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THE EFFECTS OF SUPPORT NETWORKS, MARITAL SATISFACTION, AND STRESSOR EVENTS ON THE NONCANCEROUS SPOUSE'S PERCEIVED STATE OF HEALTH

The University of North Carolina at Greensboro

Ph.D. 1983

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THE EFFECTS OF SUPPORT NETWORKS, MARITAL SATISFACTION,
AND STRESSOR EVENTS ON THE NONCANCEROUS SPOUSE'S
PERCEIVED STATE OF HEALTH

by

Joanne Smith Johnston

A Dissertation submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
1983

Approved by

Dissertation Adviser
This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser

Committee Members

Date of Acceptance by Committee

May 10, 1983

Date of Final Oral Examination

May 10, 1983
The purpose of this investigation was to examine the relationships between the following: 1) support networks and the noncancerous spouse's perceived state of health, 2) marital satisfaction and the noncancerous spouse's perceived state of health, 3) the incidence of stressor events and the noncancerous spouse's perceived state of health, and 4) the combined effects of the first three variables on the noncancerous spouse's perceived state of health. It was hypothesized that support networks and marital satisfaction would correlate positively with perceived state of health; that stressor events would correlate negatively with perceived state of health; and that together, the independent variables would explain a significant amount of the variance in the dependent variable.

The subjects were 49 men and women each of whom was married to a spouse who had carried a pathological diagnosis of cancer for at least six months.

The data were collected via a questionnaire which was mailed to the subjects. Bivariate correlations and multiple regression analyses were used to test four hypotheses. Hypotheses I, II, and III were rejected by the data; Hypothesis IV was supported.

An additional analysis, using marital satisfaction and the demographic variables of age, education, and income, found that income was more significant in explaining variance in the dependent variable than any other independent variable entered into the original or the subsequent analysis.
ACKNOWLEDGEMENTS

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My family has provided unbounded love, support and care, not only for the dissertation, but also for the entire graduate experience. To my husband Sid, who has understood my need to grow again and has contributed mightily to insuring the opportunity for me to do so, I am deeply grateful. He has been certain of my ability from the beginning, and his confidence in me has never wavered. In addition, he has, in my absence, provided stability and extra parenting to our daughter Ashley. That investment is gratefully acknowledged. Ashley has assumed extra responsibilities during her early adolescence because of this undertaking; her understanding and support of her mother's
being a student has been appreciated very much.

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CHAPTER I
INTRODUCTION

The theme of stress, present in the family literature for many years (Angell, 1936; Burgess, 1926; Cavan & Ranck, 1938; Hill, 1949; Koos, 1946) continues to merit attention and has been cited as one of the most productive areas for theory extension through the 1960's (Broderick, 1970) and the 1970's (McCubbin, Joy, Cauble, Comeau, Patterson, & Needle, 1980). A number of early research studies conducted in the 1930's addressed the effects of economic depression on families (Burr, 1973). Some of the ideas that emerged from those early studies were used later to assess the effects on families of alcoholism, bereavement, unemployment, and separation and reunion which accompanied war.

More recently, illness has been viewed as stressful for families, and a body of literature which has addressed the impact of illness on families has evolved (Chen & Cobb, 1967; Litman, 1974; Schmidt, 1978). In addition, some attention has been given to the impact of illness on the spouse (Klein, Dean & Bogdonoff, 1967; Stern & Pascale, 1979) and to the combination of illnesses present in husbands and wives (Cobb, Stanislav, French, & Norstebo, 1967; Schmidt, 1978).

In addition to the reasons cited, a growing impetus for addressing serious illness and its effect on families has emerged with the
relatively new branch of medicine known as family medicine, which has surged within the past ten years (Froom, 1980; Jeter, 1981; Schmidt, 1978). Prior to 1970, the branch of medicine which dealt with family health was handled by the general practitioner. However, the field of general practice declined steadily until the 1970's when family medicine began to grow. Family medicine has recently been identified as an area of specialty medicine that has grown so rapidly that the parameters of the field have yet to be precisely determined (Froom, 1980).

Perhaps the growth of family medicine can be partially explained by stressful lifestyles which have come to characterize the twentieth century. Parsons (1958) and Olsen (1970) suggested that increasing industrialization, urbanization, and technological growth have been accompanied by increasing levels of responsibility by individuals in our society. These increasing levels of responsibility have emerged as individuals have sought to be achievement oriented and to deal with the complexities of life. Parsons (1958) took the position that the presence of health makes it possible to assume high levels of responsibility and to achieve. At the same time, however, the amount of responsibility and the complexities of life often give rise to high levels of motivation to escape through psychosomatic means.

In contrast, Mechanic (1978) viewed illness and illness behavior as being adaptive processes which reflect real efforts by participants to be in control of their own lives and to reduce the uncertainties in their daily lives. Such behavior would be viewed as resourceful
and quite different from the escape motivation described by Parsons (1958). This adaptive approach of illness was also emphasized by Pratt (1976) and by Jeter (1981).

Even with increased emphasis on treatment of illness, illnesses continue to claim many lives each year. Silverberg (1980, p. 24) noted 1,899,597 deaths from all causes in the United States in 1977. Whereas the leading cause of death was heart disease, cancer was ranked as the second leading cause of death.

Cancer is a generic term used by the American Cancer Society (ACS) to describe a large group of diseases which are "characterized by uncontrolled growth and spread of abnormal cells" (1981, p. 3). The failure to control the growth and spread of abnormal cells causes death. ACS data indicated that one in every four persons will, at some time during his life have cancer (p. 3). It was estimated that two out of every three families will be affected by cancer (p. 3).

During the decade of the 70's, there were approximately 3.5 million deaths caused by cancer in the United States (p. 3). In addition, there were more than 6.5 million new cases of cancer reported, and more than 10 million people were under treatment for cancer (ACS, 1981, p. 3). Even though there is a higher incidence of breast cancer, lung cancer contributed to the greatest number of cancer deaths in the United States in a given year (Silverberg, 1980).

Cancer has been viewed as a chronic illness (Edstrom & Miller, 1981; Green, 1980; Parkes, 1975) characterized by stigma (Vachon,
Friedman, Formo, Rogers, Lyall, & Freeman, 1977). This stigma tends to make the cancer experience stressful to the patient and to the patient's family. In addition, cancer has been described as an illness with three distinct stages. These stages are 1) the diagnostic stage, 2) the middle or intermediate stage, and 3) the terminal stage (Edstrom & Miller, 1981). The first and the last stages of cancer have received much attention in the literature; however, little attention has been given to the intermediate stage (Edstrom & Miller, 1981).

In the early 1900's, few people with cancer had any hope of long-term survival; by the 1930's, however, one person in five was yet alive some five years after diagnosis and treatment (ACS, 1981). By the 1940's, one person in four survived, and by the 1980's one person in three could expect to survive for more than five years after the diagnosis (ACS, 1981).

With increased attention to early diagnosis and with improvements in treatment, more people are living longer with cancer. The ACS (1981) stated that there were more than three million Americans alive today who have had a bout with cancer. Of these three million, some two million were diagnosed with cancer more than five years ago. Most of these two million people can be considered to be cured of cancer, even though some still have evidence of cancer. Cured is the term used by the ACS (1981) to convey the fact that a person remains free of cancer and has the same life expectancy as someone who never had cancer at all.
With the period of time continuing to grow between the diagnostic and the terminal stages of cancer, it has become evident that families have had to accept the primary responsibility for care of the cancer patient (Edstrom & Miller, 1981; Green, 1980; Parkes, 1975). It was noted by Edstrom and Miller (1981) that most periods of hospitalization reflect acute flare-ups which are phases of chronic illness. With these exceptions of hospitalization, the responsibility for day-to-day care rests with the individual and with his family.

The family member who often feels the greatest impact of an illness is the patient's spouse. The spouse often assumes responsibility for decisions about seeking medical care (Litman, 1974) as well as for much of the daily care (Edstrom & Miller, 1981).

**Purpose of the Study**

The purpose of this study is to examine the relationship between support networks, marital satisfaction, stressor events, and the non-cancerous spouse's perceived state of health. The literature was reviewed in two areas: the impact of illness on the family in general, and the impact of illness on the other spouse in the relationship.

**Assumptions**

Several major assumptions were made in this study. The first assumption was that serious illness is a stressor event; that is, it is an event of significance that has the potential of bringing about change in the family unit and in the marital relationship.

The next major assumption was that, although families may experience similar and potentially stressful events in the course
of living, there is wide variation in the way the family assesses and deals with these experiences. This assumption is supported in the literature (Engel, 1968; Laster, 1981; Mechanic, 1978).

An additional assumption made in this study was that the dynamics of family and spousal interaction are complex, even under ordinary circumstances. These dynamics are assumed to be even more complex in the face of a stressor event, such as a serious illness.

Consequently, it is assumed that a serious illness in one spouse will carry with it some important implications for the other spouse. Finally, cancer is generally assumed to be life-threatening in nature.

**Limitations**

Although the literature review is broad and focuses on the impact of illness on the family in general and the spouse in particular, the study itself is limited to an examination of the relationship between support networks, marital satisfaction, stressor events, and the noncancerous spouse's perceived state of health. The rationale for the broad review is to develop some appreciation for the impact of illness in general upon family relationships. The study is limited to spouses, that is, to either member of a married pair in relation to the other.

In addition, the study was limited to the time frame in cancer's development which is generally referred to in the literature as the "mid- or intermediate stage" (Edstrom & Miller, 1981, p. 49). In other places, this stage has been referred to as the second stage (Fox, 1973), as the preterminal stage (Mitchell, 1973), as Stage II,
as established disease (Weisman, 1972), as the advancing stage (Abrams, 1966), and as a limbo state (Davis, 1973). Because the diagnostic and the end stages of cancer have been widely discussed in the literature while the intermediate stage has received little attention (Edstrom & Miller, 1981; Parsons, 1977), this study has focused on the intermediate stage and on the task of living with cancer.

**Statement of the Hypotheses**

The overall purpose of this study was to examine the relationships between three independent variables (support networks, marital satisfaction, and stressor events) and one dependent variable (perceived state of health). The relationship between each of the independent variables and the dependent variable can be stated as bivariate relationships and each independent variable leads to a question. Additionally, the combined influence of the three independent variables deals with a multivariate issue for which a multivariate question is asked.

1) What is the relationship between the presence of social support networks for the noncancerous spouse and that spouse's perceived state of health?

2) What is the relationship between satisfaction in the marital relationship and the noncancerous spouse's perceived state of health?

3) What is the relationship between stressor events and the noncancerous spouse's perceived state of health?

4) What is the relationship between the combined effects of the independent variables and the noncancerous spouse's perceived state
of health?

These questions gave rise to the hypotheses which were tested in this study:

H₁: The greater the degree of support networks present for the noncancerous spouse, the more positive the perceived state of health for that spouse.

H₂: The greater the degree of satisfaction in the marital relationship, the more positive the noncancerous spouse's perceived state of health.

H₃: The greater the incidence of stressor events in the noncancerous spouse's life, the less positive the perceived state of health for that spouse.

H₄: The combined effects of the independent variables will explain a significant amount of the variance in the noncancerous spouse's perceived state of health.

**Definition of Terms**

Definitions for the following terms and concepts are provided for clarity. More concise and specific definitions of the variables will be found in Chapter III under the description of the instruments.

**Social Support Networks**

Social support networks refer to a person's relationships with relatives, friends, neighbors, co-workers, and other acquaintances who interact with the person. Each member of a family has a personal network, and collectively, the networks comprise the family social support networks (Unger & Powell, 1980). Networks usually provide
support that is instrumental, emotional, and informational and referral in nature.

Instrumental support includes the provision of financial and other types of material goods and services (Unger & Powell, 1980). Emotional support refers to the knowledge that a person or family is cared for and loved by members of the network (Cobb, 1976; Unger & Powell, 1980). Informational and referral support refers to the use of information networks to find and utilize resources for solving problems and establishing social contacts for help (Grantovetter, 1973; Unger & Powell, 1980).

The social support network variable was measured by the Inventory of Socially Supportive Behaviors (ISSB) (Barrera, 1981). A Likert-like scale, the ISSB consists of 40 items which represent supportive behaviors from others. The range of scores is 0-160. A zero score indicates that none of the socially supportive behaviors had been experienced within the last four weeks. A score of 160 indicates that all of the socially supportive behaviors identified in the ISSB had been experienced "about every day."

Marital satisfaction refers to the subjective feelings of happiness, satisfaction and pleasure experienced by a spouse when considering all current aspects of his marriage. This variable is conceived of as a continuum running from much satisfaction to much dissatisfaction. Marital satisfaction is clearly an attitudinal variable, and, thus, is a property of individual spouses....It is a global measurement in the sense that the respondent is asked to express his feelings of satisfaction or dissatisfaction regarding large numbers of specific facets. (Hawkins, 1968, p. 648)

This variable was measured by the Dyadic Satisfaction Subscale which was part of a larger instrument called the Dyadic Adjustment
Scale (Spanier, 1976). The self-administered 10 item questionnaire focuses on "how often" members of the dyad consider such actions as "terminating the relationship," "leaving the house after a fight," and "kissing each other." In addition, respondents rate their relationship on a scale from 0-6. A zero score on this part of the scale reflects an "extremely unhappy relationship" whereas a score of 6 reflects a "perfect" relationship. A final section focuses on how respondents view the future of their relationship. The range of scores for the overall Dyadic Satisfaction Subscale is 0-50 with a score of 0 representing extreme dissatisfaction and a score of 50 representing extreme satisfaction.

