

MYOCARDIAL INFARCTION PATIENTS' KNOWLEDGE  
ABOUT THEIR DISEASE AND  
POST-HOSPITAL REGIMEN

by

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v. j. w.

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## CHAPTER I

### DEVELOPMENT OF THE PROBLEM

#### The Problem

The American Heart Association (1) stated that heart attack is the single greatest cause of death among men aged 25 to 64. During the post-menopausal years, women have been struck by heart attack with increasing frequency. Last year in the United States, more than 500,000 people died from this one cause.

Dr. Meltzer (2), Director, coronary care unit, Presbyterian-University of Pennsylvania Medical Center, stated that approximately 600,000 patients with acute myocardial infarction have been admitted to hospitals in this country every year. With present treatment, 30 per cent of all patients admitted to hospitals with acute myocardial infarction died during this period of hospitalization. The more than 400,000 patients, surviving their attacks each year, will need information about their disease and post-hospital regimen.

Nurses have recognized teaching as an independent nursing function. Phaneuf (3) stated that Lesnik and Anderson have included promotion of physical and emotional health by direction and teaching



in their statement of seven nursing functions. Phaneuf indicated nurses are using the Lesnik and Anderson statement of nursing functions as criteria to evaluate nursing care in the nursing audit. The nursing audit was defined as a method for systematic written appraisal of the process of nursing care, which is made after the discharge of the patient through examination of patient care records.

Phaneuf (4) reported the results of a study auditing the patient care records of 500 Greater New York area recipients of nursing care provided by 20 agencies. The audits were done by two teams of nurses from the Associated Hospital Service of New York (Blue Cross). The seven categories of nursing functions and 50 derived components of these functions were used as the standards for judging the efficiency of the nursing process. Each function was scored numerically. The values were stated in ranges and then translated into word judgements. The results of the audit for the "promotion of physical and emotional health by direction and teaching" showed that only 6.8 per cent of the patients whose records were examined were judged to have received excellent care; 26.2 per cent received good care; 26.8 per cent received incomplete care (good as far as it went, but did not go far enough); 29.4 per cent received poor care; and 10.8 per cent received unsafe care.

Dr. Clark (5) did a study to determine what coronary patients learned in the hospital about their post-hospital care and who

contributed to these learnings. Fifty-two subjects from different boroughs of New York City were interviewed after hospitalization for the first coronary attack. Findings indicated that patients studied have received information on only 44 per cent of all the items on which they were questioned. About one-fourth of the responses indicated that the information was first received after leaving the hospital. Information received was considered to be superficial, oversimplified and subject to misinterpretation by the patient. The patients' major source of information was the physician. Responses suggested that relatively little information was provided by nurses and dietitians. Family, friends and others were found to be a source of some information. Later in a letter, Dr. Clark stated that, "... patient teaching across the board continues to be an area of great lag in application of our knowledge of human needs (6)."

Leaders in the health care professions know that effective total care requires that patients have a better understanding of health information than they frequently have had in the past (7). It will be necessary to identify what information myocardial infarction patients now have about their disease and post-hospital regimen, before changes or additions to the teaching plans for these patients can be made.

### Purpose

The purpose of this study was to identify the information myocardial infarction patients had about their disease and post-hospital regimen.

### Methodology

#### The Population

This was a descriptive study of 25 male respondents between the ages of 39 and 55 years who had had a myocardial infarction. Women were excluded from the sample because they are not as likely to have a myocardial infarction until after menopause. The age range was chosen because those are the high-risk years when myocardial infarction is more likely to occur. Subjects were selected who had had a myocardial infarction within the past two years. It was felt that it would be difficult for subjects to recall information if more than two years had lapsed since their myocardial infarction.

Respondents were located from the coronary care logs of a county hospital and a private hospital. Permission to use the coronary care logs were obtained from the Director of Nursing Services at each hospital. The coronary care logs provided the patient's name, diagnosis, clinic number, and physician's name.

With this information it was possible to contact physicians for permission to interview their patients. Physicians at the private hospital provided addresses and telephone numbers of the patients. Patients' address and telephone numbers from the county hospital were located through medical records. Letters were sent to twenty-two physicians. All but one physician responded. Permission was obtained to interview 43 patients.

Letters were then sent to 43 patients describing the purpose of the study and indicating that their physician had given permission for the hour-long interview. The respondents were asked to circle the best time and date for the interview on an enclosed, self-addressed, stamped postcard. The place for the interview was left to be filled-in by the respondent under the heading marked "place for interview." Most respondents wanted to be interviewed in their homes, three in their place of business, one in a restaurant and one at the researcher's home. The postcards were to be returned by a certain date indicated in each letter. The researcher's telephone number was included in the letter for the respondents' convenience if there was a time conflict or a question about the interview.

Fifteen patients could not be contacted because they had no telephone or left no forwarding address. Two patients had died since their hospital discharge. Only one patient who was called refused to participate in the study. Twenty-five patients responded positively

either by postcard or telephone and were interviewed. Two of the patients who responded had been in the county hospital; twenty-three had been in the private hospital. Of the total (N-43) located through the coronary care logs, only 58 per cent (N-25) were included in the study. See Table 1.

TABLE 1  
NUMBER OF PATIENTS LOCATED IN THE CORONARY CARE  
LOGS AND ACTUAL RESPONDENTS

Located in Coronary Care Logs	N	Letters Sent	N
		Actual Sample:	
County Hospital	12	County Hospital	2
Private Hospital	31	Private Hospital	<u>23</u>
		Sub-total	25
		No Response:	
		Refused	1
		Died	2
		Unable to Contact	<u>15</u>
	—	Sub-total	<u>18</u>
Total	43	Total	43

### The Interview Schedule

The "Rehabilitation Index of the Myocardial Infarction Patient" by Kos (8) with some modifications was used as the data gathering device. The modifications included: a front sheet to provide demographic information; a question by Clark regarding attitude toward the heart condition; a clarification of the question on exercise and activity; specific activities such as driving a car and marital relations were listed; the addition of two questions regarding when the respondent could return to work and what kind of work he could do; a rewording of the diet question; the addition of a question asking what medications were taken and their action; specific questions regarding digitalis and diuretics; and the addition of three questions evaluating teaching. The questions in the interview schedule were listed under these three main headings: "determining where the patient is; determining where the patient wants to go; and how the patient will get there"(9).

This interview schedule was chosen because it measured both knowledge and application of knowledge by the post-myocardial infarction patient. It was conversational in structure and was relatively easy for patients to understand. This schedule was pre-tested and no changes were made. The schedule is in Appendix A.

### Scoring the Interview Schedule

The method of scoring the interview schedule was adapted from the method used in Clark's study (10). This was done to determine how much the respondents had learned about their illness, medications, activity and rest, return to work, and diet. The total correct points divided by the total possible points gave an overall percentage for the correct responses.

Some questions complicated scoring because some answers were completely correct, others were partial and accurate, partial and inaccurate, or incorrect. To simplify the mathematics for scoring, each correct answer (N) was multiplied by the constant 4. Partial-accurate meant that some of the points, but not all were known. The number who had partial and accurate information was multiplied by 3. The score 2 was not used. Partial-inaccurate meant that some information was known, but most of it was inaccurate. This score was obtained by multiplying the number with partial and inaccurate information by one. Respondents who did not know the answer or who were totally incorrect were given the score of zero.

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## CHAPTER I

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## CHAPTER II

### REVIEW OF THE LITERATURE

The literature was reviewed in four main areas: 1) patients' cognitive needs; 2) patients' compliance with doctors' orders; 3) information included in the teaching plan for the myocardial infarction patient; 4) research findings in related areas. Few studies have been done to evaluate the teaching of the myocardial infarction patient. In contrast, much research has been done on the effects of diet, smoking, and exercise on heart disease. Only a sample of this literature has been given here.

#### Patients' Cognitive Needs

The literature indicated a concern about what the patient wanted to know about his illness. Linehan (11), Nurse-Coordinator of Patient Education, Beverly Hospital, Massachusetts, studied 450 patients about to be discharged from this general hospital asking them what they wanted to know about their illnesses before they went home. Patients were interviewed on all services except pediatrics. Their questions fell into 17 categories in descending frequency: activity, diagnosis, reasons why they did not ask, symptoms, suggestions,

treatments, prognosis, medicines, operations, personal care, diet, problems, nursing care and nurses, miscellaneous, finances, martial relations, and tests.

Dr. Dodge (12), a Social Psychologist and Research Associate Sloan Institute of Hospital Administration of Cornell University, New York, studied patients' perceptions of their cognitive needs. She stated that individuals are more likely to seek or attend to information vital to their survival in a situation than to information which has little relevance. Receiver characteristics were also found to be important determinants in seeking or attending to a particular message.

This study was done on 127 patients at the Geneva Hospital, New York. Approximately half of the patients interviewed were males and half were females. About 40 per cent had less than high school educations; 40 per cent were high school graduates; 20 per cent had gone beyond high school. Fifty-five per cent were medical patients; 45 per cent were surgical patients. The average age of the patients was 52 years with 20 per cent being under 40, 42 per cent between 40 and 60, and 37 per cent over 60 years. No obstetric patients were interviewed. Approximately 80 per cent were or had been married. Almost all had been born in the United States. Approximately half were Protestant and half Catholic.

