SERIOUS HEART DISEASE AND CANCER

AND THE

MULTIDIMENSIONAL HEALTH LOCUS OF CONTROL

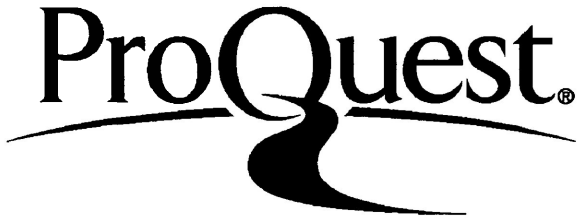
by

© Brian D. Lalonde

THESIS

Submitted to the Faculty of Arts in
Partial Fulfillment of the Requirements
for the Degree of Master of Arts

Department of Psychology
Lakehead University
Thunder Bay, Ontario, Canada
October 1983



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

Acknowledgements

I would like to thank the following people:

Dr. Keith Wood for his helpful advice, his criticisms, and the support he offered throughout the various stages of this research project. Also, thanks are extended for the very important role he played in collecting the necessary data from the cancer patients. Dr. Wood's contributions to this project went well beyond the call of duty, and he is gratefully acknowledged at this time.

Dr. John Jamieson, Dr. Bill Melnyk, Mr. Ken Allan, and Dr. Marcia Dilley for their feedback and support, especially during the latter stages of this thesis.

Dr. Gwen Warren, Dr. Barry Koehler, and Dr. Jim Smith of the Port Arthur Clinic in Thunder Bay, Ontario. Through their kind co-operation and assistance, I was able to obtain many of my subjects.

Dr. Jaro Kotalik, Dr. Jackie Duffin, and Dr. Al Hargan of the Thunder Bay Cancer Clinic for their co-operation in allowing me to obtain subjects from the clinic.

To the patients who volunteered to serve as subjects in the research project. I am indebted to these special individuals for allowing me to conduct this research.

The students who participated in the study.

Evelyn Murdoch who did an excellent job in typing the entire thesis.

My colleagues at Lakehead University and my colleagues at the William Roper Hull Home in Calgary, Alberta, for their interest and encouragement.

My family, especially Ma and Dad. Their encouragement, interest, and love enabled me to complete this thesis.

And finally, to the newest member of my family - my wife, Liz. The invaluable assistance that Liz offered me throughout the past 3½ years will never be forgotten.

Abstract

The present research attempted to determine whether or not individuals' perceptions of serious heart disease and cancer would differentially affect health locus of control beliefs, as measured by the Multidimensional Health Locus of Control (MHLC) scales. Study 1, a within-subjects design, assessed the health locus of control beliefs of 33 introductory psychology students under three separate sets of instructions - no special instructions, "imagine having suffered a heart attack" instructions, and "imagine having cancer" instructions. As predicted, serious heart disease was seen to result in greater internal health locus of control beliefs than cancer. Cancer was seen as resulting in greater chance health locus of control beliefs than serious heart disease. Both of these life-threatening illnesses were perceived as resulting in greater involvement of powerful others when compared to non life-threatening illnesses. Study 2, a between subjects design, was then conducted using 94 introductory psychology students. The results from this study generally confirmed the findings of Study 1, with the exception of the nonsignificant differences found between the chance health locus of control beliefs of these three groups. Study 3, a between-subjects design, was conducted using a clinical population of 20 "worried well" patients, 20 "serious heart disease" patients, and 20 "cancer" patients. The results from this study were again consistent

with the findings of the previous two studies. These results appear to suggest that individuals' beliefs and attitudes about different life-threatening illnesses affect their health locus of control beliefs. Treatment implications are offered as well as suggestions for further research.

Table of Contents

List of Tables

There exists a growing body of research literature dealing with the improvement and maintenance of health, and the avoidance of and recovery from illness. Much of this research has examined individuals' perceptions of control over their health. This research has derived from the social learning theory of Rotter (1954). Social learning theory does not place its emphasis on how simple responses are acquired and built into complex patterns of behaviour, but rather on determining which behaviour is chosen over another in a particular situation. Rotter (1966) states that any behaviour is determined by an individual's past history of reinforcement, the value of the reinforcer to that person, the specific nature of the situation, and by that individual's locus of control.

The concept of locus of control is central to Rotter's theory and has been defined as "the degree to which people perceive that the events that happen to them are dependent on their own behaviour as opposed to being the result of fate, luck, chance, or powers beyond their personal control" (Strickland, 1977). Specifically, individuals having an internal locus of control orientation believe that they are responsible for what happens to them and the events which take place around them. Individuals who have an external locus of control orientation believe that what happens to them is beyond their personal control and is the result of luck or chance. A number of reviews, bibliographies, and

evaluations of the locus of control research are available in several publications (Lefcourt, 1966, 1972, 1976, 1981; Rotter, 1966, 1975; Throop & McDonald, 1971). Of particular importance to the proposed research, however, is the use of the locus of control construct in research pertaining to health and illness in a variety of populations.

One investigation in this area was conducted by Seeman and Evans (1962) who examined health-related information seeking as a function of locus of control beliefs. Seeman and Evans found that hospitalized tuberculosis patients who held internal locus of control beliefs knew more about their physical condition, expressed greater dissatisfaction with the amount of information given to them from hospital staff, and questioned doctors and nurses more than those who held external beliefs.

Garrity (1973) examined medical, social, and psychological factors that were associated with return to work following a first myocardial infarction. He found that patients who perceived themselves as having little control over their illness (based on Rotter's Internal-External Locus of Control (I-E) scale) were more likely to return to work within six months following a myocardial infarction than those having an internal locus of control. These results were consistent with those found in Seeman and Evans' (1962) study where individuals who held internal locus of control beliefs were shown to exhibit more information seeking

behaviour than individuals with external locus of control beliefs. It is possible that the findings in Garrity's study were the result of subjects with internal locus of control beliefs knowing more about their condition and, subsequently, being more reluctant to return to work so soon after their myocardial infarction. Subjects with an external locus of control orientation (those who presumably knew less about their condition) may have returned to work earlier because of their perceived lack of control over their health.

Similar research was also undertaken in a series of systematic investigations by Barbara and Kenneth Wallston, and their colleagues. These studies utilized the Health Locus of Control (HLC) scale developed by Wallston, Wallston, Kaplan, and Maides (1976a). The HLC scale is a unidimensional measure of the extent to which individuals endorse statements that their health status is primarily controlled by their behaviour (internal control), or by factors such as fate, luck, or chance (external control). Individuals who score above the median on this 11-item scale are "health-externals"; individuals who score below the median are "health-internals".

Wallston, Maides, and Wallston (1976b) utilized the HLC scale and a value survey, modelled after Rokeach's (1973) value survey, in order to test the hypothesis that health-related information seeking is a joint function of individuals' health locus of control beliefs and the values they

place upon their health. For this study, 88 college students in an introductory psychology course completed the HLC scale and the value survey. After completing these forms, several experimental manipulations were implemented in order to make the subjects aware of how little they knew about the dangers of hypertension. The subjects were then asked to read through a list of 16 pamphlet titles and to choose as many or as few pamphlets which they might be interested in obtaining for the newly established hypertension clinic.

Wallston et al. found that health-internals who valued their health highly, demonstrated a willingness to read significantly more pamphlets about hypertension than health-internals who valued their health less highly, and health-externals irrespective of the value they placed on their health. This finding was replicated using 97 undergraduate students in a psychology course (Wallston et al., 1976b).

