

FAMILY FUNCTIONING IN PATIENTS WITH  
CORONARY HEART DISEASE

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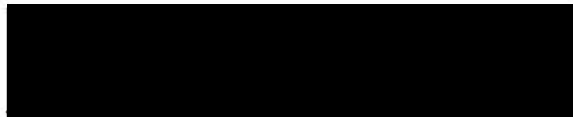
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A Clinical Investigation

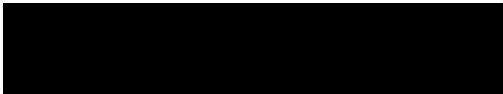
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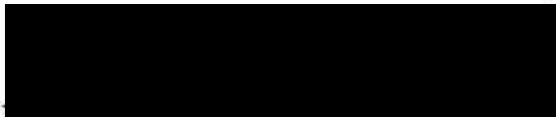
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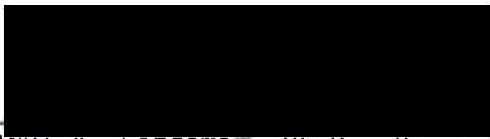
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## CHAPTER I

### INTRODUCTION

In recent years interest in the role of the family in health and illness has increased among medical and social scientists. Nursing, as a discipline, has participated in this trend (Freeman, 1970; Tinkham & Voorhies, 1972; Sobol & Robischon, 1975). From the many discourses on the subject three widely accepted propositions have emerged. First, family structure and dynamics have an impact on the health or illness of family members. Families with certain characteristics tend to exert stress on their members, thereby resulting in illness, whereas families with other characteristics tend to bolster immunity to illness, and to promote health. Second, the health status of its members has an impact on the family. Illness of a member may change the structure and functioning of the family due to the economic costs of the illness, the psychological changes in the ill member, role changes, and reactions of other family members. Usually these changes are described as adverse, although under certain conditions they may be positive. Third, differences among families may be associated with differences in outcome for the sick members of the families. Some types of families may be supportive, facilitating the recovery of members along psychological, physical, and social dimensions. Other families may respond in nonsupportive, or even harmful ways, impeding recovery and psychological and social adjustment.

All three of these propositions, although differing in causal directionality, imply that correlations exist between family variables

and the health status of family members. The evidence for these correlations, however, is far from compelling. The nature and the magnitude of the effects of specific familial structures and interactional patterns on health status, on health and illness behaviors, and on the recovery of individual members remain largely unknown.

Research is needed, then, to determine if the propositions outlined above can be confirmed, and to add to our knowledge of the complex interrelationships between family variables and health and illness phenomena. As a small test of the third proposition, the present study will explore the relation of selected family characteristics to the recovery of a sample of patients under treatment for coronary heart disease. More specifically, it is the purpose of this investigation to describe the adequacy of the functioning of the patients' families, and to relate differences in this family functioning to differences in the psychological adjustment and the physical condition of these patients.

#### Review of the Literature

This review of the literature will be organized about the following topics. First, the concept of family functioning will be discussed, and its dimensions as identified by various writers on the subject will be enumerated. Next, those studies which have examined chronic illness in its relation to general family functioning or to specified components of family functioning will be summarized. Thirdly, the psychological adjustment of cardiac patients will be briefly considered, together with the research relating this psychological adjustment to family adjustment.

Lastly, studies relating the physical condition of the chronically diseased patient to the functioning of his family will be covered.

#### Family Functioning

It is clear from the literature that the functioning of the family is believed, by those in the nursing profession (Freeman, 1970) as well as those in other health and social disciplines (Litman, 1974), to be affected by the health of its members. It is equally clear that the concept of "family functioning" is at present very loose and vague, and lacking any commonly accepted definition.

Generally the concept has been developed within the framework of either field theory or family crisis theory. Thus, Herbst (1952) viewed the family as a "quasi-closed field" having a gestalt influencing all the actions of its members. When the external field impinges on the family, tensions are created, which the members then attempt to reduce.

At times, the tension produced by external or internal events is sufficient to create a "crisis." According to Hill (1958) crises are induced by an unexpected event, including illness (Dow, 1965; Litman, 1974; Smilkstein, 1975) such as heart disease (Croog, Levine & Lurie, 1968), "by inadequate resources to cope with the event," and by a perception of the event as vitally significant for the family. Upon experiencing a crisis, Hill (1958) states, the family enters a period of disorganization. Most families mobilize their resources against the crisis threat, reorganize, and recover. However, for a few families the crisis is permanently disruptive (Nagi & Clark, 1964). The differences among families which account for the reaction to a crisis (i.e., reorganization or disruption) are presently far from clear.



### Dimensions of Family Functioning

Consensus is lacking regarding the essential nature or components of family functioning. Some students lean to a unidimensional approach, and others to a multidimensional approach. Thus, Jansen (1952) stressed solidarity. He saw members of the family as interacting in a manner which produced mutual satisfaction and, thereby, solidarity of the family unit. (Bruhn, 1971) isolated a component of "homeyness-homelessness" through a Family Adjustment Test. High scorers on this test presumably perceived family life as full of friction and negativism; low scorers expressed denial; and medium scorers presumably perceived positive feelings within the family. Geismar (1959) focused on disorganization of the family through rating role performances. Dunn (1960), Ludwig and Collette (1969), and Carpenter (1974) likewise emphasized role performance as crucial to family functioning.

Multidimensional views of family functioning were developed by Locke (1951), Haggerty (1965), Kadushin (1971), Smilkstein (1975), and Pless and Satterwhite (1975). These authors saw family functioning as being a complex response to many interacting factors.

Locke (1951) saw marital adjustment as a complex phenomenon based on the factors of extent of companionship, sexual desirability, conflict resolution, communication, and on the presence or absence of specific problems such as gambling, drunkenness, nonsupport, and/or ill health.

Haggerty (1965) and Kadushin (1971) included external and internal components in their models of family functioning. Haggerty assessed the

adequacy of a family's functioning with relation to the external world by the family's social mobility, social isolation, recreational activities, attitudes to external authority, occupational stresses, and influences of the neighborhood. The family's internal functioning was assessed by the nature of its relations to the parental families, by the relationships of members of the immediate family (e.g. husband-wife relations, family dominance, maternal nurturing, child rearing practices), by parental attitudes (e.g. degree of optimism and values placed on education and religion), by adequacy of the physical environment, and by family medical experiences.

Kadushin (1971) evaluated the family's internal functioning by examining communication patterns, family roles, type of leadership, predominant affect, and chronicity of conflicts. He evaluated the family's external functioning by its social mobility, its pattern of childbearing and of handling finances, and by the investments of time and interest in the family by its members.

Smilkstein (1975) attempted to specify family strengths and weaknesses which physicians might use to assess family problems in need of attention. He suggested the adequacy of family functioning might be estimated by the family's performances in the social, cultural, economic, educational, and medical spheres of life.

Pless and Satterwhite (1975) have developed a comprehensive, yet usable, instrument by which family functioning may be measured. Their instrument is based on the theoretical work of Blood (1960) who identi-

fied as family functions the fulfillment of basic needs of the individual--for companionship, for love, for understanding and emotional well-being, for reproduction, and for economic sustenance. In developing their Family Functioning Index, Pless and Satterwhite added to Blood's measure of decision-making their own measures of communication, frequency of disagreements, form of resolution of disagreements, marital satisfaction, happiness, closeness of family members, and child orientation.

While authors may differ widely regarding the specific components of family functioning, there still emerges from the literature a consensus as to the complexity and comprehensiveness of the phenomenon to which the concept, family functioning, refers. And it is this comprehensive phenomenon which is commonly believed to influence, and be influenced by, the physical and psychological health of family members. As may be noted below, however, the findings of the existing research on the relations of chronic illness and family functioning are, at best, highly fragmentary and ambiguous.

#### Chronic Illness and Family Functioning

Honeyman, Rappaport, Reznikoff, Glueck and Eisenberg (1973) and Tyzenhouse (1973) have both noted the dearth of studies on the relation of heart disease to family factors. Since it is assumed that the research findings regarding the relations of other chronic diseases to family functioning are generalizable to heart disease, such results will be mentioned where appropriate, below.

#### Illness in Relation to Overall Family Functioning

In a study of the families of 34 adolescent hemophiliacs, Bruhn

(1971) found a significant negative relation between severity of illness, and a general measure of family functioning, the Family Adjustment Test. The work of Pless and Satterwhite (1973) however, failed to support this finding that ill health degrades general family functioning. In their study of families of 399 chronically ill children, those authors were unable to demonstrate a significant correlation between the family's score on the Family Functioning Index and the severity of the child's illness.

To the knowledge of the writer, the only study on overall family functioning and heart disease was conducted by Frank, Heller and Kornfelt (1972). Frank et al., asked 600 cardiac patients, at 6 months, and again at 12 months, postsurgery, whether their family relations had improved, remained unchanged, or became worse. At 6 months, 45% reported an improvement while 6% reported worsening of family relations. At 12 months the corresponding percentages were 51 and 3. The reported improvement in family relations was considerably less than improvement reported for life satisfaction. Indeed improvement in family relations ranked fifth of the six areas Frank et al. assessed.

#### Illness in Relation to Specific Components of Family Functioning

Below, research linking chronic illness with specific components of family functioning will be summarized--solidarity, communication, frequency of disagreements, sexual relations, roles, happiness, and economic adequacy.

Solidarity. Litman (1964) reported that the relationship between the family solidarity and the rehabilitation response of 100 disabled patients was very weak, though positive. Dager and Brewer (1958) found

that those heart patients were better rehabilitated whose families were well integrated. From an extensive review of the literature, and from his own research on 70 families, Litman (1974) concluded that severity of illness was negatively related to family cohesiveness. However, pre-illness family solidarity did not appear to provide any protection against post-illness disruption. Wishnie et al., (1971) concluded similarly with regard to families of patients with myocardial infarctions. It would appear, then, that illness may exert a detrimental effect on family solidarity.