Stressor event is the term used to refer to a life event or occurrence of sufficient magnitude to bring about change in the family system (Hill, 1949). A clustering of life events which require change in the continuing life adjustments of individuals has been significantly associated with the time of the onset of illness (Holmes & Rahe, 1967).

The Schedule of Recent Experiences (SRE) (Holmes & Rahe, 1967) was used to measure the incidence of stressor events in the lives of the noncancerous spouses. The SRE consists of 40 life events whose occurrence either evoke or are associated with adaptive or coping behavior on the part of the individual involved. Consequently, the occurrence of the life events necessitates change in the usual life pattern of the individual.

Respondents were given a list of 40 life events and were asked to indicate which of the events they had experienced within the last
12 months. Marriage was given an arbitrary score of 50, and other events were assessed in comparison to marriage. A scoring scale was developed by Holmes and Rahe (1967) to obtain a total stress score, which was then used for prediction purposes. A stress score of 300 or more points was used by Holmes and Rahe (1967) to predict that there was a 70% chance that the individual would develop a serious illness within the next 12 months. A stress score of 150-300 indicated the potential development of serious illness in 53% of the subjects within the next 12 months. A stress score of less than 150 was used to predict the same results in 33% of the subjects.

Perceived state of health refers to the perceived state of the noncancerous spouse with regard to functioning, disease, and abnormality at any given time. It was used broadly to refer to a state of optimal functioning, well-being, and progress (Morris, 1981, p. 607). A positively perceived state of health was characterized not only by the absence of disease or ailments, but also by the presence of energetic activity and soundness of body and mind.

This variable was measured through the use of the "Cantril Ladder" technique (Cantril, 1965). A picture of a ladder was shown to the respondents. The ladder has rungs which are numbered from zero to nine. Respondents were asked to suppose that the top of the ladder represents the best possible health and that the bottom of the ladder represents the worst possible health. The respondents were asked where they would place their health on the ladder at the present time. High scores represent a positively perceived state of
health, while low scores represent a negatively perceived state of health. Respondents were also asked where they would have placed their health on the ladder five years ago and where they think their health will be five years from the present time.

As indicated earlier, additional attention is given to definition and clarity of the variables used in this study in Chapter III. A number of other concepts used in the study are defined here.

**Spouse** refers to either member of a married pair in relation to the other. Therefore, spouse was used to refer to the husband or the wife.

**Noncancerous spouse** refers to the person in the marital dyad who did not have cancer.

**Marriage** refers to the legal union of a man and a woman as husband and wife.

**Cancer** is the generic term used to describe a group of diseases which are "characterized by uncontrolled growth and the spread of abnormal cells" (ACS, 1981, p. 3). Failure to control the growth and spread of cancer causes death.

**Stress**, not inherent in a given event, is a function of the response of the distressed family or spouse to the stressor event which continues to be unmanaged (Burr, 1973; Hill, 1949).

**Organization of the Dissertation**

Chapter II of this study presents the review of the relevant literature. The review is two-pronged in that it assesses literature relevant to the impact of serious illness on families as well
as the impact of serious illness on the other spouse. The primary focus of Chapter III is the methodology used. Information is provided about the design of the study, the sample selection process, the instruments used for measurement, and the means of collecting the data. In addition, the statistical approaches for analysis of the data are described. Chapter IV of the study provides the analysis of the data, and Chapter V presents a summary and conclusions, and makes suggestions for further study.
CHAPTER II
REVIEW OF THE LITERATURE

The review of the literature is divided into two parts. The first part of the review deals with the impact of serious illness on the family unit, the rationale being the need to develop some appreciation for the fact that illness most often occurs in a family context.

The second part of the review of the literature looked at the impact of serious illness on the spouse. Often, the significant person who contributes to the decision to seek or delay medical assistance is the spouse (Litman, 1974). In addition, the spouse bears much of the responsibility for daily care (Edstrom & Miller, 1981). The spouse's role and reactions in dealing with illness were also reviewed.

Theoretical Framework

The review of the literature begins with some theoretical considerations. The major ideas in this paper stem from Hill's (1949) formulation of family crisis. Even though there have been slight changes since its formulation (Hansen & Hill, 1964; Hill, 1958) and the concepts have been re-examined (Hansen & Johnson, 1979), the theory has remained basically intact since it was first posited. The family crisis model is known as the A, B, C, X Formulation and is presented in the following way: "A (the event)-->
interacting with B (the family's crisis-meeting resources)--interacting with C (the definition the family makes of the event)--produce X (the crisis)" (Hill, 1958, p. 14). In addition, the theoretical framework addresses the course of the family's adjustment which is characterized by a period of disorganization, an angle of recovery, and a new level of organization (Hill, 1958).

The significance of this model is the fact that X--the crisis itself--is influenced by other variables, namely the definition given to the event by the family, and the family's resources for dealing with the event.

Burr (1973), in an effort to place ideas in family crisis literature into a deductive theory, developed a number of propositions about family crises using Hill's (1958) model. Major propositions that have relevance for this study were the following:

1) Proposition 10.1 : A stressor event in a family social system influences the amount of crisis in the system, and this is a positive relationship. (Burr, 1973, p. 202)

2) Proposition 10.3 : The definition a family makes of the severity of changes in the family social system influences the family's vulnerability to stress, and this is a positive monotonic relationship. (Burr, 1973, p. 202)

3) Proposition 10.10 : The regenerative power of families influences the level of reorganization after a period of
crisis, and this is a positive relationship. (Burr, 1973, p. 208)

Burr's (1973) Proposition 10.1 refers to the presence of a positive relationship between a stressor event in the family system and the amount of crisis in the system. This suggests that when a stressor event occurs, there is a crisis. Hill's (1949) definition referred to the stressor event as having the potential to effect change in the family system. Although often thought of negatively, a stressor event may encourage growth and creativity and does not necessarily culminate in a crisis (Moulton, 1980).

With the presence of the stressor event of illness and the potential for a crisis to occur, Hill (1958) suggested that the structure of the family may be modified as the sick member's ability to fulfill usual roles is reduced. The family enters a state of disequilibrium (Bruhn, 1977; Hill, 1958; Klein, 1977; Olsen, 1970) during which time a readjustment of power and role relationships takes place until a new equilibrium is established. Bruhn (1977) referred to illness as a "potent agent of change" (p. 1057) and suggested that role changes and the reallocation of tasks were easier to accept in short-term illness than in chronic illness. The position was taken that family members hope that role changes will be temporary, even in chronic illness. As time passes, however, it becomes necessary to remove duties and responsibilities from the ill family member. Bruhn (1977) argued for role changes and task reallocation to be done in a way as to minimize the sense of personal loss and to insure
continued membership in the family for the ill family member. Hill (1958) stated that the length of time needed to re-establish equilibrium depended on whether or not the stressor event became a crisis, the type of crisis and the family's definition of the crisis, and the resources that were available to meet it.

One of the major assumptions made in this study was that serious illness is a stressor event—the "A" in Hill's model. The mere presence of illness, however, does not constitute a crisis. Multiple factors come together to help determine whether it becomes a crisis. Among these factors is the way the family defines the severity of the changes brought about by the illness. An examination of that idea follows.

**Family Definition of Changes**

Burr's (1973) Proposition 10.3 suggested that families define the severity of the changes that are brought about by the stressor event, in this case, illness. Change over time is viewed as being inherent in the family. The family life cycle concept suggests that there are transitional periods between phases of the family life cycle. New phases mean new tasks to be completed. In addition, there is a need for continual readjustment by family members (Worby, 1971). The completion of new tasks is viewed as being stressful to family members under normal circumstances; however, Olsen (1970) and Pearlin and Schooler (1978) suggested that the occurrence of serious illness during transitional periods had a greater impact on families than if it had occurred during nontransitional periods. Olsen (1970)
stated that illness causes change in the way traditional roles continue to be fulfilled. The family member who is hospitalized will be unable to function in his or her usual roles, at least for a while. In a similar manner, the family member's return to the family unit causes changes in roles that had been assumed in his or her absence. Olsen (1970) suggested that such change is more disruptive under these transitional circumstances than it might be if the transition were already complete.

Several factors play a role in the way the family defines the stressor event and the severity of the changes it brings to the family system. Reiss and Oliveri (1980) took the position that the family's definition of the stressor event was part of its response to the event. The definition was not seen to be inherent in the stressful qualities of the event itself. In fact, it was argued that the family's process of defining the stressor event made up the core of coping responses which followed. Reiss and Oliveri (1980) stated that the cultural definition contributed to the magnitude of the stressor event whereas the family definition shaped the style of the response. Hansen and Johnson (1979) suggested that the definition was linked to the relationship between the past, the present, and the future. Past remembrances and future expectations come together to structure the present. In the face of the uncertainty accompanying the stressor event, families with patterns of interaction that are firmly established are able to define the present experience through previous experiences. If a stressor event is so vague the family
has no pattern for defining it, the members begin to seek meaning from their surroundings and from each other.

Engel (1968) found a disruption in the sense of continuity that had previously existed between the past, the present, and the future for those people who developed serious illness. Engel (1968) found that the sense of continuity was taken for granted until the development of illness. At that time, problems developed because previous coping patterns were ineffective. Consequently, individuals were unable to project themselves into an uncertain future.

Reiss and Oliveri (1980) found differences in the way "high"- and "low"-closure families defined stressor events. The concept of closure refers to the role tradition plays in the way families deal with the present. High closure meant that families delayed a decision until the maximum amount of evidence could be obtained. These families did not have a rich sense of family convention and the past. The nature of the problem was left undefined immediately, with clarification expected in time. Risk-taking was encouraged. When a decision was made, high-closure families had an altered conception of themselves (Reiss and Oliveri, 1980). By contrast, low-closure families were heavily oriented toward the past with family traditions and perspectives being important factors in interpreting the present. These families were uncomfortable with uncertainty and tended to decide quickly rather than remaining open to new experience and ideas. When the decision was made, it was adhered to. The initial responses and trial solutions were conservative and drew on already-established behaviors and attitudes in the family. Final
decisions in low closure confirmed the family's conception of itself rather than altering the conception.

Mauksch (1974) suggested that families, through the socialization process, teach their members a set of values and attitudes about health and the importance of overall well-being. He argued that those values and attitudes would help determine how a family defined the stressor event—illness—and would influence the changes the event may bring to the family system.

Family's Crisis-Meeting Resources

Part of the way a family defines the stressor event may be somewhat influenced by the presence or absence of resources to deal with the stressful experience. Burr's (1973) Proposition 10:10 suggested that the regenerative power of a family influences the level of reorganization after a crisis. The relationship is positive. Much of a family's ability to regenerate will be dependent on the kinds of resources a family has at its disposal.

Internal Resources

A family's definition of a stressor event has been identified and discussed as an internal resource. Other areas that can be conceived of as internal resources include previous experiences with stressor events, financial status, family relationships, and communication patterns. Those areas are explored here.

Previous experiences with stressor events. Engel (1968), Klein (1971) and MacVicar and Archbold (1976) pointed to previous experiences and the successful or unsuccessful resolution of earlier stressor
events as being an important determinant of how the current situation would be viewed. They suggested that previously unsuccessful resolutions of family crises served to reactivate old wounds and old feelings that were yet very intense. The presence of the old wounds and their accompanying feelings provided cogent reminders of past vulnerability and the inability to cope. Hill and Hansen (1962), in an examination of family disaster literature, found that families showed more adaptive behavior if they had had previously successful experiences in dealing with disasters.

Financial status. Mechanic (1978) reviewed the whole area that dealt with the financial costs of illness in America. He concluded that catastrophic illnesses represented financial burdens to families. Duff and Hollingshead (1968) noted that if the primary breadwinner in the family became ill, the family would likely view the illness as creating financial problems. On the other hand, if the other spouse became ill, there was a greater likelihood of problems in caring for children and providing for domestic concerns.

Hill (1968) noted that those families that either had sufficient financial reserves or were eligible for assistance were not confronted with the same issues as those families which fit in neither category. Hill (1968) stated that the family's vulnerability to stressor events increased as the economic status became more marginal. If or when the expenditures of a family equal or exceed the family income, the additional unexpected costs of an illness can place the family's precarious financial status in jeopardy. If the breadwinner is incapacitated, there is the additional burden of dealing with lost
income, a situation which may mean altering as well as lowering the family's standard of living (Addiss, 1966).

**Family relationships.** Rodgers (1964) looked at family as being a "semi-closed system which was composed of interrelated positions and roles defined by the society of which it is a part as unique to that system" (p. 264). Olsen (1970) stated that most families attempt to present a united front to the outside world even in the face of internal strain. The family's need to protect itself from intruders in order to maintain its organization and protect its myths was seen as being very powerful.

McCubbin (1981) noted that in times of crisis, family members tend to take each other for granted and fail to provide each other with desperately needed attention. He suggested that families need to make a conscious effort to engage in activities such as work or play, even if family members felt uncomfortable in doing so.

