

Past and current emotions and attitudes : how survivors of cancer and heart disease adjusted to their illness.

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PAST AND CURRENT EMOTIONS AND ATTITUDES: HOW SURVIVORS OF CANCER AND HEART DISEASE ADJUSTED TO THEIR ILLNESS

A Dissertation Presented

by

LORI S. KATZ

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of

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Department of Psychology



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ABSTRACT

PAST AND CURRENT EMOTIONS AND ATTITUDES: HOW SURVIVORS OF CANCER AND HEART DISEASE ADJUSTED TO THEIR ILLNESS

SEPTEMBER 1992

LORI S. KATZ, B.S., UNIVERSITY OF CALIFORNIA, BERKELEY M.S., UNIVERSITY OF MASSACHUSETTS Ph.D., UNIVERSITY OF MASSACHUSETTS Directed by: Professor Seymour Epstein

The purpose of this study was to test the hypothesis that survivors of cancer and especially those who survived beyond medical expectations are more likely to have had a cancer-prone personality before diagnosis that changed in a positive direction some time after diagnosis than heart-disease survivors. Three groups of survivors: 1) heart-disease survivors (N= 31), 2) cancer survivors with non-exceptional recoveries (N= 35), and 3) cancer survivors who survived despite less than a 25% expectancy that they would (N= 19) were compared. As hypothesized, both cancer groups exhibited significantly more cancerprone characteristics before diagnosis than the heart disease group. They converged to a similar point at the present time. There was a tendency for the exceptional survivor group to exhibit more of the cancer-prone characteristics before diagnosis than the other cancer

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group. When a subsample of exceptional survivors who survived despite a less than 1% expectancy of survival was examined, they exhibited a significantly greater change in personality from before diagnosis to the present time than the remaining cancer groups and the heart disease group. Similar patterns were found on the two subscales of Depression and Anger, suggesting their importance in the Cancer-prone Personality. Demographics and gender were partialled out of the analyses.

A path analysis implicating parental relationships in predicting cancer-prone personality and cancer-prone personality in predicting cancer was discussed.

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CHAPTER 1

INTRODUCTION

The purpose of this study was to explore how survivors of cancer and heart disease have adjusted to their life threatening conditions. This study was retrospectively designed enabling the collection of information about participants before the diagnosis of their illness as well as information about their current state. The aim of using this design was to be able to explore changes in attitudes and emotional reactions, health habits, work, relationships, and spirituality from before diagnosis to the present. Specific hypotheses, as suggested by the literature, were examined to determine if certain psychological factors were more characteristic of people who were diagnosed with cancer than of people who were diagnosed with heart disease and to explore how these factors might have changed over time.

Psychological Factors and Cancer

A controversial line of research, theorizes that certain psychological factors contribute to the etiology and course of certain diseases. In the case of cancer, this hypothesis is based on the fact that certain psychological factors suppress natural killer cell activity in the immune system, rendering an individual more susceptible to naturally occurring carcinogens normally insufficient to produce cancer (Fox, 1978).

Because psycho-social factors have been found to influence natural killer cell activity (Bartrop et al., 1977; Pennebaker and Beall, 1986; Schleifer et al., 1983; Locke, 1982), the role of such factors in the progression of cancer is becoming increasingly plausible.

In two extensive reviews of the research literature on psycho-social factors related to cancer, Temoshok and Heller (1984) and Gil (1989) both concluded that, although not entirely consistent, the overall findings support the conclusion that social and psychological factors are significantly related to the etiology and progression of cancer. They observed that this conclusion is supported by carefully conducted prospective studies as well as by retrospective studies. It is important to note that the results did not differ from the retrospective and prospective studies.

The pattern of psychological factors that emerges from research including survey and comparison studies, and from clinical reports, characterize cancer patients as 1) having an inability to express hostile feelings, 2) having a sense of hopelessness, helplessness, deep despair, and a lack of interest and commitment in their lives, 3) being non-assertive, and failing to express their own needs and desires, needing to please others, and putting others needs before their own, and 4) feeling socially isolated, unwanted, and unloved although on the

surface this may not be evident (LeShan, 1977; Simonton, 1978; Jensen and Muenz, 1984; Watson et al. 1984; Greer and Morris, 1975; Kneier and Temoshok, 1983; Temoshok and Heller, 1984; Dunkel-Schetter, 1984; Gil, 1989; Antoni and Goodkin, 1988).

Several theorists have coined terms for these characteristics, "Type-C," "cancer prone personality." and Eysenck's Type 1 personality (Temoshok, 1987; Greer and Watson, 1985; Eysenck, 1985; Eysenck, 1988). They propose that a certain constellation of attributes increase cancer susceptibility and progression. Greer and Watson (1985) and Temoshok (1987) focus on a style of coping with stress where "Type-C" people block their expression of needs and feelings, which results in feelings of depression, helplessness, and hopelessness. Eysenck (1988) and LeShan (1977) focus on traumatic experiences of loss and failure as important contributing factors to the development of cancer. Loss or failure is particularly devastating for certain people due to their over-investment in a desired object or goal. Overinvestment in a loved one or in a particular role in life occurs as a compensation for feelings of inadequacy as a child and the wish of an unattainable desired self.

Both LeShan (1977) and Gotthard (cited in LeShan, 1977) individually described a pattern they found in over 200 clients with cancer that were seen for individual

psychotherapy. They found that their cancer patients were "dominated since childhood by feelings that their opportunities for satisfaction are very limited and that they would succeed only with great effort in creating a meaningful existence for themselves, a severe loss, particularly in the years of declining vitality, is therefore experienced as irretrievable." LeShan (1977) continues, "for the individual who has lost a central relationship, a role that gave meaning to his or her life, there is thus, a double blockage. On the one hand, the person is deprived of the outlet for the emotions that had caused life to be worthwhile. Yet there is also an inability to express the resentment or hostility that the loss creates. Both kinds of blockages feed the despair of the individual creating the kind of emotional climate in which resistance to cancer appears to be lowered."

The pattern of the cancer survivor that emerges from research studies and clinical reports depicts survivors as having the exact opposite characteristics as those outlined for the cancer patient. Those characteristics are: 1) openly expressing anger and hostility when confronted with distressing situations, 2) having a positive attitude, a "fighting spirit," determination, and a positive belief in the therapeutic methods that were used, 3) taking an active role in therapy, being aggressive, being assertive of their own needs, and having

the ability to "take charge of their own life," and 4) feeling like they have connected, deep, and satisfying relationships with others (Glassman, 1981; Greer, Morris and Pettigale, 1979, Derogatis, Abeloff, and Melisaratos, 1979; Rogentine et. al., 1979, LeShan, 1977, Simonton, 1978).

Psychological interventions have been shown to prolong survival time (Speigal, Bloom, Kraemer et al., 1989; Grossarth-Maticek et al., 1983) thereby, providing more evidence of a psychological component to cancer. Speigal and Bloom (1983) conducted a prospective study in which 86 women with metastasized breast cancer were randomly assigned to either a control condition of routine oncological care or to a year of weekly support groups. In a follow up study approximately ten years later, it was found that the patients assigned to the psychosocial treatment lived twice as long, on average 36.6 months, compared to the control patients who lived on average 18.9 months (Spiegel et al. 1989). Furthermore, the only three remaining survivors were assigned to the treatment group.

A criticism of the research on psychological factors and cancer is that the relations in many of the studies are weak and can be readily overshadowed by the influence of other factors affecting health. Because cancer may also be induced by carcinogens overriding a normally functioning immune system or by overriding a weakened

system for behavioral or genetic reasons (Fox, 1978), a number of discrepant findings may be accounted for. Secondly, there is currently no single measure of "cancerproneness." Research has been conducted by combining the results from several questionnaires, and few studies use the same set. One of the aims of this study is to develop a composite scale to measure cancer-prone characteristics.

Most importantly, there is a need to determine whether there is a subpopulation of patients for whom psychological factors have a significant influence in the etiology of their disease and for whom, accordingly, a dramatic change in character may play a significant role in the amelioration of their illness. Strengthening the system that rendered an individual at risk for disease could conceivably, have a profound effect on the disease.

It is expected that in a group of cancer survivors some would have shown cancer-prone characteristics before their diagnosis and then dramatically changed their personalities in a constructive way. It is expected that in those cases of cancer where there was a very low likelihood for survival (where little or no medical treatment was available), that survivors of these cases will likely be of this nature. This hypothesis, if confirmed, would have important implications for the prevention and treatment of cancer.

Psychological Factors and Heart Disease

Much research has been conducted on the relation of a constellation of characteristics deemed "Type-A" and coronary heart disease (CHD) (Friedman and Rosenman, 1974; Steptoe, 1981; Eysenck, 1988, 1990; Evans, 1990; Ragland and Brand, 1988). Type A persons are said to have a craving for competitive achievement, a tendency to express hostility and anger, a sense of time-urgency, and a tendency to be impatient, and anxious. They seek challenges, speak fast, act fast, and are generally "geared-up."

In 1981, a review panel under the authority of the National Heart Lung and Blood Institute added the Type A personality to the official list of traditional coronary risk factors such as high blood pressure, high serum cholesterol levels, and smoking (Review Panel on Coronary-Prone Behavior, 1981). This conclusion was based on a number of studies relating Type A to heart disease. An influential prospective study found that out of seven percent of a sample of 3154 males who developed signs of coronary heart disease, two-thirds were Type A as assessed by the type A Structured Interview (Rosenman, Brand, Jenkins, Friedman, Straus, and Wurm, 1979). This risk factor was statistically independent of the other risk factors and on a par with the degree of risk of the other risk factors.

However, in the 15 years of research following the Rosenman et al. (1975) study, several investigators reported negative or contradictory results relating Type A to risk of CHD. Shekelle, Hulley, Neaton, et al. (1985) followed 12,700 men for an average of seven years who were heart disease free at entry but selected as being "high risk." They found no relation between type A and heart disease in this sample using both the Jenkins Activity Survey and the Structured Interview. Also, Ragland and Brand (1988) followed 257 patients from the Rosenman et al (1975) study for 12.7 years to determine if type A assessed before CHD is related to subsequent CHD mortality. All participants in this follow-up study were diagnosed with CHD. Contrary to what was expected, the 160 type A subjects were found to have a lower rate of mortality than the 71 type B subjects.

Some of these negative results may be due to the psychometric properties of scales which have been used to assess type A characteristics (Evans, 1990; Eysenck, 1990; Booth-Kewley and Friedman, 1987; Ragland and Brand, 1988; Dembroski and McDougall, 1985). Another explanation for the various findings is due to the use of high risk samples (Evans 1990). Examining survivors poses a different set of questions versus examining what factors may contribute to the development of CHD. After surviving a life threatening bout with heart disease, survivors may

be motivated to change not only their lifestyle, but their attitude towards living. Evans (1990) suggested this explanation for the contradictory results in the Ragland and Brand (1988) study. Thus, it is an interest of this study to explore whether there is a tendency for survivors of CHD to change their type A characteristics from before diagnosis to the present time.

Another line of research examines the interplay between type A personality and stressful events in relation to CHD. Although the physiological pathways to CHD are still inconclusive, Price (1982) suggests two systems linking Type A, stress, and CHD. In the sympathetic-adrenal-medullary system, type A reactions to events lead to sustained high levels of catecholamines in the blood stream, increasing blood platelet aggregation, which mobilizes fats and fosters the growth of plaques in the arteries (Blumenthal, Williams, Kong, Schnberg, and Thompson, 1978). Responses to challenge situations in particular lead to a chronic excess of norepinephrine released in this system (Price, 1982). Emotional stress may precipitate an acute coronary event via ventricular arrhythmias resulting from excess secretions of norepinephrine (Manning and Cotton, 1962).

In the pituitary-adrenal-cortical system, sustained release of steroids and cortisol in the blood stream alters the homeostasis of the system and eventually

elevates blood pressure, which places higher demands on the cardiovascular system. Low self-esteem and depression are also thought to be a catalyst for activation of the pituitary-adrenal-cortical system (Price, 1982) and was found to be associated with elevated plasma cortisol (Bourne, 1971).

It is theorized that in our competitive and achievement oriented society, men, in particular, are evaluated by their outward signs of success. Because self-worth becomes equated with unattainable media images of success, the sense of failure is pervasive and deeply distressing. Reactions of anger and hostility may be a defensive response to ward off feelings of depression, defeat, low self-confidence, or inadequacy (Price, 1982). Also, angry reactions not only have internal physical consequences but, may have negative ramifications on personal relationships. These negative consequences may further contribute and prolong exposure to stress-inducing situations.

Comparison of Psychological Factors in Patients

with Heart Disease and Cancer

Many studies have revealed different characteristics in cancer and heart disease patients (Eysenck, 1988; Kneier and Temoshok, 1983; and Grossarth-Maticek, Frentzel-Beyme, Becker, and Schum, 1984) For example, Grossarth-Maticek et al. (1984) investigated a sample of

1,353 subjects recruited by selecting the oldest person in every second household in a town in Yugoslavia with a population of 14,000. Using a self-report questionnaire they compared people with different diseases (including cancer and heart disease) on various traits including: hopelessness/helplessness, and anger/hostility among other traits. Anger and excitement were related to ulcers, hypertension, diabetes, and cardiac infarction, while hopelessness and depression were only related to cancer. This study provides evidence that a differential pattern of psychological factors exists for people with cancer and heart disease. Thus, it is expected in this study that a different pattern of psychological factors would be found for cancer and heart disease survivors.

Research Design and Hypotheses

This research examined three groups of survivors of serious illness at the present time and were asked to report on what they were like shortly before diagnosis. The term "survivor" in this context, refers to anyone who is living after being diagnosed with either cancer or heart disease. The three groups are: 1) "exceptional" cancer survivors, those who have survived beyond the expectation of the medical world, defined as being in the upper twenty five percent of survivors for their type and stage of cancer, 2) cancer survivors of all types with the restriction that they were diagnosed at least six months

ago, and 3) survivors of a heart condition who were diagnosed at least six months ago. The restriction was made for two reasons: so that participants would not be coping with the initial shock of their diagnosis, and to allow time for participants to engage in coping strategies and to make changes in their lives since their diagnoses.

The first cancer group is of particular interest because of the possibility that psychological factors played a role in their survival. The second cancer group serves as a comparison for the first cancer group. For this group, survival is not unusual (based upon the available medical treatment). Nonetheless, it is of interest to test if for a significant portion of these cancer patients, psychological factors played a role in their survival. Survivors of heart disease were included in this study as a comparison group for the two types of cancer survivors. Although, heart disease is a different disease and produces a different personal experience than cancer, there is evidence that it may be related to psychological factors. It is of interest to include survivors of heart disease to test if different psychological factors are associated with the two diseases.

The first set of hypotheses of this study are related to whether pre-morbid conditions are related to cancer and heart disease. 1) It is hypothesized that stressful life

events preceding diagnosis and negative childhood relationships with parents are related to cancer diagnosis whereas only stressful life events are related to heart disease diagnosis. 2) It is hypothesized that stressful life events and negative childhood relationships with parents are related to Cancer-prone Personality before diagnosis.

Shortly after diagnosis, it is hypothesized 3) that the cancer survivors would engage in coping strategies that would be opposite of the cancer-prone personality style (e.g., being assertive or take charge of their treatment). 4) It is hypothesized that heart disease survivors would engage in coping strategies opposite to that of the heart disease-prone personality style (e.g., becoming more accepting, or engaging in relaxation procedures).

It is hypothesized that 5) the Cancer-prone Personality as assessed by a specially constructed Cancerprone Personality scale, is more characteristic of cancer survivors than of heart disease survivors, and 6) the heart disease-prone personality, as assessed by a specially constructed heart disease-prone personality scale, is more characteristic of the heart disease survivors than of the cancer survivors. 7) It is hypothesized that the exceptional cancer survivors exhibited the Cancer-prone Personality before diagnosis

and experienced a dramatic change in their character to a greater extent after their diagnosis compared to the other cancer survivors and to the heart disease survivors.

8) It is hypothesized that because of a positive change in character, the exceptional cancer survivors have a better current adjustment and coping style than the other cancer and heart disease survivors.

CHAPTER 2

METHOD

Subjects

Both cancer and heart disease survivors were recruited by referrals from four physicians (internists with general private practices), three newspaper advertisements, and from personal contacts. Cancer survivors were also recruited at the National Coalition for Cancer Survivors (NCCS) annual convention, from three authors: Paul Roude, Wendy Williams, and Alice Epstein, who wrote books on exceptional survivors of cancer, and from two oncologists. Heart disease survivors were also recruited from four chapters of the Mended Hearts Association, a national organization for survivors of heart surgery.

The sample of heart disease survivors and of cancer survivors is not a representative sample of survivors of the two diseases. The bias in this sample is in favor of the type of person who is willing to come forward, and volunteer their efforts. However, this bias would hold across all groups of survivors. Participants were selfselected from newspapers and groups of people that would join associations geared to help others with cancer or heart disease (NCCS, Mended Hearts), or specially selected by writers to be in books about survivorship. Even the participants recruited from the physicians were selected

with a bias for the type of person that would be willing to participate in a study.

Unfortunately, this bias works against the study, in that it is likely that this sample represents better-thanaverage adjusted survivors. This sample does not contain survivors who are unwilling to talk about their illness, or survivors who are feeling too poorly, physically or psychologically, to complete a questionnaire. Obviously, this sample does not contain people who did not survive their disease. Thus, the findings from this study should be considered as exploratory. Further studies need to be conducted that includes more representative samples of subjects.

Materials and Measurements

The General Information Form and Coping with Illness Scale

This 31-item questionnaire requests demographic information (e.g., age, education, relatives with the same illness), information about lifestyle before diagnosis and at the present time (including items on smoking, drinking alcohol, work, relationships, and spirituality), information about the beliefs patients have towards their illness and recovery, if and how their illness has changed their mood and present attitude toward life, and information about the behavioral and emotional coping procedures people used to deal with their disease. A Coping with Illness scale was created by calculating an

alpha reliability coefficient using the eleven attitudinal coping items. Items that reduced internal consistency reliability (coefficient alpha) were dropped and a new coefficient was calculated. The scale consists of seven items with a reliability (coefficient alpha) of .70. (See table 1 for the items included in this scale.)

Open-ended questions provided subjects with the opportunity to describe how their illness impacted their life, what they might like to say to others who may have to face a similar illness, what they thought could have brought on their illness, and what they thought influenced its course for better or for worse. (See Appendix A for a copy of this questionnaire.)

Stressful Life events

Using a 5-point scale, where 1= not at all and 5= very much, subjects were asked to rate the extent of distress they might have experienced from 20 events that occurred between two years before their illness to the time of their initial diagnosis. Some examples of items are: death or serious illness of a loved one, divorce or separation from a spouse or loved one, financial problems, change in living arrangement, legal problems, and victim of assault, rape, or robbery. (See Appendix A for a copy of this questionnaire.)

The Mother-Father-Peer Inventory (MFP)

The MFP (Epstein, 1987) is a 70-item questionnaire providing information on the quality of relationships with one's mother, father, and other children when one was a child. There are three scales: independenceencouragement, acceptance-rejection, and idealization, calculated for each parent, and one scale calculated for getting along with peers. Participants were asked to rate the degree each statement describes their relationship with their mother, father, and peers. They used a 5point scale where 1=strongly disagree with statement, 3= uncertain about statement, and 5= strongly agree with statement. Using the present sample, the reliabilities for the seven scales are presented in Table 2. (See Appendix A for a copy of this questionnaire.)

The Constructive Thinking Inventory (CTI)

The CTI (Epstein, 1987) is a 108-item questionnaire providing a diagnostic profile of different kinds of coping. It has been found to be related to success in various aspects of living, and to physical and emotional symptoms (Epstein and Meier, 1989). Presumably, its relation to physical health is mediated by the influence of coping on stress. Thus, it may provide information on patients' coping ability, which theoretically, may be different for exceptional cancer survivors in comparison to other survivors of cancer. The test also includes a
lie-scale and a "lie-free" scale based on items that have low correlations with the lie-scale. Participants were asked to rate how true each statement is. They use a 5point scale where 1= definitely false, 3= undecided or neither false not true, 5= definitely true. (See Table 3 for the reliabilities of the CTI scales.) (See Appendix A for a copy of this questionnaire.)