In a related investigation examining the health locus of control beliefs of renal dialysis patients and their corresponding information seeking behaviour, Sproles (1977), as cited by Wallston and Wallston (Note 1, p. 5), found that health-internals knew more about their condition and desired greater amounts of information from their doctors than health-externals. In addition, Sproles found a significant positive correlation between externality and the number of questions missed on a dialysis knowledge test. These

particular findings are consistent with the earlier reported research regarding the information seeking behaviour of internals and externals (Seeman & Evans, 1962; Garrity, 1973; Wallston et al., 1976b).

In a further attempt to understand the relationship between a person's health locus of control beliefs and the behaviours associated with these beliefs, Toner and Manuck (1979) grouped 121 individuals, participating in a public hypertension screening, into four groups. These groups, based on scores obtained from the HLC scale, consisted of "younger health-internals", "older health-internals", "younger health-externals", and "older health-externals". After the subjects' blood pressures were taken, they filled out a modified version of the HLC scale in which they were asked to indicate only whether they generally agreed or disagreed with each statement. The subjects were then directed to a table where they were encouraged to take whatever pamphlets were of interest to them regarding diet, smoking, and other topics related to heart disease. The results showed that older health-internals selected significantly more pamphlets regarding heart disease than older health-externals. Toner and Manuck concluded that these subjects' health locus of control beliefs were predictive of health information seeking, at least within the context of a public hypertension screening.

No significant differences were found between the number of pamphlets selected by the younger health-internals and the number of pamphlets selected by the younger health-externals. This suggests that the health locus of control beliefs of the younger individuals were not predictive of health information seeking in this study. It is proposed that the age of the subjects was an important factor relative to their information seeking behaviour. It is possible that the younger health-external subjects would actively seek new information as a function of their lifestyle, their attitudes regarding the new information, and other age-related factors. Thus, although these individuals had an external health locus of control orientation, their health-related behaviours appeared to correspond more closely with characteristics associated with their age.

Using a somewhat different approach, health locus of control measures were obtained from college students in a study by Krantz, Baum, and Wideman (1980). Krantz et al. examined these students' scores on the HLC scale in conjunction with the number of reported clinic visits during the academic year. They found that health-internals paid significantly fewer visits to the clinic than health-externals. They reasoned that health-internals demonstrated a greater degree of self-reliance with regard to their health. In addition, Krantz et al. found, on a separate sample of college students, that health-internals were more

likely to self-diagnose and assert themselves by asking the hospital staff to give them specific medications than were health-externals.

The results from the foregoing studies (Krantz et al., 1980; Toner & Manuck, 1979; Sproles, cited in Wallston & Wallston, Note 1) are particularly interesting because an actual clinical setting was used to obtain the data. In addition, these findings provided important information to people in the health-care professions since it was generally demonstrated that health-internals would seek more information relevant to their health-care activities, illnesses, or both, than individuals who did not believe they could exert personal control in achieving health or avoiding illness. This could allow health-care professionals to vary their format for treatment and care depending on their clients' health locus of control beliefs and their corresponding behaviours.

An investigation by Kilmann, Albert, and Sotile (1975) examined the relationship between locus of control (as measured by Rotter's I-E scale), structure of psychotherapy, and treatment outcome. Although this study is rather indirectly related to the foregoing physical health locus of control investigations, the results obtained are still informative. Kilmann et al. divided volunteers for a growth group experience into structured or unstructured groups, depending on their pretreatment locus of control scores.

These subjects were tested before they were administered their treatment, two days after, and at a four week follow-up period. The results showed significant differences in the expected direction between subjects' postexperimental ratings of the therapists' degree of control. Specifically, the subjects with an internal locus of control belief system in the unstructured group reflected a significant increase on the "Inner Directedness" scale of the Personal Orientation Inventory in comparison to the subjects with an external locus of control orientation. The subjects with external locus of control beliefs in a structured group showed a greater increase in "Inner Directedness" than the subjects with internal locus of control beliefs. These results appear to suggest that clients with an external locus of control orientation may achieve significant therapeutic benefits from a structured psychological intervention within a set time limit. Similarly, clients with an internal locus of control orientation may achieve greater therapeutic gains from therapists who maintain a low degree of control over their clients.

Wallston et al. (1976a) utilized the health locus of control scales as a predictor of client-therapy compatibility. They examined whether subjects whose weight reduction programme was consistent with their locus of control beliefs would lose more weight and be more satisfied with their programme than subjects whose programme was inconsistent with

their locus of control beliefs. Although no significant differences in weight loss were found between subjects in the various programmes, the treatment conditions which were consistent with the subjects' locus of control beliefs were evaluated more positively than those that were inconsistent with these beliefs.

In a well controlled study measuring the effects of various nursing interventions on 229 coronary patients, Cromwell, Butterfield, Brayfield, and Curry (1977) manipulated three factors in nursing care - the amount of information given to the patients; the type and amount of diversions given to the patient (for example, television, newspapers, extended visiting hours); and the degree to which patients participated in their own treatment and recovery. Cromwell et al. assessed the locus of control beliefs of these individuals using Rotter's I-E scale. The results showed that no patients in treatment conditions congruent with their locus of control beliefs died or returned to hospital within 12 weeks. In the incongruent situation, five patients died and 12 were rehospitalized.

Although not statistically significant, these findings are of practical importance. Cromwell et al. suggested that coronary patients with an internal locus of control belief system showed improvement when they were able to perceive their own decisions as instrumental in their treatment. Patients with an external locus of control belief system

showed improvement when they were able to leave the care and decision-making to others. Patients with an internal locus of control orientation who were not given the opportunity to participate in their own treatment programmes, and patients with an external locus of control orientation who were encouraged to actively participate in their treatment may have found these situations to be threatening. Subsequently, this may have accounted for the higher mortality and rehospitalization rates in these incongruent programmes.

The results from this study appear to be consistent with the major theoretical findings obtained by Kilmann et al. (1975) and Wallston et al. (1976a). Treatment programmes that are designed in accordance with clients' locus of control beliefs appear to effect some degree of success, satisfaction, or both in these clients. Although other factors certainly contributed to the rehospitalization and mortality rates in the Cromwell et al. (1977) study, the clients who were in treatment conditions congruent with their locus of control beliefs experienced a relatively higher degree of success than those who were not in congruent treatment conditions.

Multidimensional Health Locus of Control

To further refine the research in the area of health locus of control, Wallston, Wallston and DeVellis (1978) revised the unidimensional HLC scale to create the Multidimensional Health Locus of Control (MHLC) scales. This

instrument, instead of conceptualizing health locus of control as a unidimensional construct, measures individuals' health locus of control beliefs as primarily internal (IHLC), under the control of powerful others (PHLC), or as a matter of choice (CHLC). The concept of a multidimensional scale stemmed from Levenson's (1974) research on Rotter's (1966) unidimensional locus of control scale. Levenson, although satisfied with the traditional conceptualization of the internal locus of control, was not as content with Rotter's conceptualization of the external dimension. In a series of studies, Levenson (1973, 1974) consistently found a well-defined difference between the control by powerful others orientation and the control by chance orientation. These findings strongly supported the notion that people who believe in the unordered and random nature of the world (chance locus of control) may think and behave differently from those who believe in the ordered, predictable nature of the world, with the belief that powerful others are in control.

DeVellis, DeVellis, Wallston and Wallston (1980) conducted a survey, using the MHLC scales among others, with a national sample of individuals with epilepsy. DeVellis et al. hypothesized that individuals who experienced seizures that were more frequent, more severe, and less predictable would express higher beliefs in chance and lower beliefs in internality. Their results generally indicated that negative experiences over which there is little control (in this case,

epileptic seizures) are conducive to high external locus of control beliefs and low belief in internal health locus of control.