Dodge used an open-ended interview schedule to collect the data. The questions were:

1. How are things going for you here at the hospital?
2. What could anyone here do that would help your peace of mind at this time?
3. Is there anyone (else) at the hospital that you would like to talk to today? What would you like to talk about?
4. Have you had any helpful talks with doctors or nurses since you became sick? What were these about?
5. What questions do you have that you haven't had a chance to ask your doctor or nurse yet?
6. What are some of the (other) things you have wanted to know since you first became ill (had your accident)? We are interested in everything that you have wanted to find out, even if you now know all about it.
7. What (other) things do you want to find out before you leave the hospital?

The data were tabulated by ranking in decreasing importance, based on the number of times an item was mentioned by the total patient sample. Patients were particularly concerned with questions of diagnosis and the etiology of their condition. Questions concerning the future were frequent. They wanted to know what temporary activity restrictions would be imposed. Knowledge about other restrictions such as diet and smoking ranked as moderately important. Patients wanted to know the kind of care they would need and the things they could do to speed their recovery.

There were differences in information needs related to patient characteristics, such as: patients placed more emphasis on knowledge regarding their medications and how they could participate in their own care; male patients were concerned with receiving the

kind of information needed to make a realistic assessment of the extent to which the condition and the need for care would affect their ability to work. The extent of information wanted seemed to be directly related to the patient's level of education.

#### Patients' Compliance with Doctors' Orders

Studies have been done to determine patient compliance with various regimens. Dr. Pratt (13), Assistant Professor Fairleigh Dickinson University, New Jersey, et al. studied "Physician's Views on the Level of Medical Information Among Patients." A 36 question multiple-choice test was administered to 214 patients in a medical clinic to test their knowledge of the etiology, symptoms, and treatment of ten common diseases: tuberculosis, diabetes, syphilis, arthritis, menopause, asthma, cerebrovascular accident, stomach ulcer, leukemia, and coronary thrombosis.

The same questions were made part of a questionnaire given to 89 physicians in the same clinic to determine how much information these doctors thought laymen should possess and how much they taught patients in the clinic. The third part of the study consisted of a longitudinal analysis of 50 patient-physician relationships. This analysis included observation of the clinic visit and before-and-after visit interviews with the patient, providing information on the ways the patient's illness was discussed and

their views of what they had been told.

The results of the study indicated that patients were quite poorly informed about their own condition and about the ten common diseases. There seemed to be a latent desire for more information among the majority of patients. The information physicians indicated should be known by laymen was more extensive than patients were found to have. Few patients were given a systematic explanation of either the etiology, prognosis, purpose of the tests, test results, or treatment. Patients who were given more thorough explanations were found to participate somewhat more effectively with the physician and were more likely to accept completely the doctor's formulation, than were patients who received very little explanation.

Dr. Lowe (14), Assistant Professor, School of Public Health, University of North Carolina did a study of 56 Negro primigravidas randomly assigned to experimental and control groups to evaluate the effectiveness of teaching by public health nurses as measured by compliance with medical recommendations. The control group received only routine clinic care and instructions. The experimental group was referred to the local public health department for instructions in addition to their clinic care. The identity of the experimental patients was not known by the investigator or the public health department. The routine practices of the public health department were maintained. A structured questionnaire about

practices during pregnancy and an adaption of the semantic differential for attitudes related to the practices were the instruments of measurement used in the study. Interviews were conducted in the prenatal clinic on the day of the patient's first visit before they were seen by a physician or received any instructions regarding their prenatal care. The questions were developed from routine printed instructions concerning diet, rest, exercise, use of medications, and clinic and class attendance. The same questionnaire was given the same group of patients during the ninth month of pregnancy.

Results failed to show significant differences between the groups in compliance with medical recommendations. Lowe suggested there was a need to evaluate the traditional practices of public health nurses to determine if other methods might be more successful in motivating people toward health promotive behavior.

Dr. Davis (15), Associate Professor, Community Medicine and Public Health, University of Southern California School of Medicine, has done an extensive review of the literature and much work on compliance. A review of Davis' study, Variations in Patients' Compliance with Doctors' Advice: An Empirical Analysis of Patterns of Communication, has been included here. The study dealt with the extent to which patients did not comply with doctors' orders and with the factors involved in explaining these variations.

The study group consisted of 154 patients who were seen by

76 fourth-year medical students and 78 attending physicians assigned to the general medical clinic of a large general voluntary teaching hospital. Patients were excluded if they had been seen in the hospital clinics before or if they had a language or hearing problem.

The data were collected in the following ways: tape recordings of doctor-patient interaction; patient interviews; a self-administered questionnaire completed by physicians; A content analysis of patients' medical records. Analysis of the data was done to determine the extent of deviant patient behavior within and outside the doctor-patient relationship.

The results of the study showed that 37 per cent of the patients disregarded what their doctors advised. One pattern of communication that seemed to contribute to noncompliance was the relationship between the authoritative patient and the physician who passively accepted such patient noncompliance. Tension in the doctor-patient relationship was also found to hinder communication and to increase the risk of noncompliance. Also, when doctors sought information from patients without giving them any feedback, the patient was unlikely to follow the physician's order. Davis found that good rapport between the physician and the patient was an important factor in determining whether or not the patient followed the physician's orders (16).

Information Included in the Teaching Plan for the  
Myocardial Infarction Patient

Very few studies have been done regarding the teaching of the post-myocardial infarction patient. Reference has already been made to Clark's study (17); two other studies done in this area have been included here.

Nite (18), principal investigator and Director of Research in Nursing for Community Studies, Inc., Kanasa City, Missouri, conducted a four-year study on nursing care of the hospitalized adult patient having a diagnosis of myocardial infarction. This was a descriptive and experimental study conducted in a 200-bed church-supported, general hospital located in the Kansas City metropolitan area. Sixty-nine adult hospitalized cardiac patients were included in the sample.

The purpose of the study was to test the therapeutic effect of a special type of nursing care on a group of adult patients with a diagnosis of myocardial infarction. The experimental group received this special care; the control group received nursing care as ordinarily practiced in the study hospital.

One part of this special nursing care was patient teaching. An explanation of the educational program as given by Nite was as follows:



An effort was made to prepare each patient for dismissal with sufficient information regarding his daily activities in his home environment. She learned from the physician his proposed program of care in terms of diet, rest, sleep, waking, work, and recreation and was then able to supplement, reinforce, and further explain his instructions. She answered questions freely, but when she was uncertain, she frankly admitted that she did not know but would ask the physician on his next visit, which was done in the presence of the patient. Written instructions were given to each patient at dismissal on diet, rest, activity, recreation, and work.

Other areas in Nite's teaching plan for the post-myocardial infarction patient included: weight-control; elimination--no straining at stool; smoking; and illustration of the heart showing the patient's area of damage and an explanation of the healing process.

Nursing care, including patient education, was evaluated according to these criteria:

After Hospitalization

1. The patient's (and his family's) understanding of and adjustment to the therapeutic, medically imposed regimen is evident.
2. The patient's pattern of behavior more nearly matches his post-hospitalization life; that is, less drastic changes result from his illness.
3. The patient increases his activities and responsibilities at the rate prescribed by the physician.
4. Deaths and readmission rates are lowered.
5. There is omission of evidence that suggests the need for nursing care (19).

Nite believed that the most important measures of the success of a teaching program were the changes in behavior, as evidenced by the compliance with the doctor's orders. She intended to measure the effectiveness of the teaching program by a paper and pencil test

to be given to the patient twice during hospitalization, but had been unable to complete this part of the plan.

Hahn, Head Nurse of the Coronary Rehabilitation Unit, General Rose Memorial Hospital, and Dolan (20) now a Cardiac Clinician at St. Elizabeth's Hospital, Boston, did a study of 15 patients with a confirmed diagnosis of myocardial infarction to evaluate the patients' responses to the teaching program at General Rose Memorial Hospital in Denver, Colorado. The instructions given the post-myocardial infarction patient included general information about the disease process, medications, activity, and diet.

The following conclusions were reached: patients found the teaching program helpful in their adjustment to illness; doctors and nurses provided information; the nurse often helped clarify what the doctor said; the nurse's evaluation of the home situation, job, and customary activities helped the patient apply the information; it was helpful to include the patient's family in the teaching program; and while the patient was in the intensive care unit he was not receptive to the teaching program (21).

Much of the information on the contents of the teaching plan for the myocardial infarction patient was obtained from opinions of professionals interested in the rehabilitation of the myocardial infarction patient. For example, Firlit described the hospital discharge planning (22) that she did with the patient who has had a

myocardial infarction. A nursing discharge record was kept which included planning done with the patient by the medical, nursing, and other members of the health team. The topics included in the discharge planning were administration of medications, maintenance of a specific diet, regulation of physical and psychic activity, and psychological adjustment to the sociological and physical implications of the illness.

Firlit explained further that, "... in preparing the patient for the administration of his own medications at home, the rationale for the administration of medication, method of administration, and the observance of toxic effects are emphasized." The reasons were given for restricted diets and menus for those diets such as the low-salt, reducing, or low-cholesterol diet. The rationale for restricted activity was discussed with the patient and assistance was given to him in planning the specific activities he was capable of performing. The patient's reaction to and understanding of his illness, economic factors, employment, and/or retirement were important factors to consider in planning for his psychosocial adjustment.