Statements About the Self

This is a 16-item defensiveness scale adapted from O'Brien and Epstein's (1980) scale for self-esteem. Participants used a 5-point scale where 1= not at all, and 5= very much to rate how true each statement is. The reliability for this scale was .55. (See Appendix A for a copy of this questionnaire.)

The Emotions and Attitudes Inventory (EAI)

This 41-item questionnaire provides measures of emotions and attitudes. (See Appendix A for a copy of this questionnaire.) The items for the EAI were developed after scrutiny of the research literature on psycho-social factors related to cancer. They refer to the emotions and attitudes that have been reported in a wide variety of studies as possibly related to cancer etiology or progression (Derogatis, Abeloff, and Melisaratos, 1979; Greer and Morris, 1975; Jansen and Muenz, 1984; Kneier and Temoshok, 1984; Watson, Pettingale and Greer, 1984). Items suggested by the research literature on

psychological factors related to heart disease were also included.

Subjects were asked to complete the EAI for two time periods: shortly before (3-6 months) diagnosis, and for the present time. The purpose of obtaining ratings for the period shortly before diagnosis was to obtain information on individual's pre-morbid emotional state and attitudes. The purpose of having participants rate their moods and attitudes for the present time was to test the hypothesis that a disproportionate number of exceptional cancer survivors exhibited a negative mood before their illness and later changed in a positive direction, presumably mobilized by the knowledge that they had a life threatening illness.

Two scales were created: a Cancer-prone Personality scale, and a heart disease-prone personality scale. Seven graduate students were given descriptions of two personality types and instructions to sort the items from the EAI into three categories: 1) characteristic of type X, 2) characteristic of type Y, and 3) not characteristic of either type. The description of type X (the Cancerprone Personality) was as follows: "People with this personality type are cooperative, unassertive of their own needs, and patient. They inhibit expression of negative emotions (particularly anger), and accept/comply with external authorities. They try to please others and often

sacrifice their own needs. They feel like they are blocked from living a life that they would truly want. Thus, they have an underlying sense of hopelessness, helplessness, and deep despair, although on the surface they may appear amiable and pleasant."

The description of type Y (the heart disease-prone personality) was as follows: "People with this personality type have sustained aggression, ambition, competitiveness, a chronic sense of time urgency, and an intense commitment to occupational goals. People with this personality also have strong feelings of hostility and anger. They tend to be keyed-up, impatient, tense, anxious, and highly aroused."

The two personality scales were created by computing an alpha reliability coefficient on the items that at least five of the seven sorters had put into a category. Items that reduced the reliability were deleted. After the scales were formed, the items that were not included in the scales were correlated with the scales. Items that correlated above .30 and conceptually fit into the scale were then included into the scale. A new alpha reliability coefficient was calculated. The reliabilities for the Cancer-prone Personality scales before diagnosis and at the present time were .95 and .90, respectively. The reliabilities for the heart disease-prone personality scales before diagnosis and at the present time are .74

and .74, respectively. (See Table 4 and 5 for the items in each scale.)

Eight subscales were formed by combining items that conceptually fit into a scale. Alpha reliability coefficients were calculated for each scale and items that decreased the reliability were removed from the scale. The eight subscales were: Anxiety, Depression, Anger/frustration, Competition, Support from others, Peace with self, Assertiveness, and Expressiveness. The reliabilities for the eight subscales before diagnosis and at the present time are presented in Table 6 and the items constituting the subscales are presented in Tables 4 and 5.

Information on the Course of Illness Form (ICIF)

This questionnaire was used to gather information about the course of people's illness in order to determine the likelihood for their state of survival. Two different forms were constructed to ask about either cancer or heart disease. All subjects were asked what their initial diagnosis was and what, if any, new diagnoses were made after their initial diagnosis. Subjects were asked to describe the condition of their disease at the present time using a multiple choice scale. The cancer survivors used a 7-point scale, where 1= free of all detectable signs of cancer, 2= Improving: cancer in one location is getting smaller, 3= Improving: cancer in more than one

location is getting smaller in number or size, 4= Stable: cancer in one location has not changed, 5= Stable: cancer in more than one location has not changed, 6= Growing: cancer in one location has been getting larger or spreading to other locations, 7= Growing: cancer in more than one location has been getting larger or spreading to other locations. The heart disease survivors were asked to rate the same question given a 4-point scale where 1= free of all detectable signs of heart disease, 2= Improving, 3= Stable, 4=Growing. (See Appendix A for a copy of this form.)

Physician's General Information Form

A physician's checklist was used to assess and verify each subject's type and stage of illness, its course, and the treatment his or her patient has received. The physicians were asked to rate the course of their patient's disease using the same scales that were provided to the subjects on the ICIF. (See Appendix A for a copy of this form.)

Second Physician's Rating Form

This form was used for one physician to rate all of the survivors on the favorability of their course of disease. He was asked to rate the favorability of patients' course of disease from initial diagnosis to the present using a 5-point scale where 1= an exceptionally favorable course that corresponds to the best 1% of cases,

2= an exceptionally favorable course that corresponds to the best 10% of cases, 3= a better than average favorable course that corresponds to the best 25% of cases, 4= an average course that corresponds to the middle 50% of cases, 5= a less than average course that corresponds to the poorest 25% of cases, and 6= a particularly unfavorable course that corresponds to the poorest 10% of cases. (See Appendix A for a copy of this form.) The physician used the information on the ICIF to make his ratings.

Procedure

Participants were recruited from various sources, as previously mentioned. It was explained to all subjects that the study was being conducted as a dissertation in psychology at the University of Massachusetts. It was explained that the purpose of the study was to explore how people adjust to having a serious illness such as cancer or heart disease. Subjects were told that all of their responses would be treated with the strictest confidence and that they were not obligated to answer any question they might find objectionable. They were told that they had to sign an Informed Consent Form in order to participate. Each prospective participant was given a packet including the questionnaire, two informed consent forms (one to send back and one to keep), and a stamped return envelope.

Willing participants were given the packet (either in person or through the mail) and told to return the questionnaire by mail using the provided stamped return envelope. Thank you notes were sent to the leaders of the Mended Hearts groups and to the physicians that helped recruit subjects.

The Physician's Checklist was only sent to the physicians whose patients provided their name and address and signed a statement that their physician could release information about their illness to the investigators of this project. The physicians were sent the Physician's Checklist, a copy of their patient's signed statement of release, and a stamped return envelope, along with a cover letter explaining the nature of this project.

The completed Information on the Course of Illness Forms were given to a physician specializing in internal medicine. He was asked to rate the favorability of each participants' course of illness taking into account their diagnosis, length of survival, and other factors such as age, diet, and smoking histories. The main source the physician used for his ratings were the American Cancer Society's annual Cancer Manual (1990).

CHAPTER 3

RESULTS

Questionnaire Return Rates

Of the 296 questionnaires handed out, a total of 94 were returned. However, nine of the returned questionnaires were not included in the study for various reasons (e.g., the participant had a congenital disease, had both cancer and heart disease, or wrote that he or she could not complete the questionnaire).

For the cancer sample, approximately 100 questionnaires were distributed at the NCCS convention and 30 of them were returned. Of the ten questionnaires sent to the subjects of three author's books (including one of the authors) six were returned. Of the 40 questionnaires given to the physicians (five for each internist and ten to each oncologist) 17 were returned. Eleven of those questionnaires returned were from the oncologists. Of the four questionnaires sent to respondents from the newspaper advertisement, three were returned. Two personal contacts were sent questionnaires and both were returned.

For the heart disease group, approximately 32 questionnaires were distributed at the local chapter of the Mended Hearts and 11 were returned. Approximately 50 members were contacted by phone and about 25 questionnaires were sent to willing participants. Of these, 13 were returned. About 25 questionnaires were

sent to other chapters of Mended Hearts and seven of these were returned. Of the 20 questionnaires distributed by the four internists (five each), only three were returned. It is not clear whether the internists actually gave out the questionnaires. When they were asked, two said they had few female heart patients in their practice, and two said they were currently too busy, but would try to distribute them. The two people recruited from the newspaper returned their questionnaires and the one personal contact returned her questionnaire.

In summary, the return rates did not seem to differ among the groups of survivors. However, the method of recruitment seemed to have an effect on the return rates. The self-selected recruits from the newspaper advertisements had a very high return rate but there was a very low response rate to the advertisements. The method of distributing many questionnaires at a group meeting, such as at the NCCS convention and at the Mended Hearts meeting, yielded a return rate of about 30%.

Description of the Sample

Of the 85 subjects used in this study, 31 were survivors of heart disease (Males= 21, Females= 10), 35 were non-exceptional survivors of cancer (Males= 15, Females= 20), and 19 were "exceptional" survivors of cancer (Males= 9, Females= 10).

The type and stage of cancer diagnoses in the

exceptional group included inoperable brain tumors, metastasized breast cancer, and metastasized kidney cancer, among other diagnoses. Seven of the exceptional survivors were rated by the physician as being in the top one percent of those expected to survive the length of time that they did given their type and stage of disease. Five exceptional survivors were rated as being in the top ten percent and seven survivors were rated in the top twenty five percent of expected length of survival given the type and stage of disease. (See Table 7 for a description of each of the exceptional survivors included in the study.) Diagnoses of the participants in the nonexceptional group of cancer survivors included: nonmetastasized breast cancer, colon cancer, hodgkins disease, and ovarian cancer, among other diagnoses. (See Table 8 for a description of the sample of non-exceptional cancer survivors.) Many of the cancer survivors in both groups were treated with surgery, chemotherapy, radiation, and medications.

The majority of the heart survivors had angina or blocked arteries. All but two of the heart disease survivors had some sort of surgery, the majority had bypass surgery and others had valve replacement surgery. Many of the heart disease survivors were also treated with medications and were given dietary restrictions. (See Table 8 for a description of the heart disease survivors.)

In the total cancer group 79% were disease free, 7.5% had cancer that was improving (getting smaller) and 13.5% had cancer that was stable. These percentages were approximately the same in each of the cancer groups. For this sample of heart survivors, being disease free does not have the same meaning as it does for the cancer survivors. Nonetheless, all of the heart disease survivors rated being "disease free" or "stable."

Approximately 45 Physician's Checklists were sent to the physicians of the participants of this study. Of the 31 returned, all of the physicians verified the initial diagnoses that the participants had reported. One participant reported her current state as disease free but her physician reported that she had a recurrence since the time she completed the questionnaire. All of the other physicians reported a similar current state of disease as had the participants.

Demographic Information

Group differences on the demographic variables were examined by univariate analyses of variance where survivorship group was the independent variable. The means for the significant ANOVA's were compared with ttests. The ANOVA's were significant for current age, F(2,82)=16.35, p<.001, age at diagnosis, F(2,82)=7.26, p<.01, and education, F(2,82)=12.96, p<.001. Although the means of the two cancer groups did not differ on any

of these variables, the group of heart disease survivors was significantly older at the present time, was older at diagnosis, and was less educated, compared to the exceptional cancer survivors (Ex-C), t= 4.50, p<.001, t= 2.96, p<.01, t= 3.53, p<.001, respectively) and compared to the non-exceptional cancer survivors (NEx-C), t= 5.46, p<.001, t= 3.56, p<.001, t= 4.80, p<.001, respectively).

The item inquiring about relatives with the same disease was coded as follows: 1= no relative, 2= relative other than parents, 3= parents. The ANOVA was significant, F(2,82)= 8.80, p<.001, where the heart disease survivors reported having closer relatives with the same disease compared to the exceptional cancer survivors, t= 3.88, p<.001, but not with the nonexceptional cancer survivors. (Table 9 summarizes the results of these analyses.)

There were no group differences on the item inquiring about the length of time since diagnosis when two outliers were removed from the heart disease group. The mean number of years since diagnosis for the three groups were as follows: HD: M= 7.80, NEx-C: M= 4.85, Ex-C: M= 6.79. One of the outliers was diagnosed with a heart condition 28 years ago and one was diagnosed 47 years ago. Both of these males were over 70 years old when they completed the questionnaire. Neither participant responded differently than the rest of the heart disease group on other items,

and both reported specific stressful incidents preceding their diagnoses to anchor their memories. For these reasons, they were not discarded from the study.

There was a decrease in number of people who were single and never married before diagnosis to the present for the exceptional cancer group (before=4, now= 2) and for the non-exceptional cancer group (before= 11, now= 8). None of the heart disease survivors reported being single and never married. There was a slight decrease in the number of people who were married before diagnosis to the present time in the sample of heart disease survivors (before= 29, now 26), but there was a slight increase in number of married people in the exceptional cancer group (before=11, now=9) and in the non-exceptional cancer group (before=18, now=21). There was an increase in number of people who were widowed, divorced, or separated from before diagnosis to the present time for the heart disease survivors (before= 2, now= 5) and cancer survivors with exceptional recoveries (before= 4, now= 8) while the number for the non-exceptional cancer survivors remained the same (before and now= 6).

All groups showed a decrease in working full time from before diagnosis (total= 53) to the present time (total= 28). Also, all groups showed an increase in number of people retired from work from before diagnosis (total= 13) to the present time (total= 33). There was a

slight increase in number of part time workers in the exceptional cancer group (before=2, now=5) and in the non-exceptional cancer group (before=2, now=4), but a decrease in the heart disease survivor group (before= 4, now=2).

Lifestyle Information

Group differences were determined with univariate analyses of variance computed on six lifestyle variables. Each variable was measured before diagnosis and at the present time. Group means for the significant univariate ANOVA's were compared with t-tests. None of the ANOVA's were significant different for smoking, drinking alcohol, satisfaction with relationships, satisfaction with social support, satisfaction with work, or spirituality before diagnosis, and at the present time. (See Table 10 for the summary of these results.)

Beliefs About Treatment

In order to determine whether the three groups differed on beliefs about treatment, univariate analyses of variance were computed for three beliefs where survivorship group was the independent variable. Group means for significant ANOVA's were compared using t-tests. The exceptional cancer and the non-exceptional cancer groups reported a higher degree of taking charge of their own treatment than the heart disease group, F(2,82)=4.06, p<.05, (Ex-C: t= 2.97, p<.01, NEx-C: t= 2.09, p<.05). The three groups did not differ on their beliefs about their

confidence in their treatment, or in the amount someone else had faith in their recovery. (See Table 10 for a summary of these results.)

On the question of whether participants believe that psychological factors can influence whether a person can get a serious illness, 29 of the total sample responded "no" and 53 responded "yes." A similar pattern of responses was found in each of the groups of survivors, HD: no= 9, yes= 21, NEx-C: no= 14, yes= 21, Ex-C: no= 6, yes= 11. Although two thirds of the sample believed emotions and attitudes could influence whether a person will get an illness, almost the entire sample believed that emotions and attitudes influences a person's recovery from an illness. Out of 82 respondents, 80 believed psychological factors can influence recovery. The two negative responses to this question were both from the group of non-exceptional cancer survivors.

Of the 83 subjects who answered the item on whether they believed that their illness changed their mood and general attitude toward life, 35 people reported no basic change, 46 people reported their illness had a positive effect on them, and 2 people reported their illness had a negative effect on them. The reports of a negative effect were both made by cancer survivors (one report from the non-exceptional group and one from the exceptional group of survivors). About half of the respondents in the heart

disease group reported no change (N= 16) and half reported it had a positive effect on them (N= 15). In the nonexceptional cancer group, slightly less than half of the respondents reported no change (N= 14), and slightly more than half reported a positive change (N= 19), and one person reported a negative effect. In the exceptional cancer group, about one third of the respondents reported no change (N= 5), about two thirds reported a positive change (N= 12), and one person reported a negative effect. A chi square comparing the three groups of survivors and their ratings was not significant, nor was a chi square comparing the heart disease group to the aggregate cancer group on their ratings.

It should be noted that the percentage of ratings of a positive change is in the predicted direction for the three groups of survivors: HD= 48%, NEx-C= 56%, Ex-C= 67%. It is possible that with a larger sample of exceptional cancer survivors, the chi square would be significant.

Open-Ended Questions

Information on the four open-ended questions is best described by sorting responses into general categories of responses. For the question on what advice the survivors would want to give to others, the most popular words of advice for the heart disease survivor group was to have a positive attitude while none of the cancer survivors gave this response. The most popular advice from the cancer

survivors was to seek and accept support from others, take control of your treatment, have a strong will to live, stay active/keep busy, and enjoy life/live to your fullest.

On the question of what impact the illness had on people's lives, the popular responses for the heart group included: having a more healthful diet, becoming more helpful to others, living each day for today and to its fullest by slowing down to "smell the roses." The cancer groups reported that their illness impacted their lives by making them more appreciative of life, and by forcing them to take more responsibility for their own life, become closer to friends and family, have more faith in God, learn to say "no," make a career change, and that it forced them to deal with unresolved issues regarding their family.

For the question on what things might have brought on their illness, the popular responses for the heart disease group were: smoking, poor diet, and job related stress. The cancer groups reported that smoking, and job related stress might have brought on their illness. The cancer groups also reported that emotional factors/distress, genetics/heredity, exposure to carcinogens, and repressed emotions might have contributed to their illness.

For the question of what influenced the course of disease for better or worse, some popular responses for

the heart group were: smoking and always having to be first or best. The cancer groups reported that a will to live, medical treatment, delay in seeking treatment, emotional stress, meditation, and support from family and friends influenced the course of their disease.

Stressful Life Events Preceding Diagnosis

Group differences were explored on the total frequency, total intensity, and frequency by intensity of stressful events two years preceding diagnosis calculated from the Stressful Life Events inventory by one-way analyses of variance where survivorship group was the independent variable. Group means of the significant ANOVA's were compared using t-tests. Both cancer groups reported a greater total intensity of stress than the heart disease survivors, Ex-C: t= 3.10, p<.01, NEx-C: t= 2.33, p<.05, F(2,82)= 7.17, p<.01. Only the exceptional group of cancer survivors reported an overall greater frequency of events compared to the group of heart disease survivors, t= 2.18, p<.05, F(2,82)=4.71, p<.01. The nonexceptional cancer survivors did not differ from the other two groups of survivors on frequency of events. The ANOVA for the item of frequency x intensity of stress was significant, F(2,60) = 3.06, p<.05, with the heart disease survivors scoring significantly lower (M= 46.60) than the exceptional cancer group (M= 156.53), t=2,49, p<.05. The non-exceptional cancer group (M= 112.92) did not differ

from the two other groups. (See Table 12 for the means and a summary of these results.)

An analysis of variance was conducted with the frequency of the 20 individual stressful life events items as the dependent variables. The individual items were dichotimized, with 1= the event did not occur and 2= the event did occur. The ANOVA's for marital problems, change in living situation, and rejection by a loved one were all significant, F(2,82) = 5.50, p<.01, F(2,82) = 4.89, p<.01, F(2,82) = 5.93, p<.01, respectively. The heart disease survivors reported fewer marital problems, less distressing changes in their living situation, and less rejection of a loved one than the exceptional cancer survivors, t= 2.44, p<.05, t= 3.28,p<.01, t= 2.99, p<.01 respectively, and than the non-exceptional cancer survivors, t= 3.40, p<.001, t= 2.20, p<.05, t= 2.87, p<.01 respectively. (See Table 12 for a summary of these results.)

In summary, the exceptional cancer group reported more frequent and intense stressful events preceding diagnosis than the heart disease survivors. The nonexceptional cancer survivors also reported more intense but not significantly more frequent stressful events than the heart disease group. The two cancer groups did not differ from each other. Both cancer groups reported more marital problems, rejection of a loved one, and change in

living situation than the heart disease survivors.