Nicholson (1980), as cited by Wallston and Wallston (1981, p. 211), utilized the MHLC scale in order to examine changes in health locus of control beliefs of primiparous parents involved in prepared childbirth pre- and post-partum. Nicholson found that the mothers' IHLC scale scores decreased significantly. The same trend was found in the fathers' scores, although these changes were not statistically significant. Nicholson suggests that the women's experiences during hospitalization may have contributed to the changes in their health locus of control beliefs. Consistent with these findings is Taylor's (1979) theory that health locus of control beliefs may change following a period of hospitalization due to the nature of the hospital environment as being one of low control.

The MHLC scales have been used in a variety of other settings and for a variety of useful purposes. The present research examined individuals' health locus of control beliefs in the context of life-threatening illness. This research attempted to discover whether or not individuals have different perceptions of control over their health depending on the type of life-threatening illness they have. In addition, an attempt was made to examine the possible ways in which health locus of control beliefs may change in

given individuals as a function of their life-threatening illness. For the purposes of the present research, the two life-threatening illnesses that were examined were serious heart disease and cancer.

Perceptions of Heart Disease and Cancer

According to Hackett and Weisman (1969), heart disease is generally considered a hopeful illness - an illness from which individuals can recover, providing they take the proper steps. It might be assumed, therefore, that individuals with serious heart disease could regard their health in the future as being dependent on what they themselves do or what others do for them. Weisman (1972) states that since myocardial infarction patients believe in their ultimate recovery, they would choose their illness over having cancer with a good prognosis. Thus, it might be expected that individuals suffering from serious heart disease would be more likely to adopt behaviours which reflect their belief that they can exert some control over their illness and recovery.

While these attitudes toward heart disease are common within our society, they are not necessarily accurate perceptions. There are genetic factors that play an important part in determining an individual's susceptibility to, and recovery from, heart disease (Briney, 1970; Debakey & Gotto, 1977). These are factors over which the individual has virtually no control. Specifically, DeBakey and Gotto outlined

relationships between genetic factors and the elevation of triglycerides and cholestrol, obesity, and hypertension as possible causes of coronary heart disease. Moreover, it is well documented that diseases of the heart and circulatory system remain the leading cause of death for both men and women in North America (Donavan, Note 2). Thus, common attitudes about recovery from heart disease may be more optimistic than would be supported by statistical data.

While heart disease is perceived as a hopeful illness, cancer is perceived more negatively. Weisman (1972, p. 82) states that "Although a person with a heart attack may be in danger of dying, the diagnosis of myocardial infarction is seldom as threatening as that of cancer.... In the mind of the layman, (and in the mind) of practically all patients, the diagnosis of cancer is almost synonymous with a death sentence". This statement summarizes much of what is found in the literature regarding cancer patients' attitudes toward their disease, specifically, that cancer is the most feared and hopeless of all diseases (Abrams, 1966; Sohl, 1975). This statement also summarizes many of the beliefs and myths that exist among the general population regarding both cancer and heart disease, despite statistics indicating heart disease may be more fatal (Donavan, Note 2).

Since individuals with cancer and those with serious heart disease appear to have different attitudes about their illnesses, it is possible that their thoughts, feelings, and

health-related behaviours would be different as well. While individuals with heart disease are described as perceiving themselves as having control over their illness, perhaps the most significant perception of cancer patients toward their disease is that they do not have control over the disease (Abrams, 1966). Individuals with cancer may view their illness as strictly a medical problem - a disease in which control of emotional, physical, or psychological processes cannot alter its progression.

LeShan (1966) states that because of the perceptions of cancer patients toward their disease, their world is one that is impersonal and mechanistic. The onset of cancer may take away many existing support systems from the individual. "When one is ill (with cancer), one is alone with oneself... alone and largely deprived of those aids to one's feelings about oneself which come reflected in the behaviour of others" (LeShan, 1964, as cited by Sohl, 1975, p. 130). Thus, the support of friends, family, and health-care professionals may do little to change cancer patients' beliefs that they have received a death sentence. Because cancer is perceived as a "killer disease" by so many individuals, a commonly held belief, at least among cancer patients, is that there is a "mystical sense of fate that is personally woven for them" LeShan, 1966). The cancer patients have been singled out and regardless of what they do or have done in the past, their particular fate is sealed, however dismal that may be (LeShan, 1966).

Little research has been done utilizing the MHLC scales with cancer patients to determine their health locus of control. However, Greber's (1979) study, as cited by Levenson (1981, p. 38), using Levenson's Internal, Powerful Others, and Chance (I, P, and C) scales, provided some interesting results. Greber administered the I, P, and C scales, among other psychodiagnostic instruments, to 35 female cancer patients, and to a control group of 35 women. Although no differences were found between these two groups on the P and C scales, the groups differed significantly on the I scale. Greber found that the cancer patients' scores on the Internal scale were significantly lower than the Internal scale scores of women in the control group. Greber felt that these data supported her hypothesis that there is a "premorbid personality profile associated with individuals who develop cancer" (Greber, as cited by Levenson, 1981, p. 38). Although one could argue against Greber's conclusions, her results support the hypothesis that cancer is perceived as an "uncontrollable" illness.

Achterberg, Matthews-Simonton, and Simonton (1977) administered a series of psychodiagnostic tests, including Levenson's I, P, and C scales, to two groups of cancer patients and to one group of subjects without any physical illness. It is important to note that the cancer patients were chosen from Simonton's treatment programme. For their treatment programme, the Simontons selected individuals who

had widely metastatic cancer but were willing to participate actively in their medical treatment and were willing to assume some responsibility for their recovery. The results from this study showed that all of Simonton's cancer patients scored higher on the Internal scale than did the healthy control group. In addition, a comparison between the two groups of cancer patients indicated that there was no significant difference on the internality dimension between those patients who had outlived their life expectancy and those who had not. However, differences between patient groups were found on the Powerful Others scale. Achterberg et al. found that patients who outlived their life expectancy were less likely to expect powerful others to control their outcomes. This finding was viewed as somewhat surprising in light of the notion that it is usual for "good" patients to believe strongly in the power of others, such as doctors, to "cure" them. No information regarding the Chance scale was given by the authors of this study.

In another study, Levenson's I, P, and C scales, as part of an extensive battery of instruments, were administered to 126 cancer patients in order to study the relationship between psychological factors and blood chemistries as disease outcome predictors (Achterberg, Lawlis, Simonton, & Matthews-Simonton, 1977). Achterberg et al. found that some psychological factors were significant predictors of follow-up disease status, whereas blood chemistries were not.

Achterberg et al. explained that if patients used denial, if they were dependent on others, or if they viewed their bodies as incapable of fighting the disease, then they were more likely to have a poor disease prognosis. A comparison of blood chemistries with psychological factors showed that monocytic reactions were related to a lower chance locus of control orientation. From these findings, Achterberg et al. suggested that a more restricted approach to life (for example, believing in the ordered, predictable nature of the world) may restrict other available resources needed to combat diseases such as cancer. The results from this study are particularly interesting in that the positive value of chance oriented perceptions are considered.