**Family communication patterns.** The internal functioning of a family may be an important factor in the way a family deals with a stressor event. Hansen and Johnson (1979) stated that the communication patterns of a family are part of the family's internal resources. Exchange of information, although possibly leading to an awareness of incompatibilities in values and roles among family members, also contributes to a pattern of emphasizing agreement areas and ignoring the incompatibilities. Twaddle (1969) found that consultation in the presence of pain (an indicator that illness was present) began as an exchange of information between the husband and the wife about the
husband's health status. There was what he called a "bargaining" over the status of health which came about through the exchange of information. Twaddle (1969) also found that if the consultation between husband and wife were unsatisfactory, then other people such as children, co-workers, or friends were consulted.

The empirical study by Pratt (1976) reflected a high level of consultation and interaction among members of her so-called "energized" families. They were labeled as energized because of the sheer energy or exchange that occurred between members of families who interacted with each other a great deal. The interaction was verbal and nonverbal communication and seemed to be characteristic of their dealing with all segments of life. Olsen (1970) concluded that positive adjustment was more likely in those families with serious illness if communication patterns were such that honest emotions could be shared and self-esteem enhanced. The need for openness in communication between family members was also emphasized by Moos and Tsu (1977) who found one of the primary concerns among the ill to be about maintaining relationships with family members. They concluded that continuing communication between family members was often difficult to accomplish at the time when it was most needed.

Litman (1974) noted that serious illness served to bring families together about as often as it drove them farther apart. He surmised that in the face of such strain, the family's bonding was much in doubt.

External Resources

In addition to concern with the family's internal processes in
the face of serious illness, considerable attention has been given to the support networks outside the family which are brought to bear when the need arises. This study considered some of these external resources which include social networks, patterns of support, and self-help groups.

**Social networks.** Increasingly, attention has been devoted to the recognition that the family unit exists in a societal context which becomes even more important in the face of stress (Laster, 1981; McCubbin, 1979; McCubbin, 1981; McCubbin et al., 1980; Rabkin & Struening, 1976; Unger & Powell, 1980).

According to Laster (1981), those families which "draw support from friends, parents or community relationships are less susceptible to illness and other stress symptoms than are those who lack such support" (p. 18). This thinking has been around since the time of the Great Depression, the World Wars, and periods of disaster when it became evident that families who maintained contact with and pooled resources with relatives, friends, and neighbors fared better than those families who remained isolated (Drabek & Boggs, 1968; Hill, 1949; Koos, 1946; Stouffer & Lazarsfeld, 1937).

Unger and Powell's (1980) definition suggested that each member of a family has a personal social network which is composed of friends, relatives, and neighbors who interact with various family members. It was further suggested that all members in the network do not interact with all of the other network members, and that there are few clear boundaries to the network. The fact that they relate to
specific members of a given family is the tie that brings them together.

Patterns of support. McCubbin et al. (1980) found from a review of the literature that emotional and financial support was the most prevalent pattern of support to families in times of stress. Unger and Powell (1980) identified instrumental, emotional, and informational and referral support as the kinds of support given most often. They noted that instrumental support included financial and other types of material goods and services. Emotional support included letting a person or family know that they were cared for by members of the network. Information and referral included using informal networks to access resources.

Family and kin appeared to be a prevalent source of social support during times of stress. Hill (1970) looked at patterns of support among three generations, i.e., grandparents, parents, and young married children. He found that all three generations participated in exchange of resources and patterns of support. It was concluded that such behaviors served as protection against the harmful effects of stress. Sussman and Burchinal (1968) also found an exchange of aid and services within kinship systems, especially when there was a crisis. Unger and Powell (1980) observed that families under stress utilized social network members differently for different needs. They concluded that kinship groups were better prepared to handle long-term commitments to families during times of stress than were friends. Sussman (1973) noted, however, that assistance from kinship groups was neither permanent nor stable because intra-family groups
had values and goals to achieve. This achievement often meant a competition with the family in need.

Croog, Lipson & Levine (1972) found in a study of men who had experienced a myocardial infarction that relatives, friends, and neighbors provided much support and assistance. MacVicar and Archbold (1976) suggested that the number of people who are available to provide support and assistance to a family provides an indicator of how difficult managing an illness will be. They noted that transient families with looser kinship ties than in the past are characteristic of industrial societies. Consequently, instead of the extended family of other relatives such as cousins, grandparents, aunts, and uncles, a family today is more likely to be the nuclear unit with parents and the children.

Koos (1946) found that when families in trouble needed assistance, they went to relatives, the priest, the druggist, or the bartender. Formal agencies were not used by the families he studied. This preference for informal aid as opposed to formal aid was still prevalent in a study by Eddy, Paap, & Glad (1970), who asked adults to rank those persons and agencies they perceived to be sources of aid during times of trouble. Family was the predominant source of aid mentioned.

Self-help groups. Another form of external resources in recent years has come in the form of mutual self-help groups. Katz (1970) referred to self-help groups as associations of family units or individuals who share the same problem and work together to provide
mutual aid support. Mechanic (1978) noted that families were less problematic in their responses to crises if the crisis were shared with others. In the context of self-help groups, family members were often surprised to find that their experiences were more similar to others' experiences than they had originally thought. This awareness helped many families to move away from feeling that their reactions were the result of weakness or personal failure. The consequent enhancement of self-esteem contributed to actively coping with the crisis experience.

McCubbin (1981) suggested that the network systems which supported families in times of need also served to help the families understand their responsibility to the support network. He noted that strong families seemed to know where the community resources were and how to make effective use of them. Nelson and Nelson (1981) argued that this kind of support was in opposition to the idea that strong families are fiercely independent. They suggested that this myth of fierce independence needed to be countered with attention given to the idea of reciprocity in support networks. Pratt (1976) also placed emphasis on the importance of families' actively seeking and maintaining links with the broader community. Such links were seen as resources for the family. In addition, Pratt (1976) stated that families whose members interacted with outside groups were stimulated by exposure to new ideas and problem-solving approaches which were adopted by families. This interaction helped develop family members' capacities to take care of themselves.
Impact of Illness on the Spouse

Traditional wedding vows remind each person in the marrying dyad of the commitment to stay together..."for richer, for poorer, in sickness and in health, to love and to cherish, till death us do part" (Robinson, 1929, p. 302). Sickness occurs in the context of family, and often the significant person who contributes to the decision to seek or to delay medical assistance is the spouse (Litman, 1974). One of the other major assumptions made in this study was that the presence of a serious illness in one person in the marriage has important implications for the other person.

Some of the literature which addresses this issue has focused on spouses in general (Klein et al., 1967; Stern & Pascale, 1978; Widmer, Cadoret & North, 1980) whereas studies on heart disease have often focused on wives (Croog & Fitzgerald, 1978). In addition, there is a body of literature which deals with husbands' reactions to wives who have had breast cancer (Asken, 1975; Klein, 1971; Lewis & Bloom, 1978; Wellisch, Jamison, & Pasnau, 1978), and a body of literature on the peculiar combinations of illnesses exhibited by both spouses within the marriage (Cobb et al., 1969; Froom, 1980; Klein et al., 1967). The latter issue represents an area of growing concern to family medicine since new combinations of illness are developing more rapidly than the nomenclature for identifying the combinations (Froom, 1980).

The prevalence of cancer as a life-threatening illness is well known (ACS, 1981). In addition, cancer is a feared disease and
there is a lingering stigma which accompanies cancer (Edstrom & Miller, 1981). Volicer and Bohannon (1975) asked medical-surgical patients to rank-order a number of experiences which were related to hospitalization. The second most stressful item ranked was the idea that one might have cancer.

Vachon et al. (1977) did a comparative study between wives of heart attack patients and wives of cancer patients. They found that the wives of cancer patients perceived the stigma attached to cancer and that this perception caused an increase in the stress experienced by the patient and by the family. Vachon et al. (1977) also noted that wives of cancer patients had a more difficult time for the duration of illness than did wives of heart attack patients. It was concluded that the reason for this prolonged difficulty was the fact that wives of cancer patients felt helpless during the time of their husbands' illness. Compared to the "heart attack wives" they felt more anger towards the medical system and more abandoned by medical personnel as the illness progressed.

Risk of Illness

MacVicar and Archbold (1976) observed that the ongoing demands which were made by chronic illness on various family members could contribute to the development of multiple health problems within family members. Such health problems were viewed as a factor in eroding a family's overall coping ability.

Schmidt (1978) found a correlation between patients' illnesses and an increase in somatic symptoms in their spouses. This increase was found to be linked to an increased tension in the marital role.
A similar finding by Klein et al. (1967) reflected an increase in symptomatic levels in spouses during an illness period. Symptoms reported most often were nervousness and fatigue. In addition, there were reports of increases in role tension during illness. This tension was evidenced by being jittery, being easily angered, and by being easily depressed. These findings were interpreted by Klein et al. (1967) to be a reflection of the psychological impact of the illness on the spouse.

Stern and Pascale (1978) looked at the spouses of myocardial infarction patients and found that they were often embittered by the new demands placed on them as a result of the heart attack. They described the presence of overt anger and withholding which followed the infarction. The spouses in this study (Stern & Pascale, 1978) alternated between fearing that an open expression of resentment would be harmful to the patient and becoming overly protective. These effects contributed to anxiety and depression in the spouses.

A study (Widmer et al., 1980) that examined the effects of depression on other family members noted that spouses tended to show characteristics similar to those of the depressed patient. Specifically, there were functional complaints related to the gastrointestinal tract such as irritable colon and nausea, and of the central nervous system such as fatigue and dizziness.

The authors of this study (Widmer et al., 1980) made note of the fact that there was a corresponding increase in the number of visits by the spouse to the physician. The increased number of
somatic complaints was interpreted to be indicative of underlying tension in family interaction which had been present for a considerable amount of time before the primary diagnosis of depression was made. Klein et al. (1967) noted that the development of illness in the family was accompanied by role failure which led to interpersonal tension and somatic symptoms in both partners.

Vachon et al. (1977) stated that wives of cancer patients had a higher incidence of physical illness than did wives of heart attack patients. The prevalence of tension and the exhaustion which accompanied the chronicity of cancer led to physical illness in the wives later. "Cancer wives" were also found to have neglected their own state of health during their husbands' illness. In some cases, significant health problems developed that were not immediately detected.

Marital Difficulties

A major finding in the Stern and Pascale (1978) study was that many of the symptomatic spouses had had marital difficulties before the myocardial infarction. They reported that the difficulties had become worse during the period of convalescence following the infarction. A decrease in communication and an increase in marital estrangement were the result of the fear that saying the wrong thing might be fatal to the patient. There was also an expressed desire not to disturb the patient, and thus, communication decreased. Skelton and Dominion (1973) found anxiety or depression to be prevalent in one-third of the wives of post-
infarction patients. Wives felt trapped in a double bind because they were accused of being too protective, or they were chastised for not caring if they seemed uninvolved.

Other studies (Anthony, 1979; Croog et al., 1968) noted the importance of pre-infarction family relationships as a predictive variable of family adjustment during the period of convalescence. Those families with good integration and flexibility in roles were found to be most able of all families studied to cope with a disabled family member. On the other hand, dependent spouses were noted as being especially prone to have difficulties in adjustment (Visotsky, Hamburg, Goss, & Lebonfts, 1961). Davies (1981) suggested that in the face of dealing with a chronic handicap in a family member, there was usually no prior training for the responsibilities of care that were needed. In addition, the spouse's life demands often competed with the needs of the patient.

In another study which looked at subjective stress in wives of heart patients, Croog and Fitzgerald (1978) found that wives whose husbands were rehospitalized for heart disease during the study year had a higher rate of subjective stress when compared to women whose husbands were not rehospitalized. Those wives who were "unhappily married, who felt depressed, moody, or easily angered were also more likely to be 'high' stress women" (Croog & Fitzgerald, 1978, p. 175). The investigators stated that the subjective stress feelings of the wife were linked to the kind of person she was before the illness and to her marital situation. The happier the marital situation,
the lower the amount of subjective stress shown.

Mayou, Foster and Williamson (1978) reported similar findings in that the psycho-social adjustment of wives before husbands’ myocardial infarctions were seen as good indicators of how wives would be feeling and behaving a year later. It was possible to identify those wives who were high risks for emotional and physical problems.

Husbands’ Reactions to Breast Cancer

Wellisch et al. (1978) looked at husbands whose wives had undergone mastectomies. Their findings supported the overall importance of the marital relationship to adjustment following the trauma of the mastectomy. The men who had a negative view of their marital relationship before the procedure tended to become even more negative after the surgery. By comparison, those men who felt their relationship to be sound showed a positive view of the marital relationship after the surgery. Klein (1971) noted that the husband was at risk emotionally following his wife’s mastectomy because he had some of the same needs and concerns as she. One of the major concerns was whether or not he would lose his wife.

Other concerns included deciding how to react to her after the surgery and what new needs he would be responsible for fulfilling in her. Wellisch et al. (1978) found that those husbands who were involved in the decision-making process concerning the surgery were also more likely to visit in the hospital during the postmastectomy period. This involvement was viewed as visible evidence of emotional support by the husband. Davies (1981) noted that hospital visits
between the spouses were sometimes disruptive and disturbing to the patient; however, this was not a prevalent point of view. The Wellisch et al. (1978) study concluded that husbands were more than bystanders in the mastectomy process, and that their emotional involvement needed to be recognized by professionals charged with enhancing the recovery process.