Childhood Relationships with Parents and Peers

Group differences were examined on the seven scales of the Mother-Father-Peer inventory by a multivariate analyses of variance where group of survivorship was the independent variable. Although the overall analysis was not significant, univariate tests revealed significant differences for Idealization of mother and for favorable relationships with peers during childhood, F(2,82) = 4.60, p<.01, F(2,82) = 3.26, p<.05, respectively. Nonexceptional cancer survivors reported significantly less Idealization of mothers, and reported less favorable relationships with their peers as children, compared to the exceptional cancer survivors, t = 2.05, p < .05, t = -2.31,p<.05, respectively) and the heart disease survivors (t= 3.39, p<.001, t= 2.00, p<.05, respectively). There were no significant differences on the other five scales from this inventory. (See table 13 for the summary of these analyses.)

The Cancer-Prone Personality Model

According to LeShan's (1977) notions, predisposing unfavorable parental relationships filled with unresolved tensions and leading to high expectations and feelings of inadequacy coupled with stressful life events (focusing on loss or failure) give rise to the potential for developing cancer. It is beyond the scope of this study to determine

a causal relationship between these factors. However, it is of interest to determine if these factors are differentially related to Cancer-prone Personality scores, and if they predict cancer versus heart disease.

Predicting Cancer-Prone Personality

The basic hierarchical regression equation used to predict Cancer-prone Personality scores was the following: MFP + Stress + Interaction = Cancer-prone Personality before diagnosis. All of the MFP scales were significant predictors by themselves, where less independence, less acceptance, and less idealization of both parents, and less accepting relationships with peers predicted Cancerprone Personality. The F-values for each MFP variable were significant at the .01 level. The range of variance accounted for was between 8% and 12%. (See Table 14 and 15 for a summary of these results.)

When total intensity of stress was added to each equation, the increase in variance accounted for ranged from 4% to 9%. For the equation with independent Father, the interaction term increased the variance accounted for by 5%. Other interaction terms had a minimal effect on the total equations.

When total frequency of stress was added to each equation replacing intensity of stress, the increase in variance accounted for ranged from 1% to 3%. For the equation with Independent Father, the interaction term

increased the variance accounted for by 6%. Other interaction terms had a minimal effect on the total equations.

Overall, the total equation that accounted for the highest percent of the variance was (high) intensity of stress + (low) Independence-encouragement Father + interaction = Cancer-prone Personality, F(3.64)= 5.35, p<.01, where 24 percent of the variance was accounted for.

Low Independence-encouragement Mother and high frequency of stress or high intensity of stress also predicted Cancer-prone Personality, accounting for 19 and 22 percent of the variance, respectively.

Predicting Cancer vs. Heart Disease

The basic hierarchical regression equation used to predict cancer versus heart disease was the following: MFP + Stress + Interaction = Type of Disease, where those with heart disease were assigned a "1" and those with cancer were assigned a "2."

Of the seven MFP scales, only Idealization Mother was significant by itself accounting for 9% of the variance, F(1,79) = 7.49, p<.01, where low idealization predicted cancer. Other MFP scales accounted for between 0% and 2% of the variance. The combination of MFP + intensity of stress was a significant predictor of cancer for each of the equations, where the increase in variance accounted for ranged from 7% to 12%. The combination of MFP +

frequency of stress increased the variance accounted for between 4% and 8%.

The interaction term added significance for the following equations: (low) Idealization of Mother + Intensity of stress + Interaction = Cancer, F(3,56)=4.96, p<.01, where the variance accounted for increased by 5%, (low) Acceptance Mother + (high) frequency of stress + interaction = Cancer, F(3,61)=3.14, p<.05, where the variance accounted for increased 6%, (low) Idealization Mother + (high) frequency of stress + interaction = Cancer, F(3,55)=5.67, p<.01, where the variance accounted for increased 9%, and for the equation: (low) idealization Father + (high) Frequency of stress + interaction = Cancer, where the variance accounted for increased 4%.

The predictor equations with the highest overall significance were (low) Idealization Mother + (high) intensity of stress + interaction = Cancer, F(3,56)=5.67, P<.01, where 22 percent of the variance was accounted for, and (low) Idealization Mother + (high) frequency of stress + interaction = cancer, F(3,61)=4.95, p<.01, where 21 percent of the variance was accounted for. (See Table 16 and 17 for a summary of the results.)

A Path Analysis Predicting Cancer

In order to further explore the relationships between parental relationships, stress, Cancer-prone Personality, and cancer diagnosis, two regression equations were

conducted. The first was a hierarchical regression in which Independence-encouragement by father, Intensity of stress, and their interaction were entered in that order to predict Cancer-prone Personality scores. In the next hierarchical regression, Cancer-prone Personality scores were added to the previous equation to predict disease type.

As previously mentioned, the most powerful equation predicting Cancer-prone Personality was Independenceencouragement by Father + Intensity of Stress + their interaction, where 24 percent of the variance was accounted for. In a hierarchical regression analysis, only Independence-encouragement by Father was a significant predictor of Cancer-prone Personality, Beta= -.62, p<.01, displacing the significance of Intensity of stress and interaction term. When Cancer-prone Personality scores were added to the equation to predict disease type, only it significantly predicted cancer, Beta= .31, p<.05, displacing the significant contributions of all of the other variables in the equation. (See Table 18 for a summary of these results).

A similar pattern was found using the equation of Independence-encouragement by Mother + Intensity of Stress + their interaction to predict Cancer-prone Personality. In a hierarchical regression analysis only Independenceencouragement by Mother was significant, Beta= -.55,

p<.05, displacing the significance of Intensity of stress scale and their interaction term. When Cancer-prone Personality scores were entered into the equation to predict disease type, it significantly predicted cancer, Beta= .30, p<.05, displacing the significant contribution of any of the other variables in the equation. (See Table 13 for a summary of these results.)

In summary, parental relationships (including low Independence-encouragement by Mother and Father) are a more important contributor to Cancer-prone Personality than stressful events, and Cancer-prone Personality better predicts cancer diagnosis than the other variables in the equation.

Coping After Diagnosis

After diagnosis, it is of interest to determine whether the groups of survivors differed in their use of coping strategies. Scores from the Coping with Illness scale were examined by a univariate analysis of variance where survivorship group was the independent variable. The scale measures an active coping style where high scores represent active coping. The ANOVA for scores on the Coping with Illness scale was significant, F(2,82)= 4.29, p<.05, with the heart survivors scoring lower (M= 22.13) than the exceptional cancer survivors (M= 26.17), t= 2.87, p<.01, and than the non-exceptional cancer survivors (M= 25.48), t= 2.41, p<.05. The two cancer

groups did not significantly differ from each other.

The six individual behavioral coping items (diet, exercise, meditation/relaxation, etc...) and the ten individual attitudinal coping (accepted fate, determined to fight, not burdening others with concerns or pain, etc...) were examined by multivariate analyses of variance where survivorship group was the independent variable. Group means for significant univariate ANOVA's were compared with t-tests.

The MANOVA for the attitudinal coping items was significant, Wilk's Lambda= 2.98, p<.000. The univariate ANOVA's for the individual items of accepting fate, not burdening others with concerns or pain, distracting oneself, and determined to fight were significant, F(2,82)=7.71, p<.001; F(2,82)=10.66, p<.001; F(2,82)=4.45, p<.05, F(2,82)=6.25, p<.01, respectively. The two groups of cancer survivors reported that they were less likely to have accepted fate and more likely to have burdened others with concerns shortly after their diagnoses than the heart survivors, Ex-C: t= 2.6, p<.01, t= 4.47, p<.001, respectively, NEx-C: t= 3.40, p<.001, t= 3.48, p<.001, respectively. Only the non-exceptional cancer survivors reported that they were significantly less determined to fight than the heart disease survivors, t= 3.21, p<.01. They also reported that they were more likely to distract themselves than the heart disease survivors, t= 2.17,

p<.05, t= 2.00, p<.05, respectively.

The univariate ANOVA's were not significant for the variables of feeling hopeless, learning from the experience, reaching for support, seeking information, withdrawing from others, and living life more fully. A summary of the analyses, including the means for these variables, is presented in Table 19.

The MANOVA for the behavioral coping items was significant, Wilk's Lambda= 3.36, p<.000. The univariate ANOVA's for meditation and relaxation, visualization, psychotherapy, and improving diet were all significant, F(2,82)=5.42, p<.01; F(2,82)=9.58, p<.001; F(2,82)=9.70, p<.001, F(2,82) = 3.96, p<.05, respectively. The two groups of cancer survivors reported using meditation and relaxation, visualization, and psychotherapy significantly more than the heart disease survivors Ex-C: t= 3.14, p.01, t= 4.82, p<.001, t= 3.32, p<01, respectively, NEx-C: t= 3.39, p<.001, t= 3.65, p<.001, t= 4.98, p<.001, respectively. Whereas the heart disease survivors reported improving their diet significantly more than the two groups of cancer survivors, Ex-C: t= 2.32, p<.05, NEx-C: t= 2.14, p<.05. None of the groups differed on reported involvement with support groups. (See table 19 for the means and summary of these analyses.)

In summary, the cancer survivors reported a general active coping style and engaged in more psychological

coping strategies (meditation, visualization, and psychotherapy) than the heart disease group. The cancer survivors used strategies opposite to that of the Cancerprone Personality where they were less likely to accept fate, and less likely to not burden others with their concerns compared to the heart disease group. On the other hand, the heart disease survivors reported opposite coping strategies to that of the heart disease-prone personality where they were more likely to accept fate and not burden others. The heart disease survivors also reported that they improved their diet more than the cancer survivors.

Current Coping and Defensiveness

Group differences on the Global scale and the Global Lie-free scale of the Constructive Thinking Inventory (CTI) were examined by univariate analyses of variance. Group differences on the five subscales calculated from the CTI were examined by a multivariate analysis of variance, where survivorship group was the independent variable. Group means for significant ANOVA's were compared using t-tests.

The ANOVA for the Global Lie-free scale was significant, F(2,82)= 3.14, p<.05. The non-exceptional group of cancer survivors (M= 43.62) reported better global constructive thinking on the Lie-free scale than the heart disease survivors (M= 31.86), t= 2.27, p<.05.

The mean for exceptional cancer group (M= 32.29) did not differ from either of the means of the other two groups of survivors.

The MANOVA for the five subscales was significant, Wilk's Lambda= 2.25, p<.05. Categorical Thinking produced a significant univariate ANOVA, F(2,68)= 3.23, p<.05, where the exceptional cancer survivors reported significantly lower scores than the heart disease survivors, t= 6.02, p<.01. The non-exceptional survivors did not differ from either group. (See table 20 for the summary of these analyses.)

A one-way analyses of variance was also computed for the Defensiveness scale adapted from Epstein and O-Brian's (1980) self-esteem inventory. Survivorship group was the independent variable. No significant differences were found between the groups on this scale (HD: M= 43.03, NEX-C: M= 43.64, Ex-C: M= 45.13).

In summary, the exceptional group of survivors did not evidence a significantly better global coping style than the other groups. However, they reported being less categorical in their thinking than the heart disease survivors. The non-exceptional cancer group reported better global coping on a Lie-free scale than the heart disease survivors. The exceptional survivors did not differ from either group on this scale.

Cancer-Prone and Heart Disease-Prone Personality Scales

At this point, it has been determined that parental relationships and preceding stressful events differentiated cancer and heart disease groups and predicted Cancer-prone Personality scores. It has also been determined that coping strategies used to deal with the diseases differed among the groups as well as a current trait measure of Categorical Thinking and Lie-free global Constructive Thinking. It is now of interest to determine if the groups differed on their ratings of personality variables before diagnosis and at the present time and if there is a significant interaction between the groups and time periods.

Scores on both the Cancer-prone and Heart Diseaseprone personality scales were calculated before diagnosis and at the present time. To test the main hypothesis of this study, that a dramatic shift in cancer-prone characteristics is most likely to have occurred in the exceptional cancer survivor group and more likely among both cancer groups than the heart disease group, an analysis of variance was conducted on each scale in a repeated measures design with survivorship group as the independent variable.

The main effects for both group and time were significant for the Cancer-prone Personality scale, F(2,80) = 4.01, p<.05, F(1,80) = 33.73, p<.001,

respectively. However, the main effects were qualified by a significant interaction of group by time, F(2,80) = 5.61, p<.01. As predicted, the exceptional cancer survivors reported having the highest Cancer-prone Personality before diagnosis (M= 74.06) and the biggest decrease to the present time (M= 51.30). The non-exceptional cancer group reported having the next highest Cancer-prone Personality before (M= 64.82) and a slightly less dramatic decline to the present time (M= 51.79). The heart disease survivors reported the lowest Cancer-prone Personality before diagnosis (M= 53.03) and a minimal decline to the present time (M= 49.52). Using contrast comparisons, both cancer groups significantly differed from the heart group before diagnosis, Ex-C: F(1,80)= 12.51, p<.001, NEx-C: F(1,80) = 5.33, p<.05. However, the two cancer groups did not differ significantly from each other before diagnosis, F(1,80) = 2.48, p=.12. None of the contrasts were significant at the present time. (Table 21 summarizes these results and Figure 1 helps explicate these findings.)

The Heart Disease-prone Personality scale did not significantly distinguish the groups. All groups reported an increase over time, F(1,80)= 3575.21, p<.001. The interaction for groups by time was not significant (see Figure 1).

To help rule out the argument that demographic differences could account for the results in this section, analyses of co-variance were conducted for the Cancerprone Personality scale and the Heart Disease-prone Personality scale before and at the present time, with gender, age, education, and relatives with the same disease partialled out of each equation. The ANCOVA's for Cancer-prone Personality before diagnosis were significant with gender F(2,81) = 5.20, p<.01, age F(2,79) = 3.11, p<.05, education F(2,79) = 4.41, p<.05, and relatives F(2,77) = 4.34, p<.05, partialled out of the equation. The group means adjusted for the co-variants were consistently in the direction where the exceptional cancer group had the highest ratings, the non-exceptional cancer group had the second highest ratings, and the heart disease group had the lowest ratings. None of the ANCOVA's for Cancerprone Personality at the present time were significant, nor were any of the ANCOVA's significant for heart disease-prone personality at either time. (See Table 22 for a summary of the ANCOVA's and adjusted means of these results.)

In summary, the cancer groups obtained significantly higher scores on the Cancer-prone Personality scale before diagnosis compared to the heart disease group. Although, not significantly different from the other cancer group, the exceptional cancer survivors exhibited a tendency to

report the highest cancer-prone characteristics before diagnosis. The three groups did not differ in Cancerprone Personality at the present time. The significant interaction between group and time, supports the hypothesis that the cancer survivors showed a shift in cancer-prone characteristics from before diagnosis to the present time.

Cancer and Heart Disease-Prone Subscales

In order to determine whether the three groups differed on eight subscales of the Cancer-prone Personality, repeated measures analyses of variances were conducted for each subscale, where survivorship group was the independent variable. There was a significant main effect for groups for the following subscales: Depression, F(2,80) = 6.31, p<.01, Anger/frustration, F(2,80) = 7.28, p<.01, Support from others, F(2,80) = 10.89, p<.001, and Feeling at Peace, F(2,80)=3.15, p<.05. The exceptional cancer survivors reported the highest scores on Depression (M= 11.89), closely followed by the non-exceptional cancer group (M= 11.18), while the heart survivors reported the lowest scores on the Depression subscale (M= 8.4). The non-exceptional cancer group reported the highest scores on Anger (M= 8.37), closely followed by the exceptional cancer group (M=8.29), and both groups differed from the The heart scores of the heart disease group (M= 6.08). disease survivors reported the highest scores for Feeling

at Peace (M= 11.55), and for Support from others (M= 8.85) compared to the non-exceptional cancer group (M= 10.67, M= 7.72, respectively), and the exceptional cancer group (M= 9.87, M= 6.82, respectively). (See Table 21 for the summary of these results.)

All eight of the subscales were highly significant for the main effect of time. Anxiety, Depression, Anger/frustration, and Competitive scores decreased over time, and Support from others, Feeling at Peace, Assertive, and emotionally Expressive increased over time. (See Figures 2, 3, 4, and 5 and Table 21 for the summary of these results.)

Only two subscales, Depression and Anger/frustration, produced significant interactions between group and time, F(2,80) = 7.23, p<.01, F(2,80) = 5.08, p<.01, respectively (see Figure 2). In both of these interactions, the exceptional cancer survivors had the highest ratings before diagnosis and the most dramatic decrease in ratings at the present time compared to the other two groups. The non-exceptional cancer group had the second highest ratings before diagnosis but only slightly decreased at the present time.

Again, to rule out the possibility that demographic differences could account for the results, analyses of covariance were conducted for each of the subscales before and at the present time, with gender, age, relatives, and

education separately partialled out of each equation.

Similar to the main effects for groups in the previously mentioned analyses, the analyses of variances for Depression before diagnosis were significant with gender, F(2,79) = 6.69, p<.01, age, F(2,79) = 3.90, p<.05, relatives, F(2,77) = 6.42, p<.01, and education, F(2,79) =4.83, p<.01, partialled out of the analyses. The group means adjusted for the co-variants were consistently in the direction of the exceptional cancer survivors reporting the highest scores of Depression before diagnosis, the non-exceptional cancer survivors reporting the second highest, and the heart disease survivors reporting the lowest scores on Depression before diagnosis. None of the ANCOVA's were significant for Depression at the present time. (See Table 23 for a summary of these results.)

The analyses of variance for Anger before diagnosis were significant with gender, F(2,80) = 6.41, p<.01, age, F(2,80) = 3.08, p<.05, relatives, F(2,78) = 5.36, p<.01, and education, F(2,80) = 4.27, p<.05, partialled out of the analyses. The group means adjusted for the co-variants were consistently in the direction that the exception cancer survivors reported the highest scores on Anger before diagnosis, the non-exceptional cancer survivors reported the second highest, and the heart disease survivors reported the lowest scores on Anger before

diagnosis. Anger at the present time was significant with gender, relatives, and education as co-variates, F(2,81)=3.33, p<.05, F(2,81)= 3.92, p<.05, F(2,81)= 3.03, p<.05, respectively. The group means adjusted for the covariants were consistently in the direction that the nonexceptional cancer survivors reported the highest scores on Anger at the present time, the exceptional cancer survivors reported the second highest, and the heat disease survivors reported the lowest scores on Anger at the present time.

The analyses of variance for Support from others before diagnosis were significant with gender, F(2,80) =10.15, p<.001, age, F(2,80) = 6.94, p<.01, relatives, F(2,78) = 8.73, p<.001, and education, F(2,80) = 7.80, p<.001, partialled out of the equation. The group means adjusted for the co-variants were consistently in the direction of the exceptional cancer survivors reporting the lowest scores on Support before diagnosis, the nonexceptional cancer survivors reporting the second lowest, and the heart disease survivors reporting the highest scores on Support before diagnosis. With gender and education partialled out of the equation, Support at the present time significant, F(2,81) = 4.40, p<.05, F(2,81) =3.16, p<.05, respectively. However, Support was not significant with age and relatives with the same disease partialled out of the equation. The adjusted means for
the three groups were in the same direction as the adjusted means for Support before diagnosis. All of the other ANCOVA's calculated for the other five subscales were not significant. (See Table 23 for a summary of the results.)

In summary, the two subscales that produced significant interactions between group and time were Depression and Anger. The cancer groups' reports were highest before diagnosis and then dropped to a point similar to the heart disease group. Similar to the ratings on the Cancer-prone Personality scale, the means for the exceptional cancer survivors tended to be higher than the means for the non-exceptional cancer survivors for Anger and Depression before diagnosis.

Individual Emotions and Attitudes

Group differences were examined for each of the 41 items on the Emotions and Attitudes Inventory by repeated measures analyses of variance where survivorship group was the independent variable. Although several items produced significant main effects for group and for time, many of them are qualified by their significant interactions. Thus, the main effects will only be briefly presented in the text.