The research discussed above consistently demonstrates how persons' locus of control beliefs play an important role in their information seeking behaviour, their involvement in various treatment programmes, and in their recovery process. It might be assumed, then, that an issue which individuals with a life-threatening illness may confront is that of perceived control over their health. Some individuals may perceive themselves as having control over their health and, subsequently, they may wish to participate actively in their treatment programme. Others may rely heavily upon their doctors, family, and friends throughout the treatment process. Although these individuals may not perceive themselves as having control over their health, they perceive other

significant persons as having some degree of control over it. There are still others who may perceive their illness as a chance event, over which neither they, nor others, have any control. Individuals' attitudes about different life threatening illnesses, specifically for this study, heart disease and cancer, may also have a differential effect on individuals' perceptions of control over their health.

The present research addressed these issues in a series of three investigations. Study 1 attempted to determine if, among a healthy population, attitudes about these different life-threatening illnesses differentially affected the MHLC scores, by employing a within-subjects design. Study 2 examined whether these differences in the MHLC scores existed using a between-subjects design. In Study 3, the MHLC scores of the actual clinical populations were examined in order to determine if individuals with either serious heart disease or cancer had different perceptions of control over their health.

It was hypothesized that individuals' perceptions of serious heart disease would be associated more closely with a higher internal locus of control orientation (i.e., higher IHLC scale scores), a higher powerful others orientation (i.e., higher PHLC scale scores), or both, than individuals' perceptions of cancer. It was also hypothesized that individuals' perceptions of cancer would be associated more closely with a higher locus of control orientation (i.e., higher CHLC

scale scores) than individuals' perceptions of serious heart disease. It was assumed that these hypotheses would apply for both non-clinical and clinical populations.

Study 1

Study 1, a within-subjects design, was conducted in an attempt to determine whether individuals' health locus of control beliefs are attributable to different types of illness. Given the attitudes and perceptions about heart disease and cancer previously discussed, it was proposed that the respondents would change their health locus of control beliefs in the direction dictated by the attitudes and perceptions about these illnesses.

Study 1 was conducted by asking individuals with no serious physical disease to complete the MHLC scale three times, and with three separate sets of instructions. The respondents were initially asked to rate their present feelings and beliefs about their health. Then, they were asked to complete the scales as individuals who, at some time in the past, suffered a heart attack, and as individuals who, at some time in the past, had been diagnosed as having cancer. These instructions are discussed more fully in the Procedure section of Study 1.

Method

Subjects

Thirty-three introductory psychology students at Lakehead University in Thunder Bay, Ontario were recruited for Study 1. This sample comprised 20 females and 13 males. The mean age for this sample was 19.73 years (*SD* = 1.58). The data from these respondents were collected prior to one of their weekly lectures.

Assessment Materials

The health locus of control beliefs were assessed by using Form A of the Multidimensional Health Locus of Control (MHLC) scales (Wallston et al, 1978). This instrument was designed to measure locus of control expectancies specifically related to health. It consists of three scales - Internal Health Locus of Control (IHLC), Powerful Others Health Locus of Control (PHLC), and Chance Health Locus of Control (CHLC). Each of these three scales contains six items. A 6-point Likert-type scale, ranging from "strongly disagree" (a rating of "1") to strongly agree (a rating of "6") was employed to measure the locus of control expectancies specifically related to health. Thus, the lowest score that could have been obtained by a subject on any of these scales was a score of 6 (a rating of "1" for each item). The highest score that could have been obtained by a subject on any of these scales was a score of 36 (a rating of "6" for each item). This instrument is presented in

Appendix A. Appendix B charts the items that correspond with each of the MHLC scales.

Procedure

Each subject was asked to fill out Form A of the MHLC scales, and a measure of health value modelled after Rokeach's (1973) Value Survey[1], three times. The subjects were given three separate sets of instructions prior to completing each of the forms. The subjects were first instructed to rate their present feelings and beliefs about their health by filling out the MHLC scales. The exact set of instructions given to the subjects is presented in Appendix D.

The subjects were also asked to try to imagine that, at some time in the past, they had suffered a heart attack. They were then instructed to fill out the MHLC scales in the way they felt they would if they had suffered a heart attack. Appendix E contains the exact set of instructions given to the subjects.

The subjects were also asked to try to imagine that, at some time in the past, they were diagnosed as having cancer. They were then instructed to fill out the MHLC scales in the way they felt they would if that diagnosis had actually been made. Appendix F contains the exact set of instructions given to the subjects.

[1]Although a measure of health value was taken from each of the respondents in each of the three studies, the administration of this value survey was not necessary because this research project did not make predictions regarding health behaviour. Rokeach's value survey is presented in Appendix C.

The instructions in which the subjects were asked to imagine that they had suffered a heart attack, or that they had been diagnosed as having cancer, were presented in a counterbalanced order to the subjects.

Statistical Analyses

Descriptive statistics were obtained for the IHLC scale, PHLC scale, and CHLC scale scores of the subjects for the three separate sets of instructions previously described.

Since this was a within-subjects design, a repeated measures analysis of variance was performed to determine differences between the IHLC scale, PHLC scale, and CHLC scale scores of the subjects asked to complete the forms given the three sets of instructions previously outlined.

For each of the MHLC scales, orthogonal comparisons were conducted.

Results

Descriptive Statistics

Means and standard deviations for the IHLC scale, PHLC scale, and CHLC scale scores, organized according to the three separate sets of instructions, are presented in Table 1.

Analyses of Variance and Planned Orthogonal Comparisons

IHLC Scale

The repeated measures ANOVA performed on the three sets of IHLC scale scores revealed a significant difference among these scores (F = 20.38, p = .001). A planned orthogonal comparison revealed that the IHLC scale scores of the subjects when they were given no special instructions were significantly higher than the IHLC scale scores when they were asked to imagine they had a life-threatening illness (F = 16.99, df = 1,64, p = .001). A second orthogonal comparison showed that the IHLC scale scores of the subjects when they were given the "Imagine having Serious Heart Disease" instructions (M = 26.12) were significantly higher than the IHLC scale scores when the subjects were given the "Imagine having Cancer" instructions (M = 21.03) (F = 23.77, df = 1,64, p = .001).

PHLC Scale

The repeated measures ANOVA performed on the three sets of PHLC scale scores revealed a significant difference

Table 1

Means and Standard Deviations of
IHLC scale, PHLC scale, and CHLC scale scores
under the Three Different Conditions

	No Special Instruction	"Imagine having Serious Heart Disease"	"Imagine having Cancer"
IHLC Scale			
M	27.30	26.12	21.03
SD	4.18	4.92	7.00
PHLC Scale			
M	16.33	22.12	22.73
SD	4.44	5.69	6.42
CHLC Scale			
M	15.46	17.58	20.52
SD	4.41	4.46	5.79

among these scores (F = 20.82, p = .001). A planned, orthogonal comparison showed that the PHLC scale scores of the subjects when they were given no special instructions were significantly lower than the PHLC scale scores that were obtained when they were asked to imagine that they had a life-threatening illness (F = 41.33, df = 1,64, p = .001). However, no significant differences were found between the the PHLC scale scores of the subjects when they were asked to imagine that they had suffered a heart attack and when they were asked to imagine that they had been diagnosed as having cancer.

CHLC Scale

A significant difference among the CHLC scale scores of the subjects was found in the repeated measures ANOVA (F = 15.36, p = .001). Planned orthogonal comparisons revealed that the CHLC scores of the subjects when they were given no special instructions were significantly lower than the CHLC scale scores that were obtained when they were asked to imagine that they had a life-threatening illness (F = 20.45, df = 1,64, p = .001). A second orthogonal comparison revealed that the CHLC scale scores of the subjects given the "Imagine having Cancer" instructions (M = 20.52) were significantly higher than the CHLC scale scores when they were instructed to imagine that they had suffered a heart attack (M = 17.58) (F = 10.28, df = 1,64, p = .01).