**Conclusions**

From a perusal of the literature, extensive work has been done which deals with illness and the subsequent effects on the family unit. Although serious illness is potentially threatening to the family, the illness need not culminate in a crisis. The family's response to the illness depends on such things as the definition given to the event, resources for managing the illness, and previously successful or unsuccessful experiences in dealing with crisis events.

Some research efforts looked at the effects of serious illness on spouses (Klein et al., 1967; Stern & Pascale, 1978; Widmer et al., 1980). The most prolific area of study focused on wives of heart attack victims (Anthony, 1979; Croog & Fitzgerald, 1978; Croog et al., 1968, 1978; Mayou et al., 1978; Stern & Pascale, 1978; Vachon et al., 1977). Among these studies and the cancer studies which have looked at the impact of breast cancer on husbands (Klein, 1971; Lewis & Bloom, 1978; Wellisch et al., 1978) and the effects of cancer on wives (Vachon et al., 1977), the relevance of the non-patient's perceived state of health has emerged. In some studies
(Vachon et al., 1977), the state of health appeared to be ignored until later when there would be time or energy to deal with it. In other studies (Schmidt, 1978), the state of health of the nonpatient seemed to compete for medical attention. It therefore seems important to examine the perceived state of health of the nonpatient spouse and to gain a better understanding of the factors that influence perceived state of health.

The independent variables of support networks, marital satisfaction, and stressor events have emerged from the literature as well. Support networks are portrayed as desirable to have. In addition, there are varieties of support networks which meet different needs at different times. Marital satisfaction has been related to the overall outcome of an illness experience. If there were a positive degree of marital satisfaction present at the time of the illness, the prognosis was more favorable for the nonpatient spouse. The final independent variable of stressor events has been woven through the entire review. In short, stressor events appear to be undesirable to experience, and yet, they are a fact of life. The overall effect of stressor events appears to vary considerably.
CHAPTER III
METHODS AND PROCEDURES

Selection of Sample

The sample used in this study consisted of 49 males and females, all of whom were married to a spouse who had a pathological diagnosis of cancer. The cancer diagnosis had been known for a period of at least six months. The subjects were located with the assistance of Robert C. Moffatt, M.D., a surgical oncologist from Asheville, North Carolina. The subjects resided in nine western North Carolina counties and one additional state.

The procedure for drawing the sample was a simple random method with replacement (Kerlinger, 1973, p. 118). A random numbers table was used to generate 71 names from the population of individuals (n=512) served by Dr. Moffatt. Noncancerous cases that were drawn were eliminated. In addition, squamous cell cancers were eliminated since they were not perceived to be life-threatening. Further, cases of widowed, divorced or single persons were eliminated. A few cases were eliminated because of illiteracy and psychiatric risk. A total of 71 names was drawn to constitute the sample.

Subjects

Questionnaires were mailed to the 71 individuals whose names were drawn for the sample. Two questionnaires were returned by the Postal Service. Sixty-nine individuals actually received questionnaires; 54 returned the questionnaires, three of which were unusable.
<table>
<thead>
<tr>
<th>County</th>
<th>Number in Sample</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buncombe</td>
<td>27</td>
<td>55.1</td>
</tr>
<tr>
<td>McDowell</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Transylvania</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>Haywood</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td>Henderson</td>
<td>3</td>
<td>6.1</td>
</tr>
<tr>
<td>Cherokee</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Macon</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Madison</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Yancey</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Florida</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td>Totals</td>
<td>49</td>
<td>99.9**</td>
</tr>
</tbody>
</table>

* Two cases from Florida are also included

** Does not equal 100% due to rounding
Also, two responses were returned too late to be included in the analysis. Consequently, a total of 49 subjects' responses were used for the study.

Among the adults who participated in the study, 30 or 61% were males and 19 or 39% were females. The sample was 98% white and 2% black. The age range for the subjects was 25 to 87 with a mean age of 58.0 years (Table 2). The number of years the subjects were married ranged from 2 to 57 with the mean number of years of marriage being 31.2 years (Table 3).

Of the subjects included in the study, 17 were employed, 20 were retired, 11 were full-time homemakers, and one was unemployed (Table 4). With regard to religious preference, 90% were Protestant, 4% were Jewish, 4% expressed no religious preference, and 2% indicated "other" as a religious preference.

Respondents were asked to specify the kind of cancer present in the cancerous member of the marriage. The most prevalent form was breast cancer with 41% having this diagnosis. Colon-rectal cancer was the next most prevalent with 18% having this diagnosis, and 18% also identified "other" as their spouse's cancer diagnosis. Melanoma (8%), lymphoma (4%), and non-systemic tumor (2%) were other diagnoses identified. Additionally, 14% identified a diagnosis of mouth and throat cancer, 4% indicated leukemia, 2% cancer of the uterus, and 2% lung cancer (Table 5).

The educational range for the sample varied from "some grade school" to "some graduate work." The mean number of years of
education was slightly above 12 years (Table 6). The families' annual pretax incomes ranged from "less than $3,000" to "more than $50,000." The mean income fell in the $13,000 to $15,999 range (Table 7).

Table 2
Age Range Represented in the Sample

<table>
<thead>
<tr>
<th>Age</th>
<th>Number in Sample</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-35</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>36-45</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>46-55</td>
<td>11</td>
<td>22.4</td>
</tr>
<tr>
<td>56-65</td>
<td>16</td>
<td>32.7</td>
</tr>
<tr>
<td>66-75</td>
<td>11</td>
<td>22.4</td>
</tr>
<tr>
<td>76-85</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td>85+</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Totals</td>
<td>49</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean: 58
Table 3

Years of Marriage Represented in the Sample

<table>
<thead>
<tr>
<th>Years of Marriage</th>
<th>Number in Sample</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>6</td>
<td>12.2</td>
</tr>
<tr>
<td>11-20</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>21-30</td>
<td>6</td>
<td>12.2</td>
</tr>
<tr>
<td>31-40</td>
<td>16</td>
<td>32.7</td>
</tr>
<tr>
<td>41-50</td>
<td>12</td>
<td>24.5</td>
</tr>
<tr>
<td>51-60</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>49</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Mean: 31.23

Table 4

Patterns of Employment in the Sample

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>% of Sample</th>
<th>Females</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>12</td>
<td>24.5</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1</td>
<td>2.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Retired</td>
<td>17</td>
<td>34.7</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td>Homemaker</td>
<td>0</td>
<td>0.0</td>
<td>10</td>
<td>20.4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>30</strong></td>
<td><strong>61.2</strong></td>
<td><strong>19</strong></td>
<td><strong>38.8</strong></td>
</tr>
</tbody>
</table>
### Table 5
**Spouse's Cancer Diagnoses**

<table>
<thead>
<tr>
<th>Kind of Cancer</th>
<th>Number of Cases</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Breast</td>
<td>20</td>
<td>40.8</td>
</tr>
<tr>
<td>Colon-Rectum</td>
<td>9</td>
<td>18.4</td>
</tr>
<tr>
<td>Leukemia</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td>Uterus</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Mouth-throat</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Head</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>49</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

### Table 6
**Noncancerous Spouses' Educational Levels**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Number of Cases</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Some grade school</td>
<td>3</td>
<td>6.1</td>
</tr>
<tr>
<td>Completed grade school</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Some high school</td>
<td>9</td>
<td>18.4</td>
</tr>
<tr>
<td>Completed high school</td>
<td>14</td>
<td>28.6</td>
</tr>
<tr>
<td>Some college</td>
<td>8</td>
<td>16.3</td>
</tr>
<tr>
<td>Completed college</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Some graduate work</td>
<td>3</td>
<td>6.1</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>49</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
Table 7

Pretax Incomes Represented by Sample

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Number of Subjects</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $3,000</td>
<td>6</td>
<td>12.24</td>
</tr>
<tr>
<td>3,000 to 4,999</td>
<td>1</td>
<td>2.04</td>
</tr>
<tr>
<td>5,000 to 6,999</td>
<td>1</td>
<td>2.04</td>
</tr>
<tr>
<td>7,000 to 9,999</td>
<td>8</td>
<td>16.33</td>
</tr>
<tr>
<td>10,000 to 12,999</td>
<td>2</td>
<td>4.08</td>
</tr>
<tr>
<td>13,000 to 15,999</td>
<td>3</td>
<td>6.12</td>
</tr>
<tr>
<td>16,000 to 19,999</td>
<td>8</td>
<td>16.33</td>
</tr>
<tr>
<td>20,000 to 24,999</td>
<td>7</td>
<td>14.30</td>
</tr>
<tr>
<td>25,000 to 29,999</td>
<td>5</td>
<td>10.20</td>
</tr>
<tr>
<td>30,000 to 34,999</td>
<td>1</td>
<td>2.04</td>
</tr>
<tr>
<td>35,000 to 39,999</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>40,000 to 44,999</td>
<td>2</td>
<td>4.08</td>
</tr>
<tr>
<td>45,000 to 49,999</td>
<td>1</td>
<td>2.04</td>
</tr>
<tr>
<td>Over</td>
<td>4</td>
<td>8.16</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>49</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Mean: $13,000 to 15,999 range

Research Design

This study was ex post facto in type (Kerlinger, 1973) and bivariate and multivariate in method (Pedhazur, 1982). The study utilized three independent variables and one dependent variable to test four hypotheses. The independent variables were 1) social support networks, 2) marital satisfaction, and 3) stressor events. The dependent variable was the perceived state of health of the noncancerous spouse.
Pedhazur (1982) referred to regression analysis as being a method of analyzing the variability of a dependent variable by using information that is available on one or more independent variables. If only one independent variable is used, the analysis is referred to as simple regression analysis. Multiple regression analysis is used when two or more independent variables are found in a study. The basic question to be answered in regression analysis is: "What are the expected changes in the dependent variable as a result of changes (observed or induced) in the independent variables?" (Pedhazur, 1982, p. 5). In addition, Pedhazur (1982) described regression analysis as being suitable for explaining or predicting phenomena in nonexperimental research as well as for experimental research.

Kerlinger (1973, p. 150) referred to multiple regression analysis as being one of the most flexible and most useful of the multivariate approaches because it can handle both continuous and categorical variables. In addition, multiple regression can handle any number of independent variables, although practical considerations usually place limits on the number. Further, Kerlinger (1973) described multiple regression analysis as being an efficient and powerful hypothesis-testing and inference-making technique, since it helps study, with relative precision, complex inter-relations between independent variables and a dependent variable, and thus helps...'explain' the presumed phenomenon represented by the dependent variable. (p. 631)
Multiple regression was also referred to as a "refined and powerful method for controlling variance" (Kerlinger, 1973, p. 631).

Research Instruments

The basic research instrument was a questionnaire booklet which consisted of the following components: 1) the Inventory of Socially Supportive Behaviors, 2) a Cantril ladder to assess perceived state of health, 3) the Dyadic Satisfaction Subscale, 4) the Schedule of Recent Experiences, and 5) demographic questions. The instruments were pretested on a group of 12 adults for feedback about clarity of instructions and wording of questions. A number of changes were made following the pretest. The following section provides a description of each instrument used in the study.

Self-Perceived Health

George and Bearon (1980) referred to health as being a multi-dimensional concept which is not simply defined nor easily measured.

The present investigation utilized the Cantril Self-Anchoring Technique (Cantril, 1965) to measure self-perceived health. The questionnaire included a picture of a ladder with rungs which were numbered from 0 to 9. The respondent was instructed to suppose that the top of the ladder represented the best possible health while the bottom represented the worst possible health. The respondents were asked where they would place their health on the ladder at the present time. The respondents were also asked where
their state of health was five years ago and where they thought their state of health would be on the ladder five years in the future. The individual's score was the number of the rung on the ladder which was indicated. High scores represented a positively perceived state of health, and low scores represented a negatively perceived state of health.

The self-anchoring technique was originally developed to provide an opportunity for respondents to define in their own terms the anchor points on any dimension to be measured (Kilpatrick & Cantril, 1960). Campbell, Converse, and Rodgers (1976) reported that the technique was broadly applicable to a variety of situations or objects. Cantril (1965) used the technique on a cross-cultural study which included 20,000 subjects from around the world. There were 1,549 Americans in the study which focused on people's perceptions of the best and worst lives, life satisfactions, and the hopes and fears they held in regard to the future of their nations.

Cantril (1965) used the technique to ask respondents where they thought they stood in the past (five years ago), and where they thought they would stand in the future (five years from now).

Kivett and Scott (1979) used the Cantril ladder technique to measure self-rated health in their study of 418 rural elderly adults. A mean health rating of 5.07 was reported using a continuum of 0 to 9 to rate their state of health.

Palmore and Kivett (1977) used the same technique in a study of change in life satisfaction among 502 adults. The adults in
their study (Palmore & Kivett, 1977) ranged in age from 46-70. A mean health score of 6.8 was reported.

George and Bearon (1980) noted that even though physical health is an objective phenomenon, most persons have a subjective assessment of their own health status. When asked, individuals are able to identify and relate their health concerns as well as evaluate their physical well-being. It was concluded that health is both subjective and objective as a dimension of life quality. While George and Bearon (1980) spoke of self-rated health in a social gerontological context, it was noted that such measures are easy to administer, are inexpensive, and are demonstrative of significant relationships between subjective health ratings and the ratings of physicians.