For the following items the heart disease group had the highest means compared to the two cancer groups: strong/powerful, emotionally supported, feeling at peace,

meaningful life, and distracted. For the following items the exceptional cancer survivors had the highest means, and the other cancer group had the second highest means compared to the group of heart survivors: sad/depressed, sorry for self, helpless/hopeless, withdrawn/defeated, frustrated/blocked, inadequate/unworthy, and lonely/unwanted. For the following items the nonexceptional cancer survivors had the highest means and the exceptional cancer survivors had the second highest means compared to the group of heart survivors: angry/annoyed, confused/conflicted, and guilty/regretful.

Significant main effects for time were found for the following items where there was a decrease from before diagnosis to the present time: sad/depressed, angry/annoyed, sorry for self, helpless/hopeless, withdrawn/defeated, harassed/pressured, frustrated/blocked, anxious/worried, tense/jittery, emotionally numb, confused/conflicted, inadequate/unworthy, false front to be accepted by others, lonely/unwanted, feeling at peace, despairing life, keep emotions to self, self-sacrificing, emotionally intense and unexpressive, and accepter. The following items significantly increased from before diagnosis to the present time: happy/cheerful, pleased with self, challenged/determined, serene/calm, compassionate/caring, emotionally supported, meaningful life, emotionally

intense and expressive, assertive, fighter, open-minded, and information seeker. The F-values for all of the above items are presented in Table 23.

The following items produced significant interactions for group by time in the direction that the two cancer groups were highest before diagnosis and decreased to a point comparable to the heart disease group at the present time: sad/depressed, angry/annoyed, sorry for self, helpless/hopeless, withdrawn/defeated, frustrated/blocked, anxious/worried, confused/conflicted, inadequate/unworthy, put on a false front to be accepted by others (see Table 24 for a summary of these results and see Figures 6, 7, 8, 9, and 10).

Five other items produced significant interactions between group and time but each had a unique curve. For the item energetic, the heart disease group reported the lowest scores before diagnosis and reported the sharpest increase at the present time. For the item, challenged/determined, the heart disease group reported the highest scores before diagnosis and the nonexceptional cancer group reported the highest scores at the present time. On the item Self-sacrificing for others, the exceptional cancer group obtained the highest scores before diagnosis and the lowest scores at the present time. On the items, meaningful life and information seeker, the exceptional cancer group produced

the lowest scores before diagnosis and had the sharpest increase at the present time compared to the other cancer group, while the heart disease group showed a slight decrease over time. Tables 24, and Figures 11, 12, and 13 summarize these results.

In summary, the significant interactions between group and time for the items angry/annoyed, frustrated/blocked, anxious/worried, confused/conflicted, inadequate/unworthy, sad/depressed, hopeless/helpless, withdrawn/defeated, feeling sorry for oneself, and putting on a false front show a similar pattern to the Cancerprone Personality scale. These items reflect a general depressed and frustrated disposition for the cancer survivors before diagnosis followed by a shift in scores to a level similar to that of the heart disease group at the present time. For all of the above items, except feeling sorry for oneself, the exceptional survivors showed a tendency to obtain higher scores before diagnosis than the non-exceptional group of cancer survivors.

Group Comparisons with Extremely Exceptional Survivors

Although there was a trend for the exceptional survivors to have had a more dramatic shift in personality from before diagnosis to the present time than the nonexceptional survivors, there were no significant differences between the two cancer groups. It could be that some of the non-exceptional survivors will become

exceptional survivors over a period of time, and that some of the exceptional survivors will become non-exceptional survivors over a period of time. Thus, in order to compare a truly exceptional group of survivors to the other cancer survivors, the exceptional group of survivors was split into two groups. The seven individuals who survived with a less than 1% expectancy were combined into a group of very exceptional cancer survivors (VEx-C), while the remaining twelve exceptional survivors constituted the exceptional survivor group (Ex-C). The four groups were compared on the Cancer-prone Personality scale and the eight subscales using repeated measures analyses of variance.

For the global Cancer-prone Personality scale, the main effect for group was significant, F(3,79)=2.64, p<.05, where the heart disease group reported less Cancerprone Personality than the other three groups of cancer survivors. The main effect for time was also significant, F(1,79)=44.36, p<.001, where there was a general decrease in Cancer-prone Personality from before diagnosis to the present time. (See Table 25 for a summary of these results.)

However, the main effects are qualified by the significant interaction between the four groups and time, F(3,79)= 6.54, p<.001, where the very exceptional group exhibited the most dramatic change in personality from

before diagnosis to the present time than the other two cancer groups and the heart disease group. Using contrast comparisons, the very exceptional group reported higher Cancer-prone Personality before diagnosis than the nonexceptional cancer group, F(1,79)=3.86, p<.05. Also, all three cancer groups reported higher Cancer-prone Personality scores before diagnosis than the heart disease group, (NEx-C: F(1,79)=5.36, p<.05; Ex-C: F(1,79)=5.84, p<.05, VEx-C: F(1,79)=11.15, p<.01). No other contrasts were significant at this period. At the present time, the very exceptional cancer survivors reported significantly lower Cancer-prone Personality than the exceptional cancer group, F(1,79)=4.01, p<.05. No other contrasts were significant at this period. (See Figure 14.)

On the subscales of Anger, Depression, and Support, there were significant main effects for group, F(3,80)=4.87, p<.01, F(3,79)= 4.42, p<.01, F(3,80)= 7.38, p<.001, respectively. On the subscales of Anger and Depression, the heart disease survivors scored the lowest and the very exceptional cancer group scored the highest of all the groups. On the subscale of Support, the heart disease group reported the highest amount of social support and the exceptional survivors reported the lowest amount of social support. (See Table 25 for a summary of these results.)

On all eight subscales, there was a significant main effect for time: Anger, F(1,80) = 36.28, p<.001, Depression, F(1,79) = 34.80, p<.001, Expression, F(1,80) = 27.68, p<.001, Anxiety, F(1,80) = 34.28, p<.001, Support, F(1,80) = 16.83, p<.001, Peace, F(1,55) = 62.40, p<.001, Assertive, F(1,79) = 17.05, p<.001, and Competition, F(1,79) = 12.48, p<.001. Scores on the subscales of Anger, Depression, Anxiety, and Competition decreased from before diagnosis to the present time. Scores on the subscales of Expression, Support, Peace, and Assertive increased from before diagnosis to the present time.

The main effects are qualified by significant interactions between group and time for Anger, F(3,80)= 7.61, p<.001, Depression, F(3,79)= 7.39, p<.001, Anxiety, F(3,80)= 2.85, p<.05, and Expression, F(3,80)= 4.18, p<.01. On the subscales of Anger, Depression, and Anxiety the very exceptional cancer survivors reported the highest scores before diagnosis and the lowest scores at the present time than the other groups of survivors. For the subscale of Expression, the very exceptional survivors reported the lowest scores before diagnosis and the highest scores at the present time. (See Figures 15 and 16.)

CHAPTER 4

DISCUSSION

The results supported the main hypothesis that survivors of cancer obtain higher Cancer-prone Personality scores before diagnosis than heart disease survivors and exhibit a greater decrease in Cancer-prone Personality scores after diagnosis. There was a non-significant trend for the exceptional survivors to have reported a greater decrease in Cancer-prone Personality than the nonexceptional survivors. Lack of significance may be partly due to non-pure groups of subjects. Some of the nonexceptional cancer survivors may become exceptional survivors if their length of survival time is extended. Another complication is that exceptionality was based on expectations for survival given available medical treatment. It is very possible that many of the nonexceptional survivors would have been considered "exceptional" if medical treatment had not been available.

When the extremely exceptional cancer survivors were examined as a separate group, significant differences were found between the non-exceptional and very exceptional groups on the Cancer-prone Personality scales and its subscales. However, as the number of extremely exceptional survivors who participated in this study was small, it is important to determine whether the results can be replicated with a larger sample.

Significant results found on the Cancer-prone Personality scale can not be attributed to demographic differences because the significance remains when gender, age, relatives diagnosed with the same disease, and education were partialled out of the analyses. It is unclear whether or not a shift in attitude contributed to survival or visa versa. However, the fact that there is an association between a specific attitudinal shift and survivors of cancer is a crucial first step in exploring this relationship.

Although not hypothesized, the cancer survivors had more stressful life experiences in the two years preceding diagnosis than the heart disease survivors. The events that were endorsed with significant differences (marital problems, change in living situation, and rejection of loved one), could all fit LeShan's (1977) hypothesis that stress due to loss or failure in addition to a cancerprone personality contributes to the etiology of cancer. Other items that may be interpreted as a loss or failure that were not significant, but were endorsed in the hypothesized direction were: death of a loved one, divorce or separation, loss of independence, failure at an important event or job, and loss of important job or role in life.

The heart disease survivors did not report having experienced any event, including "demanding schedule,"

more frequently or intensely than the other groups. Given the high percentage of diagnoses of angina and atherosclerosis in the heart disease sample, it is not likely that one acute stressor pre-disposed them to their heart disease. If psychological factors contributed to their disease it would more likely be that a chronic stressful condition weakened their cardiovascular system.

The results supported the hypothesis that parental relationships are related to the Cancer-prone Personality. Supporting LeShan's hypothesis (1977), negative parental relationships coupled with stressful life events significantly predicted high scores on the Cancer-prone Personality scale. The best predictor was low Independence-encouragement of Mother or Father coupled with stressful events. In a path analysis, poor parental relationships predicted Cancer-prone Personality scores displaced the contribution of stressful events. When predicting disease type, Cancer-prone Personality scores predicted cancer displcing the significance of parental relationships and stress.

Findings also supported the hypothesis that the heart disease survivors engaged in coping strategies opposite to those characteristic of a heart disease-prone personality by rating themselves as more likely to accept fate and not burden others with concerns than the cancer survivors. Also, as hypothesized the cancer survivors engaged in

coping strategies opposite to those charcteristic of the Cancer-prone Personality. From the responses to the questions on beliefs about treatment and on coping strategies, a composite picture of the cancer survivor emerged as taking an active role in treatment, seeking support, engaging in alternative psychological treatment, and openly expressing negative feelings. These strategies have been reported in other samples of cancer survivors (Glassman, 1981) and have predicted survival of cancer in prospective studies (Rogentine et al, 1979; Speigal, Bloom, Kraemer et. al, 1989). Previous documentation of this finding, may of-course, have influenced the beliefs of the people in this study, rendering it impossible to suggest any causal relationships between these survivorship qualities and survivorship.

It should also be acknowledged that cancer and heart disease have unique demands associated with treatment and recovery plans. It is possible that the reason the cancer survivors reported taking more of an active role in their treatment than the heart disease survivors, who were more likely to rely on their doctors, is due to the different disease processes, which may allow for varying degrees of patient input and/or choice for treatment.

Contrary to hypothesis, participants did not show an above average coping style after surviving a life threatening disease. The means for the three groups are

similar to the average coping scores of over 1000 college students tested on the CTI (Epstein and Meier, 1989; Katz and Epstein, in press). However, exceptional cancer survivors obtained significantly lower scores on Categorical Thinking than the other two groups of survivors. "Beating the odds" may have influenced their development of an open-minded thinking style.

Although the survivors did not exhibit superior coping styles, it may be inferred that the cancer survivors improved their coping style from before diagnosis to the present time based on their scores on the Cancer-prone Personality scale. In this study, the Cancer-prone Personality scale at the present time correlated .59 with the global scale on the CTI. Thus, the change exhibited on the Cancer-prone Personality very likely also occurred on the CTI. Also, it is not known whether exceptional survivors of cancer changed in their Categorical Thinking from before diagnosis to the present time. These questions can not be answered with this data. They are worth pursuing in a future, prospective study.

The Defensiveness scale was used as an alternative method for assessing current personality. It was hypothesized that the exceptional cancer survivors would be less defensive than the other survivors. If group differences were found on the defensiveness scale, it would be important to partial defensiveness scores out of

the variables of interest. However, the groups did not differ on this scale. It can be concluded from the scores on the CTI and defensive scales that no group excelled on current adjustment and that survivorship was not associated with a currently superior coping style, but is associated with improvment of a poor coping style.

Cancer-Prone and Heart Disease-Prone Personality Scales

The Cancer-prone Personality scale, unlike the Heart Disease-prone scale significantly discriminated between the cancer and the heart disease survivors. It may be that the Heart Disease-prone personality scale was not a good measure of type A personality. Instead, it could be a measure of general adaptivity, in that being energetic, ambitious, challenged, and assertive may be related to living an active life and functioning well in society. The fact that all groups improved on this measure from before diagnosis to the present time may be a reflection of both heart and cancer survivor's attitude of "trying to live life more fully" as reported in the open-ended questions. Also, because the heart-disease survivors were, on the average, 65 years of age, this group may not have a Type A personality because those that did died at a younger age.

The individual items that exhibited significantly greater improvement in the cancer than in the heart disease survivors seem to be at the core of the cancer

personality. Those items are sad/depressed, hopeless/helpless, withdrawn/defeated, feeling sorry for yourself, angry/annoyed, frustrated/blocked, anxious/worried, confused/conflicted, feeling inadequate/unworthy, and putting on a false front in order to be accepted by others. These qualities capture the essence of a person with widespread negative affect putting on a false external appearance in order to be accepted by others. This very specific description is what has been described in the literature as the "type-C" or Cancer-prone Personality (Temoshok, 1987; Greer and Watson, 1985; LeShan, 1977). However, inhibition of expression, which is one of the type-C characteristics was not more highly endorsed by the cancer survivors than the heart disease survivors. It could be that this is an overlapping characteristic of people with cancer and heart disease. Future studies are needed to determine if this is the case.

The fact that some negative attributes were not endorsed significantly more by the cancer groups than the heart disease group suggests that the results may not be attributed to a global negative reporting style or to a trait of neuroticism, both of which have been a popular criticism of self-report studies examining personality variables and health (Costa and McCrae, 1985; Watson and Pennebaker, 1989). For example, there were no group

differences on the subscale of "Anxiety" which is a core component of neuroticism. Also, if global negative reporting was the force behind the results in this study, it would be expected that "negativity" would be consistent across all items, scales, and ratings before diagnosis and at the present time. Clearly, this is not the case. For one, there was a significant decrease in cancer traits to a point where there were no group differences at the present time. Also, there were no group differences on many current adjustment scales, and the cancer survivors obtained significantly higher scores on the Coping with Illness scale than the heart disease survivors.

Limitations of this Study

To begin with, this study was mainly exploratory and as such, many empirical tests were conducted. The quantity of tests leaves open the possibility that some of the relationships are significant by chance. Thus, the empirical findings are not definitive and replication is warranted.

Next, a word is in order about the validity of retrospective recall. First, it should be considered that conducting a prospective study with subjects who do not have cancer at the time of initial testing would require resources and a time-frame that was impractical under the circumstances. Second, in the research reviewed by

Temoshok and Heller (1984), the results from studies that used retrospective recall were similar to the results from prospective studies, thereby suggesting that the procedure is reasonably valid. Also, the main hypothesis that was tested is complex and counter-intuitive. It was hypothesized that those that had the most exceptional survivals were not exceptional fighters before their diagnosis as one might expect, but rather they were in a very poor psychological state before diagnosis. It is not likely that false positive results would be obtained because of subjects' expectancies.

Reporting biases may have occurred due to exposure to the media's presentations of the Cancer-prone Personality. However, the three groups did not differ on their beliefs about the influence of psychological factors on etiology and on recovery from a physical illness. Nonetheless, it seems reasonable that some of the cancer survivors were influenced by media presentations of a Cancer-prone Personality. Also, many of the cancer survivors engaged in psychotherapy to cope with their disease. Often times psychotherapy highlights negative aspects in ones current life and in one's childhood.

Further limitations of this study are due to its limited and biased sample. Ideally a sample including people who are coping less well with cancer and heart disease would be included in the study. Recruiting

participants in a hospital setting would be most desirable because of the mix of patients and large pool of available participants. However, the cooperation of large hospital facility can be difficult to secure. Also, people who are physically ill may not have the energy or may be too emotionally fragile to complete a lengthy questionnaire or to be interviewed about their emotions. In spite of these obstacles, further investigation with a larger and more representative sample would be worthwhile because many questions remain unanswered. Are the observed relationships in this study only associated with betterthan-average survival? Is there a sample of cancer patients that are worse off (more cancer-prone) before diagnosis compared to most cancer patients? Can this sample be detected early on? If a sample is detected, after a short period of time, can we predict who will have a better-than-average survival? Can psychological interventions contribute to a better-than-average survival? Are psychological interventions more effective for people who were worse off before diagnosis?

Finally, a validated measure of the construct of a cancer-prone personality is needed. One criticism of this study may be that the findings are not based on a validated measure. However, there is no validated measure of Cancer-prone Personality. The scale used in this study discriminated between cancer and heart disease, and the

reliability of the measure was high both before diagnosis and at the present time. These findings need to be replicated with other samples in order to establish a Valid and reliable Cancer-prone Personality scale.

Misinterpretations of this Study

A common concern in investigating psychological factors and disease is that if patients are led to believe that their emotions or attitudes influenced their cancer, it will make them feel guilty for having caused their illness. People have to be taught that it is inappropriate to blame people (including themselves) for feeling despair in their lives. Few would blame someone for having a particular susceptible physiology for developing cancer. It is important to identify risk factors that can aid in the prevention of cancer, and to determine whether or not, at least in some cases, psychological interventions may be a useful adjunct to medical treatment. For the exceptional survivors in this study, medical treatment was not considered sufficient for treating their cancer. However, many of them are currently disease free. Some of them testify that psychological interventions helped them resolve longstanding conflicts and thereby saved their lives. We certainly do not know enough about the relationship between mental processes and physical health to rule out

this possibility. It is in the spirit of compassion for those struggling against disease that this study was conducted.

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Chapter 5

CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The findings in this study suggest that a specific pattern of psychological factors may be important in the etiology of and recovery from cancer in, at least, some cases. The major findings can be summarized as the following:

1) Frequency and intensity of stressful life events occurring two years preceding diagnosis is more strongly associated with the occurrences of cancer than with the occurrences of heart disease in a sample of older patients where a majority of diagnoses were angina. Frequency and intensity of stressful life events occurring two years preceding diagnosis was associated with scores on the Cancer-prone Personality scale rated for the time before diagnosis. The events that were endorsed significantly more by the cancer groups than the heart disease group (divorce or separation, change in living situation, and rejection by a loved one) all support the hypothesis that stress due to loss or failure contributes to activating or producing a cancer-prone disposition.

2) Perceptions of low parental acceptance, low idealization of parents, and low independence encouragement are significantlt associated with Cancerprone Personality scores rated for the time before diagnosis. As LeShan (1977) hypothesized, unresolved

negative parental relationships is a contributing factor for the development of the Cancer-prone Personality.

3) The successful coping strategies for the cancer groups were reported to consist of taking an active role in treatment, seeking social support, engaging in alternative psychological treatments, and being assertive with respect to fulfilling of one's needs. These strategies are opposite of the Cancer-prone Personality style. The heart disease survivors used coping strategies of accepting fate, not burdening others with their concerns, relying on their doctors, and improving their diet. Accepting fate and not burdening others are strategies opposite to those characteristic of the of a heart disease-prone personality style.

4) It can be concluded from the scores on the CTI and a defensive scale that no group excelled on current adjustment and that survivorship is not necessarily related to a superior coping style, but may be associated with improving a poor coping style. However, the exceptional cancer survivors were significantly less categorical in their thinking at the present time than the other two groups of survivors. Their experience of "beating the odds" may have influenced them to become more open-minded.

5) It can be concluded that the measure used in this study for the Cancer-prone Personality is a reliable

measure and discriminates between groups of cancer and heart disease survivors.

6) The cancer survivors obtained higher scores on the Cancer-prone Personality scale than the heart disease group before diagnosis, and then reported a shift in personality toward lower scores on the scale at the present time. This pattern was also exhibited by the responses on individual items that fit the type-C constellation (Temoshok, 1987; Greer and Watson, 1985; LeShan, 1977) but not on other negative items such as harassed/pressured, tense/jittery, emotionally numb, and controlled/dominated. The two subscales of Depression and Anger/frustration exhibited the same pattern as the global scale and seem to be important components of the Cancerprone Personality.