Summary

The results from Study 1 suggest that different perceptions of control over one's health appear to exist for different life-threatening illnesses. These patterns are generally consistent with those expected. Specifically, serious heart disease was seen as resulting in greater internal health locus of control beliefs. Cancer, on the other hand, was seen to result in the increased perception of the role of chance. Both of these life-threatening illnesses were seen as resulting in greater involvement of powerful others. Although the latter finding was not expected, it appears that the way in which individuals perceive powerful others as having control over their health increases, irrespective of whether the life-threatening illness is serious heart disease or cancer.

Study 2

The findings of Study 1 were obtained in the context of a within-subjects design. Such a design may yield findings that are misleading because of possible carryover or contrast effects between conditions. Subjects' responses under one condition may be altered because of having previously responded under another condition. This may take place as a result of forming "expectancies or hypotheses about the purpose of the experiment" (Badia & Runyon, 1982, p. 237). In order to establish how health locus of control beliefs differ according to perceptions of different life-threatening illnesses, Study 2 was conducted using a between-subjects design. In this study, subjects were assigned, at random, to three different groups and asked to complete the MHLC scales under only one of the three different conditions used in the previous study.

Method

Subjects

Ninety-four introductory psychology students at Lakehead University were recruited for Study 2. The sample included:

1) Thirty-three introductory psychology students with no serious physical disease. This group consisted of 26 females and 7 males. The mean age for this group was 23.50 years (*SD* = 6.10).
2) Thirty-one introductory psychology students with no serious physical disease who were asked to imagine they had, at some time in the past, suffered a heart attack. There were 16 males and 15 females in this group. The mean age for this group was 22.81 years (*SD* = 5.41).
3) Thirty introductory psychology students with no serious physical disease who were asked to imagine that they had, at some time in the past, been diagnosed as having cancer. There were 20 females and 10 males in this group. The mean age for this group was 21.73 years (*SD* = 4.60).

The data from these respondents were collected prior to one of their weekly lectures.

Assessment Materials

The health locus of control beliefs were assessed by using the same MHLC scales (Wallston et al., 1978) that were employed in Study 1.

Procedure

The MHLC scales were administered to the three groups prior to their weekly introductory psychology lecture. These individuals were informed that they would be participating in some research for approximately 20 minutes. In addition, they were told to pay particularly close attention to the instructions that appeared on the first sheet of the packet they were given. The instructions that were given to these groups can be found in Appendices D, E, and F.

Appendix D outlines the instructions given to the subjects who were asked to rate their present feelings and beliefs about their health. Appendix E contains the instructions given to the subjects who were asked to fill out the forms in the way they felt they would if, at some time in the past, they had suffered a heart attack. Appendix F contains the instructions given to the subjects who were asked to fill out the forms in the way they felt they would if they had been diagnosed, at some time in the past, as having cancer.

After these subjects had finished filling out their forms, they were given a brief lecture describing the purpose of the study, and the possible implications that might result from this type of research.

Statistical Analyses

The data from the three groups of subjects in Study 2 were analysed using a series of statistical procedures on each of the MHLC scales. Specifically, separate analyses of

variance (ANOVA's), orthogonal comparisons, and analyses of covariance (ANCOVA's) were performed on the IHLC scale, PHLC scale, and CHLC scale scores, as well as on such factors as the sex and age of the subjects. These analyses were conducted using the SPSS systems of computer programmes (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975). The calculation of the descriptive statistics for each of the three groups was also conducted using the SPSS system of computer programmes (Nie et al.,1975).

Descriptive Statistics

Means, standard deviations, and minimum and maximum values were obtained for the ages, IHLC, PHLC, and CHLC scale scores of each group.

Analyses of Variance (ANOVA's)

One-way analyses of variance were performed on the data obtained from these three groups to determine whether there were differences among the groups' IHLC, PHLC and CHLC scale scores. The ANOVA's were conducted separately on each of the three MHLC scales.

Orthogonal Comparisons

Orthogonal comparisons were also conducted on the data from these three groups. These comparisons were made separately on each of the three MHLC scales. While it is recognized that the ANOVA's are not necessarily required when orthogonal comparisons are conducted, both analyses were performed as a method of substantiating results.

Analyses of Covariance (ANCOVA's)

Analyses of covariance were performed on the same data as in the previously described ANOVA. These analyses were conducted to confirm that the results obtained in the ANOVA's were attributable to the health locus of control beliefs of the individuals in each of the groups, and to no other confounding variables. In addition, ANCOVA's were performed in order to assess the influence of different methods of analysis on final results. For this purpose, the sex and age of the subjects were used as covariates, and each of the three MHLC scales were the dependent variables.

Results

Descriptive Statistics

The means and standard deviations for each of the three groups' IHLC, PHLC, and CHLC scale scores are presented in Table 2.

Analyses of Variance and Orthogonal Comparisons

IHLC Scale

The ANOVA performed on the IHLC scale scores of these three groups revealed no significant differences among the scores. In addition, the planned comparisons revealed no significant differences among the IHLC scale scores of these groups. Although these findings appear inconsistent with the results reported in Study 1, it should be noted that the IHLC scale scores that were obtained in Study 2 were observed to be in the expected direction. The ANOVA summary table for these groups' IHLC scale scores appears in Table 3.

PHLC Scale

The PHLC scale scores differed significantly among the three groups using ANOVA ($F = 4.00$, $p = .022$). Planned, orthogonal comparisons showed that the PHLC scale scores of the "Imagine having Serious Heart Disease" and the "Imagine having Cancer" groups were significantly higher than the PHLC scale scores of the "Healthy Introductory Psychology Students" group (t - value = 2.76, $df = 91$, $p = .007$). These results are consistent with those obtained in

Table 2

Means and Standard Deviations of IHLC scale, PHLC scale, and CHLC scale scores of the Three "Non-Clinical" groups

	"Healthy introductory Psychology students"	"Imagine having Serious Heart Disease"	"Imagine having Cancer"
IHLC Scale			
M	26.03	25.13	23.83
SD	4.13	3.70	4.65
PHLC Scale			
M	15.27	17.65	18.40
SD	4.35	4.16	5.29
CHLC Scale			
M	15.67	17.13	17.83
SD	4.72	3.84	5.36

Table 3

Summary Table of Analysis of Variance for the Three "Non-Clinical" Groups' IHLC scale scores

Source	SS	df	MS	F	Prob.
Between	76.30	2	38.15	2.19	.118
Within	1568.60	90	17.43		
Total	1644.90	92			

Study 1. Similarly, there was no significant difference found between the PHLC scale scores of the "Imagine having Serious Heart Disease" group and the "Imagine having Cancer" group.

Table 4 contains the ANOVA summary table for the subjects' PHLC scale scores.

CHLC Scale

The ANOVA performed on the CHLC scale scores revealed no significant differences among the scores. Furthermore, the planned, orthogonal comparisons did not reveal any significant differences among the CHLC scale scores of the three groups. Although the results from the present study are not statistically significant, the pattern of CHLC scale scores obtained from each group is generally consistent with the pattern of scores obtained in Study 1. However, when given the "Imagine having Cancer" instructions, the CHLC scale scores of the subjects in Study 1 were considerably higher (M = 20.52, SD = 5.79) than were the CHLC scale scores of the subjects in Study 2 (M = 17.83, SD = 5.36).