Communication. Little mention is made in the literature of changes in communication patterns in families with ill members. In a study of patterns of living of coronary heart disease patients and their families, Finlayson and McEwen (1977) obtained data from 76 wives on how much their husbands confided in them regarding finances, household management, etc. Only 30% reported their husbands readily confided in them, 21% reported they did so with reservations, while 47% stated the husbands did not confide in them at all. No data on pre-illness confiding were reported. Doehrman (1977) reported myocardial infarction patients may become very domineering while their wives, fearful of another infarction, become over solicitous as a means of avoiding arguments. As a result, the quantity and the quality of communications within a family could be expected to deteriorate.

However, somewhat conflicting findings were reported by Holcomb (1973) in a study of patients undergoing hemodialysis and of their wives. Of the 23 couples studied, 90% reported discussing work and money prob-

lems together. A possible explanation for the apparent discrepancy in findings might be that heart disease places unique strains on the family, producing alteration of normal communication patterns.

Frequency of disagreements. No studies were found regarding disagreement frequency in families of heart patients. Some implications might be drawn from a study by Carpenter (1974) which includes data on one area of agreement, namely, the spending of money. Of 93 disabled males studied, 71% reported complete agreement with their wives regarding spending, provided the wife did not work. For those whose wives did work, only 51% reported complete agreement as to spending. Thus, the frequency of disagreements does not appear to be increased by the mere existence of heart disease in a family member. However, it may be possible that if role changes occur as a result of the illness, such as a wife's employment, then disagreement frequency might increase.

Sexual relations. Chronic disease does appear to affect sexual relations. Fink (1968) noted a tie between sexual satisfaction and marital satisfaction in an investigation of 36 disabled women. Friedman (1970) reported that 5 of 6 wives of hemodialysis patients judged the frequency of sexual intercourse had decreased. Similarly, in his study of 23 married hemodialysis patients, Holcomb (1973) found that sexual enjoyment was the lowest area of satisfaction as compared to work, friendship, finances, companionship, and marital satisfaction. Moreover, degree of sexual satisfaction was related to extent of depression.

Findings similar to Holcomb's (1973) have been reported for heart patients. The 800 couples Frank et al., (1972) studied reported less improve-

ment in sexual relations than in pleasure in life, job performance, mood, family relations, and nervousness. In Skelton's (1973) study of myocardial infarction patients, 22 couples were having sexual relations prior to the infarctions. Three months after the infarction, 8 of the couples had not resumed sexual relations, and an additional 10 couples had done so on a less frequent basis. Both Frank and Skelton noted sexual relations appeared to improve with time. By 6 months, only one of the couples in Skelton's study had not resumed sexual relations. However, even at 12 months, improvement was reported by only 55% of the patients. Improvement in sexual relations appeared to parallel the general improvement in mood and in family relations. Finlayson and McEwen (1977) interviewed 41 wives 12 months after their husbands' infarction. Doehrman (1977) attributes the decreased sexual drive to depression and fear of death. Doehrman's observation is given support by Frank's (1972) finding that improvement in sexual relations paralleled the general improvement in mood and family relations. Another explanation for decreased frequency of sexual relations was suggested by the data of Skelton (1973). In his study, decreased frequency followed a steep gradient with increasing age. Since many coronary heart disease patients are in late middle age, further study is needed to clarify whether the observed decline in sexual relations among coronary heart disease patients is due to the problems evolved by the disease or by the aging process.

Roles. Sudden and prolonged illnesses are likely to force alterations or reversal of family roles (Litman, 1974). The relationship between spouses tends to be reciprocal, with one or the other assuming the dominant role. Disability forces not only changes in principal roles, but frequently there is assumption by the spouse of an overly protective role (Meisner, 1966). Role changes may serve as focal points of disagreement as to how much the patient should or should not do. Carpenter (1974) studied 93 families with disabled husbands. The frequency and intensity of disagreements regarding handling of finances and household roles increased if the wife went to work. New, Ruscio, Priest, Petrisi and George (1968), in a study of 48 stroke patients, found that 18% of their significant others disagreed with them in regard to 7 or more of 11 activities of daily living they felt they should perform. Spouses however, tended to agree more with the patient than did the children.

The same disagreements over roles pertaining to activities of daily living occurred in 24 families of heart disease patients (Wishnie, Hackett & Cassem, 1971). In Frank's (1972) study of 800 cardiac patients, 25% believed their families were overprotective, while only 7% believed they were overdemanding. Both Wishnie et al. (1971) and Doehrman (1977) saw wives as overprotecting their husbands because of guilt feelings that somehow they were responsible for causing the heart attack. Often, however, there was a component of suppressed anger which caused the overprotection to have a punitive quality. Patients, in turn, tended to react with either denial and an unwarranted dependency or with further depression and dependency (Croog, et al. 1968). The extent to which the role "swapping"



occurs seems to have some relation to social class (Finlayson & McEwen, 1977). In families in which the husband had been employed in other than manual labor, 71% of the wives took over their husbands' household tasks, whereas in families where the husband had been employed in manual labor, only 51% of the wives did so.

Emotional satisfaction. At least for some patients and their spouses, illness adversely influences their emotional state, increasing tension, anxiety, frustration, and interpersonal conflicts (Klein, Dean, & Bogdonoff, 1967). The findings of Fink, Skipper, and Hallenbeck (1968) suggest spousal dissatisfaction with marriage may be related to the degree of disability imposed on the patient.

Heart disease has been demonstrated to cause emotional changes in both the patient and spouse. Blachly and Blachly (1968) reported one-third to one-half of 71 heart surgery patients asserted they were more nervous after the surgery than before. Tyzenhouse (1973), in a study of 20 families in which the husband had a myocardial infarction, noted 14 of the spouses reported the patients were more irritable and harder to get along with after their infarctions than they were before. The presence of depression, repeatedly documented as occurring in heart disease patients (Doehrman, 1977; Jenkins, 1977) appears to be a problem for many of the spouses as well. In Skelton's (1973) study of 65 wives of patients who had a myocardial infarction, all expressed emotional distress. Over half had symptoms of anxiety and depression. While most wives studied reported improvement with time, 16 were still depressed one year after the infarction.

The emotional impact of heart disease on the family as a whole remains unclear. No studies of how heart disease affects the family as a whole or its influence on the emotional status of children were found.

Economic adequacy. As noted by Litman (1974), the health status of its members affects the relation of the family to the larger community. Role changes necessitated by illness may limit the family's success in fulfilling its community obligations, whether social, political, educational, or economic. In particular, the family's status may be adversely affected by the financial burden imposed by medical expenses, and by loss of employment. Financial problems may additionally lead to the deterioration of personal relations among family members, and to poorer family functioning. Pless and Satterwhite (1975), in examining the effects of the chronic illness of a child on the family, found finances to be identified as the greatest problem area. Furthermore, the greater the child's disability, the greater the concern of the family over the financial impact.

Loss of income appears to be a concern for heart patients as well. Tyzenhouse (1973, p. 103) stated that "most of the 20 families studied reported...financial strain." However, in only 31 of the 65 families of heart patients studied by Skelton (1973) was there an actual reduction in the husband's income, and only 19 wives reported concern about their financial situation. Equally unrelated to income was whether the wife started working, continued working, or quit working to take care of her husband.

Where the family suffered actual loss of income due to the illness of the breadwinner, if the patient returned to work within a year, income tended to return to the pre-illness level (Rumbaugh, 1965; Weinblatt, et al., 1966; Croog, et al., 1968). However, if the patient did not return to work within a year, financial status of the family might be permanently impaired. Usually the failure of heart patients to return to work within the one year period is attributable not to their physical incapacity, but to psychological barriers (Wynn, 1967). Whether or not these psychological problems in conjunction with the financial problems place a strain on the family's functioning has not been documented.

#### Psychological Factors

There seems to be common agreement that coronary heart disease patients experience psychological stresses. The investigation of these stresses has followed two directions.

There is evidence that coronary heart disease patients have an impatient, time-oriented, competitive personality commonly referred to as type A (Jenkins, 1971; Croog, et al., 1968; Burnam, et al., 1975). Type A behavior occurs both in post-hospitalization myocardial infarction patients and in anginal patients prior to hospitalization (Keith, 1966). However, no studies were found of the effects of type A behavior on the family. Further, there was not any documentation of whether illness produces changes in type A behavior.

The second line of investigation has demonstrated heart patients score significantly higher than normal on three scales of the Minnesota Multiphasic Personality Inventory. According to the research of thirteen authors reviewed by Jenkins (1971) and by Doehrman (1977), coronary

heart disease patients differed significantly from either established norms or tested controls on the scales for hypochondriasis, depression, and hysteria, commonly referred to as "the neurotic triad." Data on MMPI scores prior to symptoms were not found. Skelton's (1973) finding of depression in wives of patients with myocardial infarction has already been noted.

No studies were found which provided MMPI data on spouses of cardiac patients. However, there is a suggestion that the same personality characteristics displayed by coronary heart disease patients on the Minnesota Multiphasic Personality Inventory is also found in their children (Honeyman, et al., 1968) producing higher than normal scores for both hypochondriasis and depression. But again, the effects of these personality characteristics on the family as a whole have not been documented, nor is it clear that the correlation was due to the parent's illness.

#### Patho-Physiological Factors

Review of the voluminous literature written regarding the pathophysiology, etiology, and diagnosis of coronary heart disease is not within the scope of this paper. The following is a brief summary of the patho-physiological changes that occur in coronary heart disease and the commonly accepted methods of quantifying the severity of illness that results when those changes occur.

Coronary heart disease is a reduction of blood flow to the myocardium. The resulting reduction in oxygen supply to the myocardium may produce no subjective symptoms, or it may produce transient precordial pains, limitation of activity, severe substernal pain, or death (Chung,

1977). The degree of symptoms produced is related not only to the reduction of myocardial oxygen supply, but also to factors which change cardiac output or circulatory demands on the heart (Beeson, McDermott & Wyngarden, 1979). These include both pathological factors, such as lung disease, valvular defects, or changes in left ventricular pressure, and emotional stresses, particularly those which increase catecholamine production.