7) The exceptional cancer survivors showed a nonsignificant tendency to obtain even higher scores on the Cancer-prone Personality scale before diagnosis than the non-exceptional cancer group and showed an even greater dramatic decrease in the cancer-prone characteristics at the present time than the other groups.

8) The very exceptional cancer survivors that survived despite less than 1% expectancy for survival, obtained higher scores on the Cancer-prone Personality before diagnosis and the lowest ratings at the present time than all the other groups of survivors.

Future Research

A follow-up study of the participants in this study would be of particular interest in order to determine whether the change in personality reported in this study remains stable over time. It will also be of interest to determine whether psychological factors in this study are related to the recurrence of disease and length of survival.

A prospective study would be of interest to examine what variables predict progression of cancer and length of survival. A large sample of newly diagnosed cancer patients (one to three months after diagnosis) could be given the Emotions and Attitudes Inventory and asked to report current coping strategies and coping style. The participants could be followed up at regular intervals to test whether certain variables, including a change in personality, predicts length of survival. If the scale for Cancer-prone Personality used in this study predict progression and survival time, it would help establish the scale as a meaningful and valid measure of cancerproneness.

Finally, a series of intervention studies could be conducted to answer the questions of what leads to prolonged survival and for whom are psychological interventions most effective. Clearly, many more studies

need to be conducted to understand the relationships between psychological factors and cancer development, progression, and survival.

APPENDIX A

QUESTIONNAIRES

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Dear Volunteer,

Before you get started there are a few things I would like to say to you.

First, I want to remind you that your responses to this questionnaire will be kept completely confidential. That is, your identity will not be directly associated with this questionnaire in any way. As you probably noticed, there is a code made up of letters and numbers on the front of this packet. This is a system I devised to keep track of questionnaires without divulging your identity.

Second, in order to make use of any information that you give us, I need your authorization on the <u>Informed Consent Form</u>. This is for your protection as a participant in this study. You will notice that there are two copies of this form. One is for you to keep and <u>the other must be sent back to me</u>. It would be a shame if you spent your time and effort to complete the questionnaires but I could not use them because I did not receive your signed Informed Consent Form.

Third, people with a variety of different experiences will be filling out this questionnaire, so some of these questions will apply to you and some will not. Because each person's experience is unique, there are no "right" answers, or "good" responses. Instead, I am interested in what is true for you.

I suggest finding a quiet place where you can think without being distracted. Make yourself comfortable and feel free to take a break.

... And remember, please, try to answer each item <u>as honestly as you can</u>! However, if there are any questions that you find objectionable you need not answer them.

Thank-you, once again for your help.

Project Coordinator

RESEARCH INFORMED CONSENT FORM

I understand that I will be asked to complete several questionnaires in a booklet about how I was before and after the diagnosis of my illness.

I understand that no evident risks are associated with participation in this study.

I understand that my participation in this study is entirely voluntary and I may withdraw from the study at any time. If I decide not to participate in this study, I will have no penalty or loss of benefits to which I am otherwise entitled, and I may withdraw my participation without prejudice to my medical treatment or care at any facility I may be involved with.

My identity and participation in this project will be kept confidential to the extent permitted by law. My questionnaires have been specially coded so that my identity cannot be revealed to anyone who does not know the special code. The only place my name will appear is on this page which will be detached from this booklet.

I further understand that should I have any questions relative to my participation in this project, I may call: Lori Katz, M.S. project coordinator at (413) 585-0035, or Seymour Epstein, Ph.D. in the afternoons at (413) 545-0887.

I,______ willingly agree to participate in this study.

Signature _____ Date: _____

Telephone Number_____

In order to speak to your physician about your case I need you to sign the following: "My physician may release medical information about the treatment and course of my illness to the investigators of this project."

Signature Date:

Physician's name_____Telephone Number_____ Address:_____

General Information Form

Remember, you need not answer any questions that you find objectionable.
1. What is your gender (sex)?MaleFemale
2. What is your birth date?//
3. What is the diagnosis of your illness?
4. When were you first diagnosed with this illness? (approximately)/_/
 5. Have any of the following members of your biological family had your illness? a. Mother b. Father c. Grandparent d. Other biological relative e. No biological relative to my knowledge
6. What is your highest level of education? (Check one)
a. Did not graduate high school b. High school graduate
c. Some college, or vocational training beyond High school
d. College graduate e. Graduate school, or professional training beyond college
 7. How many cigarettes do you smoke, on the average, per day? (check one) a. None b. 1-5 c. 6-10 d. 11-20 e. More than 20
 8. How many alcoholic drinks do you consume, on the average, per week? (Check one) a. None b. One or two c. Three or four d. Five or more
9. What is your current marital status? (Check one) a. Single (never married) b. Married c. Widowed, divorced, or separated
10. Are you not married but currently in a romantic relationship?YesNo
How satisfied are you with your romantic situation (or lack thereof)? (Circle one number)
Not at all Slightly Somewhat Considerably Very much
11. How satisfied are you with your total emotional support from those close to you? (Circle one)
Not at all Slightly Somewhat Considerably Very much

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- 19. What was your employment status <u>before</u> the diagnosis of your illness? (Check all that apply.) ______ a. Working: (circle one) full time/part time
 - ____ c. Unemployed
 - ____ d. Retired
 - _____e. Keeping house
 - ____ f. Attending school
 - _____g. Something else (please specify)

How satisfied were you with your employment shortly before your diagnosis? (Circle one number) -1- -2- -3- -3- -5-

- Not at all Slightly Somewhat Considerably Very much
- 20. How important was a religious or spiritual orientation to you <u>shortly before</u> (about 3-6 months before) the diagnosis of your illness in helping you deal with your problems? (Check one)
 - a. Not at all important
 - b. A little important
 - _____ c. Moderately important
 - _____ d. Very important
 - _____e. Extremely important

ANSWER ITEMS 21-31 FOR THE ATTITUDES AND BELIEFS ABOUT YOUR ILLNESS.

- 21. Do you believe that a person's emotions or attitudes can influence whether a person will get a serious illness? (Check one)
 - ____ a. No
 - ____ b. Yes
 - ____ c. No opinion
- 22. Do you believe that a person's emotions or attitudes can influence a person's recovery from a serious illness? (Check one)
 - ____ a. No
 - ____ b. Yes
 - ____ c. No opinion
- 23. Which of the following best describes (or described) you? (Check one)
 - _____a. You rely completely on your doctors, with the assumption that doctors know best
 - b. You mainly rely on doctors, but you take charge of your own treatment to some extent
 - ____ c. You mainly take charge of your own treatment
- 24. To what extent did someone or does someone (physician, spouse, friend, etc.) have great faith that you could recover from your illness and convinced you to feel the same? (Check one)
 - _____a. not at all
 - ____ b. to some extent
 - ____ c. to a moderate extent
 - _____ d. to a considerable extent
 - _____ e. to a very great extent
- 25. List the types of treatment you are now receiving or have received for your illness (e.g., surgery, radiation, special diet, medication, etc...).

- 12. What is your current employment status? (Check all items that apply.)
 - a. Working: (circle one) full time/part time
 - c. Unemployed
 - ____ d. Retired
 - e. Keeping house
 - £ Attending school
 - ____ g. Something else (please specify)

How satisfied are you with your current employment situation? (Circle one number)

1	12		·	5	
Not at all	Slightly	Somewhat	Considerably	Very much	

- 13. How important is a religious or spiritual orientation to you (e.g., attending church, believing in a personal God or a higher power, praying, or observing religious customs) in helping you deal with your problems ? (Check one)
 - _____ a. Not at all important
 - ____ b. A little important
 - _____ c. Moderately important d. Very important

 - _____ e. Extremely important

ANSWER ITEMS 14-19 FOR HOW YOU WERE SHORTLY BEFORE (about 3-6 months before) THE DIAGNOSIS OF YOUR ILLNESS.

14. How many cigarettes did you smoke, on the average, per day, before the diagnosis of your illness?

- · ·

- ____ a. None
- ____ b. 1-5
- ____ c. 6-10
- ____ d. 11-20
- c. More than 20
- 15. How many alcoholic drinks did you consume, on the average, per week, before the diagnosis of your illness? (Check one)
 - ____ a. None
 - b. One or two
 - c. Three or four
 - d. Five or more

16. What was your marital status before the diagnosis of your illness? (Check one)

- _____ a. Single (never married)
- ____ b. Married
 - c. Widowed, divorced, or separated

17. Were you not married but in a romantic relationship at this time? Yes No

How satisfied were you with your romantic situation before your diagnosis? (Circle one number)

-1	2	-3	4	5	
Not at all	Slightly	Somewhat	Considerably	Very much	

18. How satisfied were you with your total emotional support before your diagnosis? (Circle one number)

1	2	3	4)
Not at all	Slightly	Somewhat	Considerably	Very much

- 26. How much confidence do you have (or did you have if you are fully recovered) in the overall treatment you are receiving (or have received), including what you yourself are doing (or did) to combat your illness? (Check one)
 - a. Very little confidence
 - c. Some confidence
 - _____ d. A great deal of confidence
- 27. To what extent do you use (or have you used) each of the following in dealing with your illness? RATE EACH ITEM from 1 to 5, using the following scale:

				4	5	
	Not at all	Slightly	Somewhat	Considerably	Very much	
	a. Impro- b. Vigor c. Medi d. Visuz e. Psych f. Suppo g. Other	oving your d rous exercise tation or rela lization pro- totherapy or ort groups r (write in)	iet (eg., reducin axation exercises cedures counseling	g fats and sugars, s	or taking vitamins)	
28.	To what extent illness? Try having your i RATE EACH	do each of a to answer wi ilness (about I ITEM from	the following ite hat your attitude 1-3 months AI n 1 to 5, using	ems describe your was like after you TER you were d the following scale	attitude toward dealing you got over the initial she iagnosed).	with your tock of
				-		
	1	2	-3	4	5	
	Not at all	Slightly	Somewhat	Considerably	Very much	
	a. <u>You</u>	accepted wh	at fate had to c	offer, thinking the	re was nothing you could	really do.
	b. <u>You</u> fightin	were determ g if you cou	<u>ined</u> to fight th ld not beat it.	e illness in every	way you could and to go	down
	c. <u>You (</u>	tried not to	burden others v	with your concerns	, pain, or difficulties.	
	d. <u>You</u> TV, w	tried to distr ent to the n	ract yourself (endowies, or other	.g., became more wise kept busy) to	active, read more, watch keep your mind off you	ed more ir illness.
	e. <u>You</u>	felt pretty ho	opeless as the c	hances for your s	urvival seemed very low	to you.
	f. <u>You t</u> You v	ried to learn iewed your i	from the expe illness as having	rience about how a lesson to teach	to improve yourself and you about how to live.	your life.
	g. <u>You (</u>	ried to reac	<u>h out</u> to others	and share your fo	eelings and concerns.	

- h. You tried to seek out as much information about your condition as possible.
- i. You withdrew from others and wanted to be alone with your thoughts and feelings.
- j. You asserted yourself. You did not hesitate to speak up and make your needs known.
- k. You tried to live your life more fully. You realized life is too short to wait to do what you want to and you began doing more of what you really wanted.

- 29. In what way, if at all, has your illness changed your mood and your present attitude toward life? (Check the <u>ONE ITEM</u> that best describes how you changed.)
 - a. Not in any basic way. You were a happy, optimistic person before, and you are still that way.
 - b. Not in any basic way. You were a pessimistic, sad person before, and you are still that way.
 - c. Not in any basic way. You were neither particularly pessimistic nor optimistic before and you are still that way.
 - d. <u>It had a negative effect on you</u>. If you originally had a positive, optimistic outlook on life it changed you to having a more negative attitude. If you originally had a negative attitude, it made you even more negative.
 - c. It had a positive effect on you. It shocked you into reevaluating how you had been living your life, and led you to make important improvements in your attitudes, personality, relationships with others, or overall outlook on life.

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30. Please, take this opportunity to write down any further thoughts about how your illness has impacted your life. Is there something that you would like to share about your experience that could be helpful to others who may have to face a similar illness?

31. Please, take this opportunity to write down any thoughts you have on what could have brought on your illness or influenced its course of development for better or worse.

Significant Events During the 2 YEAR Period Preceding the Diagnosis of Your Illness

Did any of the following events occur during the period from 2 years before your illness to the time of your diagnosis? If so, indicate, by your ratings, how much distress you experienced, that is, how intensely it affected you. If more than one event occurred among the several events mentioned in some items, rate the one event that affected you most strongly.

Use the scale at the top of the page to rate how much each of the following events that occurred during the 2 year period before diagnosis distressed you.

- 1. Death or serious illness of loved one(s)
- 2. Death or serious illness of a pet to whom you were deeply attached
- 3. Divorce or separation from a spouse, or break up with a lover
- 4. Marital problems or unhappy relationship with a lover 5. Family conflict or disappointment not covered in items 3 or 4
- 6. Conflict or disappointment with a friend, neighbor, or co-worker
- 7. Distressing changes in your employment (e.g., not being able to find employment, being laid off or demoted, relocated, unhappy retirement, etc.)
- 8. Financial problems
- 9. An accident, injury, or illness that required a significant change in life-style
- 10. Loss of independence, or inability to be as independent as you would like
- 11. Change in living arrangement (moving, change in number of people living with you, etc.)
- 12. Rejection by a loved one or by someone you admire, or being left out of others' social plans
- 13. Failure or not being able do as well as you wished in an important examination, or in some other activity that was important to you
- 14. Legal problems, such as a law suit or being accused of a crime or of improper tax returns
- 15. Problems associated with pregnancy for you or your partner (e.g., having an unwanted pregnancy or an abortion, being unable to conceive)
- 16. Pressured by a demanding schedule
- 17. Family responsibilities that interfered with your life
- 18. Victim of an assault, rape, or robbery
- 19. Victim of a natural or human-made disaster (e.g., a hurricane, or a fire)
- 20. Loss of an important activity or responsibility that had made you feel needed and important
- 21. Other (Write in and rate its affect on you)

------2---3----NOT AT ALL SLIGHTLY SOMEWHAT CONSIDERABLY VERY MUCH

Emotions and Attitudes Before the Diagnosis of your Illness

Please rate what you were like SHORTLY BEFORE (about 3-6 months before) the diagnosis of your illness. Jot down a few comments to the questions below to help you recall what was going on in your life at the time.

What were you doing for work?
What was your living situation like?
What was going on with your family?
What were your friendships like?
What other events affected you emotionally at this time?
Were you achieving your inner goals at this time?

Use the scale at the top of the page to rate, overall, how good a period this was for you. Use the same scale to rate, overall, how distressing a period this was for you.

A. Using the scale at the top of this page, write the number in the space to the left of each group of feelings that best describes how much you had those kinds of feelings SHORTLY BEFORE the diagnosis of your illness. Do not leave any blank !

- 1. Happy, joyous, or cheerful
- 2. Sad, blue, or depressed
- 3. Energetic, enthusiastic, or eager
- 4. Angry, annoyed, or irritated
- 5. Feeling sorry for yourself
- _ 6. Helpless, or hopeless
- 7. Strong, powerful, or in control of your life
- 8. Withdrawn, resigned, or defeated
- 9. Harassed, under pressure, over-extended
- 10. Frustrated, blocked, or trapped
- 11. Pleased with self, self-accepting, liking who you are
- 12. Anxious, worried, or insecure
- 13. Challenged, determined, or having a fighting spirit
- 14. Tense. jittery, or on edge
- 15. Serene, calm, or content
- 16. Emotionally numb, unreactive, or no feeling
- 17. Controlled, or dominated
- 18. Confused, conflicted, or torn in different directions
- 19. Guilty, regretful, or ashamed
- 20. Ambitious, competitive, or driven
- 21. Feeling inadequate, unworthy, or like a failure
- 22. Feeling like you were putting on a "false front" in order to be accepted by others
- 23. Compassionate, sympathetic, or caring
- 24. Feeling you had all the emotional support and understanding you wanted
- 25. Feeling lonely, unwanted, or unneeded
- 26. Feeling at peace with yourself and in harmony with the world

B. Use the above scale to rate how true each of the following statements is about your personality and attitudes SHORTLY BEFORE (about 3-6 months before) the diagnosis of your illness.

27. Meaningful life. You viewed your life as meaningful. You felt you had a purpose in living.

28. <u>Despairing</u>. You felt that life was passing you by, that you were not getting out of it what you wanted and you would never be able to feel fulfilled and genuinely happy in your life.

29. <u>Kept emotions to yourself</u>. You were the kind of person who kept your emotions to yourself and avoided burdening others with your troubles.

30. <u>Self-sacrificing for the good of others</u>. You were the kind of person who tried to please others even if it meant sacrificing your own desires. You did more for others than they did for you.

_____31. <u>Competitive</u>. You were a very competitive person. Winning brought you great pleasure and defeat really hurt.

- 32. <u>Emotionally intense and expressive</u>. You were the kind of person who has strong emotions and freely expresses them.
- _____33. Emotionally intense and unexpressive. You were the kind of person who has strong emotions but keeps them bottled-up inside.

34. Assertive. You were the kind of person who makes your needs known, and does not hesitate to speak your mind.

- ____35. <u>An accepter</u>. You were the kind of person who accepts things as they are and tries not to rock the boat.
- _____36. <u>A fighter</u>. You were the kind of person who approaches problems as challenges to be overcome and who does not accept defeat or resign yourself.
- 37. <u>An independent person</u>. You were the kind of person who prefers to solve problems by yourself and who does not easily accept help from others.
- 38. <u>An open-minded person</u>. You were the kind of person who reacts to serious problems by opening yourself up to what others have to offer.
- 39. <u>Distracted</u>. You were the kind of person who tries to avoid thinking about unpleasant experiences by distracting yourself with movies, keeping busy, etc.
- 40. <u>An information seeker</u>. You were the kind of person who tries to get all the information you can about whatever might happen to you.
- 41. Emotionally stable. You were the kind of person who remains on an even keel and is not carried away by your feelings.
Emotions and Attitudes at the Present Time

Please rate the following items for how you generally are at the PRESENT TIME. First jot down a few comments to the questions below to remind yourself about what is going on in your life.

What are you doing for work?
What is your living situation like?
What is going on with your family?
What are your friendships like?
What other events are affecting you emotionally at this time?
Are you achieving your inner goals at this time?

_____ Use the scale at the top of this page to rate, overall, how good a period this is for you. ______ Use the same scale to rate, overall, how distressing a period this is for you.

A. Using the scale at the top of this page, write the number in the space to the left of each group of feelings that best describes how much you have those kinds of feelings at the present time. Do not leave any blank !

- ____ 1. Happy, joyous, or cheerful
- 2. Sad, blue, or depressed
- 3. Energetic, enthusiastic, or eager
- _____ 4. Angry, annoyed, or irritated
- 5. Feeling sorry for yourself
- 6. Helpless, or hopeless
- 7. Strong, powerful, or in control of your life
- 8. Withdrawn, resigned, or defeated
- 9. Harassed, under pressure, over-extended
- 10. Frustrated, blocked, or trapped
- 11. Pleased with self, self-accepting, liking who you are
- 12. Anxious, worried, or insecure
- 13. Challenged, determined, or having a fighting spirit
- 14. Tense, jittery, or on edge
- 15. Serene, calm, or content
- 16. Emotionally numb, unreactive, or no feeling
- 17. Controlled, dominated, or feeling you have to please others
- 18. Confused, conflicted, or torn in different directions
- 19. Guilty, regretful, or ashamed
- ____ 20. Ambitious, competitive, or driven
- _____ 21. Feeling inadequate, unworthy, or like a failure
- 22. Feeling like you put on a "false front" in order to be accepted by others
- 23. Compassionate, sympathetic, or caring
- 24. Feeling you have all the emotional support and understanding you want
- 25. Feeling lonely, unwanted, or unneeded
- 26. Feeling at peace with yourself and in harmony with the world

NOT AT ALL SLIGHTLY SOMEWHAT CONSIDERABLY VERY MUCH

B. Use the above scale to rate how true each of the following statements is about your personality and attitudes at the PRESENT TIME.