Maddox (1964) explored the issue of self-assessment of health status among 176 subjects who were a panel of volunteers in the Duke longitudinal study of human aging. The self-evaluations of two-thirds of the subjects were in agreement with an objective medical evaluation. During the initial phase of the study, objective health status appeared to be the single most important correlate of a subject’s self-estimate of health. Maddox (1964) reported that between the first and second phases of the study (a period of 38 months), both the medical and subjective assessments of health tended to remain stable, even when considered separately. The stability of both objective and subjective assessments was greater in both instances than would be expected by chance alone (p<.001). This finding led Maddox (1964) to conclude that medical health status was an
important determining factor of subjective health assessment.

In a later report from a panel of 83 subjects from the Duke longitudinal study, Maddox and Douglass (1974) reported a confirmation of their hypothesis that a positive relationship persists over time between physicians' ratings of health and self-rating of health. Their six observations over a period of 15 years showed that over 58% of their subjects had congruent health ratings in at least four observations.

A number of other studies used the self-rating of health by adults. Suchman, Phillips, and Strieb (1958) reported on one of the early systematic examinations of subjective health assessment among older people. Similarly, Shanas (1962) used subjective health ratings in a sample of 1,734 men and women. Tissue (1972) used subjective health rating in a sample of 256 males and females.

George and Bearon (1980) noted that there were some problems with subjective health ratings. While a subjective health rating is related to a physician's health rating, to one's morale, and to one's attitude toward the medical profession, it is actually none of these things. The point was made that it was difficult to know what a subjective health rating was.

Reliability of subjective health ratings is somewhat in doubt. Maddox and Douglass (1973) used data from the Duke Longitudinal Study I to report test-retest correlations which ranged from .32 to .64 at two-year intervals. The range of test-retest correlations in the Duke Longitudinal Study II was .42 to .71. This test-retest was also done at two-year intervals.
Validity fares more favorably with subjective health ratings. Suchman et al. (1958), Maddox (1962), and Friedsam and Martin (1963) reported highly significant relationships between physicians' ratings and subjective health ratings. In addition, Heyman and Jeffers (1963) and Maddox and Douglass (1973) reported that these relationships continued to be stable over time.

Support Networks

McCubbin, Joy, Cauble, Comeau, Patterson, and Needle (1980) identified social networks and their potential for support to families in stress as one of the major issues in family stress research during the decade of the seventies. Some studies have focused on identifying and defining social support as emotional, financial, and informational and referral (Cobb, 1976; Unger & Powell, 1980). Other studies (McCubbin et al., 1980) focused on the kinds of support given by components of the social network such as friends, relatives, mutual support groups, and social service agencies.

Cobb (1976) pointed out that the concept of social support had been defined in so many ways that there were problems with finding a core definition. However, social support seems to include emotional support which includes knowing that one is loved and cared for (Cobb, 1976; Unger & Powell, 1980), instrumental support, which is material in nature (Unger & Powell, 1980), and the provision of information and referrals for the purpose of solving problems and establishing social contacts (Grantovetter, 1973;
Barrera (1981) found that social support was a variable that had the potential to influence the overall well-being of residents in a community. At the same time, he noted that whereas multiple approaches had been developed to assess support, few of the measures had been systematically developed and used repeatedly with diverse populations.

Support is a many-faceted concept. The most widely used approaches to measuring support have focused on the network of providers of support (Mitchell, 1974; Mitchell & Trickett, 1980), individuals' subjective evaluation of the presence of support (Cobb, 1976; Hirsch, 1979), and the activities that constitute support (Gottlieb, 1978).

This investigation used the Inventory of Socially Supportive Behaviors (ISSB) (Barrera, 1981) to measure the variable of support networks. The ISSB is a list of 40 items of behavior which reflect support. The respondents were asked to indicate which of the behaviors they had experienced during the past four weeks. A five-point Likert-like scale varying from "not at all" to "about every day" was used as the measure. The range of scores possible was 0-160 with a score of zero indicating that no supportive behaviors had been experienced within the past four weeks, and a score of 160 indicating that all of the behaviors had been experienced "about every day."

Barrera (1981) developed the ISSB to be a behavioral measure of social support. It had been noted earlier by Dean and Lin
(1977) that there were no measures of social support which were both reliable and valid. Barrera's (1981) intent was to develop an instrument which could be used to assess support among many different kinds of people. The ISSB was characterized as being behaviorally specific, broad enough to use with many different community populations, and void of reference to psychological states. After Barrera (1981) completed the 40 items, he administered them to 71 university students who were asked to rate the frequency of experience with the supportive behaviors within the past four weeks.

Test-retest and internal consistency reliability were established for the ISSB by asking 71 university students to respond to the items in two sessions two days apart. (Barrera (1981) reasoned that the two-day interval was brief but necessary to prevent respondents from experiencing many of the items listed on the ISSB. At the same time, the interval was long enough to prevent the memory of the first test responses from interfering with the retest responses.

The ISSB's internal consistency reliability yielded coefficient alphas of .926 and .940 for its first and second administrations. The total ISSB was obtained by summing the frequency ratings across the 40 items in the scale. The total ISSB scores for the test and retest were substantially correlated ($r=.882, p<.001$) (Barrera, 1981, p. 74). The test-retest correlation coefficients ranged from .441 to .912 for individual items.
The ISSB was also included in a study of 43 university students to see how it correlated with a measure of perceived supportiveness. The Cohesion subscale of the Family Environment Scale (Moos, Insel, & Humphrey, 1974) was the measure used. That scale was a nine-item true-false subscale which measured how family members helped and supported each other. Even though the scales measured different components of support, they were significantly correlated at the .01 level ($r = .359$).

Barrera (1981) administered the ISSB to a sample of 86 subjects who were pregnant teenagers. He reasoned that adolescents who were undergoing pregnancy were also experiencing a major life change. Although the teenagers were not re-tested, it was possible to assess internal consistency. An alpha coefficient of .92 was obtained for the ISSB in the study with pregnant teenagers. This result compared favorably to the alpha coefficients of .926 and .940 from the university student study.

**Marital Satisfaction**

In a decade review of the literature dealing with marital happiness and stability during the sixties, Hicks and Platt (1970) noted that much of the research dealing with these concepts included the corollary of marital satisfaction. Happiness, success, and adjustment were used interchangeably to denote the subjective evaluation of the marital state. The authors noted further that because there was such variation between the terms, there was difficulty in formulating precise definitions suitable for measurement. As a result, respondents essentially provided their own
definitions which made valid comparisons impossible.

Lively (1969) recommended eliminating the terms from the field of study since they carried so many connotations. However, far from being eliminated, the terms survived and their use increased.

Spanier and Lewis (1980), in a decade review of literature dealing with marital quality during the seventies, referred to the concept of marital quality and its related concepts of satisfaction, happiness and adjustment as being among the most frequently researched variables in the field.

Burr, Leigh, Day, & Constantine (1979) referred to satisfaction as being a subjective experience which assessed pleasure as opposed to displeasure, contentment as opposed to discontentment, or happiness as opposed to unhappiness. Burr et al. (1979) suggested that marital satisfaction could best be defined for use in family literature as the affective response of the individual with regard to the amount of satisfaction with something. They noted further that there had been consistency in the way researchers had operationalized the concept of marital satisfaction in various studies.

Blood and Wolfe (1960), Hawkins (1968), and Burr (1967, 1971) described instruments that measured marital satisfaction. Traditionally marital satisfaction was the dependent variable in studies in marital literature. Spanier and Lewis (1980) noted that during the seventies however, this approach began to change as there was growing recognition that the dynamics of marriage are part of a complicated chain. The appropriateness of considering marital satisfaction
as an antecedent of behaviors as well as a consequence came to be recognized.

This investigation utilized marital satisfaction as an independent variable. The instrument used to measure marital satisfaction was the Dyadic Satisfaction Subscale (DSS, Spanier, 1976) which was part of the Dyadic Adjustment Scale (DAS, Spanier, 1976). Development of the Dyadic Adjustment Scale came about in recognition of the fact that marital adjustment and its four components of satisfaction, cohesion, consensus, and expression of affection continued to be researched. Spanier (1976) concluded that a new measure was warranted which would be valid, reliable, and grounded in theory. Consequently, all the items that had ever been used to measure marital adjustment and its related concepts were pooled. Duplicates were eliminated and three judges assessed the items for their content validity. Items without content validity were eliminated. Criterion-related validity was established by administering the scale to a purposive sample of 218 married persons and to another sample of 94 divorced persons who were asked to respond to the questionnaire on the basis of the last month they had lived with their spouses.

After an analysis of frequency distributions, those items that were highly skewed and those items with low variance were eliminated. A t test was used to analyze the difference between the means of the married and divorced samples. The .001 level of significance was used to eliminate those items that were not significantly different.
After further examination, those items with the lowest \( t \) values were eliminated, leaving 40 items. Factor analysis was then used to determine which, if any, further items should be eliminated. Thirty-two items were kept for the overall adjustment scale.

Spanier (1976) designed the DAS to provide an overall measure of dyadic adjustment. However, it has a subscale which can be used along without sacrificing confidence in the validity or the reliability of the measure. Spanier (1976) noted that the subscale for marital satisfaction (DSS) may be used specifically for measuring marital satisfaction.

The range of scores on the DSS is 0-50. A score of zero would reflect dyadic dissatisfaction, whereas a score of 50 would be representative of complete marital satisfaction.

Content and criterion-related validity for the DSS were established in the same manner as for the overall instrument (DAS). When a \( t \) test was used to assess the differences between the sample means, every item for the divorced sample differed significantly from the married sample \( (p < .001) \). Also, the mean total scores for the divorced and married samples differed significantly at the .001 level.

Construct validity was determined by comparing the DAS to the Locke-Wallace Marital Adjustment Scale (1959). The Locke-Wallace Scale was viewed as being a widely accepted scale to measure marital adjustment. The correlation between the two scales was .86 for those respondents who were divorced \( (p < .001) \). A further effort to establish
construct validity was completed by using factor analysis of the 32 items left in the final scale. Four interrelated components, one of which was marital satisfaction, were found to exist.

Spanier (1976) determined reliability for each of the subscales as well as for the overall scale. Cronbach's Coefficient Alpha (1951) was used as the measure of internal consistency. The scale reliability for the DAS was .96 and the scale reliability for the DSS was .94. This finding was the highest subscale reliability reported.

**Stressor Events**

Hill (1949) used the term stressor event to refer to a life event or occurrence of sufficient magnitude to effect change in the family system. The idea of the role of stressful life events as a factor in the development of some diseases derived from the use of the life chart by Adolph Myer as a tool in medical diagnosis and from William B. Cannon's observation that emotions and bodily changes were related (Rabkin & Struening, 1976). Formal recognition of the field of study was given at a 1949 conference on "Life Stress and Bodily Disease" sponsored by the Association for Research in Nervous and Mental Diseases (Rabkin & Struening, 1976).

Life changes are generally thought of as being personal in nature instead of those changes which are brought about by widespread social processes. The basic thrust of life events research has been to show a relationship between the onset of an illness and an increase in the number of stressful events that an individual has
experienced. This approach presumes that the events require active coping and adapting. Further, the effects are viewed as being cumulative with the occurrence of more events requiring greater change and adaptation. Rabkin and Struening (1976) noted further that the assumption is made that the events are precipitation factors in illness which would influence the time of the onset, but not the type of the illness. Accidents and psychiatric and physical disorders have been studied in this framework.

Holmes and Rahe (1967) distinguished stressful life events as those which require a change in the usual life pattern of an individual. They too took the position that the event which precipitated the change required that the individual involved had to adapt to the change or cope with the change in some way. Holmes and Rahe (1967) emphasized that the stressor event reflected change in the usual life pattern and did not include the psychological impact or the social desirability of the event.

The instrument used to measure the incidence of stressor events in this investigation was the Schedule of Recent Experience (SRE). The SRE was developed by Holmes and Rahe (1967) and other associates (Casey, Masuda, & Holmes, 1967), and has been modified for specific populations, e.g., athletes, children, and college students. The SRE consists of a 40 item checklist of life events which covers a gamut of "ordinary social and interpersonal transactions...which included family constellation, occupation, economics, residence, group and peer relationships, education, religion, recreation, and
Development of the SRE evolved through the initial use of the Social Readjustment Rating Questionnaire (SRRQ). The SRRQ consisted of 43 items empirically derived from clinical interviews which were later scaled by a sample of convenience of 394 respondents. The item of "marriage" was arbitrarily selected and given a numerical value of 500 (Holmes & Rahe, 1967; Masuda & Holmes, 1967). Respondents were asked to compare the other checklist items to marriage and to decide numerically whether more or less social adjustment was required for each item. Validity for each item was established by assigning a weighted value to the item. The weighted value was an indicator of the amount of social adjustment each item required. Using the data derived from the SRRQ, principles from psychophysics, and ratio-scaling methodology, Holmes and Rahe (1967) derived an arithmetical mean score for each item on the checklist. The derived mean score, divided by 10, reflected the magnitude of change in adjustment that each life event required. The next modification in the scale was known as the Social Readjustment Rating Scale (SRRS) (Holmes & Rahe, 1967) which provided a rank ordering of the items on the checklist. "Death of a spouse" had a mean value of 100 and was ranked first, whereas "minor violations of the law" ranked 43rd with a mean value of 11.