It follows, then, that quantification of a degree of coronary heart disease must include not only measures of coronary occlusion, but also measures of subjective symptoms and cardiac dynamics. Four sources of data are in common usage--the patient's expression of symptoms, cardiac catheterization, exercise testing, and coronary arteriography. While none of the latter three procedures are without risk to the patient, currently they are the best means available for acquiring the hemodynamic and other data needed in coronary heart disease research (Chung, 1977).

Left cardiac catheterization, accomplished by passing a catheter from the brachial or femoral artery through the aorta and into the left atria and ventricle, is used to determine pressure readings and gradients, oxygen concentrations, and indicator dilutional curves. During the catheterization, shunts and valvular diseases are excluded by oxygen concentration measurements and pressure gradients (Beland & Passos, 1975). Left ventricular end diastolic pressure, which has an important relationship to coronary artery flow, is measured, and ejection fraction and cardiac output are calculated as indicators of the efficiency with which the coronary blood flow is used (Beeson, et al. 1979).

Another frequently used clinical method of assessment of coronary functioning is exercise testing. This test involves observation of the patient's pulse, blood pressure, and electrocardiogram while the patient is participating in an exercise such as pacing a treadmill at a variable speed and incline. The exercise is increased until a heart rate of 80% of maximum for age is achieved or until the electrocardiogram shows ischemic changes indicating coronary heart disease. However, exercise testing is positive for only 58% of patients who have established coronary heart disease by other methods (Beeson, et al. 1979).

By contrast coronary arteriography results have shown strong correlations with findings at post mortem examination. This procedure is initiated during the cardiac catheterization by threading a small catheter into each of the coronary arteries. Radiopaque dye is injected into each artery and rapid sequence radiographic exposures are made. From these the intraluminal diameter, which indicates severity of occlusion at any given point, can be determined (Chung, 1977).

It should be noted, however, there does not appear to be any consistent relationship between the demonstrable degree of coronary occlusion, the severity of the hemodynamic defects mentioned, or the frequency of subjective symptoms reported (Baxley, Jones & Dodge, 1971).

#### Physiological and Psycho-Social Relationships

The theoretical relationships between physiological measures of coronary heart disease and psychological stresses were discussed by

Backus and Dudley (1975). Psychological stresses stimulate the sympathetic nervous system causing the same effects on the heart as moderate physical exercise--increased rate, increased contractility, increased cardiac output, and increased oxygen consumption. Indeed if the patient undertakes physical exercise while under psychological stress the effect on the heart is additive and the usual recovery time of the heart on resting is greatly prolonged (Granger, 1974). If the oxygen supply to the myocardium is already impaired by coronary heart disease the psychological stress increases the ischemia and related symptoms. However no study was found linking the physiological data described in the previous section with psychological and social data.

However, some data suggesting a relationship between psycho-social and physiological data are available which would indicate that patients who have psychological attitudes consistent with return to gainful employment also have higher survival rates. Croog, Levine and Lurie (1968) in their review noted a number of studies reported a relationship between severity of cardiac disease and failure of the patient to return to gainful employment. These patients also had a low level of physical activity. Rumbaugh (1965) quantified the amount of psychological stress involved by use of the Cardiac Adjustment Scale. Patients who scored high on the scale, who expressed attitudes associated with recovery, were found to return to work. Those who had lower scores either did not return to work, or else died. Unfortunately, Rumbaugh, in his analysis did not separate those who died from those who did not return to work. However, Doehrman (1977) reported myocardial infarction patients who survive

10 years after their infarction have no evidence of depression on their Minnesota Multiphasic Personality Inventory scores. But patients who had considerably higher scores on an earlier Inventory did not survive the 10 year period. Thus these studies support the supposition of positive inter-correlations between physiological, psychological and social recovery.

### Summary

While the present literature provides little information regarding the relationship of illness to family functioning as a whole, some specific relationships are reported. Illness may be detrimental to family solidarity, normal communication patterns may be altered, sexual relations are usually less frequent and satisfying, role alterations may be necessitated, anxiety and depression often affect both patient and family, and economic resources may be strained. No studies are available relating physiological recovery from coronary heart disease to family functioning. However, a few studies of the social concomitants of recovery suggest a correlation between physiological and psychosocial factors.

### Problem Statement

What are the relationships between family functioning and psychological and physiological recovery? It is apparent from the previous paragraph the answer to the problem is not found in presently available literature.



### Hypothesis

Since explication of the above problem appears to await further experimental evidence it was elected to generate a hypothesis based on the limited and fragmentary studies available. Recovery of a patient along physiological and psychological dimensions is positively correlated with the adequacy of the functioning of the patient's family.

### Rationale

The importance of research into this general issue should be clear. If no relationship exists between family characteristics and the patient's health status, then this finding calls into question the value of the dictum that every patient should be seen in the context of his family. Conversely, if a relationship is found to exist, then it should be explicated in detail so that health professionals might assess the therapeutic or nontherapeutic potential of patients' families, and plan accordingly. Families which prove supportive might be utilized to maximize the progress and optimal rehabilitation of their disabled or ill members. In cases where families are nonsupportive or stress-producing, identification would permit the formulation of compensatory interventions to benefit the patients involved.

## CHAPTER II

### METHOD

#### Subjects

The subjects of this study were persons already participating in a larger study now in progress at the University of Oregon Health Sciences Center and the Portland Veterans' Administration Hospital. That larger study was begun in 1971 to critically evaluate the influence of bypass surgery compared to medical management for patients with chronic stable angina. Criteria for inclusion were chronic disabling angina (Functional Class III) for at least one year, 62 years of age or younger, no myocardial infarction or unstable angina within six months, no cardiomegaly or clinical evidence of heart failure, absence of any other major disabling illness, and suitability as candidates for saphenous vein graft surgery. Patients with disease of the left main coronary artery were excluded. Patients meeting these criteria who consented to enter the study were then randomly assigned to the medical or surgical treatment groups. Those assigned to the surgical group underwent prompt operation. All patients received followup evaluation initially at two months and again at six months following study entry.

From the patients enrolled in this study, only those who were currently married and who had entered the randomized study at least nine months previously served as the subjects in the present investigation. The first criterion ensured that the patient belonged to a family whose functioning might be assessed. The second criterion was stipulated in order that patients would have completed convalescence from the trauma

of surgery, and would have reached a more or less stable adjustment to treatment. Forty-eight patients met these criteria and essentially complete data were obtained from 46.

#### Data and Data Collection

Two sources of data were utilized in this study. Physiological data were extracted from the records maintained by the Division of Cardiology, Cardiovascular Radiology, and Cardiopulmonary Surgery of the University of Oregon Health Sciences Center and Veterans' Administration Hospital of Portland, Oregon. Psychological and social data were obtained from a structured interview and from selected psychological tests administered to patients at the time of their regular followup at the cardiology clinic. (See Appendix A, Interview Schedule)

#### Measurement of Family Functioning

The Family Functioning (FFI) developed by Pless and Satterwhite (1973) was selected from the available measures of the quality of family life because of its comprehensive nature. This instrument in its original form consists of 19 questions reflecting the multidimensional nature of the construct being assessed. The components are intra-family communication, decision-making, frequency of disagreements, form of resolution of disagreements, level of happiness, closeness of the family unit, marital satisfaction, and child orientation. Inasmuch as the majority (35) of the subjects in this study did not have minor children living at home, the questions on relationships with children were deleted. The Family Functioning Index, as thus modified, consists of 8 questions,

and possible scores range from 0 (poorest level of family functioning) to 24 (optimal level of family functioning). High scores signify that spouses agree on most important aspects of their family life, resolve their differences satisfactorily through open discussion, view themselves as happier and closer than most other families, and are well satisfied with those aspects of marriage they value most. (See Appendix B, Family Functioning Index - modified).

The reliability of the Family Functioning Index is indicated by a test-retest correlation of .83 between Family Functioning Index scores obtained from 29 subjects tested five years apart (Personal communication from B. Satterwhite, February 26, 1974). Evidence of validity is obtained from a correlation of .72 for total scores obtained from the husband and wife independently. It is further supported by correlations of the husbands' and wives' scores with scores by professional caseworkers of the same families. Correlations with the caseworker's rating was .35 for the husbands' scores and .45 for the wives' scores.

#### Measurement of Psychological Adjustment

The major measure of psychological adjustment was the Cardiac Adjustment Scale (Rumbaugh, 1964). This scale measures, at least in part, emotional stability, cooperativeness, and objectivity (Rumbaugh, 1965).

The scale contains 160 items to which the subject respond with "yes," "no," or "?". Based on the number of "correct" responses, the total score can vary from 0 (poorest adjustment) to 156 (best adjustment). As previously mentioned, the Cardiac Adjustment Scale was prepared to predict return to work (and survival) of cardiac patients from their statements of attitudes.

The reliability of the scale is attested to by the Spearman-Brown coefficient of .94, obtained between parallel forms of the instrument administered to 79 patients (Rumbaugh, 1964). The validity of the instrument was established by a check on the same 79 patients some three years following administration of the Cardiac Adjustment Scale to determine which of the patients were still living and were employed. A point biserial correlation of .37 was obtained.

Further observations on the psychological adjustment of the heart patients in this study were made utilizing scores on three Minnesota Multiphasic Personality Inventory scales--the "neurotic triad" of depression, hypochondriasis, and hysteria. These three scales were selected because the literature indicates these psychological traits commonly characterize cardiac patients. The raw scores for each scale were converted to T scores, with a mean of 50 and standard deviation of 10. Low scores are indicative of a relatively small amount of the characteristic being measured, and high scores are indicative of a relatively large amount of the trait. Scores above 60 indicate some significant degree of disturbance. Cottle (cited in Hathaway & McKinley, 1951), performed a test-retest reliability check and obtained coefficients

of .66 for the depression scale, .81 for hypochondriasis, and .72 or hysteria.

#### Measurement of Physical Health Status

The physical condition of the patient was measured both "subjectively," as perceived by the patient, and "objectively," as assessed by the physician team and by clinical and laboratory procedures and tests.