27. Meaningful life. You view your life as meaningful. You feel you have a purpose in living.

28. <u>Despairing</u>. You feel that life is passing you by, that you aren't getting out of it what you want and you will never be able to feel fulfilled and genuinely happy in your life.

29. Keep emotions to yourself. You are the kind of person who keeps your emotions to yourself and avoids burdening others with your troubles.

30. <u>Self-sacrificing for the good of others</u>. You are the kind of person who tries to please others even if it means sacrificing your own desires. You do more for others than they do for you.

31. <u>Competitive</u>. You are a very competitive person. Winning brings you great pleasure and defeat really hurts.

32. <u>Emotionally intense and expressive</u>. You are the kind of person who has strong emotions and freely expresses them.

4. E.

____33. <u>Emotionally intense and unexpressive</u>. You are the kind of person who has strong emotions but keeps them bottled-up inside.

34. <u>Assertive</u>. You are the kind of person who makes your needs known, and does not hesitate to speak your mind.

_____35. <u>An accepter</u>. You are the kind of person who accepts things as they are and tries not to rock the boat.

_____36. <u>A fighter</u>. You are the kind of person who approaches problems as challenges to be overcome and who does not accept defeat or resign yourself.

_____37. <u>An independent person</u>. You are the kind of person who prefers to solve problems by yourself and who does not easily accept help from others.

38. An open-minded person. You are the kind of person who reacts to serious problems by opening yourself up to what others have to offer.

_____39. <u>Distracted</u>. You are the kind of person who tries to avoid thinking about unpleasant experiences by distracting yourself with movies, keeping busy, etc.

40. <u>An information seeker</u>. You are the kind of person who tries to get all the information you can about whatever might happen to you.

_ 41. <u>Emotionally stable</u>. You are the kind of person who remains on an even keel and is not carried away by your feelings.

MOTHER, FATHER, PEER SCALE

Use the scale below to indicate how much each statement describes your childhood relationship with your mother, father, or other children. Enter your rating in the space to left of each statement.

2	3	4	5
Somewhat	Uncertain	Somewhat	Strongly
Disagree with	About	Agree with	Agree with
	2	2 3	2 3 4
	Somewhat	Somewhat Uncertain	Somewhat Uncertain Somewhat
	Disagree with	Disagree with About	Disagree with About Agree with
	Statement	Statement Statement	Statement Statement

Complete the following sentence with each item:

WHEN I WAS A CHILD, MY MOTHER (or mother substitute).....

- 1) encouraged me to make my own decisions.
- 2) helped me learn to be independent.
- 3) felt she had to fight my battles for me when I had a disagreement with a teacher or a friend.
- 4) was close to a perfect parent.
- 5) was overprotective of me.
- 6) encouraged me to do things for myself

- 7) encouraged me to try things my way.
 8) had not a single fault that I can think of.
 9) did not let me do things that other kids my age were allowed to do.
- 10) sometimes disapproved of specific things I did, but never gave me the impression that she disliked me as a person.
- 11) enjoyed being with me.
- 12) was an ideal person in every way.
- 13) was someone I found very difficult to please.
- 14) usually supported me when I wanted to do new and exciting things.
- 15) worried too much that I would hurt myself or get sick.
- 16) was never angry with me.
- 17) was often rude to me.
- 18) rarely did things with me.
- 19) didn't like to have me around the house.
- 20) and I never disagreed.
- 21) would often do things for me that I could do for myself.
- 22) let me handle my own money.
- 23) could always be depended upon when I really needed her help and trust.
- 24) gave me the best upbringing anyone could ever have.25) did not want me to grow up.
- 26) tried to make me feel better when I was unhappy.
- 27) encouraged me to express my own opinion.
- 28) never disappointed me.
- 29) made me feel that I was a burden to her.
- 30) gave me the feeling that she liked me as I was; she didn't feel she had to make me over into someone else.

WHEN I WAS A CHILD, MY FATHER (or father substitute)......

- 31) encouraged me to make my own decisions.
- 32) helped me learn to be independent.
- 33) felt he had to fight my battles for me when I had a disagreement with a teacher or a triend.

4	2	د	4	5
Strongly	Somewhat	Uncertain	Somewhat	Strongly
Disagree with	Disagree with	About	Agree with	Agree with
Statement	Statement	Statement	Statement	Statement

WHEN I WAS A CHILD, MY FATHER (or father substitute).....

- 34) was close to a perfect parent.
- 35) was overprotective of me.
- 36) encouraged me to do things for myself.

- 37) encouraged me to try things my way.
 38) had not a single fault that I can think of.
 39) did not let me do things that other kids my age were allowed to do.
- 40) sometimes disapproved of specific things I did, but never gave me the impression that he disliked me as a person.

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- 41) enjoyed being with me.
- 42) was an ideal person in every way.
- 43) was someone I found very difficult to please.
- 44) usually supported me when I wanted to do new and exciting things.
- 45) worried too much that I would hurt myself or get sick.
- 46) was never angry with me.
- 47) was often rude to me.
- 48) rarely did things with me.
- 49) didn't like to have me around the house.
- 50) and I never disagreed.
- 51) would often do things for me that I could do for myself.
- 52) let me handle my own money.
- 53) could always be depended upon when I really needed his help and trust.
- 54) gave me the best upbringing anyone could ever have.
- 55) did not want me to grow up.
- 56) tried to make me feel better when I was unhappy.
- 57) encouraged me to express my own opinion.
- 58) never disappointed me.
- 59) made me feel that I was a burden to him.
- 60) gave me the feeling that he liked me as I was; he didn't feel he had to make me over into someone else.

WHEN I WAS A CHILD, OTHER CHILDREN.....

- 61) liked to play with me.
- 62) were always criticizing me.
- 63) often shared things with me.
- 64) often picked on me and teased me.
- 65) were usually friendly with me.
- 66) would usually stick up for me.
- 67) liked to ask me to go along with them.
- 68) wouldn't listen when I tried to say something.
- 69) were often unfair to me.
- 70) would often try to hurt my feelings.

The following statements are about feelings, beliefs, and behaviors. Check the first box if the statement is definitely false, the second box if it is mainly false, the fourth box if it is mainly true, and the fifth box if it is definitely true. Use the third box only if you cannot decide if the item is mainly true or false.

This questionnaire contains some "silly" items, such as, "I never saw anyone with blue eyes." The purpose of these items is to check whether people have been careless or lost their place. Please answer these items seriously. The questionnaire also contains items to check whether people have made themselves look too good. If you select the best answers instead of answering honestly, your test will be found to be invalid. Do not fuss over any one item, as no single item is very important. The best way to take the test is to respond honestly and rapidly.

	Definitely fal	Mostly false.	Undecided or neither false	Mostly Inue.	Definitely Inu
1. I believe almost all people are basically good at heart.					
2. I sometimes think that if I want something to happen too badly, this will keep it from happening.					
3. When I have a lot of work to do by a deadline. I waste a lot of time worrying about it instead of just doing it.					
4. I believe some people have the ability to read other people's thoughts.					
5. When something good happens to me, I believe it is likely to be balanced by something bad.					
 If I do very well on a test, I realize it is only a single test, and it doesn't make me feel generally competent. 				□.	, C
 I believe there are people who can project their thoughts into other people's minds. 					
8. I tend to classify people as either for me or against me.					
When doing unpleasant chores. I make the best of it by thinking pleasant or interesting thoughts.					
10. I feel that if people treat you badly, you should treat them the same way.					
11. When 1 learn that someone I love loves me, it makes me feel like a wonderful person and that I can accomplish whatever I want to.					
12. If something good happens to me. I tend to assume it was luck.					
13. When I have a very frightening experience, the thought of it is likely to come back to mind several times.					
14. I don't let little things bother me.					
15. Astrology will never explain anything.					

			lo l		
16. I look at challenges not as something to fear, but as opportunities to test myself	Definitely false	Mosily false	Undecided or neither false nor	Atustly truc	Definitely true
and learn					
17. I think everyone should love their parents.					
18. I take failure very hard.					
19: What others think of me bothers me not in the least.					
20. I believe if I think terrible thoughts about someone, it can affect that person's well-being.					
21. I spend much more time mentally rehearsing my failures than remembering my successes.					
22. I sometimes get annoyed by people who express unreasonable views.					
23. I believe that it is almost always better to come to firm decisions than to compromise.					. <u> </u>
24. If someone I know were accepted at an important job interview, I would think that he or she would always be able to get a good job.					
25. I am very sensitive to rejection.					
26. I've learned not to hope too hard, because what I hope for usually doesn't happen.					
27. Most birds can run faster than they can fly.					
28. I believe the moon or the stars can affect people's thinking.					
29. If I said something foolish when I spoke up in a group, I would chalk it up to experience and not worry about it.					
30. When faced with a large amount of work to complete, I tell myself I can never get it done, and feel like giving up.					
31. When something bad happens to me, I feel that more bad things are likely to follow.					
32. The slightest indication of disapproval gets me upset.					
33. I never learned to read.					
34. It is so distressing for me to try hard and fail, that I rarely make an all-out effort to to have best.					

			Juic
	Definitely false	Afosily false	Undecided or neither false nor Mostly true Definitely true
35. I believe that most people are only interested in themselves.			
36. I worry a great deal about what other people think of me.			
37. When I realize I have made a mistake, I usually take immediate action to correct it.			
38. If I do poorly on an important test, I feel like a total failure and that I won't go far in life.			
39. I believe if I wish hard enough for something, this can make it happen.			
40. I believe in trusting my first impressions.			
41. When 1 am faced with a difficult task, I think encouraging thoughts that help me do my best.			
42. I believe that people who wear glasses usually can see better without their glasses.			
43. I believe that some people can make me aware of them just by thinking about me.			
44. My mind often drifts to unpleasant events from the past.			
45. 1 am the kind of person who takes action rather than just thinks or complains about a situation.			
46. There are two possible answers to every question, a right one and a wrong one.			
47. I believe in always looking at the positive side of things.			
48. If someone I know does well on an important test, I feel that he or she is a total success and will go very far in life.			
49. I don't worry about things I can do nothing about.			
50. I have washed my hands before eating at least once in the past month.			
51. If I have something unpleasant to do, I try to make the best of it by thinking in positive terms.			
52. If I do well on an important test, I feel like a total success and that I will go far in life.			
53. I believe in ghosts.			

			Inic	
	Definitely false	Mostly false	Undecided or neither false nor Mostly true	Definitely true
54. I feel like a total failure if I don't achieve the goals I set for myself.				
55. There are two kinds of people in this world, winners and losers.				
56. If I were accepted at an important job interview, I would feel very good and think that I would always be able to get a good job.				
57. Unless I do a perfect job. I feel like a failure.				
58. When I take an examination, I usually think I did much worse than I actually did.				
59. When something good happens to me, I feel that more good things are likely to follow.				
60. I am tolerant of my mistakes as I feel they are a necessary part of learning.				
61. When unpleasant things happen to me, I don't give them a second thought.				. 🗌
62. Most people regard me as a tolerant and forgiving person.				-
63. If I were rejected at an important job interview, I would feel very low and think that I would never be able to get a good job.				
64. When I do poorly at something, so long as I know I have done my best, it does not bother me.				
65. I tend to take things personally.				
66. I have at least one good-luck charm.				
67. I have never seen anyone with blue eyes.				
68. I don't feel that I have to perform exceptionally well in order to consider myself a worthwhile person.				
69. People should try to look happy, no matter how they feel.				-
70. I avoid challenges because 11 hurts 100 much when I fail.				
71. The only person I completely trust is myself.				
72. It doesn't bother me when people who know less than I act superior and give me advice.				

			r to		
	Definitely false	Atosily false	Undecided or neither false no	Mostly Inc	Definitely true
73. I am very sensitive to being made fun of.					
74. Although women sometimes wear pants, they do not wear them, on the average, as often as men.					
75. I have found that talking about successes that I am looking forward to can keep them from happening.					
76. Whenever good things happen to me, I have the feeling I deserved them.					
77. I think there are many wrong ways, but only one right way, to do almost anything.					
78. I spend a lot of time thinking about my mistakes even if there is nothing I can do about them.					
79. I like to succeed, but I don't take failure as a tragedy.					
80. So long as I know I have tried my best, it doesn't bother me at all if I don't do well.					
81. It is foolish to trust anyone completely, because if you do, you are bound to get hurt.					
82. When I have a lot of important things to take care of, I make a plan and stick to it.					
83. When someone I love has rejected me, it makes me feel inadequate and that I will never be able to accomplish anything.					
84. If you don't eat, you can die.					
85. I tend to dwell more on pleasant than unpleasant incidents from the past.					
86. I believe in good and bad omens.					
87. I am not bothered in the least when people insult me for no good reason.					
88. When someone I know is loved by a person they love. I feel that they are a wonderful person and can accomplish whatever they want to.					
89. I get so distressed when I notice that I am doing poorly in something that it makes me do worse.					
90. I try to accept people as they are without judging them.					
91. When unpleasant things happen to me, I don't let them prey on my mind.		Ċ			

NOT AT ALL SLIGHTLY SOMEWHAT CONSIDERABLY VERY MUCH

STATEMENTS ABOUT THE SELF

Using the above scale, please rate each of the following statements by placing a number 1-5 in the space to the left of each item. Please <u>do not leave any item blank</u>.

- 1. On occasion, I have tried to find a way to avoid unpleasant responsibilities.
- 2. There have been times when I have felt like getting even with someone for something they did to me.
- _____3. No matter what the pressure, no one could ever force me to hurt another human being.
- 4. There have been times when I intensely disliked someone.
- 5. There have been times when I have lied in order to get out of something.
- ____ 6. The thought of shoplifting has never crossed my mind.
- ____7. There have been occasions when I took advantage of someone.
- 8. There are times when I have "stretched the truth" and said things that aren't completely true.'-
- 9. I have never felt that I was punished unfairly.
- ____ 10. I sometimes gossip.
- 11. I sometimes feel irritated when someone asks me for a favor.
- 12. It hardly ever matters to me whether I win or lose a game.
- 13. I have felt jealous on occasion of the good fortune of others.
- 14. I have sometimes found it hard to admit I made a mistake.
- 15. I have almost never felt the urge to tell someone off.
- 16. I gladly accept criticism whenever it is deserved.

This is the end of the questionnaire. We sincerely thank you for your time and effort in filling it out!

INFORMATION ON THE COURSE OF YOUR ILLNESS 1. What was the type and stage of cancer you were first diagnosed with? Type	
 What was the type and stage of cancer you were first diagnosed with? Type	INFORMATION ON THE COURSE OF YOUR ILLNESS
 2. Since your first diagnosis, did the cancer spread to other parts of your body?YesNo If yes, where has it spread?	1. What was the type and stage of cancer you were first diagnosed with? Type Stage
 3. What has been the most serious state of cancer you have had (including all locations)? Type	 Since your first diagnosis, did the cancer spread to other parts of your body? YesNo If yes, where has it spread?
 4. How would you describe the condition of your cancer at the present time? (Check one) a. Free of all detectable signs of cancer b. Improving: cancer in one location is getting smaller c. Improving: cancer in more than one location is getting smaller in number or size d. Stable: cancer in one location has not changed e. Stable: cancer in more than one location has not changed f. Growing: cancer in more than one location has been getting larger or spreading to other locations g. Growing: cancer in more than one location has been getting larger or spreading to other locations s. How long has your condition been in its present state? Months Years (Approximately) 6. If you would like to share other information about the course of your illness, please write it down in the space below.	3. What has been the most serious state of cancer you have had (including all locations)? Type Stage
 a. Free of all detectable signs of cancer b. Improving: cancer in one location is getting smaller c. Improving: cancer in more than one location is getting smaller in number or size d. Stable: cancer in one location has not changed e. Stable: cancer in more than one location has not changed f. Growing: cancer in one location has been getting larger or spreading to other locations g. Growing: cancer in more than one location has been getting larger or spreading to other locations 5. How long has your condition been in its present state? Months Years (Approximately) 6. If you would like to share other information about the course of your illness, please write it down in the space below. 	4. How would you describe the condition of your cancer at the present time? (Check one)
 5. How long has your condition been in its present state? Months Years (Approximately) 6. If you would like to share other information about the course of your illness, please write it down in the space below. 	 a. Free of all detectable signs of cancer b. Improving: cancer in one location is getting smaller c. Improving: cancer in more than one location is getting smaller in number or size d. Stable: cancer in one location has not changed e. Stable: cancer in more than one location has not changed f. Growing: cancer in one location has been getting larger or spreading to other locations g. Growing: cancer in more than one location has been getting larger or spreading to other locations
6. If you would like to share other information about the course of your illness, please write it down in the space below	5. How long has your condition been in its present state? Months Years (Approximately)
	6. If you would like to share other information about the course of your illness, please write it down in the space below

I. what	was the type of heart condition you were first diagnosed with?
2. Since recur	your first diagnosis, did your heart condition get worse (or did you have a rence)? YesNo If yes, please describe
3. How	would you describe your heart condition at the present time? (Check one)
a. b. c. d.	No signs of heart condition Improving Stable Getting worse
4. How	long has your condition been in its present state? Months Years (Approximately)
5. If you down in	u would like to share other information about the course of your illness, please write the space below

PHYSICIAN'S GENERAL INFORMATION FORM

The following questionnaire asks about the course and treatment of your patient's heart condition.

1. When was this patient first diagnosed as having a heart condition? Mo.____ Yr.___

2. What was the heart condition this person was diagnosed as having?

3. Did this patient's condition get worse? ____Yes ____No If so, how did it get worse?_____

- 4. What kind of treatment has this patient received? (Check all that apply) _____ a. Minor surgery

 - c. Major surgery (open heart, transplant) d. Special diet, or vitamins in very high doses
 - _____e. Medications
 - f. Implantable device (AICD, pacemaker) f. Other (please specify)

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- 5. In general, how effective has this treatment been for this patient?
 - ____ a. Very effective
 - ____ b. Somewhat effective
 - _____ c. Slightly effective
 - d. Was effective for some time then became ineffective
 - e. Not at all effective

6. What is the current state of this patient's heart condition?

a. No signs of heart condition

b. Improving

c. Stable

_____d. <u>Getting worse</u>

PHYSICIAN'S GENERAL INFORMATION FORM

The following questionnaire asks about the course and treatment of your patient's cancer.

- 1. When was this patient first diagnosed as having cancer? Mo. ____ Yr. ____,
- 2. What type and stage of cancer was this patient first diagnosed as having? Type______ Stage _____
- 3. Since the time of this patient's first diagnosis has the cancer spread to other parts of the body? No ____ Yes___ If yes, where has it spread?
- 4. What kind of treatment has this patient received? (Check all that apply)
 - _____ a. Surgery
 - _____ b. Chemotherapy
 - ____ c. Radiation
 - _____ d. Special diet, hormones, or vitamins in very high doses
 - e. Medications
 - £ Experimental treatment (e.g., interferon or interleukin 2)
 - ____ g. Other (please specify) _____
- 5. In general, how effective has medical treatment been for this patient?
 - a. Very effective
 - ____ b. Somewhat effective
 - ____ c. Slightly effective
 - d. Was effective for some time then became ineffective
 - e. Not at all effective
- 6. What is the current state of this patient's cancer?
 - a. Free of all detectable signs of cancer
 - b. Improving: cancer in one location is getting smaller
 - c. Improving: cancer in more than one location is getting smaller in number or size
 - d. <u>Stable:</u> cancer in one location has not changed
 - e. <u>Stable</u>; cancer in more than one location has not changed
 - f. Growing: cancer in one location has been getting larger or spreading to other locations

44 E.

g. Growing: cancer in more than one location has been getting larger or spreading to other locations

Second Physician's Rating Form

Given this patient's initial diagnosis, how would you rate the <u>favorability</u> of the course of this patient's cancer? (Check one item below)

For example, a person who was diagnosed with stage 4 lung cancer and is now free of all detectable signs of cancer for five years would be rated as having an exceptionally favorable course of cancer. A person diagnosed with stage 1 breast cancer and is now free of all detectable signs of cancer would probably have an average favorable course of cancer. In other words, rate the likelihood of each patient's state of recovery given his/her diagnosis.