Sister Eugene Joseph (23), Director of Nursing Service, Mount Saint Mary's Hospital, New York, discussed the cardiac teaching program there. In this program, the physician had to write an order for the patient to participate in the classes. The order was also meant to guide the nurse in the teaching she could do for the

individual patient. An outline of the teaching content follows:

- I. Normal heart and circulatory functions
- II. Disease of the heart
  - 1. Arteriosclerotic heart disease
  - 2. Coronary heart disease
    - a. Angina pectoris
    - b. Myocardial infarction
    - c. Rheumatic heart disease
    - d. Congestive heart failure
    - e. Hypertensive cardiovascular disease
- III. Treatments for heart disease
  - 1. Drugs
    - a. Nitroglycerine
    - b. Digitalis
    - c. Diuretics
    - d. Anticoagulants.
  - 2. Diets
    - a. Salt restriction
    - b. Calorie restriction
  - 3. Limitations of activity
  - 4. Plans for home program (24)

No evaluation of the program was included in the article.

Roberts (25) Assistant Professor of Medical-Surgical Nursing, California State College, described the objectives of her "integrated teaching plan" in an article as follows: Her objectives were:

... to help the patient understand his physical illness; to assist the family, if possible, to understand the patient's illness; to assist the patient through his adaptive phases; to stimulate him to take part in his recovery or rehabilitation program; to help him make realistic plans for the future; to assist him to accept his illness with its limitations; and to provide him with support, understanding, and guidance throughout his rehabilitation.

This integrated teaching plan consists of the following four components:

- 1) nursing assessment of the patient's readiness to learn within the open system adaptive process;
- 2) the use of visual aids to teach the normal functions of the heart;

- 3) discussion of each individual's abnormal heart function;  
and
- 4) evaluation of the integrated teaching plan.

Roberts gave a very good example of patient-oriented teaching about the stages of myocardial healing and the development of collateral circulation. She indicated that understanding was essential for the patient to accept his activity restrictions at first and the need for a gradual increase in activity over the next one to six months.

Kos (26), Instructor of Graduate Medical-Surgical Nursing, Adelphi University, discussed the use of a rehabilitation index, serving the same purpose as a nursing history, for planning the teaching of the myocardial infarction patient. Her tool was:

#### Rehabilitation Index of the Myocardial Infarction Patient

- A. Determining where the patient is:
  1. How do you picture what has happened to your heart?
  2. What are the factors in your life which you feel may have contributed to your problem? (Diet, smoking, worry, weight, overexertion, underactivity?)
  3. When you overdo, do you have any warnings?
  4. Do you know what causes them?
  5. Do you take medications for these symptoms?
  6. Do you know what causes relief with the medication?
  7. Are there any other measures that relieve them?
  8. What has your doctor discussed with you about activity and exercise when you return home?
  9. What are the meals and snacks you normally eat and enjoy?
  10. What are the types of worry or aggravation that bother you?
  11. What are your immediate concerns?
  12. What type of personality do you feel you have?
- B. Determining where the patient wants to go:
  1. What has your doctor told you about your future?
  2. How do you see your illness?

3. What is your plan for gradually increasing activity and exercise?
  4. What do you feel would be desirable changes in your diet?
  5. How do you feel about returning to work?
  6. How do you usually release pent-up energy?  
(Physical activity?)
- C. How the patient will get there:
1. What are your plans for the future? Do they go along with your doctor's suggestions?
  2. Are there any changes you can make in your work pattern to make it easier or more efficient?
  3. What is your plan for strengthening your heart (23)?

The late Lydia Hall, former Director of the Loeb Center for Nursing and Rehabilitation in New York City, and Genrose Alfano (28), Assistant Director of the Loeb Center wrote an article entitled, "Incapacitation or Rehabilitation?" These authors expressed a teaching philosophy for the post-myocardial infarction patient in these words:

Thus the education of patient and families must include information pertaining to the use of drugs and/or the implantation of a pacemaker to control rhythm disorders; the use of anticoagulants to prevent further thromboses; and the use of anticholesterol drugs and dietary measures which may prevent the progression of atherosclerosis. The patient must also understand the importance of avoiding stress to prevent overtaxing the cardiovascular and other systems further, as well as to prevent further pathology (29).

Dr. Paul Dudley White (30), founder and former President of the American Heart Association, suggested a program which was useful when adapted to meet the specific needs of the individual with heart disease. This was his plan:

1. Evaluate the patient's medical, psychological, social and vocational status.
2. Individualize management, including diet, drugs, physical activity, emotional stress, environmental stress, etc.
3. Discuss with the patient the nature of his disease, the prognosis, and treatment, as well as the assessment of his capacities and how he can best arrange his life to fit his needs.
4. Make every effort to eliminate the patient's fear of heart disease.
5. Encourage the patient to live the best life possible within the limits (if any) imposed by his disease.

More specifically, some of the areas to be discussed included cigarette smoking, the healing process and development of collateral circulation, the benefits of graded exercise, and return to work.

Dr. Naughton (31), University of Illinois College of Medicine, Chicago, et al. regarded cardiac rehabilitation as a long-term process. Their plan consisted of careful assessment of each patient's physiologic and emotional limitations; continuous education of the patient through well-supervised programs which included physical activity; and an awareness of how the day-to-day interactions of the patient with his disease, his physician, his spouse and family and his occupation influenced the success or failure of the rehabilitative effort.

Dr. Moss (32), Associate Professor of Medicine, University of Rochester School of Medicine, New York, reviewed the educational needs of the post-myocardial infarction patient. A copy of the booklet he has written, giving the general information about

acute myocardial infarction, the stages of convalescence and the various preventive considerations was appended to the article. The healing process of the heart and atherosclerosis were discussed. The other main topic areas included: smoking; diet and weight control; physical activity and work; emotional stress; what to do if the patient has another attack; medications--dose, instructions, and reasons for the medications; and follow-up.

The American Heart Association has many pamphlets (33) available to the general public. The literature from the heart association, like that of other opinions reported in the review of literature, has not been subjected to evaluation through research. Topic areas in these pamphlets included the following: Activity; prevention of stress; diet; medications; explanation of the healing process; importance of the physician's evaluation for return to work; and smoking and heart disease.

#### Research Findings in Related Areas

Dr. Stamler (34), Director, Heart Disease Control Program of the Chicago Board of Health, et al., reviewed the literature on "coronary risk factors." These researchers conducted a study, the Coronary Prevention Evaluation Program, of 230 high-risk men, aged 40 to 59, in an effort to control and correct five key coronary risk factors. The risk factors which they identified were:



hypercholesterolemia, hypertension, overweight, cigarette smoking, and lack of exercise.

Nutritional and hygienic means were used to correct and control these risk factors. Weight was controlled by moderate caloric restriction in individually prescribed diets. Serum cholesterol and triglyceride concentrations were controlled by structuring the diets so that they were moderate in total calories, moderate in total fat and carbohydrate, low in saturated fat and low in cholesterol.

Results of the study showed a reduction in hypercholesterolemia, obesity, and hypertension in these high-risk men. About 30 per cent of the men who were cigarette smokers prior to entry into this study either gave up tobacco altogether or switched to pipe or cigars in moderation. Men who were formerly sedentary adopted habits of regular, frequent exercise, such as walking or swimming. The outcome of the study was not given at this time.

Dr. Leren (35), a Cardiologist in Oslo, Norway, studied the effect a reduction in the plasma cholesterol concentration by means of diet had on morbidity and mortality from coronary heart disease in male survivors of myocardial infarction. He studied 412 males, aged 30 to 64, discharged from medical departments in Oslo during the years 1956 to 1958 with a first diagnosis of myocardial infarction. The men were allocated at random to the experimental diet group and to the control group one to two years after their

infarctions. Each patient stayed in the trial for exactly five years.

A close follow-up of the experimental diet group was undertaken to include clinical examination with diet and weight control, serum-cholesterol determination, electrocardiography, and a review of hospital records. The cholesterol-lowering diet was low in animal fats and in dietary cholesterol, and rich in vegetable oil. The control group continued on the conventional diet.

At the start of the trial the mean serum-cholesterol value was exactly the same in the two groups (296 mg. per 100 ml.). The mean cholesterol reduction in the diet group was 17.6 per cent compared with 3.7 per cent in the control group. The results showed that the cholesterol-lowering diet reduced the incidence of total coronary heart disease relapses in patients below the age of 60. This effect was not demonstrated in patients age 60 and older.

The National Diet-Heart Study (36), which was supported by the National Heart Institute of the U. S. Public Health Service, was two years long. It studied the effects of diet on blood cholesterol levels in both free-living and closed populations (people in institutions). It was shown that a decrease in serum cholesterol occurred with the patients on the study diets which decreased the percentage of calories from saturated fatty acids and increased the polyunsaturated fatty acids.

Dr. Kuo (37), Robinette Foundation for Cardiovascular

Research and the George S. Klump Laboratory and Hospital, University of Pennsylvania, studied hyperglyceridemia in coronary artery disease. These were the findings of his study:

Different laboratory and metabolic studies were used to obtain an etiologic classification of hyperlipidemia in 286 patients with atherosclerosis. The series consisted to 211 men and 75 women, ranging from 24 to 62 years of age. The studies showed that although time-consuming metabolic studies were required to clearly establish the nature of the basic disturbance, useful information could be obtained by serum lipoprotein analysis (paper electrophoresis) and serum lipid determinations (cholesterol, phospholipid, and triglyceride concentrations). More than 90% of the 286 patients were found to have hyperglyceridemia derived from increased endogenous lipogenesis from carbohydrate. This abnormal carbohydrate sensitivity was revealed with an ad libitum carbohydrate (35% to 40%) diet. Since lipoproteins synthesized from carbohydrates were shown to be rich in both triglyceride and cholesterol, carbohydrate-sensitive hyperglyceridemia was frequently found in association with hypercholesteremia. The abnormal metabolism was controlled by a sugar-free diet, with a carbohydrate allowance of 125 to 150 gm. supplied as starches.