Perceived health. The patient was questioned about his perceived health status using a method described by Cantril (1965). In this technique the patient is asked to describe his health on a ladder labelled "worst possible health" (0) at the bottom to "best possible health" (9) at the top. No reliability or validity scores were available.

Clinical assessment of health. The first assessment of the patient's health by the physician team is provided by the New York Functional Heart Classification, as rated at the time of entry into the larger study and again after six months. Each patient was assigned to a class from I (adequate heart function) to IV (poor heart function) by the attending physician on the basis of the patient's report of activities and symptoms. As previously mentioned, a rating of Class III was required for admission to the study.

More objective health measures included left ventricular end diastolic pressure, ejection fraction, extent of coronary occlusion. These measurements were taken initially at entry into the study, and again at the six-month follow-up appointment.

To obtain the left ventricular and diastolic pressures of subjects, a catheter was passed into the left ventricle and pressure readings recorded. Bristow, et al. (1970) reports the average pressure reading for persons with coronary artery disease is 15 mm Hg while the average pressure in normal persons is 10. Catheterization was followed by left ventricular coronary angiography using the Judkins technique and photographic recording (Kloster, et al. 1978). Outlines of the ventricle at end of systole and diastole were used to calculate the ejection fractions. Average ejection fractions for persons with normal hearts and persons with coronary artery disease are .68 and .57, respectively. The films were viewed by 2 independent observers who assigned an occlusion rating to each of the 3 coronary vessels using the following scale:

- 1) Less than 15% occlusion
- 2) 15 to 49% occlusion
- 3) 50 to 94% occlusion
- 4) 95 to 99% occlusion
- 5) Total occlusion

Reductions of greater than 50% lumen diameter are considered indicative of significant disease (Van Tassel, 1972). At least 50% occlusion of one or more of the 3 main vessels was required for admission into this study.

#### Additional Data

For the purpose of describing the sample, data were gathered relating to--age, medical vs. surgical status, length of illness, and socioeconomic status. Socioeconomic status was here estimated according to the method outlined by Green (1970) which weights education, income, and occupation to arrive at a total score, varying from 28 (low status) to 85 (high status).

### Analysis

In the analysis which follows, family functioning has been described both in terms of overall and of component scores. This is followed by a description of patient scores on the hysteria, hypochondriasis, and depression scales of the Minnesota Multiphasic Personality Inventory, and of scores obtained on the Cardiac Adjustment Scale. These results are then reviewed in the context of patients' expressed satisfaction with life. Next patients' perceptions of their health are discussed, findings on the New York Functional Heart Classification noted, and the results of cardiac catheterization and angiography described.

Pearsonian correlations were calculated to determine relations between current family functioning and the psychological measures. Finally, Chi-square was used to determine the significance of the relations between specific components of family functioning and selected psychological and health variables.



CHAPTER III  
RESULTS AND DISCUSSION

Description of Sample

The sample of patients consisted of 44 married males and 2 married females. Ages ranged from 33 to 62 years, with a mean of 54 and a standard deviation of 7.6 years. This average is consistent with that reported by New (1968) for his sample of coronary heart disease patients. The number of years of education for patients ranged from 2 to 17 years, with a mean and standard deviation of 9.7 and 3.0 respectively. At the time of the interview, 78% of the patients were unemployed.

Socioeconomic status was measured both by family income and by Green's (1970) Index. Family incomes ranged from \$2,500 to \$20,000 annually with a median income of \$5,500. In comparison, the United States national median family income exceeded \$14,000 for the year in which most of the interviews took place. Many of the patients had incomes at or below the poverty level and for subsistence, depended largely on disability or social security payments.

On Green's Index, the mean score for the sample was 50.3 and the standard deviation was 7.1. The mean is close to the average of 49 obtained by Green for the occupational category "operatives and semi-skilled workers." In conclusion, the socioeconomic level of the sample was relatively low. This fact may be attributed to the tendency of university teaching hospitals and Veterans Administration Hospitals, the sources of subjects for this study, to provide care for patients without financial resources for private care. Therefore, the sample

may not represent coronary patients in general with respect to socioeconomic status.

The number of children at home per family ranged from 0 to 4. As might be anticipated from the average age of the subjects, a large number of the families (35) reported having no children at home.

Patients' reports of the length of illness varied from 13 months to 35 years. Most of the patients (64%) had been ill for less than 5 years. Of the 46 patients, 21 were randomly assigned to the medical treatment modality and 35 to the surgical treatment modality.

#### Description of Family Functioning, Psychological, and Health Data

Family Functioning. On examining the distribution of subscale scores on the Family Functioning Index, it was found that 43 patients reported current family happiness as average or better, 44 reported the frequency of family disagreements as average or less, and 45 reported family closeness as greater than average. In relation to communication, most patients (42) stated their spouses were easy to talk to. A majority (28) indicated mutual solution of problems. In most families, the husband made final family decisions more frequently than did the wife. Patients tended to rate their marital satisfaction as high, with the median score being 10 of a possible 13 points. Less than 25% of the patients indicated scores under 8. Finally, the mean score for overall family functioning was 17.2 of a possible 24 points. Apparently, patients saw their families as functioning well in comparison with other families.

Table 1  
 Scores on Family Functioning Index of Patients With  
 Chronic Heart Disease, Before and After Treatment

Scale and Possible Scores	Current		Prior		Significance of Change in Scores* (t)
	Mean	S.D.	Mean	S.D.	
Subscales					
Happiness (0-2)	1.26	.57	1.04	.67	1.87*
Disagreement (0-2)	1.41	.58	1.22	.70	1.93*
Closeness (0-2)	1.48	.55	1.41	.58	n.s.
Communication (0-2)	1.67	.63	1.59	.65	n.s.
Problem Solving (0-1)	.61	.49	.63	.49	n.s.
Decision Making (0-4)	1.48	.78	1.33	.76	2.46*
Satisfaction (0-11)	9.26	1.93	9.00	2.24	n.s.
Total FFI Score (0-24)	17.17	3.55	16.22	3.73	n.s.

\*p < .05, one-tailed t test for related measures

n.s. = not significant

When current family functioning was compared with family functioning prior to treatment, improvements were noted along 3 of the 7 dimensions of family functioning. Patients reported greater family happiness, a lesser frequency of disagreements, and a slightly greater tendency for decisions to be made on a 50/50 basis. (See Table 1). However, it should still be remembered that in the majority of decision-making situations, one partner continued to carry more weight than the other.

In the other four areas of family functioning, no statistically significant changes occurred. Changes were apparently so minimal that the overall family functioning index score (FFI) did not show a significant increase since treatment had been initiated.

Psychological adjustment. Forty-five of the patients completed the Cardiac Adjustment Scale. The average score was 126.82 on a 156-point scale, and the standard deviation was 13.9. This mean and standard deviation are almost identical with those reported by Rumbaugh (1964) in his study of 158 heart disease patients. Thus it appears this sample is representative of heart disease patients with respect to cardiac adjustment. This finding implies that these patients were moderately adjusted to their illness since the best possible score was 156.

Minnesota Multiphasic Personality Inventory scores were obtained for 43 of the subjects for the subscales of hypochondriasis, hysteria, and depression. Raw scores were transformed to  $t$  scores. The mean values were 75.0 for hypochondriasis, 71.9 for hysteria, and 69.9 for depression. (Refer to Table 2). These scores are very high, 2 standard deviations above the population norm, and in accordance with the

findings of Jenkins (1971) and Doehrman (1977) that patients with heart disease score high on the neurotic triad of depression, hypochondriasis, and hysteria.

Paradoxically, when patients were asked to identify their satisfaction with life on a 0 to 9 point scale, only 5 patients indicated greater dissatisfaction than satisfaction. A comparison of mean scores for current and prior life satisfaction (6.7 vs. 3.9) indicates patients saw life as having become more satisfying since treatment. Patients' ratings of life satisfaction of an average person produced a mean of 6.2 (S.D. = 1.42) indicating patients saw themselves as more satisfied than their age - peers.

Frank et al. (1972) likewise reported a difference between life satisfaction and "nervousness". Six months following cardiac surgery, 65% of the 800 patients he studied indicated improvement in pleasure in life whereas only 44% of the patients indicated improvement in "nervousness". While both percentages increased with time (79% vs. 55% at 12 months) the difference in the percent of patients reporting improvement in pleasure in life vs. nervousness remained relatively constant.

These findings raise questions regarding the validity of the assumption that persons who are highly depressed, hypochondrical, and hysterical are also dissatisfied with life. Although related, life satisfaction and psychological well-being are not identical constructs. Therefore, despite the tendency to depression, dissatisfaction with life might not be expressed. However, Aiken (1975) noted for cardiac patients that 52% of the men and 41% of the women reported being "not too happy"

since their heart attacks. This compared with 16% of men and 17% of women in a random survey of the general population.

Table 2  
Psychological Adjustment of Patients  
With Coronary Heart Disease

Psychological Adjustment Measure	Mean Score	Standard Deviation
MMPI Scales <sup>a</sup> (n = 44)		
Hypochondriasis	74.95	14.75
Depression	69.93	13.23
Hysteria	71.89	12.13
Cardiac Adjustment Scale (n = 45)	126.82	13.91
Life Satisfaction <sup>b</sup> (n = 46)		
Current	6.65	2.07
Prior to treatment	3.89	2.96

<sup>a</sup>Scores on these tests were transformed to *t*-scores with a mean of 50 and standard deviation of 10.

<sup>b</sup>Life satisfaction was measured on a 9-rung ladder, scored from 0 (low satisfaction) to 9 (high satisfaction).

Health status. Patients did not judge their current health to be as good as that of the "average person", when rated on a 9-point scale, the mean scores were 5.20 and 6.48 respectively. However, patients did judge themselves healthier than before treatment. The difference between the mean scores of 5.20 and 2.55 was highly significant. (See Table 3). This finding was consistent with the marked improvement in ratings on the New York Functional Heart Classification by the physician team. Thirty-three patients improved and were rated Class I or II after treatment, whereas only one patient was rated as worse, Class IV.