The interval scale of 0-100 reflected weighted scores for life events instead of a frequency count. Even so, Rahe (1978) stated that "for a clean estimate of environmental stress, it's
hard to improve on a simple counting of recent life experiences" (p. 97). Holmes and Rahe (1967) reported high consensus about the order and the magnitude of the items using Pearson's $r$ to determine correlation coefficients between specific groups that were contained in the sample (Table 8). All the correlation coefficients were above .90 except for that between white and Negro which was .82. Holmes and Rahe (1967) found Kendall's coefficient of concordance ($W$) to be .477 for the 394 persons in the sample. This finding was significant at the .0005 level.

Table 8

THE SOCIAL READJUSTMENT RATING SCALE

Pearson's coefficient of correlation between discrete groups in the sample

<table>
<thead>
<tr>
<th>Group</th>
<th>No. in Group</th>
<th>Group</th>
<th>No. in Group</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>179</td>
<td>Female</td>
<td>215</td>
<td>.965</td>
</tr>
<tr>
<td>Single</td>
<td>171</td>
<td>Married</td>
<td>223</td>
<td>.960</td>
</tr>
<tr>
<td>Age 30</td>
<td>206</td>
<td>Age 30-60</td>
<td>137</td>
<td>.958</td>
</tr>
<tr>
<td>Age 30</td>
<td>206</td>
<td>Age &gt; 60</td>
<td>51</td>
<td>.923</td>
</tr>
<tr>
<td>Age 30-60</td>
<td>137</td>
<td>Age &gt; 60</td>
<td>51</td>
<td>.965</td>
</tr>
<tr>
<td>1st Generation</td>
<td>19</td>
<td>2nd Generation</td>
<td>69</td>
<td>.908</td>
</tr>
<tr>
<td>1st Generation</td>
<td>19</td>
<td>3rd Generation</td>
<td>306</td>
<td>.929</td>
</tr>
<tr>
<td>2nd Generation</td>
<td>69</td>
<td>3rd Generation</td>
<td>306</td>
<td>.975</td>
</tr>
<tr>
<td>&lt;College</td>
<td>182</td>
<td>4 Years of College</td>
<td>212</td>
<td>.967</td>
</tr>
<tr>
<td>Lower Class</td>
<td>71</td>
<td>Middle Class</td>
<td>323</td>
<td>.928</td>
</tr>
<tr>
<td>White</td>
<td>363</td>
<td>Negro</td>
<td>19</td>
<td>.820</td>
</tr>
<tr>
<td>White</td>
<td>363</td>
<td>Oriental</td>
<td>12</td>
<td>.940</td>
</tr>
<tr>
<td>Protestant</td>
<td>241</td>
<td>Catholic</td>
<td>42</td>
<td>.913</td>
</tr>
<tr>
<td>Protestant</td>
<td>241</td>
<td>Other religion</td>
<td>45</td>
<td>.948</td>
</tr>
<tr>
<td>Protestant</td>
<td>241</td>
<td>Jewish</td>
<td>19</td>
<td>.971</td>
</tr>
<tr>
<td>Protestant</td>
<td>241</td>
<td>No religious preference</td>
<td>47</td>
<td>.926</td>
</tr>
</tbody>
</table>

(Holmes and Rahe, 1967, p. 215)
The Schedule of Recent Experience (SRE) is a slightly modified version of the SRRS (Casey et al., 1967) which consists of 40 items which refer to life events. The life events indicate something about the individual's lifestyle or something about occurrences which involve the individual. The items are rank ordered and are assigned values which are defined as life change units (LCU). Respondents were asked to indicate which events they had experienced within the last 12 months. The LCU's were summed. The range of LCUs was 0 to 1369 with a LCU score of zero indicating no experiences within the past 12 months. A score of 1369 reflected having known every experience on the SRE within the past year. Holmes and Rahe (1967) compiled a total LCU score to be used for predictive purposes. An LCU score of less than 150 was accompanied by good health during the following year. When LCUs ranged between 150 and 300, about half of the participants reported illness in the following year. When the LCU score was more than 300, the percentage of people reporting illness the next year went up to 70%. Additionally, those people with LCU scores of more than 300 reported multiple incidents of illness. This investigation used the same guidelines on LCU scores as reported by Holmes and Rahe (1967).

To establish reliability of the SRE, Casey et al. (1967) submitted it for completion to 88 resident physicians at the University of Washington. Approximately nine months later, the SRE was completed again by 54 of the original 88 respondents. The researchers (Casey et al., 1967) used the 54 paired sets of responses
to assess reliability of the instrument with regard to recall of life events over a 10-year period where questions were asked about each year. Three of ten years were chosen arbitrarily and Pearson's $r$ was calculated as a coefficient of stability for the two administrations of the SRE. The calculated Pearson Product Moment Correlations were .669, .638, and .744 for the three years. $t$ tests were used which showed the correlations to be significant at the .0005 level.

Casey et al. (1967) also found a significant relationship ($r = .586, p < .0005$) between the items with higher weights in the SRE and the consistency of the recall of the responses. The items with lower weights were recalled less consistently. Casey et al. (1967) concluded that if individuals responded to the same item on two different occasions and nine months apart, "it is apparent that the life event has salience for him and his consistent recall may indirectly be a reflection of validity of recall" (p. 246).

Masuda and Holmes (1967) used the SRRQ in a cross-cultural study. A Japanese sample of 112 subjects was matched selectively with an American sample of 168 subjects. The relative rank ordering of the items on the SRRQ by the Japanese sample was significantly concordant at the .001 level of confidence.

Cochrane and Robertson (1973) called attention to the widespread use of the SRE in life events research. They suggested that even though the SRE was used so much, its use may be due to the absence of any suitable alternative life events measure rather than
to the inherent quality of the SRE. Rabkin and Struening (1976), in a review of the literature about the SRRS and the SRE, raised several issues that merit attention. It was noted that obtained correlation coefficients were often conspicuously absent in some of the studies concerning life events. When present, it was noted that often the correlation coefficients were low (below .30), explaining less than 9% of the variance in illness. They concluded that "life events scores have not been shown to be predictors of the probability of future illnesses" (Rabkin & Struening 1976, p. 1015). Sarason, de Monchaux, & Hunt (1975) concluded that the reliability of the SRE was low.

Rahe (1973) reported a wide range of correlations (.26 to .90) in a test-retest reliability of the SRE. The variation was explained by the difficulty of words used in the questions, differences in the characteristics of the samples themselves, and the differences in intervals between the administration of questionnaires.

Data Collection Procedure

A mail survey (Dillman, 1978) was used to collect the data for this investigation. A cover letter (Appendix B) from Robert C. Moffatt, M.D. accompanied the mail-out. The cover letter used Dr. Moffatt's official stationery and original signature. Explanation about how subjects were selected for the study and information about the importance of the study were provided in the letter. In addition, respondents were told in the letter that their participation was voluntary and would have no effect on any treatment given through
Dr. Moffatt's office.

Two forms were enclosed with the questionnaires in order to meet Human Subjects Review Committee requirements. Respondents were asked to return the informed consent form (Appendix C) and also a form which allowed participants to request a copy of the results of the study (Appendix C). Participants were told that they could obtain the copy at Dr. Moffatt's office after June 1, 1983.

The researcher and her family assembled the questionnaire packets to be mailed. The packets—containing the questionnaire printed on pastel green paper (Appendix A), the cover letter, the informed consent form, the request for results form, and a stamped, addressed brown mailer for return purposes—were mailed on Monday, March 21, 1983. Two packets were returned and marked "undeliverable" by the United States Postal Service. This return meant that a total of 69 packets were delivered. Forty-one responses were received following the initial mailing. One week later (Dillman, 1978), a postcard was sent as a follow-up (Appendix B). The postcard, personally signed by Dr. Moffatt, provided a thank-you to those persons who had already responded and served as a reminder for those who had not returned the questionnaire to please do so. Eleven responses were returned following the second mailing.

Of the 69 questionnaires actually delivered, a total of 54 or 78.3% were returned. Five were judged to be unusable. Two were completed, but carried an indication that a spouse had died. A third response was signed and included an apology about being
unable to answer the questions. Two other responses were returned too late to be included in the analysis. Consequently, 49 responses or 71% of the delivered questionnaires were used for the analysis of the data.

Responses were returned to Dr. Moffatt's office. The researcher opened and tabulated all of the responses. The consent forms were given to Dr. Moffatt. All returns included a signed consent. The request for results of the study form were retained by the researcher. The researcher made all decisions about the usability of the responses.

Data Analysis

The data were computer analyzed using SPSS: Statistical Package for the Social Sciences (2nd ed.) (Nie et al., 1975). The investigation tested the hypotheses which were set forth in Chapter I.

The four hypotheses were tested by using bivariate correlations and the multiple regression model. The computer provided a multiple regression printout which included a correlation matrix. The correlation matrix was used to examine the strength and the direction of the bivariate relationships which were tested in Hypotheses I, II, and III. In addition to the correlation coefficient (r), the coefficient of determination (r²) was used in testing the first three hypotheses. The r² provides a measure of the proportion of the variance in the dependent variable which is explained by each independent variable considered separately. The higher the r² value, the higher the predictive power.

The fourth hypothesis was tested by the use of multiple
regression analysis. For a single measure of the relationship between the dependent variable and all the independent variables taken together, the overall $R^2$ of the regression equation was used to test the hypothesis. The $R^2$ is an explanation of the proportion of variance in the noncancerous spouse's perceived state of health which was accounted for by all three of the independent variables in the equation.

Multiple regression analysis provides a measure of the relative effect of each independent variable as it is introduced into the equation. Kerlinger and Pedhazur (1973) recommended using the theoretical framework as the primary factor for determining the order of entry of the independent variables into the regression equation.

While it is true that the variables included in this investigation did evolve from the literature, it is also true that there was not a strong theoretical model to suggest the order of entry of the independent variables into the equation. Consequently, the researcher utilized backward elimination and stepwise regression in the analysis of the fourth hypothesis. Backward elimination treats each variable as if it were entered last into the equation. One by one, the independent variables are deleted from the model and the subsequent loss to $R^2$ is noted. As a result, this process makes it possible to observe which variable adds the least to the model when it is entered last. At each stage, it is the independent variable that adds the least to the explanation of variance in the dependent variable that is deleted. This analysis process is repeated until the deletion of
one variable causes a significant loss to $R^2$. At that point, the analysis is terminated. The investigator would also examine the model at each stage in order to be sure that the contribution of the last variable was meaningful as well as statistically significant.

Stepwise regression, on the other hand, involves a computer search for the variable which accounts for the greatest amount of variance in the dependent variable. The independent variable that has the highest zero-order correlation with the dependent variable is entered first into the analysis. The variable which enters next is the variable which makes the greatest increment to $R^2$ after the variable that is already in the equation is taken into account. Stepwise regression involves the performance of tests at each step of the analysis to determine the contribution of each variable already in the equation as if it had been entered last. Thus, it is possible to identify those variables which made an important contribution to the model earlier, but which have lost their usefulness as additional variables are entered into the equation. If the variables do not contribute meaningfully or statistically to the model, they are removed (Pedhazur, 1982, pp. 154, 160).

The regression model used an $F$ test to test the statistical significance of the model.
CHAPTER IV
ANALYSIS OF THE DATA

Reported in this chapter are the findings from the testing of the four hypotheses which were set forth in Chapter I. In addition, information is provided that will lend support to the discussion in Chapter V.

Four major variables were used in the investigation. The range, mean, and standard deviations of these variables are depicted in Table 9.

It was assumed that there was a linear relationship for the data. This assumption encompassed the further assumptions that 1) the errors were normally distributed, 2) the mean of the errors was zero, 3) the independent variables were independent of each other, and 4) the errors were not correlated with the independent variables. An examination of the correlation matrix indicated that there was little, if any, multicollinearity between the independent variables.

Explanation of the Noncancerous Spouse's Perceived State of Health

The bivariate correlation coefficients and multiple regression analysis were used to test the four hypotheses. Listwise deletion was used in the case of missing data. The results of the analyses are presented in relation to each hypothesis.
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support networks</td>
<td>49</td>
<td>34.4</td>
<td>0-139</td>
<td>29.99</td>
</tr>
<tr>
<td>2. Marital satisfaction</td>
<td>49</td>
<td>39.1</td>
<td>13-50</td>
<td>7.08</td>
</tr>
<tr>
<td>3. Stressor events</td>
<td>49</td>
<td>151.1</td>
<td>44-353</td>
<td>72.64</td>
</tr>
<tr>
<td>4. Perceived state of health</td>
<td>49</td>
<td>6.3</td>
<td>1-9</td>
<td>2.14</td>
</tr>
</tbody>
</table>
Hypothesis I

The first hypothesis was tested by examining the bivariate correlation coefficient between support networks and perceived state of health. A correlation coefficient of .151 was obtained (Table 11), and the coefficient was not statistically significant.

In addition, the contribution of support networks to perceived state of health within the multiple regression analysis was examined (Table 10). This examination indicated the contribution that support networks made toward accounting for variance in health while controlling for the other independent variables. Once again, the contribution of support networks was not statistically significant.

As a result, Hypothesis I was rejected.

Hypothesis II

The zero-order correlation coefficients that are provided in the print-out in the multiple regression analysis were used to test the bivariate relationship between marital satisfaction and perceived state of health. The obtained correlation coefficient was -.284 (Table 11) which was statistically significant. The statistical significance was in the opposite direction from what was expected.