Table 5 contains the ANOVA summary table for the CHLC scale scores of the three groups.

Analyses of Covariance (ANCOVA's)

IHLC Scale

The ANCOVA performed on the IHLC scale scores revealed no significant differences among the three groups (F = 2.96, p = .057). Although these results are similar to the ANOVA

Table 4

Summary Table of Analysis of Variance for the Three "Non-Clinical" Groups' PHLC Scale Scores

Source	SS	df	MS	F	Prob.
Between	169.89	2	84.95	4.00	.022
Within	1934.84	91	21.26		
Total	2104.73	93			

Table 5

Summary Table of Analysis of Variance for the Three "Non-Clinical" Groups' CHLC Scale Scores

Source	SS	df	MS	F	Prob.
Between	77.61	2	38.81	1.77	.177
Within	1974.97	90	21.94		
Total	2052.58	92			

performed on the IHLC scale scores, the trend towards significance is considerably greater using ANCOVA. No significant differences were found between the covariates for these data.

Table 6 comprises the summary table for the ANCOVA for the subjects' IHLC scale scores.

PHLC Scale

The ANCOVA performed on the PHLC scale scores revealed significant differences among the three groups ($F = 4.75$, $p = .011$). This finding is consistent with the significant differences that were found using ANOVA. The ANCOVA also revealed a significant effect of the covariate, age ($F = 6.77$, $p = .011$). This suggests that higher ratings were given to the PHLC scale items by the younger subjects in these groups.

The ANCOVA summary table for these data appears in Table 7.

CHLC Scale

The ANCOVA conducted on the CHLC scale scores revealed no significant differences among the three groups. These findings are consistent with those obtained using ANOVA on the same set of scores. In addition, no significant differences were found between the covariates for these data. The summary table for this ANCOVA appears in Table 8.

Table 6

Summary Table of Analysis of Covariance
for the Three "Non-Clinical" Groups'
IHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	51.60	2	25.80	1.50	0.229
Age	49.38	1	49.38	2.87	0.094
Sex	1.28	1	1.28	0.07	0.786
Between	101.84	2	50.92	2.96	0.057
Within	1477.86	86	17.18		
Total	1631.30	90	18.13		

Table 7

Summary Table of Analysis of Covariance
for the Three "Non-Clinical" Groups'
PHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	161.79	2	80.90	4.17	0.019
Age	121.32	1	131.32	6.77	0.011
Sex	24.33	1	24.33	1.25	0.266
Between	184.46	2	92.23	4.75	0.011
Within	1669.35	86	19.41		
Total	2015.60	90	22.40		

Table 8

Summary Table of Analysis of Covariance
for the Three "Non-Clinical" Groups'
CHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	22.79	2	11.39	0.50	0.608
Age	20.98	1	20.98	0.92	0.340
Sex	2.49	1	2.49	0.11	0.742
Between	61.82	2	30.91	1.36	0.263
Within	1959.81	86	22.79		
Total	2044.42	90	22.72		

Summary

The results obtained in Study 2 generally confirm the findings of Study 1. Specifically, these results show that perceptions of how serious heart disease and cancer affect health locus of control are fairly consistently held among healthy people.

The results from these two studies suggest that, according to a healthy population, the health locus of control beliefs of individuals with serious heart disease would likely be internal.

The results from these two studies suggest that a population of healthy individuals also perceive the influence of powerful others as having control over serious heart disease. Furthermore, cancer was seen as resulting in greater involvement of powerful others. These findings consistently suggest that regardless of whether the life-threatening illness is serious heart disease or cancer, the involvement of powerful others is perceived as an important factor.

The ANCOVA performed on the PHLC scale scores, however, revealed another important finding. This analysis showed that the age of the subjects in Study 2 significantly affected the scores. Specifically, the younger subjects obtained higher PHLC scale scores and the older subjects obtained lower PHLC scale scores. Consistent with this finding is a comparison of the PHLC scale scores of the subjects in Study 1

(mean age of 19.73 years) with the PHLC scale scores of the subjects in Study 2 (mean age of 22.68 years). The PHLC scale scores of the subjects from Study 1 were found to be considerably higher than the PHLC scale scores of the subjects in Study 2. It should also be noted that the ANCOVA described above produced an even stronger between-subjects effect than did the ANOVA, suggesting that when age was held constant, significant differences among the PHLC scale scores were still found.

The results obtained from both the ANOVA and ANCOVA conducted on the CHLC scale scores of the subjects in Study 2 did not reveal significant findings. Unlike the expected findings obtained in Study 1, there were no significant differences found among the way healthy individuals perceived the role of chance, fate, or luck as it influenced the health locus of control of either individuals with serious heart disease or individuals with cancer.

A comparison of the CHLC scale scores from Study 1 and Study 2 may lend support to the carryover effects earlier discussed by Badia and Runyon (1982). The subjects in the within-subjects design, when asked to imagine that they had been diagnosed as having cancer, may have responded in a way that was consistent with their expectancies about the purpose of the study. If this was the case, however, this still provides important information regarding the way in which healthy individuals associate a chance health locus of control with cancer.

Study 3

In order to examine whether people suffering from serious heart disease and cancer have different health locus of control beliefs, and in order to understand better the implications resulting from the previous two studies, Study 3 was undertaken using a between-subjects design. A group of individuals with serious heart disease and a group of individuals with cancer were selected and compared with a group of individuals who were visiting their doctor for their annual physical check-up.

Method

Subjects

The sixty respondents in Study 1 were recruited from various facilities in Thunder Bay, Ontario. The sample included:

1) Twenty individuals with no serious physical disease who visited their general practitioner for a physical check-up (i.e., the "worried well"). This group consisted of 19 females and 1 male. The mean age for the "worried well" group was 30.32 years (*SD* = 11.94).
2) Twenty individuals (18 males and 2 females) with some form of serious heart disease. Thirteen of these respondents (12 males and 1 female) had suffered a heart attack between 2 and 18 months prior to participating in the study, four male respondents had suffered a heart attack more than 18 months prior to participating in the study, two individuals had been diagnosed as having angina (1 female and 1 male), and one male participant had undergone a valvular replacement. The mean age for this group was 55.45 years (*SD* = 9.55).
3) Twenty individuals (15 females and 5 males) who had been diagnosed as having some type of cancer between 2 and 18 months prior to participating in the study. Thirteen female respondents had breast cancer, five respondents (4 males and 1 female) had lung cancer, one male respondent had been diagnosed as having malignant melanoma, and

one female respondent had cancer of the bowel. The mean age for this group was 51.20 years (SD = 12.51).

Recruitment Procedures

The respondents in the present study were recruited in a variety of different ways. This section will outline the various recruitment procedures that were employed for each of the three groups.

The individuals in the "worried well" group initially visited their doctor at the Port Arthur Clinic in Thunder Bay, Ontario for a general assessment of their health. Following this assessment, the doctor explained to her patients that a graduate student from Lakehead University was conducting some research dealing with people's feelings and beliefs about their health. These individuals were informed that this research would involve completing some forms, and that it would take them between 20 and 30 minutes to finish the task. If they agreed to participate in the research, they were directed to the researcher's office at the clinic.

Fourteen of the respondents in the "serious heart disease" group were contacted by telephone. These respondents were given a brief explanation regarding the purpose of the study and were asked if they were interested in taking part in the investigation. Each individual agreed to participate in the study. The researcher made a visit to each of these participants' homes in order to collect the data.