It was possible to obtain results from cardiac catheterization tests for ejection fraction and left-ventricular-end-diastolic pressure for 40 patients. (Refer to Table 3). Ejection fractions were lower before treatment than after treatment for 8 patients, but for 10 patients the ejection fractions were lower after rather than before treatment. Prior to treatment, 10 of the patients had abnormally elevated left-ventricular-end-diastolic pressures exceeding 15 mm Hg, while after treatment only 4 of the patients had abnormal levels. However, according to Chi-square tests, neither of these changes was statistically significant.

Criteria for admission into the study specified that patients have at least 50% occlusion of one or more of the three coronary vessels. Pre and post-treatment measurements were obtained on 34 patients. Prior to treatment, 7 patients had 1-vessel disease (at least 50% occlusion), 13 patients had 2-vessel disease, and 14 patients had 3-vessel disease. After treatment, 7 of the patients had 1-vessel disease, 14 had 2-vessel disease, and 12 has 3-vessel disease. These changes in the number of vessels occluded were not significant.

Table 3  
Health Status and Health Perception of Patients  
Prior to and Six Months After Treatment

Health Status Measure	Pre-Treatment Mean	Post-Treatment Mean	Significance of Difference* (t)
Physical Measures			
Ejection Fraction (n = 40)	.64	.60	n.s.
LVEDP (n = 40)	9.90	8.95	n.s.
Coronary Occlusion (n = 35)	3.23	2.90	n.s.
New York Functional Heart Status <sup>a</sup>			
Class I	0	8	
Class II	0	25	
Class III	46	10	
Class IV	0	1	
Patient Perception of Health	2.55	5.20	t = 5.89*

\*p < .05 level, one tailed t-test for related measures

<sup>a</sup>Change from pre to post treatment was significant. By signs-test, z = 5.31, p < .0001 level



The results of this study did not support the observations of Bristow (1970) that patients with coronary heart disease have high left-ventricular-end-diastolic pressures and low ejection fractions. Few of the patients exhibited abnormalities for these two tests despite definitive evidence of coronary occlusion angiographically. The present findings are however in agreement with those of Baxley, Jones and Dodge (1971) who failed to find any correlation between subjective symptoms and objective data.

Clinical improvement following treatment was not demonstrated by any of these three objective tests. However, evidence of clinical improvement was derived from the patient's subjective estimate of change in his health, and from change in placement on the New York Functional Heart Classification (which in turn was partly dependent on the patient's own description of symptoms). Finally, some improvement was evident in performance on stress tests for surgical patients. In view of the angiographical results, it is not clear whether the patients' subjective assessments truly demonstrate any improvement in health status as the result of treatment, or whether they merely reflect the cultural tendency to view life optimistically (Andrews & Withey, 1976, cited in Brown & Rawlinson, 1979).

#### Relation of Family Functioning to Psychological and Health Status

Psychological status. Pearsonian correlations were calculated between the current Family Functioning Index scores and scores on the psychological measures of depression, hypochondriasis, hysteria, life satisfaction and the Cardiac Adjustment Scale. All correlations were low, and none statistically significant. (See Table 4). Thus, the

Table 4  
Correlations of Psychological Variables and  
Health Status Indicators with Current Family Functioning

Measure	Pearson's <u>r</u>	Significance of <u>r</u>
Psychological Variables		
Cardiac Adjustment Scale	.074	n.s.
Minnesota Multiphasic Personality Inventory		
Hypochondriasis	-.202	n.s.
Depression	-.173	n.s.
Hysteria	-.002	n.s.
Life Satisfaction	.135	n.s.
Health Status		
Subjective		
Perceived Health	.010	n.s.
Objective		
New York Functional Heart Class	-.017	n.s.
Left Ventricular End Diastolic Pressure	-.022	n.s.
Ejection Fraction	.078	n.s.
Number of Occluded Coronary Vessels	-.083	n.s.

hypothesized relationship between family functioning and psychological recovery was not observed. It might be argued that specific dimensions of family functioning are in fact related to psychological factors, but these associations are obscured when an overall measure of family functioning is employed. On this reasoning, the relationships were examined between the psychological variables and those dimensions of family functioning which had changed significantly since initiation of treatment--namely, family happiness, family disagreements, and family decision-making. Patients were dichotomized, on the basis of each family functioning dimension, into better and less well functioning groups, and then cross classified, on the basis of each psychological measure, into better and less adjusted groups. Association between each pair of variables was measured by the Chi-square median test. Results are presented in Table 5. None are statistically significant. It must be concluded that neither these subdimensions nor the overall measure of family functioning are related significantly to the psychological factors selected for study in this sample of cardiac patients.

While the link between family functioning and psychological status in ill patients has been hypothesized (Granger, 1974; Holcomb, 1973; Honeyman, et al., 1968; Wishnie, et al., 1971) no supportive evidence has been uncovered. Research reports were not found which demonstrated relationships between family functioning and depression, anxiety, or adjustment to the illness in either cardiac or chronically ill patients. Therefore, the hypothesis that recovery of a patient along psychological dimensions is positively correlated with the adequacy of the functioning of the patient's family

was not supported by the findings of this study nor has it been empirically demonstrated previously.

Table 5

The Association of Specified Subscales of the Family Functioning Index (FFI) and Selected Psychological and Health Variables as Measured by the Chi-Square Median Test

Psychological or Health Variable	Family Happiness	FFI Subscale	
		Family Disagreements	Family Decision-Making
Current Life Satisfaction	2.21	2.77	0.39
Current Perceived Health	0.37	0.77	0.47
Depression	0.17	0.10	2.85
Hypochondriasis	3.25	0.46	1.77
Hysteria	0.03	3.64	2.85

Note: None of the relationships is significant at the .05 level, by the Chi-square median test.

Health Status. Pearson's  $r$  was also used to test the relationship of Family Functioning Index Scores to health indicators. Again, the correlations which resulted were low and statistically not significant. (See Table 4). Chi-square median tests were employed to assess the association between perceived health status and the subscores of family happiness, family disagreements, or family decision-making. (See Table 5). None of the relationships proved significant. Therefore, neither overall family functioning nor specific dimensions of family functioning seem related to health status.

The findings of previous research regarding family functioning and illness are at times contradictory. As mentioned earlier Croog and Levine (1977) claimed that illness did not affect marital satisfaction, quality of relationships, or frequency of disagreements in the families of the 300 cardiac patients in his sample. However, he did not specifically test the hypothesis that family problems increase with severity of illness. Evidence for the latter hypothesis is again ambiguous. In 1973, Pless and Satterwhite failed to find any association between family functioning and the severity of the disability of a child in the family. But in 1975, the same authors reported that severe disability of a child did have an effect on certain areas of family life, such as finances, travel, fatigue, and social life. Similarly, Bruhn (1971) reported the family life of hemophiliac patients was affected adversely in cases where the illness was severe, but not otherwise. Finally, Fink (1968) reported no relationship between degree of disability of the wife and marital satisfaction for his sample of families in which the wife was disabled.

### Discussion

Assuming the findings of this study are accurate and valid, then the theory underlying the hypothesized relations must be challenged. Any one of several factors may have been responsible for the inability to observe the anticipated relations. First, as noted by Bruhn (1971) and Pless and Satterwhite (1975), it may be that illness has to be very "severe" before the family is affected. In this sample, the illness, while life-threatening, may not have been considered as very "severe" in that patients could perform the activities of daily living, they were ambulatory, and they were being treated on an outpatient basis. Second, many of the patients had been ill for many years. Thus any detrimental impact of illness on the family may have already resolved itself or resulted in disruption of the family through divorce. This selection doubtless produced biased data. Third, most of the families in the study were in the stage of the family life cycle where their children were no longer in the home. This postparental stage is commonly a time when the couple tends to reintegrate, and their marital satisfaction increases (Glenn, 1975). Perhaps this increase in marital satisfaction and cohesiveness compensated for the disruption occasioned by coronary heart disease.

It is possible that the theory was correct, and the failure to obtain the hypothesized results lay in methodological problems. First, there are no other reports in the literature of use of the Family Functioning Index to study longitudinal family changes. Therefore, confirma-

tion is lacking that the Family Functioning Index as an instrument is adequately sensitive to changes occurring over a 6-month period. Second, the present study relied on recall by patients of family functioning prior to entry into treatment. Had it been possible to interview patients prior to study entry or, even better, prior to development of their illness, the results might have been quite different. Third, data were obtained only from the patient. Obtaining Family Functioning Index scores from the spouse would have provided a validity check.

In conclusion, perhaps the failure to obtain the predicted results was due to problems in the methods employed, and perhaps to problems in the theory. It may be that the importance of illness as a factor producing friction in families has been overrated. As of the present time, the existing research does not support the hypothesis that recovery of a cardiac patient, physiologically and/or psychologically, is positively correlated with the adequacy of the functioning of the patient's family. Therefore, the general proposition that family functioning and illness are inter-related must be viewed as presently lacking clear confirmation. However, some evidence exists (Bruhn, 1971; Pless & Satterwhite, 1975) that family functioning may be adversely affected in instances of severe illness.

CHAPTER IV  
SUMMARY AND IMPLICATIONS

Summary

This research was undertaken to expand our understanding of the role of the family in health and illness. A review of the literature would indicate widespread acceptance of the assumption that differences in the structure and interactional patterns of a family are associated with differences in the health status of its members. In short, families whose members are in poor health should differ systematically in form and dynamics from families whose members are in good health. The review of the research would also indicate that empirical support for this assumption is limited to date. Some evidence exists that for families with members in poorer health, in contrast to families with members in better health, family solidarity may be weaker, communication patterns less open, sexual relations less frequent and less satisfying, role performances and expectations different, disagreements more frequent, economic resources more strained, and anxiety and depression more often present among family members. It has also been assumed that as changes occur in the health status of the members of a family, changes also occur in the family roles and interactions, some of which may be considered detrimental. This second assumption has been even less well tested to date than the first.