The contribution of marital satisfaction within the multiple regression analysis can be seen in Table 10. Statistical significance (p = .0528) was achieved.

Because the relationship was in the direction contrary to that hypothesized, Hypothesis II was also rejected.
Table 10
Multiple Regression Analysis Using Perceived State of Health as the Dependent Variable

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Beta Coefficients</th>
<th>Standardized Betas</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. stressor events</td>
<td>-0.00186</td>
<td>-0.06305</td>
<td>0.198</td>
</tr>
<tr>
<td>2. support networks</td>
<td>0.01137</td>
<td>0.15904</td>
<td>1.272</td>
</tr>
<tr>
<td>3. marital satisfaction</td>
<td>-0.08507</td>
<td>-0.28102</td>
<td>3.957*</td>
</tr>
</tbody>
</table>

*p = .0528
Table 11
Product-Moment Correlations (r) Between Support Networks, Marital Satisfaction, Stressor Events, and Health (N=49)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support networks</td>
<td>.017</td>
<td>.060</td>
<td>.151</td>
<td></td>
</tr>
<tr>
<td>2. Marital satisfaction</td>
<td></td>
<td>.086*</td>
<td>-.284</td>
<td></td>
</tr>
<tr>
<td>3. Stressor events</td>
<td></td>
<td></td>
<td>-.078</td>
<td></td>
</tr>
<tr>
<td>4. Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p = .0482
Hypothesis III

The bivariate relationship between stressor events and perceived state of health was also tested by use of the zero-order correlation coefficient which was provided in the multiple regression analysis print-out. The correlation coefficient of -.078 was obtained (Table 11). This coefficient was not statistically significant.

The contribution of stressor events to perceived state of health within the multiple regression analysis was also examined (Table 10). The contribution of stressor events was not statistically significant.

Hypothesis III was rejected.

Hypothesis IV

The over $R^2$ of the regression equation was used to test the combined effects of the independent variables in accounting for the variance in perceived state of health.

The $R$ for the regression equation was .32 ($R^2 = .10; p = .1558$) which was not statistically significant. Using backward elimination, stressor events and support networks were deleted. When marital satisfaction was left in the regression model, statistical significance at the .048 level was achieved ($F = 4.116; \text{df} = 1, 47$). Without the contribution of the other variables in the regression model, the $R$ value for marital satisfaction was .28 ($R^2 = .08$). Approximately 8% of the variance in the noncancerous spouse's perceived state of health was accounted for by the variable of marital satisfaction. The same results were obtained when stepwise regression
was used. As a result of these findings, Hypothesis IV was accepted, but with the recognition that statistical significance was achieved because of the influence of the single variable, marital satisfaction.

The researcher then did an examination of the residuals which were plotted on a normal probability plot. This examination of the residuals showed that they did not fit a strictly normal pattern. When the residuals were plotted against the dependent measure, there was a definite linear pattern; this pattern showed a positive correlation between the errors and the dependent measure. This finding meant that the subjects with high health scores had been under-predicted whereas the people with low health scores had been over-predicted. These findings suggested one of two things: either 1) the variables were used inappropriately and thus, a nonlinear equation existed, or 2) a critical variable was missing from the equation.

In view of the findings just reported, a further examination was made of the scatterplots which plotted the residuals against each independent variable. The scatterplots showed random patterns of dispersion. Such patterns suggested that the independent variables had been used appropriately, but with the omission of a critical variable. Consequently, the researcher decided to look at demographic variables for possible identification of the critical missing variable.

**Exploration with Demographic Variables**

In order to carry out a backward elimination analysis, the following variables were entered into the equation: marital...
satisfaction, income, age, and education. With these variables in the regression model, the $R^2$ was equal to .37 which was significant at the .0004 level ($F = 6.45; df = 4, 44$). The backward elimination pattern was then followed. The first variable deleted was age; in consequence, there was not a loss of a statistically significant proportion of the variance accounted for. With this deletion, the model was yet able to account for 35% of the variance in the perceived state of health of the noncancerous spouse ($R^2 = .35, p<.0002$). Education was the next variable deleted in the process. The $R^2$ was then equal to .31 which was still significant at the .0002 level. Education is normally highly correlated with income. With the deletion of education from the model, marital satisfaction and income were retained. Together, these two variables were able to account for 31% of the variance in the dependent variable ($R = .56; df = 2, 46; F = 10.49; p<.0002$).

The same variables were included in a stepwise regression analysis. When this approach was used, the same two variables (marital satisfaction and income) were left in the model. Income alone had an $R$ value of .49 ($R^2 = .236, p<.0004$) which could account for almost 24% of the variability in the dependent variable. When marital satisfaction was added to the model, the $R$ value increased to .56 ($R^2 = .31, p<.0002$). This result meant that marital satisfaction could account for an additional 8% of the variance in the dependent variable.

The findings and the analysis of the data in this chapter are followed by a discussion and a summary of the results. Some
conclusions are drawn and recommendations for further research are made.
CHAPTER V
SUMMARY AND CONCLUSIONS

Cancer is perceived as a life-threatening illness which is widely prevalent in today's world. As the second leading cause of death (ACS, 1981), cancer has a heavy impact, not only on its victims but also on the lives of the relatives of its victims. Perhaps the relative who feels this impact most is the spouse of the cancer victim. This investigation attempted to assess this impact upon the noncancerous spouse's perceived state of health through a systematic process.

Bivariate and multivariate procedures were used to assess the idea that the noncancerous spouse may develop health problems at the same time the other spouse is dealing with cancer. Since cancer is an illness that demands attention, most empirical studies have focused on the cancer victim rather than on the spouse of the cancer victim. Few studies have sought to elucidate the effects of this illness on the spouse who does not carry the primary diagnosis.

The major purpose of this research was to examine the effects of social support networks, marital satisfaction, and stressor events on the perceived state of health of the noncancerous spouse. The information was perceived to be valuable in light of the fact that the noncancerous spouse provides important support to the cancer victim. Development of serious illness in the noncancerous
spouse has important implications for the prognosis of the primary patient as well as for the service givers who identify and maximize support systems for the patient.

The sample for this investigation consisted of 49 spouses who were married to a person with a cancer diagnosis. The sample was randomly selected from the caseload of Robert C. Moffatt, M.D. in Asheville, North Carolina. The spouses completed a survey which was mailed to them via the United States Postal Service. The primary statistical procedure used was multiple regression analysis.

Discussion

Self-Perceived Health

The dependent variable of self-perceived health was measured by a single response to the "Cantril ladder technique" (1965) which asked each respondent to assess his or her health. This technique did not require the researcher to make any judgments about the parameters of self-assessed health. The judgment was made in light of the respondent's own values.

The mean rating for present health was 6.33 (Table 12). This rating was a lower mean score than that reported by Palmore and Kivett (1977) in a study designed to assess life satisfaction and those factors which contributed to changing life satisfaction. Palmore and Kivett (1977) used the "Cantril ladder" (1965) with rungs numbered from zero to nine. Their reported mean score was 6.8 for health. The Palmore and Kivett (1977) sample included people who were 46-70 in age and the sample in the present investigation had a mean age of 58. The lower mean rating for self-
perceived health may be an indirect assessment of diminished life satisfaction, of which health is a component (Cantril, 1965).

It is noteworthy that the present investigation reflected a negative change in perceived health during the past five years from a mean of 7.22 down to a present mean of 6.33 (Table 12). While this negative perception may be characteristic of increasing age, it also raises questions about whether or not cancer in the spouse has been a contributing factor.

From Table 12 it is also possible to see that the subjects expected that their health would continue to decline in the next five years ($\bar{X} = 5.98$). Although the mean age of this sample would increase to 63 in the next five years, that age would be considered "young-old" by today's standards and would probably not justify the projected decline (Palmore and Kivett, 1977). Once again, speculatively, the spouse's illness and possible death may be contributing to the finding.

George and Bearon (1980) called attention to self-perceived health ratings as being multifaceted. Mancini and Quinn (1981) divided the health domain into health status and health behavior and their subsequent relationship to morale in old age. Ten indicators of health status in the Mancini and Quinn (1981, pp. 120-121) study included 1) an illness index, 2) visual acuity, 3) auditory acuity, 4) health maintenance, 5) self-rated health, 6) illness constraint, 7) fatigue, 8) comparative health, 9) health and activity, and 10) illness frequency. The measures of
Table 12
Comparison of Perceived State of Health:
Present, Past, and Future

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>( \bar{X} )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>49</td>
<td>7.22</td>
<td>1.96</td>
</tr>
<tr>
<td>Present</td>
<td>49</td>
<td>6.33</td>
<td>2.14</td>
</tr>
<tr>
<td>Future</td>
<td>44</td>
<td>5.98</td>
<td>2.84</td>
</tr>
</tbody>
</table>


health behavior included 1) medical services use, 2) medical specialists use, 3) prescription and 4) non-prescription medicine, 5) source of care, and 6) medical visits. The Mancini and Quinn (1981) study served to underscore the complexity of health ratings. Mancini and Quinn (1981) found that only "medical services' use, source of care, auditory acuity, and medical specialists' use did not relate significantly to self-rated health" (p. 126).

While it appears that self-rated health, when measured, is reliable (Maddox & Douglass, 1973; Palmore & Kivett, 1977) and valid (Friedsam & Martin, 1963; Maddox, 1964; Suchman et al., 1958), questions could be raised about using overall life satisfaction or morale of the noncancerous spouse as a dependent variable, instead of state of health. If this were done, self-rated health might be only one factor of several in the measurement of life satisfaction or morale as a dependent variable.

It is also reasonable to question how much of the negative outlook with regard to one's own health is related to depression and to the grieving process over the loss of the formerly healthy state of the spouse. Several respondents alluded to this situation by saying that their spouses had a truly remarkable spirit; another respondent said the spouse with cancer was the one who kept everyone's spirits up when, seemingly, it should be quite the opposite.

**Stressor Events**

In the study done by Holmes and Rahe (1967), weighted scores which were used to predict future illness were compiled. A score of
300 or more on the SRE was used to project a serious illness in 70% of the subjects within the next year. A score of 150-300 suggested illness for about 50% of the subjects and a score of less than 150 was used to project good health during the coming year.

The mean score on the SRE in this investigation was 151.1 (Table 9). This mean score would suggest that most of the individuals in the sample could reasonably expect few illnesses within the coming year. Even though the incidence of stressor events did not have a significant effect on the perceived state of health of the noncancerous spouse, several important findings were noted. As was expected, a high number (67%) reported the change in the health of a family member within the past year. What was not expected was the number (41%) who reported a personal injury or illness within the past year. At least four surveys were returned with the information that the noncancerous spouse also had or had previously had a bout with cancer. This pattern was consistent with Froom's (1980) contention that combinations of illnesses are prevalent in some families.

Another unexpected finding was the number of people who reported the death of a close family member (22%) and the death of a close friend (33%). While such losses are expected with increasing age, questions can be raised about whether their frequency of occurrence is more prevalent among noncancerous spouses than among those whose spouses do not have cancer. Future attention to important losses through death might be a fertile area for study, since the death
of close friends and family members tends to heighten one's awareness of one's own mortality and may contribute indirectly to a reduction in the positive perception of one's own health.

Even so, the mean stressor score of 151.1 on the SRE seems to suggest that the quantity of stressor events was low even with the presence of cancer in the spouse.

**Social Support Networks**

The increasing emphasis on support networks in family literature has been clearly documented (Laster, 1981; McCubbin, 1979, 1981; McCubbin et al., 1980; Rabkin & Struening, 1967; Unger & Powell, 1980). Nuckolls, Cassell, and Kaplan (1972) examined life changes and social supports for pregnant women. These factors were studied in relation to complications during late pregnancy and during delivery. Nuckolls et al. (1972) found that neither the score on life change alone nor on social support alone was related to complications. However, when the scores were considered together, they found that 90% of the women who had high life-change scores and low social-support scores had at least one complication. Only 33% of the women in the study who had equally high life-change scores and high social-support scores had any complications.

The findings in the present investigation do not support the findings in the Nuckolls et al. (1972) study. Neither life changes (stressor events) nor support networks alone or together made a significant contribution to the perception of health by the non-cancerous spouse.
A closer examination of scores on the ISSB indicated a fairly low level of support ($\bar{X} = 34.39$) on a scale with a maximum possible score of 160 (Table 9). Such a finding would suggest that support, when received, was short-term, "once or twice" but not "once a week." This information raises again the issue of the stigma that seems to be prevalent with cancer. Vachon et al. (1977) reported that "cancer wives" perceived a stigma which was attached to cancer, and this perception caused increased stress for the family. Evidence of such stigma may be gleaned from questionnaire responses which spoke of "needing no assistance" or another which reflected living in different locations at different times of the year. This respondent indicated that the only support received was that of having someone look after the house while the patient and spouse were in the other location. Friends and neighbors in the other location did not know of the cancer diagnosis; thus, no support was received. Other respondents referred to the lack of financial support from Medicaid and other public programs. Some frustration was expressed about paying the medical bills and the difficulty in being able to do so. Another spouse wrote about the application for Social Security disability and the denial of the claim. Later, when the cancerous spouse tried to return to work, discrimination was encountered in the workplace.