- _____a. an exceptionally favorable course (the best 1% of cases)
- b. a particularly favorable course (the best 10% of cases)
- _____ c. an above average favorable course (the best 25% of cases)
- d. an average favorable course (the middle 50% of cases)
- e. a less than average favorable course (the poorest 25% of cases)
- <u>f.</u> a particularly unfavorable course (the poorest 10% of cases)
- g. an exceptionally unfavorable course (the poorest 1% of cases)

Given this patient's initial diagnosis, how would you rate the <u>favorability</u> of the course of this patient's heart condition? In other words, rate the likelihood of each patient's state of recovery given his/her diagnosis. (Check one item below)

- a. an exceptionally favorable course (the best 1% of cases)
- b. a particularly favorable course (the best 10% of cases)
- _____ c. an above average favorable course (the best 25% of cases)
- d. an average favorable course (the middle 50% of cases)
- e. a less than average favorable course (the poorest 25% of cases)
- f. a particularly unfavorable course (the poorest 10% of cases)
- g. an exceptionally unfavorable course (the poorest 1% of cases)

APPENDIX B

TABLES

Table 1. The 7 items included in the Coping with Illness scale.

(R) 1. Accepted what fate had to offer, thinking there was nothing you could really do.

(R) 2. Tried not to burden others with your concerns, pain, or difficulties.

3. You tried to learn from the experience about how to improve yourself and your life. You viewed your illness as having a lesson to teach you about how to live.

4. You tried to reach out to others and share your feelings and concerns.

5. You tried to seek out as much information about your condition as possible.

6. You asserted yourself. You did not hesitate to speak up and make your needs known.

7. You tried to live your life more fully. You realized life is too short to wait to do what you want to and you began doing more of what you really wanted.

All items with "(R)" in front denotes that the reversal of this item is included in the scale.

Table 2. Alpha reliability coefficients for the scales in the Mother-Father-Peer inventory.

	Alpha	N	Mean	SD #i	tems
Independence-Mother	.82	81	47.54	9.33	13
Independence-Father	.79	73	49.11	8.51	13
Acceptance-Mother	.81	81	39.88	7.65	10
Acceptance-Father	.88	73	38.84	9.37	10
Ideal-Mother	.84	81	18.17	6.65	7
Ideal-Father	.87	73	17.80	7.44	7
Peer	.90	79	38.82	8.73	10

Table 3. Alpha reliability coefficients for the scales in the Construcitve Thinking inventory and Defensive scale.

	Alpha	N	Mean	SD	#items
Global scale	· .91	78	109.17	16.69	30
Emotional Coping	.90	75	80.92	14.48	24
Behavioral Coping	.87	83	43.65	11.51	24
Categorical Thinkin	.80	79	40.05	9.59	17
Esoteric Thinking	.79	81	28.85	8.55	13
Naive Optimism	.81	78	44.92	8.23	14
Lie-free scale	.54	80	33.13	4.71	9
Defensiveness scale	.55	79	43.66	6.81	16

Table 4. The 27 items included in the Cancer Personality scale and the items in the 5 subscales: Anxiety, Anger/frustration, Depression, Social support, and Peace with yourself.

d Sad, blue, or depressed Angry, annoyed, or irritated aq d Feeling sorry for yourself d Helpless, or hopeless (R) Strong, powerful, or in control of your life Withdrawn, resigned, or defeated d Frustrated, blocked, or trapped ag (R) Pleased with yourself, self-accepting, liking who p you are Anxious, worried, or insecure а (R) Challenged, determined, or having a fighting spirit Tense, jittery, or on edge a a, p (R) Serene, calm, or content Emotionally numb, unreactive, no feeling ag Controlled, conflicted, or torn in different directions Confused, conflicted, or torn in different directions ag Guilty, regretful, or ashamed Feeling inadequate, unworthy, or like a failure d Feeling like you were putting on a "false front" in order to be acceptable by others (R) Feeling you had all the emotionally support and S understanding you want Feeling lonely, unwanted, or unneeded S (R) Feeling at peace with yourself and in harmony p with the world (R) Meaningful life p d Despairing life Self-sacrificing for the good of others Emotionally intense and unexpressive An accepter A fighter

All items with "(R)" in front denotes that the reversal of this item is included in the scale, except for the subscale of "peace" where none of the items are reversed. Items included in the subscales are marked as follows: a=anxiety, ag=anger/frustration, d=depression, s=social support, and p=peace with yourself. Table 5. The 11 items included in the Heart Personality scale and the items included in the competitive, assertive, and emotionally expressive subscales.

H Energetic, enthusiastic, or eager H (R) Withdrawn, resigned, or defeated Η. c Harassed, under pressure, or over extended H Challenged, determined, or having a fighting spirit c Ambitious, competitive, or driven Η, H, c Competitive H Emotionally intense and expressive Η Assertive H A fighter An independent person H H An information seeker Strong, powerful, and in control of your life as Challenged, determined, or having a fighting spirit as as Assertive (R) An Accepter as A fighter as (R) Keep emotions to yourself ex Emotionally intense and expressive ex ex (R) Emotionally intense and unexpressive

All items with "(R)" in front denotes that the reversal of this item is included in the scale. Items marked by "H" are included in the heart disease-prone personality scale. Items included in the subscale of "competitive" is marked by a "c." Items included in the subscales of "assertive" and "emotionally expressive" are marked by "as" and "ex" respectively. Table 6. Alpha reliability coefficients for the Cancer Personality scales and the Heart Personality scales and for eight subscales.

	Alpha	N	Mean	SD	#items
Cancer-Personality Before	.95	83	62.53	21.62	27
Cancer-Personality Now	.90	85	50.85	13.78	27
Heart-Personality Before	.74	83	34.86	7.37	11
Heart-Personality Now	.74	85	36.61	7.60	11
Anxiety Before	.76	84	8.27	2.96	3
Anxiety Now	.77	85	6.58	2.69	3
Depression Before	.92	83	11.42	5.94	6
Depression Now	.81	85	9.14	3.40	6
Anger Before	.82	84	8.38	4.08	4
Anger Now	.68	85	6.66	2.61	4
Competitive Before	.56	83	7.89	2.94	3
Competitive Now	.66	85	7.11	2.98	3
Support Before	.74	84	7.52	2.17	2
Support Now	.64	85	8.34	1.78	2
Peace Before	.87	83	10.06	3.39	3
Peace Now	.69	85	11.56	2.48	3
Assertive Before	.71	83	15.68	4.36	5
Assertive Now	.72	85	17.76	4.08	5
Expressive Before	.75	84	8.99	3.45	3
Expressive Now	.65	85	10.43	2.89	3

Diagnosis	Date of Diagnosis	Date of Birth	Physicia Rating	n's Medical Treatment	Present State/ Time in State
Kidney IV (in lung)	2/85	4/27	12	Surgery	Disease Free/4.5ys
Breast Cancer IV (in lung, lymph nodes, bon	10/80 e)	6/33	1%	Radiation, Chemotherapy	Disease Free/8ys
Diffuse Hystiocytic Lymphoma IV (in Ribs)	3/85	1/46	12	Chemotherapy, Radiation, Bone marrow transplant	Disease Free/5ys
Oat Cell- Brain (in spine and inner ea	6/84 r)	1/36	12	Radiation (Inoperable)	Disease Free/1.5ys
Undifferentiated Lung (metastisized to nodes	3/80)	1945	12	Radiation then refused treatment (Inoperable)	Disease Free/10ys
Meningeal Carcinomatosis	8/81	1930	1%	Radiation, Acupuncture	Disease Free/9ys
Lung (metastasized to chest)	8/78	1928	1%	Radiation (Inoperable)	Disease Free/13ys
Lung - non small cell (in lymph node at neck	5/84 :)	2/31	10%	Surgery, Radiation	Disease Free/6.3ys
Breast Cancer III (in brain and nerve ro	8/87 ots)	1/47	10%	Surgery, Chemotherapy, Radiation, Medication	Improving/3ys
Cyloblastoma IV	12/86	3/38	10%	(not reported)	Disease Free/4.5ys
Ovarian Cancer III	4/84	6/65	10X	Hormones, Surgery	Improving/7ys
Gioblastoma III, IV	5/89	4/44	10%	Experimental Treatment (BCNU)	Disease Free/1.5ys
Lung Cancer II	11/74	7/25	15%	Pneumonectomy complete- left lung, Chemotherapy	Disease Free/.8yr
Hodgkins IIIB	5/76	12/50	15%	Surgery, Radiation, Chemotherapy	Disease Free/12ys
Pancreatic Cancer	8/87	11/28	15 x	Surgery, Radiation, Chemotherapy	Stable/2ys
Spindle Cell Sarcoma	9/78	5/36	25%	Larynectomy, Radiation	Disease Free/12ys
Breast Cancer II or I	11 6/83	11/54	25 % '	Mastectomy, Chemotherapy	Disease Free/7ys
Osteosarcoma IV (in lung)	10/88	3/29	25%	Surgery, Chemotherapy, Radiation	Disease Free/.8yr
Hairy Cell Leukemia	9/86	10/40	25%	Surgery, Interferon	Stable/?

Table 8. Description of the sample of the non-exceptional cancer Survivors and of the heart disease survivors.

CANCER SORVIVORS (N= 55,	remai	es=20 Males=15)	
	Ranc	re Mean	
Current Age	22 -	82 48.90	
Time since Diagnosis	.5 -	13 4.85	
Diagnoses	#	Medical Treatment	Disease Cond./Ave.Tim
Breast Cancer I, II	11	Chemotherapy, Surgery Radiation	Disease Free/6.2yrs
Breast Cancer III	1	Chemotherapy, Surgery	Stable/.2vr
Colon/Rectal (B-2)	4	Chemotherapy, Surgery Radiation	3-Disease Free/8yrs
Adinocarcoma (in Bone, Cervix, Stomach, Lung)	4	Surgery, Chemotherapy	Disease Free/2yrs
Leukemia	2	Chemotherapy	
Kidney I	2	Surgery	Disease Free/4yrs
Hodgkins IIIa, IIIb	2	Chemotherapy	Disease Free/2.5yrs
Lymphoma II, A	2	Surgery	Free/Stable/.9yr
Ovarian III	1	Surgery, Chemotherapy	Disease Free/.5yr
Papillary Thyroid IV (in lymph nodes, lungs)	1	Surgery, Hormones	Stable/1yr
Plasmacytoma	1	Radiation	Stable/.9yr
Carenoid Adenoma (lung)	1	Surgery	Disease Free/1.6yr
Angio Sarcoma	1	Chemotherapy	Improving/2yrs
Testicular I	1	Surgery	Disease Free/10yrs
Osteogenic Sarcoma	1	Surgery, Chemotherapy	Disease Free/3yrs

HEART_DISEASE_SURVIVORS (N= 31, Males= 21, Females= 10)

NOFP

	Ra	inge	Mean	
Current Age	41.5	- 82.5	65.39	
Time since Diagnosis (without two outliers)	.5	- 22	7.80	
Diagnoses	#	Medical	Treatments	
Angina (Coronary Disease)	20	By-pass	surgery, Medication, Angioplasty	7
Valve Stenosis	5	Valve r	eplacement, Medication	
Myocardial Infarction	6	Cabg, By	y-pass surgery, Medication	

Table 9. ANOVA's and Means depicting demographic information for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

<u>Variable</u>	df	F-value	Heart	Cancer	E-Cancer
Current age	2,82	16.35***	65.39a	48.90b	52.11b
Age at diagnosis	2,77	7.26**	55.84a	43.93b	45.32b
Time since diagnosis	2,77	2.68	7.80	4.85	6.79
Relatives with same disease	2,80	8.80***	2.16a	1.59b	1.28b
Education	2,82	12.96***	2.68a	4.11b	4.11b
*n<.05. **n<	.01. *	**n<.001			

Means with different subscipts are significantly different at \underline{p} <. 05.

Table 10. ANOVA's and Means of life style information before diagnosis and now for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

<u>Variable</u>	F(2,82)	Heart	Cancer	E-Cancer
Smoking Before	.21	2.26	2.00	2.05
Smoking Now	1.70	1.00	1.32	1.42
Drinking Before	.23	2.03	2.14	2.39
Drinking Now	2.03	1.52	1.73	2.00
Sat. Rel. Before	• 32	4.32a	3.39b	3.21b
Sat. Rel. Now	.26	4.12a	3.62ab	3.07b
Sat. Support Bef.	. 1.76	4.45a	3.74b	3.67b
Sat. Support Now	2.50	4.73a	4.34ab	4.06b
Sat. Work Bef.	2.14	4.52a	3.58b	3.63b
Sat. Work Now	2.68	4.52a	3.73b	2.76ab
Spirituality Bef	ore .97	3.16	2.97	2.72
Spirituality Now	.21	3.35	3.31	3.57

*p<.05, **p<.01, ***p<.001

Means with different subscripts are significantly different at \underline{p} <. 05.

Table 11. ANOVA's and MEANS of beliefs about illness for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

Variable	F(2,82)	Heart	Cancer	E-Cancer
Take charge of treatment	4.06*	1.71a	2.00 _b	2.16 _b
Someone else had fai in your recovery	.83	3.68	3.54	4.00
Amount of confidence in your treatment	2 1.36	2.84	2.63	2.79

*p<.05, **p<.01, ***p<.001

Means with different subscripts are significantly different at \underline{p} <. 05.

Table 12. ANOVA's and MEANS of stressful life events during the two year period preceding diagnosis for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

<u>Variable</u>	F(2,82)	Heart	Cancer	E-Cancer
Frequency of events	4.71**	2.16a	4.29ab	4.89b
Intensity of events	7.17**	5.81a	11.54b	17.84b
Intensity x Frequ.	3.06**	46.60a	112.92ab	156.53b
				1001035
Individual itoma				
Death of loved one	2.4	1 00		
Death of a not	• 24	1.23	1.26	1.32
Divorco (conpretion	C1.	1.10	1.09	1.05
Marital problems	2.91	1.03a	1.17ab	1.26b
Family conflict	5.50**	1.06a	1.40b	1.32b
Family Conflict	1.30	1.19	1.37	1.26
Conflict W/ Irlends	1.50	1.16	1.34	1.32
Changes W/employment	2.80	1.13a	1.26ab	1.42b
Financial problems	1.03	1.19	1.31	1.37
Accident/injury	•65	1.10	1.17	1.21
Loss of independence	2.22	1.16	1.14	1.37
Change in living				
situation	4.89**	1.10a	1.31b	1.47b
Rejection of				
loved one	5.93**	1.00a	1.26b	1.32b
Failure at important	2			
event	1.98	1.13a	1.26ab	1.37b
Legal problems	1.47	1.03	1.14	1.05
<pre>Probs. w/ pregnancy</pre>	.73	1.00	1.03	1.05
Demanding schedule	.49	1.42	1.54	1.47
Extra family				
responsibility	.50	1.13	1.14	1.05
Victim assault/rape	.11	1.03	1.03	1.05
Victim disaster	1.80	1.06	1.00	1.00
Loss of important				
job/role	.92	1.06	1.06	1.16

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Means with different subscripts are significantly different at p < .05. Individual items are dichotomized where 1= did not occur, and 2= occurred.

Table 13. ANOVA's and MEANS of Mother-Father-Peer scores for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

Variable	F(2,82)	Heart	Cancer	E-Cancer
Independence-mother	97	48.62	45.91	48.71
Independence-father	.18	48.67	49.40	49.29
Acceptance-mother	1.21	40.79	38.33	41.16
Acceptance-father	.05	40.04	38.20	38.12
Ideal-mother	4.60**	20.79b	15.33a	19.11b
Ideal-father	.46	19.15	16.47	18.06
Peer	3.26*	40.32b	35.69a	41.89b

*p<.05, **p<.01, ***p<.001

Means with different subscripts are significantly different at \underline{p} <. 05.

Table 14. Regression analysis predicting cancer versus heart disease using the Mother-Father-Peer inventory and Intensity of stress preceding diagnosis.

		Change		
	R2	in R2	df	F
Indep-Mother	.01		1,79	.60
Indep-Mo + Stress	.11	.10	2,57	3.71*
Indep-Mo + Stress + Interaction	.12	.02	3,56	2.48
Indep-Father	.00		1.71	.11
Indep-Fa + Stress	.12	.12	2,51	3.40*
Indep-Fa + Stress + Interaction	.12	.00	3,50	2.24
Accep-Mother	.01		1,79	.64
Accep-Mo + Stress	.12	.11	2.57	3.76*
Accep-Mo + Stress + Interaction	.14	.02	3,56	2.98*
Accep-Father	.01		1,71	.65
Accep-Fa + Stress	.12	.11	2,51	3.47*
Accep-Fa + Stress + Interaction	.12	.01	3,50	2.30
Ideal-Mother	.09		1,79	7.49**
Ideal-Mo + Stress	.16	.07	2,57	5.29**
Ideal-Mo + Stress + Interaction	.21	.05	3,56	4.96**
Ideal-Father	.02		1,71	1.33
Ideal-Fa + Stress	.13	.11	2,51	3.95*
Ideal-Fa + Stress + Interaction	.14	.01	3,50	2.69
Peer	.02		1,79	1.27
Peer + Stress	.13	.11	2,55	4.00*
Peer + Stress + Interaction	.13	.00	3,54	2.65

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Table 15. Regression analysis predicting cancer versus heart disease using the Mother-Father-Peer inventory and Frequency of stress preceding diagnosis.

		Change		
	R2	in R2	df	F
Indep-Mother	.01		1,79	.60
Indep-Mo + Stress	.07	.06	2,62	2.40
Indep-Mo + Stress + Interaction	.07	.00	3,60	1.63
Independent-Father alone	.00		1,71	.11
Indep-Fa + Stress	.07	.07	2,56	2.20
Indep-Fa + Stress + Interaction	.08	.01	3,54	1.49
Acceptance-Mother alone	.01		1,79	.64
Accep-Mo + Stress	.07	.06	2,62	2.50
Accep-Mo + Stress + Interaction	.13	.07	3,60	3.14*
Acceptance-Father alone	.01		1,71	.65
Accep-Fa + Stress	.08	.07	2,56	2.28
Accep-Fa + Stress + Interaction	.08	.00	3,54	1.57
Idealization-Mother alone	.09		1,79	7.49**
Ideal-Mo + Stress	.13	.04	2,63	4.51**
Ideal-Mo + Stress + Interaction	.22	.09	3,60	5.67**
Idealization-Father alone	.02		1,71	1.33
Ideal-Fa + Stress	.09	.07	2,56	2.78
Ideal-Fa + Stress + Interaction	.13	.04	3,54	2.73
Peer	.02		1,79	1.27
Peer + Stress	.08	.06	2,60	2.70
Peer + Stress + Interaction	.08	.00	3,58	1.77

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

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Table 16. Regression analysis predicting scores on the Cancer Personality Scale using the Mother-Father-Peer inventory and Intensity of stress preceding diagnosis.