The data for the remaining six respondents in the "serious heart disease" group were obtained at the Port Arthur Clinic in Thunder Bay, Ontario. These individuals initially visited their cardiologist for their regular appointment. At the conclusion of the appointment, the respondents were told that a graduate student from Lakehead University was conducting some research dealing with people's feelings and beliefs about their health. These individuals were informed that the research would involve completing some forms, and that it would take them between 20 and 30 minutes to finish the task. If they agreed to participate, the respondents were met by the researcher in his office at the clinic.

The respondents in the "cancer" group received a letter explaining the purpose of the research. The respondents were later contacted by telephone to confirm their interest and eventual participation in the study. The researcher's supervisor then visited the homes of these respondents in order to obtain the necessary data for the study. The length of the visit ranged from 15 minutes to one and one-half hours. Overall, 23 females and 15 males were recruited. Some data were discarded, however, because the respondents either misunderstood the instructions or they failed to comprehend some of the items. The data that were analysed in this study were collected from the 20 respondents described in the previous section.

Assessment Materials

The health locus of control beliefs were assessed by using the same MHLC scales (Wallston et al., 1978) that were employed in Study 1 and Study 2.

Procedure

The respondents in the "worried well", "serious heart disease", and "cancer" groups were given a brief introduction regarding the purpose of the research. The respondents were then encouraged to ask any questions that they might have concerning this research. A consent form was then given to the respondents to sign. Appendix G contains a copy of the consent form. These individuals then filled out Wallston et al.'s (1978) MHLC scales. Demographic data were also collected from these subjects. Following the completion of this task, the respondents were debriefed, and questions they had regarding the investigation were answered.

Statistical Analyses

The data from the three groups in Study 3 were analysed identically to the data in Study 2, using a series of statistical procedures on each of the MHLC scales. Specifically, separate analyses of variance (ANOVA's), orthogonal comparisons, and analyses of covariance (ANCOVA's) were performed on the IHLC scale, PHLC scale, and CHLC scale scores, as well as on such factors as the sex and age of these respondents. The calculation of descriptive statistics was also conducted. These analyses were conducted using the SPSS system of computer programmes (Nie et al., 1975).

T-tests

When this research project was first proposed, the criterion for subjects in the "serious heart disease" group was that the subjects had suffered a heart attack between 2 and 18 months prior to participating in the study. Due to the unavailability of 20 people who would fit the criterion, a more varied group of individuals was selected. As previously described in the "Subjects" section, 13 of the subjects in the "serious heart disease" group had suffered a heart attack between 2 and 18 months prior to participating in the study, four subjects had suffered a heart attack more than 18 months prior to participating in the study, two subjects had been diagnosed as having angina, and one subject had undergone a valvular replacement. For each of the IHLC scale, PHLC scale, and CHLC scale scores, t-tests were conducted between the scores of the 13 "criterion-fit" subjects and the scores of the seven "criterion non-fit" subjects. No significant differences were found on any of the scales. Thus, the group was named the "serious heart disease" group since not all respondents had suffered a heart attack at some time in the past, yet responded similarly on test items.

Results

Descriptive Statistics

The means and standard deviations for each of the three groups' IHLC scale, PHLC scale, and CHLC scale scores are presented in Table 9.

Analyses of Variance and Orthogonal Comparisons

IHLC Scale

The ANOVA performed on the IHLC scale scores of the three "clinical" groups revealed a significant difference among the scores (F = 4.76, p = .012). The planned, orthogonal comparisons showed that, as expected, the IHLC scale scores of the "serious heart disease" group were significantly higher than the IHLC scale scores of the "cancer" group (t-value = 2.43, df = 57, p = .018). These IHLC scale findings are consistent with the healthy individuals' perceptions of serious heart disease and cancer in the previous two studies. The ANOVA summary table for the "clinical" groups' IHLC scale scores appears in Table 10.

PHLC Scale

The PHLC scale scores differed significantly among the three "clinical" groups using ANOVA (F = 4.10, p = .022). Consistent with the findings reported in the previous two experiments, the PHLC scale scores of the "serious heart disease" group and "cancer" group were significantly higher than the PHLC scale scores of the "worried well" group (t-value = 2.73, df = 57, p = .008). Similarly, there were no significant differences found between the PHLC scale scores of the "serious heart disease" group and the "cancer" group.

Table 9

Means and Standard Deviations of IHLC scale, PHLC scale, and CHLC scale scores of the Three "Clinical" Groups

	"Worried Well"	"Serious Heart Disease"	"Cancer"
IHLC Scale			
M	26.95	26.40	23.25
SD	3.82	3.82	4.60
PHLC Scale			
M	19.90	23.15	24.60
SD	5.63	4.78	5.49
CHLC Scale			
M	15.50	16.35	18.35
SD	4.19	5.21	6.42

Table 10

Summary Table of Analysis of Variance for the Three "Clinical" Groups' IHLC Scale Scores

Source	SS	df	MS	F	Prob.
Between	159.43	2	79.72	4.76	.012
Within	955.50	57	16.76		
Total	1114.93	59			

Table 11 contains the ANOVA summary table for the subjects' PHLC scale scores.

CHLC Scale

The ANOVA performed on the CHLC scale scores revealed no significant differences among the scores. Furthermore, the planned orthogonal comparisons did not reveal any differences among the CHLC scale scores of the three "clinical" groups. Although the results from the present study are not statistically significant, the pattern of CHLC scale scores obtained from each of the "clinical" groups were observed to be in the expected direction. Specifically, the respondents in the "cancer" group scored higher on the CHLC scale than did the respondents in the other two groups.

The ANOVA summary table for these groups' CHLC scale scores appears in Table 12.

Analyses of Covariance

IHLC Scale

The ANCOVA performed on the IHLC scale scores of these "clinical" groups showed that the scores differed significantly among the groups ($F = 3.40$, $p = .041$). These findings are consistent with both the previous ANOVA performed on the same IHLC scale scores, and with the results of Studies 1 and 2 using comparable groups. The ANCOVA also revealed significant effects of the covariates age ($F = 4.22$, $p = .045$), and sex ($F = 4.51$, $p = .038$) for these respondents. Thus, the higher ratings were given to IHLC scale

Table 11

Summary Table of Analysis of Variance for the Three "Clinical" Groups' PHLC Scale Scores

Source	SS	df	MS	F	Prob.
Between	231.70	2	115.85	4.10	.022
Within	1609.15	57	28.23		
Total	1840.85	59			

Table 12

Summary Table of Analysis of Variance for the Three "Clinical" Groups' CHLC Scale Scores

Source	SS	df	MS	F	Prob.
Between	83.20	2	41.60	1.45	.242
Within	1632.05	57	28.63		
Total	1715.25	59			

items by the younger subjects. In addition, the ANCOVA offers that higher IHLC scale scores were obtained by the male subjects in these groups.

Table 13 comprises the ANCOVA summary table for these respondents' IHLC scale scores.

PHLC Scale

The ANCOVA performed on the PHLC scale scores of these three groups revealed no significant differences among these scores, although the findings may indicate a trend (F = 3.00, p = .058). This trend supports the findings of the ANOVA performed on the same set of PHLC scale scores. The ANCOVA revealed a significant effect of the covariate, age (F = 22.33, p = .001), with a higher PHLC scale score associated with responses of older subjects.

Table 14 contains the ANCOVA summary table for the subjects' PHLC scale scores.

CHLC Scale

Consistent with the results from the previous ANOVA performed on the same set of CHLC scale scores, the ANCOVA revealed no significant differences among the three groups. No significant differences were found between the covariates for these data.

The ANCOVA summary table for these groups' CHLC scale scores appears in Table 15.