Dr. Corman (38), Department of Vascular Disease and Renology, Hahnemann Medical College and Hospital, Philadelphia, critiqued and reviewed the literature on lipids and coronary artery disease. He stated:

Although reduction of serum cholesterol and triglycerides can be achieved with diet therapy, there is still no convincing evidence that health or survival has been definitely improved, despite promising circumstantial evidence. Long-term, large-scale population studies are warranted to assess the effects of dietary modification on mortality from coronary heart disease.

Dr. Davies (39), Cardiologist, University of Colorado, School

of Medicine, Denver, wrote an editorial refuting the use of low-fat diets in atherosclerosis, indicating that the diet regimen was further complicated by the rival opinions that sugar rather than animal fat was the culprit in the genesis of atherosclerosis. He was referring to Kuo's study. He felt that doctors could only suggest calorie restrictions, reasonable physical activity, and limitation of smoking to their coronary patients.

Cigarette smoking and coronary heart disease were studied by various researchers, including Dr. Kannel, et al. (40) and Dr. Doerken (41). A general statement regarding the results of these studies was that:

There exists a dose response between the number of cigarettes smoked and overall mortality and a specific relationship to death from myocardial infarction and lung cancer. There is general agreement that a reduction in risk from diseases known to be associated with cigarette smoking.

Dr. Frank, Albert Einstein College of Medicine in New York, et al. (42) studied the onset and immediate outcome of initial myocardial infarction in men in relation to both cigarette smoking and physical inactivity. This study of coronary heart disease involved a population of some 110,000 adult men and women, who belonged to the Health Insurance Plan of Greater New York. In the first 18 months of the study, 301 men, aged 25 to 64, suffered an

initial myocardial infarction, with a four-week fatality rate of 32 per cent.

Results showed that the early mortality of both smokers and nonsmokers was heavily influenced by the customary level of physical activity prior to infarction. The least active men in both smoking categories had a much higher early mortality than the more active men. Fifty per cent of the least-active men who smoked cigarettes were dead within four weeks of onset, compared with 28 per cent of the smokers with higher levels of physical activity. For nonsmokers the corresponding figures were 56 per cent of the least-active men compared with 17 per cent of those who were relatively more active. Frank indicated that the slightly higher mortality of smokers compared with nonsmokers among the relatively active men could easily result from chance factors.

Dr. Parmley (43), Clinical Professor Medicine, Medical University of South Carolina and the Medical College of Georgia, was chairman of the National Workshop on exercise in the prevention, evaluation and treatment of heart disease. The purpose of the workshop was to provide a forum where physicians, physical educators, physiologists and others interested in exercise as it related to cardiovascular fitness and heart disease might meet to develop practical guidelines concerning exercise for the practicing physician. The foundation for this workshop rested on clinical data

which suggested that exercise may be of value not only in the evaluation of cardiovascular disease, but also in the treatment and prevention of coronary heart disease and possibly other diseases of the cardiovascular and pulmonary systems.

One section of the workshop described a four phase rehabilitation program after acute myocardial infarction. This program was based on careful evaluation of the patient's cardiac status with electrocardiogram, laboratory studies, and exercise tests. A graded exercise program was planned for each of the four phases by Dr. Wenger, Associate Professor of Medicine, Emory University School of Medicine, Atlanta (44). No evaluation of the program was available.

Dr. Hellerstein (45), Associate Professor of Medicine, Western Reserve University, Cleveland, studied 656 middle-aged men, of whom 254 had coronary heart disease. These patients were studied as part of an active conditioning program involving weight control, diet therapy, cessation of smoking, and regular performance of exercise. Detailed evaluation of a subgroup of 100 men with coronary disease revealed that they were able to perform muscular effort more efficiently than before training, with fewer heart beats, lower blood pressure, and greater aerobic capacity.

Dr. Zohman (46) stated that work capacity is determined by three factors: the patient's assets, his medical condition, and his

physical fitness. He further indicated that psychological factors influence work capacity in terms of motivation and physical changes which may decrease work capacity. Two studies that support this statement have been included here.

Higgins and Pooler (47), Assistant Professors of Sociology, Syracuse University, studied 83 males who had survived myocardial infarction to determine how many had returned to work. This study was conducted in Syracuse, New York. The results of their interviews showed that approximately 80 per cent of the sample returned to work with a minimum of difficulties. Of the others, several were still recovering from the acute phase of their illness and it was not possible to evaluate their work status. The difficulties of returning to work for those cases in which difficulties were reported, included problems such as educational level and work skills.

Acker (48) studied the factors affecting the employment of 55 patients treated in coronary care units for myocardial infarction. The patients studied had been treated at two hospitals in Tennessee. Eighty per cent of these patients returned to old or modified jobs without special rehabilitation counseling.

Reasons for unsuccessful re-employment were: (1) unemployed at the time of myocardial infarction, (2) retirement, (3) death after hospital discharge, (4) angina pectoris, (5) congestive heart failure,

(6) pending Workmen's Compensation litigation, (7) retirement by company physician, (8) not released by family physician, (9) lower blue collar worker, and (10) a broad group of psychologic factors loosely termed "poor motivation. "

Factors favoring re-employment were: (1) prior employment, (2) higher level of job skill, (3) occupational stability, (4) freedom from angina pectoris or congestive heart failure, and (5) normal heart size.

Acker stated that a more vigorous therapeutic approach is unlikely greatly to influence those with severe disease as reflected by congestive failure, angina, early death or voluntary retirement due to age. A more aggressive and early program of rehabilitation directed toward the patient, his family, the industrial physician and the family physician should favorably influence successful reemployment of the remaining patients. Knowledge of these unfavorable factors should also alert the physician to a more aggressive approach (49).

### Summary

The studies reviewed in the literature revealed that patients had cognitive needs in these areas: diagnosis and the etiology of their condition, prognosis, dietary restrictions, whether they could smoke or not, medicines, personal care, work, activity, finances,



marital relations, and tests. The extent of information the patients wanted seemed to be directly related to his level of education.

Patients who were given more thorough explanations were found to participate more effectively with the physician than were patients who received very little explanation. Good rapport between the physician and the patient was an important factor in determining whether or not the patient followed the physician's orders.

Much research has been done on the effects of diet, smoking, and exercise on the heart. In contrast, very few studies have been done evaluating the teaching of the myocardial infarction patient.

The knowledge that they did have was superficial and often misunderstood.

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## CHAPTER III

### ANALYSIS OF DATA

The purpose of this study was to identify the information myocardial infarction patients had about their disease and post-hospital regimen. In meeting this purpose, an interview schedule developed by Kos (50) with modifications was used as the data gathering device.

#### Description of the Sample

Twenty-five former patients were interviewed. Two of the respondents had been patients in the county hospital; twenty-three had been in a private hospital. The 25 male respondents in the study ranged in age from 39-55 years with a mean age of 48.9 years. Three respondents (12 per cent) ranged in age from 39-44 years; nine (36 per cent) ranged in age from 45-49 years; 13 (52 per cent) ranged in age from 50-55 years. See Table 2.

Twenty-three of the respondents were married, one was divorced and one was single. All respondents had someone in the household or nearby who could provide assistance in time of an emergency or on a day-to-day basis, such as preparing special diets. See Table 3.

TABLE 2

## FREQUENCY DISTRIBUTION OF RESPONDENTS BY AGE

Age Range	N	%
39-44	3	12
45-49	9	36
50-55	<u>13</u>	<u>52</u>
Total	25	100
Age Range 39-55 years		
$\bar{X} = 48.9$ years		

TABLE 3

FREQUENCY DISTRIBUTION OF PERSONS IN RESPONDENTS'  
HOUSEHOLD OR NEARBY WHO COULD PROVIDE ASSISTANCE

Number in Household or Nearby	N	%
1	1	4
2-3	10	40
4-5	10	40
6-7	1	4
8-11	<u>3</u>	<u>12</u>
Totals	25	100
Range 1-11		

Seventy-six per cent (N-19) of the respondents were Protestants; four (16 per cent) were Roman Catholics; one (4 per cent) was Jewish; and one (4 per cent) was Morman. Thus the religious practices of the population did not prevent them from obtaining medical assistance at the time of their heart attack or interfere with the treatment prescribed. The same could be said for race. All 25 respondents were Caucasion. It was planned that all races would be included in the study, but only Caucasions were located.

The level of education for this population ranged from eighth grade to Master's degree. All respondents had completed at least eight grades and 56 per cent had completed high school and/or attended college. With this level of education the respondents in the sample should be able to read and understand the teaching done by nurses, physicians, and others. See Table 4.

Of the 25 respondents in the study, 40 per cent (N-10) were not presently working. One of the ten was medically retired. In response to the question: "How do you feel about returning to work?" five respondents (50 per cent) indicated that it was too soon to return to work. Three respondents (30 per cent) stated that no job was available; one (10 per cent) indicated that he did not wish to work, because his disability pension provided just about as much income as when he worked. See Table 5.