	Change			
	R2	in R2	df	F
Indep-Mother	.15		1,77	13.59***
Indep-Mo + Stress	.20	.05	2,57	7.15**
Indep-Mo + Stress + Interaction	.22	.02	3,56	5.19**
Indep-Father	.11		1,69	8.40**
Indep-Fa + Stress	.19	.08	2.51	5.91**
Indep-Fa + Stress + Interaction	.24	.05	3,50	5.35**
Accep-Mother	.12		1.77	10,15**
Accep-Mo + Stress	.18	.06	2.57	6.19**
Accep-Mo + Stress + Interaction	.18	.00	3 56	4 07**
			0,00	1.07
Accep-Father	.08		1,69	6.34**
Accep-Fa + Stress	.16	.08	2,51	4.85**
Accep-Fa + Stress + Interaction	.16	.00	3,50	3.28*
Ideal-Mother	.11		1,70	9.16**
Ideal-Mo + Stress	.15	.04	2,57	5.03**
Ideal-Mo + Stress + Interaction	.15	.00	3,56	3.30*
Ideal-Father	.12		1.69	9.39**
Ideal-Fa + Stress	.21	. 09	2.51	6.74**
Ideal-Fa + Stress + Interaction	.22	.01	3,50	4.59**
	•		5750	
Peer	.12		1,75	10.03**
Peer + Stress	.20	.08	2,55	6.69**
Peer + Stress + Interaction	.20	.00	3,54	4.50**

--*p<.05, **p<.01, ***p<.001

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Table 17. Regression analysis predicting scores on the Cancer Personality Scale using the Mother-Father-Peer inventory and Stressful Life Events preceding diagnosis.

	Change			
	R2	in R2	df	F
Indep-Mother	.15		1,77	13.59***
Indep-Mo + Stress	.16	.01	2.57	5.93**
Indep-Mo + Stress + Interaction	.19	.03	3,56	4.59**
Indep-Father	11		1 60	0 4044
Inden-Fa + Stross	• 1 1 2	0.2	1,09	0.40** 4.2C#
Indep-Fa + Strong + Internation	• 1 3	.02	2,51	4.36*
indep-ra + Scress + interaction	•19	.06	3,56	4.30**
Accep-Mother	.12		1,77	10.15**
Accep-Mo + Stress	.14	.02	2,57	4.87**
Accep-Mo + Stress + Interaction	.14	.00	3,56	3.27*
Accen-Father	08		1 60	6 21++
Accon-Fa + Strong	.00	00	1,09	0.34^^
Acceptra + Scress	.10	.02	2,51	3.28*
Acceptra + Stress + Interaction	• 12	.02	3,50	2.45
Ideal-Mother	.11		1,70	9.16**
Ideal-Mo + Stress	.12	.01	2,57	4.06*
Ideal-Mo + Stress + Interaction	.12	.00	3,56	2.62
Ideal-Father	12		1 69	9 93**
Ideal-Fa + Strong	15	03	2 51	5 00**
Ideal-Fa + Stress	.15	.05	2,51	2.00**
Ideal-Fa + Stress + Interaction	• 10	.01	3,50	3.00*
Peer	.12		1,75	10.03**
Peer + Stress	.14	.02	2,55	4.90**
Peer + Stress + Interaction	.16	.02	3,54	3.58*

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Table 18. Path Analyses Predicting Cancer.

-.55* -.51 .74 Indep. + Intensity + Interaction = Cancer-prone Mother Stress Personality .22 .74 -.48 .30* Indep. + Intensity + Interaction + Cancer-prone = Cancer Mother Stress Personality



-.62** -.95 1.20 Indep. + Intensity + Interaction = Cancer-prone Father Stress Personality

.04 -.05 .33 .31* Indep. + Intensity + Interaction + Cancer-prone = Cancer Father Stress Personality



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Table 19. ANOVA's and MEANS of emotional and behavioral coping strategies shortly after diagnosis for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

<u>Variable</u>	F(2,82)	Heart	Cancer	E-Cancer
Coping [.] scale	4.29*	22.13a	25.48	26.17b
Accepted fate	7.71***	3.29a	2.00b	2.11b
Determined to fight	6.25**	4.77a	4.09b	4.58ab
Not burden others	10.66***	4.16a	3.09b	2.78b
Distracted yourself	4.45*	3.16a	2.44b	3.47b
Felt hopeless	.32	1.33	1.52	1.56
Learned how to live	.20	3.84	4.09	4.00
Reached for support	.28	3.13	3.58	3.61
Sought information	.22	3.90	3.97	4.33
Withdrew from others	.71	1.41	1.76	1.83
Asserted yourself	.79	2.74a	3.47b	3.33ab
Lived life fully	2.00	3.97	3.38	3.78
Improved diet	3.96*	4.06a	3.39b	3.26b
Vigorous exercise	2.29	3.00a	2.29b	2.63ab
Meditation/Relaxation	5.42**	1.65a	2.97b	2.94b
Visualization	9.58***	1.44a	2.88b	3.18b
Psychotherapy	9.70***	1.36a	3.06b	2.56b
Support groups	.47	2.68	3.10	2.56

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Means with different subscripts are significantly different at \underline{p} <. 05.

Table 20. ANOVA's and MEANS of Constructive Thinking scores for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

<u>Variable</u>	F(2,82)	Heart	Cancer	E-Cancer
Global scale	.21	107.54	109.82	110.63
Lie-free scale	3.14*	31.86 a	34.62b	32.29ab
Emotional coping	.24	82.04	79.62	81.94
Behavioral coping	.01	93.55	93.82	93.50
Categorical thinking	2.12	43.11	38.50	38.39
Esoteric thinking	1.60	26.59	30.24	29.89
Naive optimism	2.31	46.86	42.68	46.31

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Means with different subscripts are significantly different at \underline{p} <. 05.

Table 21. ANOVA of the Cancer Personality Scale and the Heart Personality Scale before diagnosis and now for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries.

Variable	F(2,80)Group	F(1,80)Time	F(2,80) GXT
Cancer Personality	4.01*	33.73***	5.61**
Heart Personality	1.29	3575.21***	1.36
Subscales			
Anxiety	.26	30.29***	2.11
Depression	6.31**	22.50***	7.23**
Anger/frustration	7.28**	22.57***	5.08**
Competitive	.77	10.76**	2.89
Support	10.89***	15.06***	2.75
Peace with self	3.15*	17.28***	2.83
Assertive	1.35	19.23***	1.98
Expressive	.76	22.63***	2.61

*p<.05, **p<.01, ***p<.001
Table 22. ANCOVA's of the Cancer-prone Personality Scale (CPPS) and Heart-prone Personality Scale (HPPS) before diagnosis and now for heart disease survivors (HD), non-exceptional cancer survivors (NEx-C), and exceptional cancer survivors (Ex-C). Gender, age, relatives with the same illness, and education were partialled out of the analyses.

Means adjusted for Co-variates

<u>Co-variate</u>	df	CPPS-Before	HD	NEX-C	Ex-C
Gender	2,81	5.20**	54.74	63.59	73.41
Age	2,79	3.11*	57.56	61.53	72.38
Relatives	2,77	4.33*	53.83	64.66	73.35
Education	2,79	4.41*	54.10	64.16	73.46
<u>Co-variate</u>	df	CPPS-Now	HD	NEx-C	Ex-C
Gender	2,81	.34	49.18	52.03	51.42
Age	2,81	.09	51.86	50.18	50.44
Relatives	2,79	.26	50.07	52.07	49.55
Education	2,81	.44	48.70	52.27	51.75
<u>Co-variate</u>	df	HPPS-Befor	e HD	NEx-C	Ex-C
Gender	2,79	1.83	132.65	133.79	132.53
Age	2,79	.18	133.02	133.52	132.39
Relatives	2,77	.31	132.39	133.74	133.39
Education	2,79	.33	133.64	133.15	132.02
<u>Co-variate</u>	df	HPPS-Now	HD	NEx-C	Ex-C
Gender	2,81	1.99	176.12	178.99	175.98
Age	2,81	1.11	177.74	177.89	175.40
Relatives	2,79	2.02	175.90	179.12	176.45
Education	2,81	1.44	176.96	178.53	175.46

*p<.05, **p<.01, ***p<.001

Table 23. ANCOVA's for eight personality subscales before diagnosis and now for heart disease survivors (HD), non-exceptional cancer survivors (NEx-C), and exceptional cancer survivors (Ex-C). Gender, age, relatives with the same illness, and education were partialled out of the analyses.

Means Adjusted for Co-variates

<u>Co-variate</u>	df	Assertive-Bef	HD	NEx-C	Ex-C
Gender	2,79	.67	15.73	16.18	14.72
Age	2,79	.65	15.87	16.07	14.67
Relatives	2,77	.22	15.56	16.13	15.37
Education	2,79	.86	16.22	15.85	14.49
<u>Co-variate</u>	df	Assertive-Now	HD	NEx-C	Ex-C
Gender	2,81	1.88	17.02	18.79	17.07
Age	2,81	.90	17.63	18.36	16.85
Relatives	2,79	2.55	16.56	18.93	17.63
Education	2,81	1.24	17.63	18.44	16.70
<u>Co-variate</u>	df	Anxiety-Bef	HD	NEx-C	Ex-C
Gender	2,80	1.11	8.13	7.92	9.14
Age	2,80	2.00	8.75	7.49	8.91
Relatives	2,78	1.46	7.93	7.95	9.37
Education	2,80	1.24	7.91	8.07	9.25
<u>Co-variate</u>	df	Anxiety-Now	HD	NEx-C	Ex-C
Gender	2,81	.43	6.44	6.89	6.21
Age	2,81	. 62	6.96	6.54	6.03
Relatives	2,79	.79	6.40	6.99	6.05
Education	2,81	.75	6.19	7.04	6.36
<u>Co-variate</u>	df	Depression-Be	f HD	NEx-C	Ex-C
Gender	2,79	6.69**	8.89	11.98	14.58
Age	2,79	3.90*	9.66	11.42	14.30
Relatives	2,77	6.42**	8.60	12.42	14.82
Education	2,79	4.83**	9.01	11.95	14.44
Co-variate	df	Depression-No	W HD	NEx-C	Ex-C
Gender	2,81	1.72	8.32	9.91	9.05
Age	2,81	.21	9.26	9.27	8.71
Relatives	2.79	1.56	8.53	9.96	8.72
Education	2,81	1.58	8.28	9.94	9.08

<u>*p<.05, **p<.01, ***p<.001</u>

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Table 23.

<u>Co-variate</u>	df	Anger-Bef	HD	NEX-C	Ex-C
Gender	2,80	6.41**	6.50	9.10	10,17
Age	2,80	3.08*	7.08	8,69	9,96
Relatives	2,78	5.36**	6.49	9.20	10.25
Education	2,80	4.27*	6.67	9.02	10.04
	•			5.02	10.04
<u>Co-variate</u>	df	Anger-Now	HD	NEx-C	Ex-C
Gender	2,81	3.33*	5.92	7.51	6.30
Age	2,81	1.05	6.73	6.95	6.00
Relatives	2,79	3.92*	5.98	7.55	5.94
Education	2,81	3.03*	5.91	7.52	6.30
<u>Co-variate</u>	df	Peace-Bef	HD	NEx-C	Ex-C
Gender	2,55	1.05	7.88	7.59	7.22
Age	2,55	.78	7.80	7.64	7.22
Relatives	2,54	1.02	7.93	7.59	7.22
Education	2,55	.89	7.86	7.61	7.21
0					
<u>Co-Variate</u>		Peace-Now	<u>HD</u>	NEX-C	Ex-C
Gender	2,81	.59	11.91	11.48	11.15
Age	2,81	.21	11.52	11.75	11.29
Relatives	2,79	.28	11.83	11.47	11.24
Education	2,81	.19	11.69	11.63	11.24
Co-variate	df	Competition-I	Bef HD	NEx-C	Ex-C
Gender	2,79	1.69	7.27	7.91	8.87
Aae	2.79	1.03	7.93	7.43	8.62
Relatives	2.77	2.37	7.17	7.92	9.24
Education	2.79	.82	8.01	7.45	8.47
	-7				
<u>Co-variate</u>	df	Competition-	Now HD	NEx-C	Ex-C
Gender	2,81	1.11	6.66	7.69	6.75
Age	2,81	1.17	7.70	6.98	6.38
Relatives	2,79	1.12	6.63	7.75	6.89
Education	2,81	.74	7.31	7.32	6.39
.	16	Gumment Def	IID	NEV-C	Ev-C
<u>Co-variate</u>		Support-Ber	<u>HD</u>		<u>EX-C</u>
Gender	2,80	10.15***	8.03	7 20	6 22
Age	2,80	6.94**	8.47	7.00	6 17
Relatives	2,78	8.73***	8.//	7.21	0.17
Education	2,80	7.80***	8.64	7.25	6.18
Co-variate	df	Support-Now	HD	NEX-C	Ex-C
Gender	2,81	4.40*	9.00	8.22	7.50
Ade	2,81	2.52	8.78	8.36	7.58
Polativos	2 79	2.89	8,97	8.25	7.63
Education	2,13	3 16*	8.92	8.26	7.53
Education	2,81	2.10.	0.92		

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

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Table 23.

<u>Co-variate</u>	df	Expressive-Bef	HD	NEx-C	Ex-C
Gender	2,80	.08	9.02	9.12	8.71
Age	2,80	.22	9.34	8.89	8.60
Relatives	2,78	.28	8.74	9.43	9.05
Education	2,80	.10	9.08	9.09	8.66
Table 23.					
<u>Co-variate</u>	df	Expressive-Now	HD	NEx-C	Ex-C
Gender	2,81	1.95	9.61	10.87	10.94
Age	2,81	.51	9.98	10.62	10.82
Relatives	2,79	2.87	9.38	11.03	11.21
Education		2 4 2	0 64	10 07	10 00
Education	2,81	1.41	9.64	10.87	10.90

*<u>p</u><.05, **<u>p</u><.01, ***<u>p</u><.001

Table 24. Repeated measures ANOVA's of emotions and attitudes before diagnosis and now for three groups of survivors: Heart patients, cancer patients, and cancer patients with exceptional recoveries (E-Cancer).

Variable	F(2,81)Group	F(1,81)Time	F(2,81) GXT
Happy/cheerful	2.43	4.25*	.79
Sad/depressed	7.57***	5.95*	6.48**
Energetic	.08	1.19	5.39**
Angry/annoyed	11.05***	27.04***	10.05***
Sorry for self	4.47**	14.24***	3.53*
Helpless/hopeless	5 5.16**	15.41***	4.01*
Strong/powerful	3.05*	3.13	1.42
Withdrawn/defeate	ed 4.08**	15.16***	6.45**
Harassed/pressure	ed 2.25	16.12***	1.96
Frustrated/blocke	ed 5.45**	18.45***	3.56*
Pleased with sel:	£.42	6.77**	1.58
Anxious/worried	.98	16.81***	4.56**
Challenged/detern	mined .80	7.60**	4.16*
Tense/jittery	1.11	22.12***	1.34
Serene/calm	.98	21.74***	.30
Emotionally numb	1.12	14.25***	2.60
Controlled/domina	ated .33	.62	.32
Confused/conflic	ted 5.72**	17.89***	3.15*
Guilty/regretful	5.04**	2.38	1.77
Ambitious/compet.	itive .02	1.37	.91
Inadequate/unwor	thy 3.26*	20.28***	6.32**
Put on a false f	ront 1.87	9.30***	3.90*
Compassionate/ca	ring 1.09	9.85***	2.83
Emotionally supp	ort 11.16***	16.52***	1.79
Lonely/unwanted	5.86**	4.88*	2.10
Feeling at peace	5.19**	16.61***	1.63
			0.551
Meaningful life	3.61*	16.05**	3.55*
Despairing life	2.08	10.72**	1.09
Keep emotions in	2.81	16.07***	2.27
Self-sacrificing	1.56	19.54***	4.84**
Competitive	.48	1.26	2.86
Emot.expressive	• 24	5.95*	.13
Emot.unexpressiv	e .43	20.43***	2.40
Assertive	2.55	11.11***	.25
Accepter	1.98	15.64***	1.13
Fighter	1.18	8.04**	1.06
Independent	1.92	.84	1.94
Open-minded	.91	17.31***	1.61
Distracted	6.09**	3.44	1.08
Information seek	er .20	7.24**	4.28**
Emotionally stab	le 1.05	1.50	.02

*p<.05, **p<.01, ***p<.001

Table 25. Repeated measures ANOVA's for the Cancer-prone Personality scale and its eight subscales before diagnosis and now for four groups of survivors: Heart patients (HD), non-exceptional cancer patients (NEX-C), exceptional cancer patients (Ex-C), and very exceptional cancer patients (VEx-C).

Variable	F(3,79)Grou	p F(1,79)Time	F(3,79) GxT
Cancer Personality	2.64*	44.36***	6.54***
<u>Subscales</u>			
Anxiety	.50	34.28***	2.85*
Depression	4.42**	34.80***	7.39***
Anger/frustration	4.87**	36.28***	7.61***
Competitive	1.54	12.48***	1.92
Support	7.38***	16.83***	2.53
Peace with self	1.71	62.40***	.83
Assertive	.89	17.05***	.98
Expressive	.76	27.68***	4.18**

*p<.05, **p<.01, ***p<.001

APPENDIX C FIGURES

Cancer-prone personality for three groups of survivors over time



Figure 1. Cancer-prone personality for three groups of survivors before diagnosis and at the present time.



Figure 2. Heart Disease-prone personality for three groups of survivors before diagnosis and at the present time.



Figure 3. Anger for three groups of survivors before diagnosis and at the present time.



Figure 4. Depression for three groups of survivors before diagnosis and at the present time.



Figure 5. Anxiety for three groups of survivors before diagnosis and at the present time.



Figure 6. Competitiveness for three groups of survivors before diagnosis and at the present time.



Figure 7. Emotionally expressive for three groups of survivors before diagnosis and at the present time.

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Figure 8. Assertiveness for three groups of survivors before diagnosis and at the present time.



Figure 9. Social Support for three groups of survivors before diagnosis and at the present time.



Figure 10. Feeling at peace for three groups of survivors before diagnosis and at the present time.



Figure 11. Sad/depressed for three groups of survivors before diagnosis and at the present time.



Figure 12. Angry/annoyed for three groups of survivors before diagnosis and at the present time.



Feeling Sorry Before Diagnosis and Now for Three Groups of Survivors

Figure 13. Feeling sorry for three groups of survivors before diagnosis and at the present time.



Figure 14. Hopeless/helpless for three groups of survivors before diagnosis and at the present time.



Withdrawn/Defeated Before Diagnosis and Now for Three Groups of Survivors

Figure 15. Withdrawn/defeated for three groups of survivors before diagnosis and at the present time.



Figure 16. Frustrated/blocked for three groups of survivors before diagnosis and at the present time.



Figure 17. Anxious/worried for three groups of survivors before diagnosis and at the present time.



Figure 18. Confused/conflicted for three groups of survivors before diagnosis and at the present time.



Figure 19. Inadaquate/unworthy for three groups of survivors before diagnosis and at the present time.



False Front Before Diagnosis and Now for Three Groups of Survivors

Figure 20. False front for three groups of survivors before diagnosis and at the present time.



Figure 21. Energetic for three groups of survivors before diagnosis and at the present time.

Energetic Before Diagnosis and Now for Three Groups of Survivors

Challenged/Determined Before Diagnosis and Now for Three Groups of Survivors



Figure 22. Challenged/determined for three groups of survivors before diagnosis and at the present time.

Figure 23. Self-sacrificing for three groups of survivors before diagnosis and at the present time.

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Self-Sacrificing Before Diagnosis and Now for Three Groups of Survivors



Meaningful Life Before Diagnosis and Now for Three Groups of Survivors

Figure 24. Meaningful life for three groups of survivors before diagnosis and at the present time.



Information Seeking Before Diagnosis and Now for Three Groups of Survivors

Figure 25. Information seeking for three groups of survivors before diagnosis and at the present time.



Cancer-prone personality for four groups of survivors over time

Figure 26. Cancer-prone personality for four groups of survivors before diagnosis and at the present time.



Anger for four groups of survivors over time

Figure 27. Anger for four groups of survivors before diagnosis and at the present time.



Depression for four groups of survivors over time

Figure 28. Depression for four groups of survivors before diagnosis and at the present time.

Support for four groups of survivors over time



Figure 29. Social support for four groups of survivors before diagnosis and at the present time.


Anxiety for four groups of survivors over time

Figure 30. Anxiety for four groups of survivors before diagnosis and at the present time.



Expression for four groups of survivors over time

Figure 31. Emotional expression for four groups of survivors before diagnosis and at the present time.

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