It was the purpose of this investigation to examine, in some detail, the association between the adequacy of the family functioning of a sample of patients under treatment for coronary heart disease, and their



physical and psychological health status. It was anticipated that those patients whose families were functioning more adequately, would also be those patients whose psychological and physical health status was better. It was further anticipated that as recovery progressed, and as the psychological and physical health of these patients improved or deteriorated, the adequacy of their family functioning would similarly improve or deteriorate.

In this study, the psychological condition of the patients was measured by the amount of depression, hypochondriasis, and hysteria they manifested, as measured by the Minnesota Multiphasic Personality Inventory, and by their adjustment to their heart problem, as measured by Rumbaugh's Cardiac Adjustment Scale. Their physical health condition was assessed from physiological functioning data obtained by cardiac catheterization and angiography, including measures of ejection fraction, degree of occlusion of vessels, and left-ventricular-end-diastolic pressure. Additionally, health was assessed by the physician ratings along the New York Heart Classification Scale, and the patient's self-assessment of his health. The adequacy of functioning of the patient's family was measured by means of the Family Functioning Index of Pless and Satterwhite, and included assessments of marital satisfaction, frequency of disagreements, family communications, sharing of decision-making, family closeness, and family happiness.

Patients showed significant improvement during the recovery period in three aspects of family functioning. They reported greater family happiness, fewer family disagreements, and a greater tendency for mutual

decision-making. Patients also indicated increases in life satisfaction, perceived their health as better, and were rated by their physicians as better on the New York Functional Heart Classification. At the same time, patients also evidenced an abnormally high degree of anxiety and depression. Adjustment to illness appeared to be about average for cardiac patients.

The anticipated relationships between family functioning and other dimensions of life were not observed. There was no correlation between overall family functioning, or those subdimensions of Family Functioning which improved, and scores on the Minnesota Multiphasic Personality Inventory, Cardiac Adjustment Scale scores, satisfaction with life, perceived health, New York Functional Heart Classification, coronary catheterization data, or the degree of coronary occlusion. Thus, there was no evidence to indicate either that (1) adequacy of family functioning was related to psychological or physical health status, or (2) that as psychological and physical health improved, family functioning also improved. Admittedly, the second finding may be questioned because of problems of the method. First, it was not clear that actual physical improvement occurred. Despite patients' reports they felt better, no significant decrease in the degree of patients' coronary occlusions occurred. If no physical improvement occurred, improvement in psychological and family functioning could hardly be expected to follow. Second, further research is required to demonstrate the sensitivity of the Family Functioning Index to changes. Changes in family functioning cannot be related to changes in health unless both can be measured adequately.

Neither of these methodological problems, however, can explain the failure to obtain correlations between family functioning and psychological and physical health measurements. In this study, clearly there were no correlations. In view of the failure of other authors (Croog & Levine, 1977; Pless & Satterwhite, 1973; Fink, 1968) to demonstrate a correlation between family functioning and the severity of various illnesses, and the failure of any other research to demonstrate a strong relationship between the two variables, the assumption that family functioning and illness are related must be seriously questioned. In conclusion, the hypothesis that recovery of a patient along physiological and psychological dimensions is positively correlated with the adequacy of the functioning of the patient's family is clearly not supported by research findings.

#### Implications for Nursing

These findings have significant implications for nursing theory, nursing research, nursing education, and nursing practice. One theory of nursing asserts that when one facet of a person's life is altered, changes necessarily follow in other dimensions of his life (Rogers, 1970). In this research, patients were studied who suffered from a disease which involved an emotionally significant organ, the heart, a disease that has a poor prognosis, and which required painful and invasive procedures, such as coronary catheterization and angiography. Still, the illness produced no real impact on a significant aspect of the patient's life, his family functioning. Clearly, then, the research

does not support the premise that change in one dimension of life necessarily produces changes in all other significant areas. It would appear that further research is indicated to determine what areas of life are most strongly affected by illness.

The view that illness and its outcomes are affected by family life has become a basic axiom of nursing education taught to all students of nursing. This view would appear to be open to question. It would seem until such a relationship can be clearly demonstrated, nursing education might at least indicate the tentative nature of the proposition that family functioning and illness may be related.

Perhaps the greatest changes are those indicated for nursing practice. How many families have been referred for family counseling in the belief that resolution in that area would produce improvement in health dimensions? How many health workers are assigned to work with families on the assumption that an illness in the family indicates professional intervention with the family as a whole? How many charting systems have been changed from individual patient oriented to family oriented in the belief that treatment of the family as a whole would result in improved health for individual members? In short, how much effort has been expended in meeting family needs on the belief that improved health of members would follow? Perhaps effort might be saved and disappointment avoided if providers of nursing care understood that while health and functioning of the family are both important, the two may be separate and independent aspects of patients' lives.

Finally, another implication is raised, but not addressed by the

findings of this research. Review of any standard textbook of community health nursing will demonstrate that relation of health and family functioning is taught as a "factual" concept. Yet that premise, on the basis of which nurses have expended large amounts of energy, time and financial resources, has been demonstrated in this study to have had empirical backing. It would seem, then, that nurses have a continuing responsibility to examine those "doctrines" which they believe, disseminate, and practice for research support. The review of the available literature regarding each basic principle of nursing for research backing would be a formidable task. However, its completion would seem to be excellent insurance against the problems discussed in the preceding paragraphs.

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APPENDIX A  
INTERVIEW SCHEDULE

## INTERVIEW SCHEDULE

Identification No.

Please check (✓) your answers

1. Sex:      Male      Female
2. Date of Birth:                      Age (at last birthday)\_\_\_\_\_
3. Present marital status (check)
  1. Married: living with spouse
  2. Married: not living with spouse
  3. Divorced or separated legally
  4. Widowed
  5. Never married
4. Has your marital status changed since the time when you first entered the randomized heart study?
  1. No
  2. Yes (specify how)
5. Do you live alone now?
  1. Yes
  2. No
6. If "No", please list members of your household (such as your husband or wife, number and ages of children, any others)
7. Did you live alone before your entry into the randomized heart study?
  1. Yes
  2. No
8. Highest grade of school completed (circle)
 

1 2 3 4 5 6 7 8 9 10 11 12

College: 13 14 15 16

Postgraduate: 17+      Highest degree attained:
9. What was your occupation before your entry into the randomized heart study? (If housewife, state so. If not, give the title of your position, and state the general duties of the job).

10. Would you classify your usual occupation as:
  1. Professional
  2. Manager or owner of business
  3. Farmer (owner or manager of at least 100 acres)
  4. Clerical, sales, technician
  5. Skilled craftsman, foreman
  6. Operative, semi-skilled
  7. Service worker
  8. Unskilled
  9. Farm labor (owner of less than 100 acres)
  10. Housewife
  
11. Before your entry into the randomized heart study, were you gainfully employed?
  1. Full-time
  2. Part-time
  3. Not at all
  
12. If not employed before, how long was it since you had gainful employment?
  1. Less than 1 month
  2. 1 to 6 months
  3. 6 months to 1 year
  4. 1 to 2 years
  5. Over 2 years (specify how long)
  
13. Since your entry into the randomized heart study, have you been gainfully employed?
  1. Yes
  2. No
  
14. Are you presently gainfully employed?
  1. Full-time
  2. Part-time
  3. Not at all
  
15. If not gainfully employed at present, do you plan to return to work in the near future?
  1. Yes
  2. No
  
16. Has there been a change in your type of work since you first entered the randomized heart study? (please describe)

17. If you are a housewife, before your entry into the randomized heart study, did you manage the household tasks?
1. Most of the household tasks
  2. Only some of your household tasks
  3. None of your household tasks
18. If you are a housewife, do you NOW manage
1. Most of your household tasks
  2. Only some of your household tasks
  3. None of your household tasks
19. Would you please try to estimate your total income (including spouse's income, if any) from all sources for the past 12 months?
- |                         |                        |
|-------------------------|------------------------|
| 1. \$50,000 or more     | 10. \$5,000 to \$5,999 |
| 2. \$25,000 to \$49,999 | 11. \$4,000 to \$4,999 |
| 3. \$15,000 to \$24,999 | 12. \$3,500 to \$3,999 |
| 4. \$12,000 to \$14,999 | 13. \$3,000 to \$3,499 |
| 5. \$10,000 to \$11,999 | 14. \$2,500 to \$2,999 |
| 6. \$9,000 to \$9,999   | 15. \$2,000 to \$2,499 |
| 7. \$8,000 to \$8,999   | 16. \$1,500 to \$1,999 |
| 8. \$7,000 to \$7,999   | 17. \$1,000 to \$1,499 |
| 9. \$6,000 to \$6,999   | 18. Less than \$1,000  |
20. Has your total family income changed since your entry into the randomized heart study?
1. Dropped a lot
  2. Dropped moderately
  3. Dropped slightly
  4. Stayed the same
  5. Gone up slightly
  6. Gone up moderately
  7. Gone up a lot
21. Do you think this change in income was due to your health condition in any way?
1. Yes
  2. No
22. How long before your entry into the randomized heart study were you aware that you had a heart problem?
1. Less than 1 month
  2. 1 to 3 months
  3. 3 to 6 months
  4. 6 months to 1 year
  5. 1 to 2 years
  6. Over 2 years (specify how long)

23. How anxious would you say you are in comparison to most people?
1. Much more anxious
  2. Somewhat more anxious
  3. About average
  4. Somewhat less anxious
  5. Much less anxious
24. Since your entry into the randomized heart study, how often have you taken tranquilizers?
1. Never
  2. Only occasionally
  3. About once a week
  4. Regularly every day
25. Did you take medicine for your heart before your entry into the randomized heart study?
1. No
  2. Only occasionally
  3. Regularly, every day
26. Do you now take medicine for your heart?
1. No
  2. Only occasionally
  3. Regularly, every day
27. Besides your heart problem, do you have any other chronic diseases, health problems, or disabilities (such as diabetes, arthritis, cancer, kidney problems, etc.)?
1. No
  2. Yes (please specify what these problems are)
28. Have any of these health problems arisen since your entry into the randomized heart study?
1. No
  2. Yes, some of them (specify)
  3. Yes, all of them
29. Which of the following things can you now do without help?
1. Heavy work around the house, like shoveling snow, or washing walls
  2. Work at a full-time job, or do the ordinary work around the house yourself
  3. Walk half a mile (about 8 ordinary blocks)
  4. Go out to a movie, to church, or a meeting, or to visit friends
  5. Walk up and down stairs to the second floor



30. Which of these statements fits you best?

1. I cannot work (keep house) at all now because of my health
2. I have to limit some of the work, or other things I do
3. I am not limited in any of my activities

31. Please indicate whether you agree or disagree with the following statements. (CIRCLE ANSWER)

Circle

- |    |   |          |
|----|---|----------|
| a. | I have my doubts about some things<br>doctors say they can do for you.....agree                               | disagree |
| b. | When I am ill, I demand to know all the<br>details of that is being done to me.....agree                      | disagree |
| c. | I believe in trying out different doctors<br>to find which one I think will give me th<br>best care.....agree | disagree |
| d. | When I think I am getting sick, I find<br>it comforting to talk to someone about<br>it.....agree              | disagree |
| e. | When a person starts getting well, it<br>is hard to give up having people do<br>things for him.....agree      | disagree |

32. Attached is a picture of a ladder. Suppose we say that the top of the ladder represents the most satisfied you can be. Suppose that a person who is entirely satisfied with his life would be at the top of the ladder, and a person who is extremely dissatisfied with his life would be at the bottom of the ladder.