TABLE 4  
 FREQUENCY DISTRIBUTION OF RESPONDENTS  
 BY EDUCATIONAL PREPARATION

Highest Educational Preparation	N	%
8th Grade	3	12
Some High School	3	12
High School Graduate	8	32
Some College	6	24
College Degree	4	16
Master's Degree	<u>1</u>	<u>4</u>
Total	25	100

TABLE 5  
 FREQUENCY DISTRIBUTION OF REASONS FOR UNEMPLOYMENT

Reason for Unemployment	N	%
Too soon to return to work	5	50
No job available	3	30
Disability Pension	1	10
Medically Retired	<u>1</u>	<u>10</u>
Total	10	100

The Hollingshead Index of Social Position was used to classify the occupations of the respondents (51). Eight respondents (32 per cent) were classified as major professionals, executives, managers and proprietors of large and medium businesses. All eight were presently employed. Their level of education ranged from completion of high school to holding a Master's degree.

Eight respondents (32 per cent) were listed as administrators, small business proprietors, minor professionals, clerical and sales workers. Three respondents (12 per cent) were unemployed; five (20 per cent) were employed. All had attended or completed high school. One respondent had also completed college.

Three respondents (12 per cent) were skilled manual workers. All three were presently unemployed. One had attended high school; two had completed high school.

Six respondents (24 per cent) were semi-skilled workers. Five of these were truck drivers. Four respondents (16 per cent) were presently unemployed; two respondents (8 per cent) were employed. In this category three had completed eighth grade; one had attended high school; one had completed high school. The remaining respondent, who had attended college, was medically retired. See Table 6.

TABLE 6

OCCUPATION AND PRESENT EMPLOYMENT BY HIGHEST EDUCATIONAL

LEVEL OF EACH RESPONDENT

Highest Level of Education	Professional, Executives, Managers or Large Proprietors	Administrators, Small Businesses, Minor Professional, Clerical and Sales	Skilled Workers	Semi-Skilled Workers	Total
8th Grade	0	0	0	3	3
Some High School	0	2	0	1	3
High School Graduate	1	5	1	1	8
Some College	3	0	2	1	6
College Degree	3	1	0	0	4
Master's Degree	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	8 employed	5 employed	none employed	2 employed	15 employed

### Hospitalization Background Data

Five respondents (20 per cent) had had more than one myocardial infarction. Three respondents (12 per cent) had had coronary artery surgery after their hospitalizations for myocardial infarction. None of the respondents had ever had a pacemaker. All had been cared for in a coronary care unit and had been monitored during the acute phase of illness.

Most of the respondents had no pre-existing medical conditions. Ten respondents (40 per cent) indicated they had other medical conditions. Three respondents were known diabetics; three had hypertension; two had had nervous conditions. The two remaining had had other conditions including migraine headache and Ménière's Disease.

The length of time since the last myocardial infarction ranged from 3 to 26 months. Five respondents (20 per cent) had their last myocardial infarction less than six months ago. Eight respondents (32 per cent) had their attack in the last 6-12 months; nine (36 per cent) in the last 12-18 months; two in the last 18-24 months; and one 26 months ago. See Table 7.

The length of hospitalization ranged from one week to more than four weeks, with a mean of 3 weeks. Two respondents (8 per cent) were in the hospital one week. These respondents indicated that they had not gone to see their physicians until approximately one week

had lapsed since the onset of the attack. Three respondents (12 per cent) were in the hospital for two weeks. Twelve respondents (48 per cent) were hospitalized for three weeks; six (24 per cent) for four weeks; two (8 per cent) were hospitalized for more than four weeks. See Table 8. All respondents had had at least one week's contact in the hospital with nurses, physicians, and other allied health professionals, during which time teaching about their illness and post-hospital regimen could have taken place. In addition all respondents had been home from the hospital for at least three months, during which time they had visited their physicians monthly. This provided another opportunity for instructions regarding the post-hospital regimen.

#### Information Myocardial Infarction Patients Have About Their Disease and Post-Hospital Regimen

Respondents were asked specific questions to identify what they had learned about their disease and post-hospital regimen. No attempt was made to determine when the learning took place, i. e., in the hospital or after discharge.

Respondents were asked: "How do you picture what happened to your heart?" Complete knowledge in answer to the above question meant that the respondent had learned that an area of the heart muscle was injured and a scar formed, and finally that collateral

TABLE 7  
 FREQUENCY DISTRIBUTION OF LENGTH OF TIME SINCE LAST  
 MYOCARDIAL INFARCTION

Length of Time Since the Last Myocardial Infarction	N	%
Less than 6 months ago	5	20
6-12 months	8	32
12-18 months	9	36
18-24 months	2	8
More than 24 months	<u>1</u>	<u>4</u>
Total	25	100

TABLE 8  
 FREQUENCY DISTRIBUTION OF LENGTH OF  
 HOSPITALIZATION OF RESPONDENTS

Length of Hospitalization	N	%
1 Week	2	8
2 Weeks	3	12
3 Weeks	12	48
4 Weeks	6	24
More than 4 Weeks	<u>2</u>	<u>8</u>
Total	25	100
$\bar{X} = 3$ Weeks		

circulation would take over the blood supply to the injured area, this healing process taking about eight weeks. Partial-accurate response meant that some of the above points, but not all were known. What was known was accurate. Partial-inaccurate response meant that some information was known, but most of it was inaccurate. Others indicated they did not know the answer to this question.

Twelve respondents had complete knowledge of what had happened to their hearts and how the healing process took place. The score for completely correct responses was 48. Seven respondents had partial and accurate knowledge, with a score of 21. Two respondents had partial and inaccurate information on the above question. The score for partial and inaccurate information was 2. See Table 9.

Respondents were asked the following question pertaining to activity and rest: "Has your doctor or nurse discussed with you the following activities: driving your car, resuming marital relations, resting after meals, resting when tired, and planning regular exercise?" Nineteen respondents were given instructions about when they could begin driving their cars after discharge from the hospital. Six respondents were not given these instructions. The score for this question was 76. See Table 10.

Eight respondents were given instructions about when they could resume normal marital relations. Thirteen had not been given

TABLE 9  
 FREQUENCY DISTRIBUTION OF THE RESPONDENTS' KNOWLEDGE  
 OF THE INFARCTION AND THE HEALING PROCESS

Knowledge	N	Score*
Complete	12	48
Partial-Accurate	7	21
Partial-Inaccurate	2	2
Don't Know	<u>4</u>	0
Totals	25	71 (71%)

\*Scoring: Complete: N times 4; Partial-Accurate: N times 3;  
 Partial-Inaccurate: N times 1; Don't know: N times 0.

TABLE 10  
 FREQUENCY DISTRIBUTION OF THE RESPONDENTS'  
 INSTRUCTIONS REGARDING ACTIVITIES

Activities	N	Score *
Driving Car	19	76
Marital Relations	8	32
Rest after Meals	10	40
Rest when Tired	22	88
Regular Exercise	<u>16</u>	<u>64</u>
Totals	75	300 (62%)

\* Scoring: N times constant 4.



instructions. Four respondents were not asked because it was deemed this would be too embarrassing to them. The score for this question was 32 out of 84 possible points. See Table 10.

Ten respondents were told to rest after eating. Fifteen respondents had not been given this instruction. The score for this question was 40. See Table 10.

Twenty-two respondents were instructed to rest when tired. Three respondents were not given instruction. The score for this section was 88. See Table 10.

Sixteen respondents were given instructions regarding regular exercise. Nine were not given instructions. The score for this question was 64. See Table 10.

All respondents were men between the ages of 39-55 years, the prime working years. They were asked: "Did anyone talk with you about when you could return to work?" Twenty respondents were told when they could return to work. Five respondents were not given these instructions. The score for this question was 80.

Each respondent was also asked: "Did anyone say what kind of work you could do?" Twenty-two respondents were told what kind of work they could do. Only three were given no instructions regarding the type of work they could do. Of these who were given instructions, sixteen were told they could return to the same job. Four respondents were told they could return to the same job, but that they had to

limit the hours at work. One respondent was given the instructions to seek a new job with less stress within the same office. One respondent was given instructions regarding the kind of work he could do about the house, but was otherwise medically retired. The score for this section was 88. See Table 11.

TABLE 11  
 FREQUENCY DISTRIBUTION OF THE RESPONDENTS'  
 INSTRUCTIONS REGARDING THE WORK  
 THEY COULD DO

Work Permitted	N	Score*
Same job	16	64
Same job: Limited hours	4	16
New job	1	4
Medically retired	<u>1</u>	<u>4</u>
Totals	22	88
		(88%)

\* Scoring: N times constant 4.

In two studies (52, 53) it has been found that 80 per cent had returned to work with a minimum of difficulties. In the present study 60 per cent had returned to work. Reasons for unsuccessful re-employment in this study and others were: respondents still in the convalescent phase following their illnesses; retirement; angina;

lower work skills; lower educational levels. Zohman (54) stated that work capacity was determined by three factors: the patient's assets, his medical condition, and his physical fitness. He also indicated that psychological factors influenced work capacity in terms of motivation and physical changes which may decrease work capacity.

Special diets are often prescribed for the post-coronary patient, however some patients can remain on normal diets. In this study 21 respondents were given dietary instructions. Fourteen respondents were given new diets. Three respondents were told to watch certain foods. Four respondents were given no dietary instructions. The score for this section was 84. See Table 12.

TABLE 12  
FREQUENCY DISTRIBUTION OF THE RESPONDENTS'  
DIETARY INSTRUCTIONS

Instructions Given	N	Score*
New Diet	14	56
Same Diet	4	16
Watch Certain Foods	<u>3</u>	<u>12</u>
Total	21	84
		(84%)

\* Scoring: N times constant 4.

