were:

1. The mean of scores on the Institute for Personality and Ability Testing (IPAT) Anxiety Scale is significantly higher after transfer from the coronary care unit than the mean of scores before transfer.
2. High scores on the Institute for Personality and Ability Testing (IPAT) Anxiety Scale are positively correlated to a significant degree with high scores on the Patient Attitude Scale.

A one-tailed Student's t was computed for the difference between means of the test-retest IPAT Anxiety Scale total scores. The t, computed at 4.08 with 9 degrees of freedom, was significant at greater than the .005 point. A Pearson product-moment correlation coefficient of .72 was obtained when total IPAT raw scores were compared with total attitude scale raw scores. This r is statistically significant at greater than the .0005 level. These analyses supported the study's stated hypotheses.

The differences between the pre- and post-test means for the IPAT Anxiety Scale and Patient Attitude Scale subscores were analyzed by computing a t for each score. All of these t tests were statistically significant at a point far greater than the stated level of .05 but, based on the size of the computed t tests, the component $Q_4$, on the IPAT Anxiety Scale, and the nurse subscore, on the Patient Attitude Scale, had the greatest statistical significance.

There was no significant correlation when the variables of age, previous hospitalizations, and length of time in the coronary care unit were compared with the
percent of increase in total anxiety scores for each subject.

When IPAT raw scores were converted to the sten system, mean stens of 7 for the pre-test and 8.70 for the post-test were computed. A sten of 8.70 is considered to indicate a level of anxiety high enough to cause psychological morbidity, while a sten of 7, although borderline, is still within normal range.

Conclusions

The findings of this research show that anxiety levels increase significantly after the patient is transferred from a coronary care unit to an intermediate care unit. In addition, the patients studied had more favorable attitudes toward the coronary care unit than toward the intermediate care unit and these attitudes became more negative as anxiety increased. These results support the belief that transfer from an intensive coronary care unit to an intermediate care unit can precipitate the perception of a threat to security and result in high levels of anxiety. The threat, associated with this move, is perceived to be related to the change in nursing care the patient receives.

Recommendations for future related nursing research include:
1. Investigation of methods to develop effective nurse-patient relationships under the conditions of specialized nursing care and increased patient transfer from units.

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

3. Replication of this study with larger and more heterogenous samples.

4. Replication of this study in different hospital settings.

5. Experimental study that explores the effects of nurse intervention on the reduction of anxiety after transfer from the coronary care unit.
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.

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

23. However difficult and unpleasant the obstacles, I always stick to my original intentions.

24. I tend to get over-excited and "rattled" in upsetting situations.

25. I occasionally have vivid dreams that disturb my sleep.

26. I always have enough energy when faced with difficulties.

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

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

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

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

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

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

33. I wake in the night and, through worry, have some difficulty in sleeping again.

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

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

36. My nerves get on edge so that certain sounds, e.g., a screechy hinge, are unbearable and give me the shivers.

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

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

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

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

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>Number</th>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>This is a cheerful room.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.</td>
<td>I feel safe and secure here.</td>
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<tr>
<td>3.</td>
<td>The nurses seem to have a good knowledge of my condition.</td>
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<td>4.</td>
<td>I feel that I'm getting the kind of care I need most at this time.</td>
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<tr>
<td>5.</td>
<td>I'm expected to do too much for myself.</td>
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<tr>
<td>6.</td>
<td>The nurses seem more interested in the equipment than in me.</td>
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<tr>
<td>7.</td>
<td>It takes too long before I get what I ask for.</td>
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<tr>
<td>8.</td>
<td>The nurses here are interested in me as a person.</td>
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<td>9.</td>
<td>My light is answered promptly.</td>
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<td>10.</td>
<td>Being in this unit helps me get well faster.</td>
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<tr>
<td>11.</td>
<td>The nurses do not seem self-assured.</td>
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<tr>
<td>12.</td>
<td>I find it difficult to sleep in this unit.</td>
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</tr>
<tr>
<td>13.</td>
<td>The nurses never seem to know the answers to my questions.</td>
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</tr>
</tbody>
</table>

65
<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>14. The nurses appear to have a good knowledge of the equipment in this unit.</td>
<td></td>
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<tr>
<td>15. The staff gives me good nursing care.</td>
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<tr>
<td>16. I hate to ask the nurses for anything.</td>
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<tr>
<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_______

Q3______ C_______

L_______ O_______

Q4________

Nurse________

Unit_______

Post-Transfer Tests

Time Administered_________ Hours After Transfer_________

IPAT: Total Score_________ Attitude Scale: Total_________

A_______ B_______

Q3______ C_______

L_______ O_______

Q4________

Nurse_______

Unit_______
REFERENCES CITED