Another issue in relation to support networks concerns support that may be given in spurts to accompany crisis periods such as hospitalization when the need for support is more urgent. Since everyone in this sample had known the diagnosis for a minimum of
six months, it is questionable whether concentrated support was needed. If support continued to be needed, such need might have been either unperceived or ignored by the support networks. The low level of such support suggests that the couples involved had returned to a more nearly "normal" lifestyle which included a larger measure of self-support while living with cancer on a daily basis.

On the other hand, a number of respondents spoke of the meaningfulness of children who lived away but who continued to provide care and support. Other evidences of support included fellow workers who provided a needed shoulder to cry on. Much attention focused on prayer support and a deep faith in God. Such responses raise the issue of the need for a measure of religious faith and/or commitment as a possible variable in a study such as this one.

Marital Satisfaction

Marital satisfaction as an independent variable began to receive increased attention during the decade of the seventies (Spanier, 1976). The Dyadic Satisfaction Subscale which was used to measure marital satisfaction in this investigation provided a mean score of 39.12 (Table 9). With a maximum possible score of 50 on the scale, this measure would reflect a reasonably high level of marital satisfaction in the sample. This variable was significant in the bivariate relationship, but the direction of the relationship was contrary to that which was hypothesized. Marital satisfaction was also significant when it was entered into the multiple regression model \( R^2 = .08, p<.05 \) using backward and stepwise regression. When
marital satisfaction was entered into the multiple regression model with additional demographic variables, it was even more significant ($R^2 = .08$, $p<.03$). The negative correlation indicated that more marital satisfaction correlated with a less positively perceived state of health.

This negative correlation raises several issues. One has to do with possible feelings of guilt in the "well" spouse. Such guilt over not having cancer while the spouse has cancer may contribute to greater introspection about one's own state of health. Greater awareness of and attention to health status may follow, and this perception may contribute to a diminished perception of the health state.

Another possible explanation for the negative correlation between marital satisfaction and perceived state of health relates to the strength of the marital bond. If the degree of marital satisfaction is high (as indicated by a mean score of 39.12, Table 9), and if the cancerous spouse shows little or no progress in treatment, the loss theme has re-emerged. Potential loss of a mate may be even more painful when marital satisfaction is high. This potential loss may serve to heighten awareness of one's own mortality and thus, the diminished perception of one's own state of health.

Several comments from questionnaires for the present investigation referred to the depth of marital relationships after the cancer diagnosis. One spouse spoke of a new sense of what was important in marriage since the cancer diagnosis. Things that
used to cause arguments were no longer important. Instead, there was a new appreciation of having each new day together. Another spouse referred to a much stronger marriage relationship after learning of the cancer diagnosis. One subject, in describing the deterioration in the spouse's medical state over the course of a year, was still very positive about their marital bond.

**Other Relevant Findings**

The researcher's decision to include demographic variables in the multiple regression model in an attempt to identify a critical missing variable led to the finding that income was significant in accounting for 24% of the variation in the noncancerous spouse's perceived state of health ($R^2 = .236$, $p<.0004$). This one variable accounted for more variance than any other single variable and more than any other combination of variables. The finding that income was so important was consistent with Mechanic's (1978) finding that catastrophic illnesses created financial burdens for families. Hill (1968) found that those families who had sufficient financial reserves or those who were eligible for public assistance were in a different category than those people who fit into neither category. The more marginal the family's financial status, the more vulnerable the family becomes in the face of the illness.

The mean income range for the subjects' families in this investigation was in the $13-15,999 range. No information was requested about other financial resources for dealing with the costs of the cancer; this facet would, however, be a fertile area for further
study. The American Cancer Society (1981, p. 27) stated that Blue Cross and private insurers provided the source of payment for over 77% of the cases of cancer patients who were less than 65 years of age. Medicare paid the expenses for 88% of the cases of patients who were over 65.

One respondent in the present investigation whose spouse was apparently ineligible for public funding stated that it would take two years to pay the medical expenses that had been incurred. Another expressed frustration that the spouse had applied for Social Security benefits and had been denied.

The ACS (1981) estimated that direct costs incurred by cancer in the United States equaled $9.1 billion in 1977. This figure included hospital and outpatient expenses, physicians' fees, nursing services, home care, and drugs. The indirect costs which accompany cancer have been estimated to be between $13.7 and $17.1 billion for 1975. These costs included lost wages and the forced liquidation of tangible assets (ACS, 1981, p. 27). The ACS (1981) estimated the average medical bill of a cancer patient to be $20,000 with an equal amount being matched by such indirect costs of cancer as home nursing and loss of income.

Although the importance of income in the study was not a surprising finding, the review of the literature did not provide a compelling case for entering it into the original regression model as an independent variable.
The Sample

Attention is called to the fact that the sample was not representative. For example, the most prevalent form of cancer is that of lung cancer (ACS, 1981). The sample, however, included the spouse of only one person who had a lung cancer diagnosis. This fact raises the issue of survival rates among cancer victims. One limitation placed on this investigation by the researcher was the fact that the cancer diagnosis had been known for at least six months. The fact is that survival rates for lung cancer patients is not high. ACS (1981) stated that only 9% of lung cancer patients live for five or more years after the diagnosis is made. It may be that spouses of lung cancer patients were not represented in the sample because of the high mortality rates. The most prevalent diagnosis reflected in the sample was that of breast cancer. This finding was consistent with ACS (1981) data which identified breast cancer as the second most common kind of cancer.

The sample was not representative with regard to race. The ACS (1981) stated that the incidence of cancer is higher for blacks than for whites. Additionally, the death rate is higher for blacks than for whites. In the past 25 years, cancer death rates have increased 9% for whites while the rate of increase for blacks has been 34%. The rates were approximately equal 25 years ago. An ACS-sponsored survey showed that urban black Americans tended to be much less knowledgeable than whites were about the warning signs of cancer. Furthermore, they were less apt to see a doctor if the
warning symptoms were experienced. Differences between blacks and whites in the ACS (1981) survey were attributed to economic, environmental, and social factors. Limited educational opportunities may prevent early detection and limited economic resources may contribute to the delay in seeking medical attention (ACS, 1981). The sample for this investigation was 98% white.

The researcher observed a special kind of rapport between Dr. Moffatt and the people he served. This relationship was evidenced by the many telephone contacts which were made between the people who received the questionnaires and Dr. Moffatt. Additionally, many respondents voiced praise and thanks for the quality of medical care which had been received from Dr. Moffatt during the treatment of cancer. Many subjects expressed gladness both orally and in writing that such a study was being done. The fact that 78.3% of the questionnaires were returned seemed to reflect the quality of the doctor-patient (family) relationship as well as interest in the study.

Summary of the Research Questions,

Hypotheses and Results

This investigation was concerned with four areas of inquiry. The first three areas were concerned with research questions which addressed bivariate relationships between each independent variable and the dependent variable. The fourth area had to do with the combined effects of the three independent variables. The research questions, the hypotheses, and the results of the data analysis are presented here.
Question 1

What is the relationship between the presence of social support networks for the noncancerous spouse and that spouse's perceived state of health?

Hypothesis I. The greater the degree of support networks present for the noncancerous spouse, the more positive the perceived state of health for that spouse.

Finding. Hypothesis I was not supported by the data. The variable of support networks was not statistically significant at the .05 level.

Question 2

What is the relationship between satisfaction in the marital relationship and the noncancerous spouse's perceived state of health?

Hypothesis II. The greater the degree of satisfaction in the marital relationship, the more positive the noncancerous spouse's perceived state of health.

Finding. Hypothesis II was not supported by the data. Significance at the .05 level was achieved, but the relationship was in the opposite direction from the hypothesis.

Question 3

What is the relationship between stressor events and the noncancerous spouse's perceived state of health?

Hypothesis III. The greater the incidence of stressor events in the noncancerous spouse's life, the less positive the perceived state of health for that spouse.
Finding. Hypothesis III was not supported by the data. Stressor events proved to be the least significant of the variables in the model. Hypothesis III was rejected.

Question 4

What is the relationship between the combined effects of the independent variables and the noncancerous spouse's perceived state of health?

Hypothesis IV. The combined effects of the independent variables will explain a significant amount of the variance in the noncancerous spouse's perceived state of health.

Finding. Hypothesis IV was supported by the data. Using backward elimination regression analysis, stressor events and support networks were deleted by the computer from the model. Marital satisfaction was retained in the model and statistical significance at the .05 level was found. Hypothesis IV was accepted.

Additional finding. In view of the findings just reported, the researcher entered marital satisfaction, age, education, and income into a multiple regression model. Using backward elimination, age and education were deleted from the model by the computer. Together, income and marital satisfaction had an R value of .56 ($R^2 = .31$; df = 2, 46; p<.0002). These two variables explained 31% of the variance in the dependent variable.

Income explained the greater amount ($R^2 = .24$, p<.0004) and marital satisfaction explained the lesser amount ($R^2 = .08$, p<.03).
Conclusions

Several conclusions were drawn as a result of the analysis of the data.

1. An originally unidentified variable, income, had a greater effect on the dependent variable than did any of the originally identified independent variables which were entered into the original regression analysis.

2. In spite of the presence of cancer in the spouse, the subjects in this study did not identify stressor events as being prevalent in their lives.

3. Social support networks, while in place, did not contribute significantly to the noncancerous spouse's perceived state of health.

4. Marital satisfaction was a significant variable in the analysis, but the negative correlation with perceived state of health was contrary to the expected results.

Recommendations for Further Study

Based upon the procedures and findings in this study, the following recommendations are made for future study in this area:

1. Future samples might be drawn from a different geographical area to insure representativeness with regard to race.

2. Selection of future samples from an urbanized area or from the clientele served by a medical center might increase the representativeness of subjects with regard to the kinds of cancer represented.
3. Since all persons who have cancer do not use surgery as a treatment modality, future subjects might be drawn from a nonsurgical practice.

4. A much broader range of independent variables is indicated to explain the perceived state of health for the non-cancerous spouse. These variables might include such factors as diet, exercise, religious faith, and psychological dimensions as well as other indicators such as medication taken and visits to the doctor.

5. Even though they are costly, a series of longitudinal studies on the noncancerous spouse could be undertaken. The spouse would enter the study at the same time the pathological cancer diagnosis was made. Data on many dimensions (as indicated in #4) could be collected on the noncancerous spouse.

6. A multidimensional scale as opposed to a single measure to assess self-perceived health would seem appropriate.

7. Consideration should be given to using life satisfaction as a dependent variable in future studies. Self-perceived health is viewed as a component of life satisfaction, and other components might provide more sensitive measures of the noncancerous spouse's reactions to the spouse's illness.
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Questionnaire—C.

What is the Impact for
APPENDIX A

Questionnaire--Cancer Within a Marriage:

What is the Impact for the Noncancerous Spouse?
CANCER WITHIN A MARRIAGE: WHAT IS THE IMPACT FOR THE NON-CANCEROUS SPOUSE?
PLEASE NOTE:

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These consist of pages:

P. 105-116
APPENDIX B

Correspondence

Cover Letter

Follow-up Postcard
I am working with Mrs. Joanne Johnston, a researcher from the University of North Carolina at Greensboro, on a study that is concerned with some of the effects on the spouse when a husband or wife has cancer. We know that cancer affects everyone in the family, but we need to know what the impact is on the spouse who does NOT have cancer.

You are being asked to participate in this study because you are dealing with a spouse who has cancer. Your name was drawn from a large number of similar spouses. In order for the results to be truly representative, it is important that each questionnaire be completed and returned in the enclosed stamped addressed envelope.

I am asking for your co-operation in this study. I would appreciate your taking your time and giving an honest response to each question to the best of your ability. Your responses will be confidential. The questionnaire has an identification number which is used for mailing purposes only. When your questionnaire is returned, your name will be checked off the mailing list. Your name will not be placed on the questionnaire.

Your participation is voluntary and will have no effect on any treatment given through my office. The enclosed consent form should be signed and returned along with the questionnaire. In addition, you may request a copy of the results of the study upon its completion.

Mrs. Johnston or I will be glad to answer any questions you may have about the questionnaire. You may call her at (704) 652-5304 or me at (704) 258-2464. In addition, she will be available in my office on Thursday, March 24 (from 1-3 p.m.). You may call her then or drop by the office without an appointment to ask any questions you may have.

Thank you for your assistance and your prompt response.

Sincerely,

[Signature]

Robert C. Moffatt, M.D.
March 28, 1983

Last week a questionnaire seeking your responses as a spouse of a husband or wife with cancer was mailed to you. Your name was drawn in a random sample of similar spouses.

If you have already completed and returned the questionnaire, please accept our sincere thanks. If not, please do so today. Because it was sent to a small, but representative, sample of non-cancerous spouses, it is extremely important that yours also be included in the study if the results are to accurately represent the responses of non-cancerous spouses.

Thank you again for your co-operation.

Sincerely,

Robert C. Moffatt, M.D.
APPENDIX C

Human Subjects Review Committee Requirements

Consent Form

Request for Results of the Study Form
CONSENT FORM

I understand that my participation in this study is voluntary.

SIGNED ____________________________
REQUEST FOR RESULTS OF THE STUDY

If you would like a copy of the results of this study, please give your name below and return this form with the questionnaire. You may pick up a copy of the results in the office after June 1, 1983.

NAME ________________________________