Moss (55) indicated that post-myocardial infarction patients should know what their medications are and the reasons for taking them. Respondents in this study were asked what medications they were taking and how the medications helped them. Twenty respondents were taking some medications. Five respondents were taking no medications.

Nine respondents were taking a digitalis preparation. Three of the nine respondents knew the action of the drug. The score for this question was 12. See Table 13.

Only one respondent was taking potassium. He had a partial understanding of the reason he was taking this medication. The score for this question was 3. One point was taken off for not knowing the complete answer.

Four respondents were taking Quinidine. Two respondents knew the action of this drug. The score for this question was 8. See Table 13.

Four respondents were taking a diuretic. All four respondents knew the action of this drug. The score for this question was 16. See Table 13.

Nine respondents were taking Coumadin. All knew the action of this drug. The score for this question was 36. See Table 13.

Eleven respondents were taking Valium or another tranquilizer. Nine respondents knew the action of these drugs. One respondent did

not know the action of Valium. The remaining respondent knew partially the reason he was taking the medication. Thirty-nine points were given for this question. See Table 13.

Nine respondents took nitroglycerine. Seven respondents knew the action of this medication, two respondents did not know. See Table 13.

When respondents were asked more specific questions in regard to their medications, they did not know the answers. None of the nine respondents taking a digitalis preparation had been taught to take their pulses prior to taking their digitalis. Respondents were also asked: "If your pulse is below 60 beats per minute, what should you do?" and "If your pulse seems to skip beats, what should you do?" The nine respondents taking digitalis preparations did not know the answer to the last two questions. The points possible in this section were 108. The score for this section was zero.

Four respondents were taking a diuretic. Three questions regarding potassium were asked of those taking a diuretic. The first question was: "Did someone teach you the importance of eating foods that contain potassium while you are taking a diuretic?" The second question referred to the first question: "Do you know why?" The third question was: "What foods contain Potassium?" The points possible in this section were 48. The score was zero.

TABLE 13  
 FREQUENCY DISTRIBUTION OF RESPONDENTS TAKING SPECIFIC MEDICATIONS  
 BY AMOUNT OF UNDERSTANDING OF EACH DRUG

Medications	Complete Understanding	Partial Understanding	No Understanding	Total	Score*
Digitalis Preparation	3	0	6	9	12
Potassium	0	1	0	1	3
Quinidine	2	0	2	4	8
Diuretic	4	0	0	4	16
Coumadin	9	0	0	9	36
Valium or other Tranquilizer	9	1	1	11	39
Nitroglycerine	<u>7</u>	<u>0</u>	<u>2</u>	<u>9</u>	<u>28</u>
Totals	34	2	11	47	142
					(76.6%)

\*Scoring: Complete understanding: N times constant 4; Partial understanding: N times 3.

Certain questions (numbers B:3-7) dealt with the understanding of nitroglycerine. The first two questions were general and were aimed at determining the number of respondents who had chest pain or angina. First the respondents were asked: "When you overdo, do you have any warnings?" Fifteen respondents said they had chest pain, angina, or gastrointestinal discomfort. Gastrointestinal discomfort was included with chest pain because it may really be chest pain. Three respondents had warnings other than chest discomfort. They indicated feeling tired or short of breath. See Table 14.

TABLE 14  
FREQUENCY DISTRIBUTION OF WARNINGS RESPONDENTS  
HAVE WHEN THEY OVERDO

Warnings	N	%
Warnings: chest pain, angina, gastrointestinal discomfort	15	60
Warnings other than chest: shortness of breath or feeling tired.	3	12
Totals	18	72%

The fifteen respondents who had chest pain, angina, or gastrointestinal symptoms were asked if they knew what caused these symptoms; twelve respondents (80 per cent) did not know. The score for this question was 12.

Twelve respondents had complete knowledge of what had happened to their hearts and how the healing process took place. Only three respondents knew what caused chest pain or angina. Respondents seemed unable to transfer the knowledge of what had happened to their hearts during myocardial infarction to what caused chest pain.

Nine respondents took nitroglycerine for chest pain and one respondent took another drug similar to nitroglycerine for the symptom. These ten respondents were asked if they knew the action of these medications. Seven respondents knew the action of nitroglycerine. Two respondents did not know what caused relief of chest pain with nitroglycerine. The respondent taking the drug similar to nitroglycerine did not know how the drug worked to relieve the pain. The score for this section was 28.

Fifteen respondents said that they also used other measures to help relieve the "warning". These measures included rest or discontinuing the activity which caused the discomfort. Three respondents said that they did not use other measures to relieve the warnings.

The total number of points possible on all of the sections was 1,172. The zero scores for the questions on digitalis and potassium were not included in this total score. Respondents were given points for correct responses or partially correct responses. The total score was 805. Another way of interpreting the score was that 68.7 per cent of the items were known. See Table 15.



TABLE 15  
 FREQUENCY DISTRIBUTION OF SCORES FOR KNOWLEDGE REGARDING ILLNESS AND  
 POST-HOSPITAL REGIMEN: THIS STUDY COMPARED WITH CLARK'S STUDY

Knowledge of	This Study			Clark's Study		
	Total Possible Points	Points Correct	%	Total Possible Points	Points Correct	%
Illness	160	83	51.8	416	208.0	50.0
Medications	228	170	78.9	271	220.0	81.2
Activity and Rest	484	300	62.0	926	389.8	42.0
Work	200	168	84.0	126	90.0	71.4
Diet	<u>100</u>	<u>84</u>	<u>84.0</u>	<u>728</u>	<u>294.8</u>	<u>40.5</u>
Totals	1172	805	68.7	2467	1302.6	52.8

The results of this study were compared to Clark's study. This was difficult to do because Clark's tool was different and her population was different. In spite of this, comparisons could be made in regard to respondents' knowledge of: their illness, medications, activity and rest, work, and diet. The percentage of knowledge about illness was nearly the same in both studies (50 per cent). The respondents in this study knew more about rest, activity, and diet than the respondents in Clark's study. The respondents in Clark's study had more information about their medications than did the respondents in the present study. Specific information was lacking in both populations.

The overall results of the present study were more favorable than that found by Clark. The overall percentage for correct responses in this study was 68.7 per cent, compared with 52.8 per cent in Clark's study. See Table 15. One explanation for differences in the findings of the two studies was that Clark interviewed respondents, all of whom did not have private physicians. The respondents in Clark's study were located in a municipal, a veterans, and a private hospital. The population for the present study was basically from a private hospital, where each had his own physician. A second reason was that Clark used a different tool in her study, asking more specific questions. Respondents had trouble answering questions requiring more specific knowledge. Thirdly, Clark had a

sample size twice that of the present study, which could be a more representative sample. Comparisons with Kos' tool were not possible because it was not a study tool, but a device for obtaining a nursing history for the post-myocardial infarction patient still in the hospital.

#### Attitude Toward Heart Condition

All respondents were asked the following question from Clark's tool (56): "How do you feel now about your heart condition?" Seventeen respondents (68 per cent) indicated acceptance, sometimes optimistic acceptance, of their heart conditions. Eight respondents (32 per cent) showed varying degrees of non-acceptance of their heart conditions. These attitudes ranged from resignation and pessimism to fear and anxiety about their conditions. See Table 16.

Each respondent was asked: "What are the factors in your life which you feel contributed to your heart attack?" Seventeen respondents (68 per cent) smoked cigarettes and felt this to have been one of the factors contributing to their heart condition. Fifteen respondents (60 per cent) indicated that worry was one of the factors. Nine respondents (36 per cent) considered themselves overweight. Seven respondents (28 per cent) thought overexertion was a factor. Five respondents (20 per cent) thought that their diets contributed to the heart condition. Five respondents (20 per cent) listed other factors

TABLE 16  
 FREQUENCY DISTRIBUTION OF RESPONDENTS' ATTITUDES  
 TOWARD THEIR HEART CONDITION

Attitude	N	%
Acceptance	17	68
Non-acceptance	<u>8</u>	<u>32</u>
Total	25	100

TABLE 17  
 FREQUENCY DISTRIBUTION OF FACTORS WHICH RESPONDENTS  
 THINK CONTRIBUTED TO THEIR MYOCARDIAL INFARCTION

Factors	Yes		No		Don't Know	
	N	%	N	%	N	%
Smoking	17	68	6	24	2	8
Worry	15	60	7	28	3	12
Overweight	9	36	13	52	3	12
Overexertion	7	28	15	60	3	12
Underactivity	4	16	18	72	3	12
Diet	5	20	17	68	3	12
Other	5	20	17	68	3	12

such as drinking large amounts of alcohol, drinking 30-50 cups of coffee per day, and having a traumatic event. Of all the factors, worry and smoking were considered the most important in contributing to their heart conditions. See Table 17. The factors identified here, except alcoholism and heavy consumption coffee, concurred with those listed in the literature as coronary risk factors (57).

Each respondent was asked: "What are the types of worry or aggravation that bother you?" Eighty per cent (N-20) indicated that they worried; 60 per cent (N-15) felt that worry contributed to their having a heart attack. This is shown in Table 17.

Eleven respondents (44 per cent) considered their job the most stress provoking. Five respondents (20 per cent) listed other things such as: barking dogs, bad drivers, or nearly everything, caused worry. Four respondents indicated that their families caused them the most worry. Four respondents stated that they had no worries and one did not know. Since worry is a factor that increases the work of the heart, this is an area for patient teaching. See Table 18.