On which step would you say your satisfaction with life is right now? \_\_\_\_\_

On which step would you say your satisfaction was a month before your entry into the randomized heart study? \_\_\_\_\_

On which step would you say the satisfaction of the average person your age is? \_\_\_\_\_

On which step would you say the satisfaction of a "sick person" your age is? \_\_\_\_\_

(Please try to answer these with "educated guesses")

9
8
7
6
5
4
3
2
1
0

Extremely Satisfied

Extremely Dissatisfied

33. Attached is a picture of a ladder. Suppose we say that the top of the ladder represents perfect health, and the bottom represents the most serious illness.

On which step would you say your health is right now? \_\_\_\_\_  
(Please write down the number of the step)

On which step would you say your health was a month before your entry into the randomized heart study? \_\_\_\_\_

On which step would you say your health will be six months from now? \_\_\_\_\_

On which step would you say the "sick person" your age is? \_\_\_\_\_

(Please try to answer these even if they are "educated guesses")

9
8
7
6
5
4
3
2
1
0

Best Health Possible

Worse Health Possible

34. During the past two or three weeks, how many times did you get together with friends -- I mean things like going out together, or visiting in each other's houses? (CIRCLE ANSWER)

0    1    2    3    4    5    6    7    8    9    10

35. About how many neighbors do you know well enough to visit with? (CIRCLE ANSWER)

0    1    2    3    4    5    6    7    8    9    10

36. How many organizations, such as clubs, labor groups, civic, fraternal clubs, etc., do you take an active part in? (CIRCLE ANSWER)

0    1    2    3    4    5    6    7    8    9    10

37. Attached is a picture of a ladder. Suppose we say that the top of the ladder represents the most active social life for you, and the bottom represents having no social life at all. The top is when you see all your friends and relatives very often and the bottom is when you don't see your friends and relatives at all.

On which step would you say your social life is right now?

\_\_\_\_\_

On which step would you say your social life was a month before your entry into the randomized heart study? \_\_\_\_\_

On which step would you say your social life will be six months from now? \_\_\_\_\_

On which step would you say the social life of the average person your age is? \_\_\_\_\_

On which step would you say the social life of the sick person your age is? \_\_\_\_\_

(Please try to answer these with "educated guesses")

9
8
7
6
5
4
3
2
1
0

Most Active Social Life

No Social Life At All

38. Please answer each of the following questions by putting a check (X) next to the answer which tells how you feel.

a. If married, how satisfied are you with your marriage?

- 0 not married
- 1 very satisfied
- 2 pretty satisfied
- 3 slightly satisfied
- 4 slightly dissatisfied
- 5 pretty dissatisfied
- 6 very dissatisfied

If not married, how satisfied are you with being single?

- 0 not single
- 1 very satisfied
- 2 pretty satisfied
- 3 slightly satisfied
- 4 slightly dissatisfied
- 5 pretty dissatisfied
- 6 very dissatisfied

b. How satisfied are you with your physical condition?

- 1 very satisfied
- 2 pretty satisfied
- 3 slightly satisfied
- 4 slightly dissatisfied
- 5 pretty dissatisfied
- 6 very dissatisfied

c. How satisfied are you with the way you spend your leisure time?

- 1 very satisfied
- 2 pretty satisfied
- 3 slightly satisfied
- 4 slightly dissatisfied
- 5 pretty dissatisfied
- 6 very dissatisfied

d. How satisfied are you with your personal friendships?

- 1 very satisfied
- 2 pretty satisfied
- 3 slightly satisfied
- 4 slightly dissatisfied
- 5 pretty dissatisfied
- 6 very dissatisfied



e. How satisfied are you with the way you get along with your family (mother, father, brothers, sisters, other kin)?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

f. How satisfied are you with your sexual life?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

g. How satisfied are you with your financial situation?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

h. How satisfied are you with your intelligence?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

i. How satisfied are you with your personality?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

j. How satisfied are you with the way in which you deal with difficult situations?

- \_\_\_\_\_ 1 very satisfied
- \_\_\_\_\_ 2 pretty satisfied
- \_\_\_\_\_ 3 slightly satisfied
- \_\_\_\_\_ 4 slightly dissatisfied
- \_\_\_\_\_ 5 pretty dissatisfied
- \_\_\_\_\_ 6 very dissatisfied

- k. If gainfully employed, how satisfied are you with your work performance?
- \_\_\_\_\_ 1 very satisfied
  - \_\_\_\_\_ 2 pretty satisfied
  - \_\_\_\_\_ 3 slightly satisfied
  - \_\_\_\_\_ 4 slightly dissatisfied
  - \_\_\_\_\_ 5 pretty dissatisfied
  - \_\_\_\_\_ 6 very dissatisfied
- k) If retired, how satisfied are you with your work performance at home?
- \_\_\_\_\_ 1 very satisfied
  - \_\_\_\_\_ 2 pretty satisfied
  - \_\_\_\_\_ 3 slightly satisfied
  - \_\_\_\_\_ 4 slightly dissatisfied
  - \_\_\_\_\_ 5 pretty dissatisfied
  - \_\_\_\_\_ 6 very dissatisfied
- k) If a housewife, how satisfied are you with your performance in the home?
- \_\_\_\_\_ 1 very satisfied
  - \_\_\_\_\_ 2 pretty satisfied
  - \_\_\_\_\_ 3 slightly satisfied
  - \_\_\_\_\_ 4 slightly dissatisfied
  - \_\_\_\_\_ 5 pretty dissatisfied
  - \_\_\_\_\_ 6 very dissatisfied
39. Is there one person in particular you confide in or talk to about yourself or your problems?
- 1. No
  - 2. Yes
- If yes, who is this person?
- 1. Husband or wife
  - 2. Relative (specify as sone, sister, etc.)
  - 3. Friend

If you are not married, skip Questions 40-51, go to Page 73.

40. Is your wife (husband) gainfully employed at present?
1. Full-time
  2. Part-time
  3. Not at all
41. If your wife (husband) is gainfully employed, what is her (his) usual occupation? Please give the title of her (his) position and state the general duties of the position.
42. Would you classify her (his) occupation as:
1. Professional
  2. Manager or owner of business
  3. Farmer (owner or manager of at least 100 acres)
  4. Clerical, sales, technician
  5. Skilled craftsman, foreman
  6. Operative, semi-skilled
  7. Service worker
  8. Unskilled
  9. Farm labor (or owner of less than 100 acres)
  10. Housewife (husband) not gainfully employed
43. Was your wife (husband) gainfully employed before your entry into the randomized heart study?
1. Full-time
  2. Part-time
  3. Not at all

APPENDIX B  
FAMILY FUNCTIONING INDEX

## FAMILY FUNCTIONING INDEX

Please answer these questions about your home life and how it has changed since entry into the randomized heart study.

	<u>Circle Answer</u>	
	<u>TODAY</u>	<u>*BEFORE</u>
44. Would you say, all in all, your family is happier than most others you know, about the same, or less happy?	happier same less happy	happier same less happy
45. Would you say disagreements in your household come up more often, about the same, or less often than in other families you know?	more often same less often	more often same less often
46. Would you say compared to most families you know, you feel less close to each other, about the same, or closer than other families do.	less close same closer	less close same closer
47. Is your spouse an easy person to talk to when something is troubling you?	yes sometimes no	yes sometimes no
48. Many couples differ sometimes over things. When you and your spouse differ about something, do you usually give in and do it your spouse's way, or vice versa?	husband's way 50/50 wife's way	husband's way 50/50 wife's way

\*Before your entry into the randomized heart study

49. In every family someone has to decide such things as where the family will live and so on. Many couples talk about such things with the family first, but the final decision often has to be made by the husband or the wife. If these are situations you have not decided on recently, how would they be decided on should they occur? (Write in the number corresponding to your choice).

---

1 = Husband always  
 2 = Husband more than wife  
 3 = Husband and wife exactly the same  
 4 = Wife more than husband  
 5 = Wife always

---

	<u>TODAY</u>	<u>*BEFORE</u>
A. Who usually makes the final decision about what kind of a car to get?	[ ]	[ ]
B. About whether or not to buy some life insurance.	[ ]	[ ]
C. About what house or apartment to take?	[ ]	[ ]
D. About what job you should take?	[ ]	[ ]
E. About whether or not your wife should go to work or quit work?	[ ]	[ ]
F. About how much your family can afford to spend per week on food?	[ ]	[ ]
G. About what doctor to have when someone is sick?	[ ]	[ ]
H. About where to go on a vacation?	[ ]	[ ]

\*Before your entry into the randomized heart study

50. Thinking of marriage in general which one of these five things would you say is the most valuable part of marriage? (Write in the number corresponding to your choice, using each number only once).