Each respondent was asked what type of personality he felt he had. Eight respondents (32 per cent) considered themselves nervous or worriers. Six respondents (24 per cent) considered themselves as calm and easy-going. Four respondents (16 per cent) stated that they were hot-tempered. Four respondents (16 per cent) indicated other personality types, such as extrovert and independent. Three

respondents (12 per cent) did not know what personality types they had. See Table 19.

TABLE 18  
 FREQUENCY DISTRIBUTION OF WORRY AND AGGRAVATION  
 EXPRESSED BY RESPONDENTS

Type of Worry	N	%
Job	11	44
Family	4	16
Other	5	20
No Worries	4	16
Don't Know	<u>1</u>	<u>4</u>
Totals	25	100

TABLE 19  
 FREQUENCY DISTRIBUTION OF RESPONDENTS BY  
 PERSONALITY TYPES

Personality Type	N	%
Nervous, worrier	8	32
Calm, easy-going	6	24
Hot-tempered	4	16
Other	4	16
Don't know	<u>3</u>	<u>12</u>
Total	25	100

### The Teachers

At the end of the interview each respondent was asked to evaluate the teaching by physicians, nurses, and others. All but one of the respondents indicated that someone had given them some instruction. See Table 20.

Respondents were asked: "Did teaching by your physician help you in your adjustment to your illness and to your life now?" Nineteen respondents (76 per cent) felt that the teaching done by their physicians was helpful. Four respondents (16 per cent) felt that the physician's teaching was not helpful. Two respondents (8 per cent) felt that their physician did no teaching. One of these had a friend who was an osteopath who helped him. The other respondent felt that his physician would not tell him anything, and he said he would not listen to his physician or follow directions anyway. In Clark's study (58) the major source of all information given the patient was the physician (43 per cent). Nurses gave only one per cent of the information to patients.

When asked about the health teaching which was done by nurses, eight respondents (32 per cent) indicated that the teaching by nurses was helpful. One respondent (4 per cent) indicated the teaching was not helpful. Sixteen respondents (64 per cent) stated that no teaching was done by nurses. Most respondents described the care they had

Received from nurses, but felt that teaching was basically not done by nurses.

Three respondents (12 per cent) indicated some teaching was done by the dietitian and that it was helpful. Three respondents indicated that aides and licensed practical nurses had taught them and that it was helpful. See Table 20.

TABLE 20  
FREQUENCY DISTRIBUTION OF WHO DID HEALTH TEACHING BY  
WHETHER OR NOT IT WAS VIEWED AS HELPFUL

Teaching By	Helpful		Not Helpful		No Teaching		Total	
	N	%	N	%	N	%	N	%
Physicians	19	76	4	16	2*	8	25	100
Nurses	8	32	1	4	16	64	25	100
Dietitians	3	12	0	0	22	88	25	100
Aides, Licensed Practical Nurses	3	12	0	0	22	88	25	100

\* One of these two had a friend who was an Osteopath who helped him. The other person felt that his doctor would not tell him anything, and he said he would not listen to his physician or follow directions anyway.



### Summary

The population in the present study had good knowledge about their diet, returning to work, and their medications. They had less information about their illness, and activity including rest. The primary teachers were physicians. Nurses were credited with little teaching. More than half of the respondents indicated that worry, most often about their job, and cigarette smoking were factors contributing to their heart condition. The men in this study had an accepting attitude toward their illness.

The overall results of the present study were more favorable than that found by Clark. The findings of this study support Clark's study with the exception of dietary information. The respondents in the present study had twice as much knowledge about diet than found by Clark.

## REFERENCES

## CHAPTER III

50. Barbara A. Kos, op. cit.
51. Hollingshead Index of Social Positions
  1. Higher Executives, Proprietors of Large Concerns, and Major Professionals
  2. Business Managers, Proprietors of Medium Sized Businesses, and Lesser Professionals.
  3. Administrative Personnel, Small Independent Businesses, and Minor Professionals.
  4. Clerical and Sales Workers, Technicians, and Owners of Little Businesses.
  5. Skilled Manual Employees.
  6. Machine Operators and Semi-Skilled Employees.
  7. Unskilled Employees.
  8. Housewife.
52. A. C. Higgins and William S. Pooler, op. cit.
53. Joseph E. Acker, op. cit.
54. Lenore R. Zohman and Jerome S. Tobis, op. cit.
55. Arthur J. Moss, op. cit.
56. Vivian V. Clark, op. cit.
57. Andre Corman and Albert N. Brest, op. cit.; Horst Doerken, op. cit.; Sue Foster and Kathleen G. Andreoli, "Behavior Following Acute Myocardial Infarction," American Journal of Nursing (November, 1970), 70: 2344-2348; Charles W. Frank, et al., op. cit.; Herman K. Hellerstein, op. cit.; William Kannel, et al., op. cit.; Peter T. Kuo, op. cit.; Paul Leren, op. cit.; National Heart Institute of the U. S. Public Health Service, op. cit.; Loren F. Parmley, et al., op. cit.; and Jeremiah Stampler, et al., op. cit.
58. Vivian V. Clark, op. cit.

## CHAPTER IV

## SUMMARY, DISCUSSION AND RECOMMENDATIONS

Summary

The more than 400,000 patients, surviving their heart attacks each year, need information about their disease and post-hospital regimen. The areas for teaching have been identified by physicians, however few studies have been done to evaluate the teaching of these patients. Therefore, the purpose of this study was to identify the information myocardial infarction patients had about their disease and post-hospital regimen.

An open-ended, semi-structured questionnaire modeled after Kos' "Rehabilitation Index of the Myocardial Infarction Patient" was used as data gathering device. The study sample, located through coronary care logs, consisted of 25 males, aged 39-55, who had had a myocardial infarction in the past two years. Of these 25 patients, 23 were private patients and two had been patients at a county hospital, most of whom were interviewed in their homes. Most respondents were married, white, and Protestant. The mean education level was high school graduation. They were all basically healthy prior to the onset of their myocardial infarctions. Ten respondents

were unemployed at the time of this study. Five of these respondents felt that it was too soon to return to work, but planned to return to work as soon as they had medical clearance.

The score for knowledge of the heart condition was 71 per cent. Most of the respondents had received instructions about driving their cars, resting when tired, and exercising regularly. Less than half of the respondents had received instructions about when they could resume marital relations or that they should rest after meals.

Twenty respondents were told that they could return to work and what kind of work they could do. Twenty-one respondents (84 per cent) had been given diet instructions. Fourteen had been given a new diet. Twenty respondents were taking medications. These respondents had general information about their medications, but specific information was poor.

Fifteen respondents had warnings when they overexerted. These warnings included chest pain, angina, and gastrointestinal discomfort. Most of these respondents (80 per cent) did not know what caused these symptoms. All but one respondent had had some instruction, mostly done by physicians. Nurses were credited with very little teaching.

Overall the respondents in the present study had better knowledge, except on medications, than that found by Clark. Over two-thirds of the respondents said they accepted their disease.

The respondents knew about smoking and worry as coronary risk factors. In regard to worry, it was interesting to note that one-third of the respondents considered their personality type to be nervous or worried. The respondents did not, however, know very much about diet, lack of exercise and obesity as coronary risk factors.

### Discussion

The small sample size was limiting. One of the limitations was the impossibility for developing relationships between data. Furthermore, generalizations could not be made to a larger population.

These men, although they seemed to have good knowledge about their illness and post-hospital regimen, did not understand details. Because details were not known, one would doubt that this information would be carried over into behavior. Once the initial shock of the condition had worn off, the fear that served to motivate learning was gone. Thus the clinic nurse and the physician need to reinforce learning over a long period of time.

Although it seemed that teaching was good on more obvious topics such as diet and exercise, very little teaching was done in regard to sexual activity, which puts as much strain on the heart as climbing two or three flights of stairs. Respondents knew very little

about the side-effects of their medications, the cause of their chest pain, or resting after meals. These unanswered questions are a source of unnecessary stress for the post-myocardial infarction patient. Teaching on the less obvious topics, mentioned here, could be improved.

One reason that these respondents had good general knowledge about their illness and post-hospital regimen was that nearly all were private patients with their own physicians. Another reason might be that all of these respondents had been discharged at least three months prior to the interviews, during which time respondents had seen their physicians at monthly intervals. Many respondents indicated that these visits allowed them to ask questions and learn the next step in their plan for rehabilitation. The post-hospital period seems to be an important time for learning.

Even though nurses were said not to do teaching, it is not known if this was a misunderstanding on the part of the patients as to what was meant by "teaching." Respondents felt that nurses did give them good care. While the nurses were giving nursing care, instructions could have been given to the patient, though not formally in the sense of a class. Information could be forgotten during the stress of acute illness. Thus, the timing of the teaching may be an important factor in determining whether or not the patient is learning.

Respondents did indicate that some learning takes place after discharge.

### Recommendations

This descriptive study illustrated the need for more studies in the area of teaching the post-myocardial infarction patient about his illness and post-hospital regimen. Therefore, the following studies are recommended:

1. This study should be replicated with a larger sample, which has been broadened to include different ethnic groups and all types of hospitals.
2. An experimental study should be designed to include patients who have had teaching based on a planned course outline and a control group without this special teaching.
3. A study including the application of knowledge by the post-myocardial infarction patient should be conducted.
4. A study using non-participant methodology should be designed to determine what teaching was done by nurses.