- 
- 1 = The chance to have children  
2 = The standard of living - the kind of house, clothes, care and so forth  
3 = The wife's understanding of the husband's problems and feelings  
4 = The wife's expression of love and affection for the husband  
5 = Companionship in doing things together with the wife
- 

- A. The most valuable part of marriage [ ]
- B. The next most valuable [ ]
- C. Third most valuable [ ]
- D. Fourth most valuable [ ]
- E. Fifth most valuable [ ]

51. The following are some feelings you might have about certain aspects of marriage. (Write in the number corresponding to your choice).

---

1 = Pretty disappointed. I'm really missing out on that  
 2 = It would be nice to have more  
 3 = It's all right, I guess - I can't complain  
 4 = Quite satisfied - I'm lucky the way it is  
 5 = Enthusiastic = it couldn't be better

---

	<u>TODAY</u>	<u>*BEFORE</u>
A. How do you feel about your standard of living, the kind of house, clothes, car and so forth?	[ ]	[ ]
B. How do you feel about the understanding you get of your problems and feelings?	[ ]	[ ]
C. How do you feel about the love and affection you receive?	[ ]	[ ]
D. How do you feel about the companionship of doing things together?	[ ]	[ ]

\*Before your entry into the randomized heart study



If children under 18 are living at home, add these questions after Question 51.

- |   |                         |
|---|-------------------------|
| 52. How do you think the children get along together compared with other families? (Disregard if only one child). | Better<br>Same<br>Worse |
| 53. Do the children find it easy to talk to you about their problems?   | Yes<br>Sometimes<br>No  |
| 54. Do the children find it easy to talk to your wife (husband) about their problems?                             | Yes<br>Sometimes<br>No  |
| 55. Is your wife (husband) able to spend a lot of time with the children in the evenings?                         | Yes<br>Sometimes<br>No  |
| 56. Is your wife (husband) able to spend a lot of time with the children on the weekends?                         | Yes<br>Sometimes<br>No  |
| 57. Are you able to spend a lot of time with the children in the evening?   | Yes<br>Sometimes<br>No  |
| 58. Are you able to spend a lot of time with the children on the weekends?  | Yes<br>Sometimes<br>No  |

APPENDIX C  
FAMILY FUNCTIONING INDEX SCORING KEY

## FAMILY FUNCTIONING INDEX SCORING KEY

Scoring Key - Family Life Questionnaire

<u>Q #</u>	<u>Score</u>
2. a. Evenings Together	Something = 1
b. Weekends Together	Something = 1
c. Vacation Together	Something = 1
3. Sib Relations	Better = 2 Same = 1
4. Child-Mother Communications	Yes = 2 Sometimes = 1
5. Child-Father Communications	Yes = 2 Sometimes = 1
6. Mother-Father Communications	Yes = 2 Sometimes = 1
7. Father-Child Activities Evenings	Yes = 1 Sometimes = 1
8. Father-Child Activities Weekends	Yes = 1 Sometimes = 1
9. Mother-Child Activities Evenings	Yes = 1 Sometimes = 1
10. Mother-Child Activities Weekends	Yes = 1 Sometimes = 1
11. Family Happiness	Happier = 2 Same = 1
12. Problem Discussed with Husband	Yes = 1
13. Decision-Making	Number of 3's (husband & wife same) ÷ 2. Maximum score = 4
14. Marital Satisfaction	(See Question 18)
15. Husband-Wife Disagreements	50/50 = 1

<u>Q #</u>	<u>Score</u>
16. Frequency of Disagreements	Less often = 2 Same = 1
17. Closeness	Closer = 2 Same = 1
18. Marital Satisfaction	For each aspect of marriage rated in Q 14, score as follows:  If chosen as 1st most valuable in Q 14, and rated as 1 score = 0 2 " = 1 3 " = 2 4 " = 3 5 " = 4  If chosen as 2nd most valuable in Q 14, and rated as 1 score = 0 2 " = 1 3 " = 2 4 or 5 " = 3  If chosen as 3rd, 4th or 5th most valuable in Q 14, and rated 1 score = 0 2 " = 1 3, 4 or 5 " = 2  If "chance to have children" was chosen as 1st most valuable in Q 14, add 2 to Marital Satisfaction score. Maximum score = 11
19. Work Communication	Very Often = 1 Sometimes = 1  Maximum FFI Score = 39

APPENDIX D  
PHYSICAL DATA SHEET

## PHYSICAL DATA SHEET

IDENTIFICATION: NAME &amp; NUMBER                      Surgical or Medical (Circle)

- (1) Date of entry into study:
- (2) Date of surgery:
- (3) Date of interview:
- (4) Time (in months) since entry (if med. pt.):  
or  
Time (in months) since surgery (if surg. pt.):
- (5) Duration of illness (in months) prior to entry (if med. pt.):  
or  
Duration of illness (in months) prior to surgery (if surg. pt.):  
(See Question 22 of interview)
- (6) Prior angina (See Q7 Bypass Study Form): Please circle answer.
  - a. less than 1 year
  - b. 1 - 3 years
  - c. 3 - 5 years
  - d. 5 - 8 years
  - e. 8 - 15 years
- (7) Myocardial infarction (See Q3, Bypass Study Form). Please circle answer.
  - a. no previous infarction
  - b. yes, documented, recent
  - c. yes, documented, remote (over 2 years)
- (8) CHF (See Q9, Bypass Study Form): Please circle answer.
  - a. no
  - b. yes, previously
  - c. yes, currently
- (9) Other major illnesses (See Question 27 of the Interview) currently experienced:
  - a. absent
  - b. present (indicate)

- (10) Other illnesses (See S. Sanders' Form) at 6 months (indicate date):
- a. hypertension
  - b. diabetes
  - c. gout
  - d. hyperlipidemia
  - e. CHF
- (11) N.Y. Functional Heart Class, at entry, or pre-op:  
(Class III (check Bypass Study Form, 0001, Item 1.)
- (12) N.Y. Functional Heart Class at 6 months followup: (See Bypass Study Form 0012, 17)
- Class I
  - Class II
  - Class III
  - Class IV
- Date of followup:
- (13) N.Y. Functional Heart Class (most current): State date:
- Class I
  - Class II
  - Class III
  - Class IV
- Date of followup:
- (14) From Chest X-ray: at entry or preop: (See Item 0006 Bypass Study Form)
- a. normal
  - b. cardiomegaly
  - c. abnormal (specify)
- Date of X-ray:
- (15) From Chest X-Ray: at 6-month followup: (See Item 0012, Bypass Study Form)
- a. normal
  - b. cardiomegaly
  - c. abnormal (specify)
- Date of X-ray:
- (16) From Chest X-ray: most recent followup: State date.
- a. normal
  - b. cardiomegaly
  - c. abnormal (specify)
- Date of X-ray:

- (17) Estimation of initial anatomical result: (Bypass Study Form, Item 0007, Operative Findings, 19)
- a. good
  - b. bad
  - c. equivocal
- (18) Estimation of anatomical result at beginning of study (Bypass Study Form, Item 0008, Arteriogram, 2.) Also note other arteriograms.
- a. good
  - b. bad
  - c. equivocal
- Date of arteriogram: \_\_\_\_\_
- (19) Estimation of anatomical result in last arteriogram.
- a. good
  - b. bad
  - c. equivocal
- Date of arteriogram: \_\_\_\_\_
- (20) Estimation of surgical result, at followup (Bypass Study Form, Item 0012, 18)
- a. excellent, no symptoms
  - b. fair, improved with symptoms
  - c. equivocal, not improved
  - d. poor, worse
- Date: \_\_\_\_\_
- (21) Number of vein grafts operated on (Bypass Study Form, Item 0007, 1)
- Number = \_\_\_\_\_
- (22) Class of malfunctioning (1-6) noted for arteries. (From Coronary Anatomy Sheet):
- Initial: \_\_\_\_\_
- For total CA condition: \_\_\_\_\_
- (23) Class of malfunctioning (106) noted for arteries (Coronary Anatomy Sheet): 6 month followup:
- For total CA condition: \_\_\_\_\_
- (24) List of medications prescribed: Initial (See Therapy Sheet): \_\_\_\_\_
- (25) List of medications prescribed: 6 month followup: \_\_\_\_\_





ABSTRACT

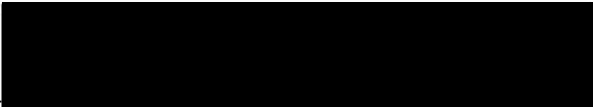
AN ABSTRACT OF THE CLINICAL INVESTIGATION OF  
DONALD M. HARDIN

For the MASTER OF NURSING

Date of Receiving this Degree: June 8, 1980

Title: FAMILY FUNCTIONING IN PATIENTS WITH CORONARY HEART DISEASE

Approved:

  
Julia S. Brown, Ph.D., Professor, Clinical Investigation Advisor

There is no evidence of relationship between family functioning and recovery from coronary heart disease. In this study, 44 male and 2 females, 33 to 62 years of age were interviewed 6-months or more after entering a study of medical vs. surgical treatment for coronary heart disease. Measures of family functioning both before and after treatment were obtained, by means of Pless and Satterwhite's Family Functioning Index. The psychological status of the patients was measured by means of Rumbaugh's Cardiac Adjustment Scale, and the Hypochondriasis, Hysteria, and Depression Scales of the MMPI. Health status was estimated both subjectively by the patients and by clinical and laboratory assessments. Overall family functioning did not change over the period of treatment. Family happiness, disagreements, and satisfaction improved slightly ( $P < .05$ ). Patients indicated satisfaction with life despite evidence of depression and anxiety. While angiographic data did not show improvement, patients reported feeling better, and were rated as functioning better by physicians. No significant

correlation was found between any dimension of family functioning and any of the selected indicators of psychological or physiological status or change. It was concluded there is no evidence to support the commonly accepted proposition that adequacy of family functioning and recovery from illness are related.