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APPENDIX

APPENDIX A

## APPENDIX A

## INTERVIEW SCHEDULE

Date \_\_\_\_\_ Time \_\_\_\_\_

A. Age  
 \_\_\_\_\_ 40-44  
 \_\_\_\_\_ 45-49  
 \_\_\_\_\_ 50-55

B. Marital Status  
 \_\_\_\_\_ Single  
 \_\_\_\_\_ Married  
 \_\_\_\_\_ Separated  
 \_\_\_\_\_ Divorced  
 \_\_\_\_\_ Widowed

C. Religion  
 \_\_\_\_\_ Protestant  
 \_\_\_\_\_ Roman Catholic  
 \_\_\_\_\_ Jewish  
 \_\_\_\_\_ Other

D. Ethnic Group  
 \_\_\_\_\_ Caucasian  
 \_\_\_\_\_ Negro  
 \_\_\_\_\_ Oriental  
 \_\_\_\_\_ Other

E. Immediate Family  
 \_\_\_\_\_ Wife  
 \_\_\_\_\_ Number of children  
 \_\_\_\_\_ Ages  
 \_\_\_\_\_ In-law  
 \_\_\_\_\_ Other  
 \_\_\_\_\_

F. Education  
 \_\_\_\_\_ Less than 8th grade  
 \_\_\_\_\_ Completed 8th grade  
 \_\_\_\_\_ Attended High School  
 \_\_\_\_\_ Completed High School  
 \_\_\_\_\_ Attended College  
 \_\_\_\_\_ Completed College  
 \_\_\_\_\_ Other

G. Birthplace  
 Patient \_\_\_\_\_ Father \_\_\_\_\_ Mother \_\_\_\_\_  
 \_\_\_\_\_ U. S. A.  
 \_\_\_\_\_ Canada

## G. Birthplace (cont.)

Patient	Father	Mother
		Europe
		Other

## H. Work Classification of U. S. Bureau of Labor Statistics

White-Collar Workers	Blue-Collar Workers
<input type="checkbox"/> Professional Persons	<input type="checkbox"/> Skilled Workers
<input type="checkbox"/> Proprietors	<input type="checkbox"/> Foreman
<input type="checkbox"/> Managers	<input type="checkbox"/> Semi-skilled
<input type="checkbox"/> Officials	<input type="checkbox"/> Unskilled
<input type="checkbox"/> Clerks	<input type="checkbox"/> Service Workers
<input type="checkbox"/> Salespeople	<input type="checkbox"/> Retired <input type="checkbox"/> Unemployed

## Hospitalization Background Data

A. Date of M. I. \_\_\_\_\_

B. Pacemaker  Yes  No  Don't Know

C. Other Conditions

 Congestive Heart Failure Diabetes T. B. Cancer Emphysema Ulcers Other

D. Length of Hospitalization of M. I.

 1 week 2 weeks 3 weeks 1 month more than 1 month Don't know

Coronary Care

Unit  Yes No

Monitor

 Yes No



## E. Hospital Insurance

No  Yes, but patient will pay  
 Yes, will cover entire partial hospitalization  
hospitalization  Not ascertained

## F. Previous Hospitalization

None  
 One \_\_\_\_\_ Year \_\_\_\_\_ Reason  
 Two \_\_\_\_\_ Year \_\_\_\_\_ Reason  
 Three \_\_\_\_\_ Year \_\_\_\_\_ Reason

## "Rehabilitation Index of the Myocardial Infarction Patient"

## A. General Question

1. How do you feel now about your heart condition?  
Patient's statement:

Later make judgment:

Accept	Pessimistic
Reject	Fear
Resigned	Anxiety
Optimistic	Other

## B. Determining where the patient is:

1. How do you picture what has happened to your heart?
2. What are the factors in your life which you feel contributed to your problem?
  - a. Diet
  - b. Smoking
  - c. Worry
  - d. Weight
  - e. Overexertion
  - f. Underactivity
3. When you overdo, do you have any warnings?
4. Do you know what causes them?
5. Do you take medications for these symptoms?
6. Do you know what causes relief with the medication?

7. Are there any other measures that relieve them?
8. What has your doctor or nurse discussed with you about activity, exercise, and rest at home?
  - a. Driving car
  - b. Marital relations
  - c. Rest after meals
  - d. Rest when tired
  - e. Regular exercise
9. Did anyone talk with you about when you could go back to work?
10. Did anyone say what kind of work you could do?
11. What has your doctor or nurse discussed with you about your diet? (Low-fat, low-salt, low-calorie, meal planning, don't know)
12. Do you currently take any medication regularly?
13. What are these medications? How do they help you?
  - a. Digitalis preparation
  - b. KCL
  - c. NTG
  - d. Quinidine
  - e. Diuretic
  - f. Other
14. (Answer if Digitalis preparation is taken). Did someone teach you how to take your pulse before taking your Digitalis?

If your pulse is below 60/min., what should you do?

If your pulse seems to skip beats, what should you do?
15. (Answer if taking a Diuretic). Did someone teach you the importance of eating foods that contain Potassium while you are taking a diuretic?

Do you know why?

What foods contain Potassium?
16. What are the types of worry or aggravation that bother you?

17. What type of personality do you feel you have?
- C. Determining where the patient wants to go:
1. What has your doctor told you about your future?
  2. What is your plan for gradually increasing activity and exercise?
  3. What do you feel would be desirable changes in your diet?
  4. How do you feel about returning to work?
  5. How do you usually release pent-up energy?
- D. How the patient will get there:
1. What are your plans for the future?
  2. Do these plans go along with your doctor's suggestions for:
    - a. Diet
    - b. Weight
    - c. Smoking
    - d. Controlling Stress
    - e. Rest
    - f. Exercise
    - g. Medications
    - h. Work
  3. Are there any changes you can make in your work pattern to make it easier or more efficient?
- E. Evaluation of teaching by staff
1. Did teaching by the nurses help you in your adjustment to your illness and to your life now?  
If so, how did it help you and if not, why not?
  2. Did teaching by the doctors help you in your adjustment to your illness and to your life now?  
If so, how did it help you and if not, why not?
  3. Who else contributed and to what extent?

AN ABSTRACT OF THE THESIS OF

VIRGINIA JONES WOOD

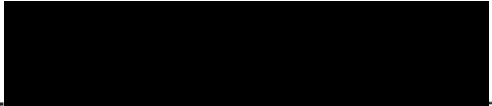
For the MASTER OF SCIENCE IN NURSING EDUCATION

Date of receiving this degree: June 9, 1972

Title: MYOCARDIAL INFARCTION PATIENTS' KNOWLEDGE

ABOUT THEIR DISEASE AND

POST-HOSPITAL REGIMEN

APPROVED: 

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Maxine Patrick, Dr. P. H., Professor, Thesis  
Adviser

The purpose of this study was to identify the information myocardial infarction patients had about their disease and post-hospital regimen. An open-ended, semi-structured questionnaire modeled after Kos' "Rehabilitation Index of the Myocardial Infarction Patient" was used as the data gathering device.

The study sample, located through coronary care logs, consisted of 25 males, ages 39-55, who had had a myocardial infarction in the past two years. Of these 25 patients, 23 were private patients and two had been patients at a county hospital, most of whom were interviewed in their homes. Most respondents were married, white, and Protestant. The mean education level was high school graduation. They were all basically healthy prior to the onset of their myocardial infarctions. Ten respondents were unemployed at the time of this study. Five of these respondents felt that it was too soon to return to work and planned to return to work as soon as they had medical clearance.

The score for knowledge of the heart condition was 71 per cent. Most of the respondents had received instructions about driving their cars, resting when tired, and exercising regularly. Less than half of the respondents had received instructions about when they could resume marital relations or that they should rest after meals. Twenty respondents were told that they could return to work and what kind of work they could do. Twenty-one respondents (84 per cent)

had been given diet instructions. Fourteen had been given a new diet. Twenty respondents were taking medications. These respondents had general information about their medications, but specific information was poor. Fifteen respondents had warnings when they overexerted. These warnings included chest pain, angina, and gastrointestinal discomfort. Most of these respondents (80 per cent) did not know what caused these symptoms. All but one respondent had had some instruction, mostly done by physicians. Nurses were credited with very little teaching.

Overall the respondents in the present study had better knowledge, except on medications, than that found by Clark. Over two-thirds of the respondents said they accepted their disease.

The respondents knew about smoking and worry as coronary risk factors. In regard to worry, it was interesting to note that one-third of the respondents considered their personality type to be nervous or worried. The respondents did not, however, know very much about diet, lack of exercise and obesity as coronary risk factors.

### Discussion

The small sample size was limiting. One of the limitations was the impossibility for developing relationships between data.

Furthermore, generalizations could not be made to a larger population.

These men although they seemed to have good knowledge about their illness and post-hospital regimen, did not understand details. Because details were not known, one would doubt that this information would be carried over into behavior. Once the initial shock of the condition had worn off, the fear that served to motivate learning was gone. Thus the clinic nurse and the physician need to reinforce learning over a long period of time.

One reason that these respondents had good general knowledge about their illness and post-hospital regimen was that nearly all were private patients with their own physicians. Another reason might be that all of these respondents had been discharged at least three months prior to the interviews, during which time respondents had seen their physicians at monthly intervals, providing another opportunity for learning.

Even though nurses were said not to do teaching, respondents felt that the nurses gave them good care. While the nurses were giving nursing care, instructions could have been given to the patient, though not formally in the sense of a class. Information could be forgotten during the stress of acute illness. Thus, the timing of the teaching may be an important factor in determining whether or not the patient is learning. Respondents did indicate that some learning takes place after discharge.