Table 13

Summary Table of Analysis of Covariance for the Three "Clinical" Groups' IHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	104.18	2	52.09	3.15	0.051
Age	69.66	1	69.66	4.22	0.045
Sex	74.47	1	74.47	4.51	0.038
Between	112.35	2	56.18	3.40	0.041
Within	891.88	54	16.52		
Total	1108.41	58	19.11		

Table 14

Summary Table of Analysis of Covariance for the Three "Clinical" Groups' PHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	556.17	2	278.09	13.12	0.001
Age	473.27	1	473.27	22.33	0.001
Sex	0.00	1	0.00	0.00	0.990
Between	127.10	2	63.55	3.00	0.058
Within	1144.76	54	21.20		
Total	1828.03	58	31.52		

Table 15

Summary Table of Analysis of Covariance for the Three "Clinical" Groups' CHLC Scale Scores

Source	SS	df	MS	F	Prob.
Covariates	96.92	2	48.46	1.71	0.191
Age	88.55	1	88.55	3.12	0.083
Sex	0.89	1	0.89	0.03	0.860
Between	78.65	2	39.33	1.38	0.259
Within	1534.53	54	28.42		
Total	1710.10	58	29.49		

Summary

The IHLC scale and PHLC scale scores obtained from the three clinical groups in Study 3 were generally consistent with those scores obtained from comparable groups in the previous two studies. Specifically, the health locus of control beliefs of individuals with serious heart disease were significantly more internal than the health locus of control beliefs of individuals with cancer. Although the ANCOVA revealed significant effects of age and sex, the consistency, over three separate studies, with which serious heart disease was associated with higher internality appears to be the most important factor to consider.

Consistent with the previous two studies, the PHLC scale scores of both the serious heart disease and cancer patients suggest a greater dependence on powerful others than the PHLC scale scores of individuals in a control group. Although the ANCOVA revealed that higher PHLC scale scores were obtained by the older respondents, the most important finding appears to be the consistently higher powerful others orientation associated with both serious heart disease and cancer.

The results obtained from the ANOVA and ANCOVA performed on the CHLC scale scores failed to produce significant results. The non-significant results obtained in this between-subjects design may lend more support to the theory that the significant results obtained in Study 1 were an artifact of the within-subjects design. However, it should be noted that

although the results were not significant, the pattern of scores was observed to be in the expected direction, with the cancer patients having the highest CHLC scale scores of the three groups.

Discussion

The present research was undertaken to determine whether or not individuals' perceptions of serious heart disease and cancer would differentially affect health locus of control beliefs. This issue was explored by assessing health locus of control beliefs relative to these two life-threatening illnesses.

The results from Study 1, a within-subjects design, showed that health locus of control beliefs appeared to be related to perceptions of the different life-threatening illnesses. Specifically, healthy individuals who were asked to fill out the MHLC in the way they felt they would if they had suffered a heart attack had significantly higher IHLC scale scores than when they were asked to imagine that they had been diagnosed as having cancer. These individuals may have obtained significantly higher scores on the IHLC scale when they were asked to imagine that they had suffered a heart attack because they perceived the heart attack as a hopeful illness - an illness from which they could recover providing they took the proper steps. These individuals may also have had significantly higher scores on the IHLC scale when they were asked to imagine that they had suffered a heart attack than when they were asked to imagine that they had cancer because of their beliefs that behavioural factors such as smoking, Type A behaviour patterns, and improper diet, may have led to the heart attack.

The CHLC scale scores of the subjects in Study 1 were significantly higher when they were asked to imagine that they were diagnosed as having cancer than when they were asked to imagine that they had suffered a heart attack. The significant differences that were obtained from the analysis of the CHLC scale scores may have been the result of these individuals perceiving the diagnosis of cancer as a "death sentence" (Weisman, 1972), and subsequently, a disease over which they would have no control. These results offer support to much of the literature regarding attitudes toward cancer. Specifically, cancer patients perceive their disease as the most feared and hopeless of all diseases (Abrams, 1966; Sohl, 1975), and they perceive that their particular fate is sealed regardless of what they do (LeShan, 1966). These attitudes towards cancer have become fairly common within the general population (Donavan, Note 2). Thus, the subjects' significantly higher CHLC scale scores that were obtained when they were asked to imagine that they had been diagnosed as having cancer were likely a function of their beliefs about the disease, as dictated by societal attitudes towards cancer.

The findings discussed above were obtained in the context of a within-subjects design. Similar findings, although not statistically significant, were obtained from three separate groups of healthy individuals in a between-subjects design. Thus, subjects who were asked to imagine that they had suffered a heart attack had relatively higher IHLC scale

scores than subjects who were asked to imagine that they had been diagnosed as having cancer. In addition, slightly higher CHLC scale scores were obtained by the subjects who were asked to imagine that they were diagnosed as having cancer.

Because no significant results were obtained upon analysis of the IHLC and CHLC scale scores in the between-subjects design, it might be suggested that the significant findings obtained in the within-subjects design may have been as a result of carryover effects between conditions. Specifically, the subjects in the within-subjects design may have responded in a way that was consistent with their expectancies of the study because of their exposure to each of the treatment conditions (Badia & Runyon, 1982). Thus, their responses to the items on the MHLC under one condition may have been altered as a result of having previously responded under another condition.

These carryover effects discussed above do not necessarily invalidate the results obtained from Study 1. In fact, they offer strong support for the hypothesis that health locus of control may change, within given individuals, depending on their perceptions of serious heart disease and their perceptions of cancer.

In an attempt to determine whether health locus of control beliefs varied within actual clinical populations, Study 3, a between-subjects design, was conducted. The

results showed that the IHLC scale scores of the individuals with serious heart disease were significantly higher than the IHLC scale scores of the individuals with cancer. These results are consistent with the significant findings obtained in the within-subjects design, and with the trend toward significance that was observed in the between-subjects design, both using a population of healthy individuals. These findings suggest that serious heart disease is an illness over which individuals with the disease perceive themselves as having control.

The significantly lower IHLC scale scores obtained by the cancer patients in Study 3 were consistent with Gerber's (1979) findings, as cited by Levenson (1981, p. 38). These results may suggest that cancer is perceived as an illness over which individuals can exert relatively little internal control. Although the ANCOVA in Study 3 revealed that the disproportionate number of males and females in the clinical groups may have accounted for a significant amount of the variability in the IHLC scale scores, the findings from Gerber's study, and the results from Study 1 and Study 2, support the notion that cancer is perceived as an illness that is not associated with a relatively high internal health locus of control.

Although the CHLC scale scores of the clinical groups were found to be in the expected direction, no significant differences were obtained between the CHLC scale scores of

the individuals with serious heart disease and the CHLC scale scores of the individuals with cancer. These data appear to suggest that chance health locus of control beliefs did not significantly vary between serious heart disease patients and cancer patients. It might be suggested, then, that perceptions of cancer may be altered when individuals actually have the disease. Thus, the patients' beliefs about cancer that may have existed prior to having the disease may have changed as the individuals became more familiar with information regarding their disease. It follows that the cancer patients in the present study did not have significantly higher CHLC scale scores than the serious heart disease patients because they may not have actually perceived their illness as one whose course was necessarily determined by fate, luck, or other factors beyond their control.

Similarly, there were no significant differences obtained between the PHLC scale scores of the serious heart disease patients and the PHLC scale scores of the cancer patients. However, the PHLC scale scores of these groups were found to be significantly higher than the PHLC scale scores of the "worried well" group. These results suggest that, as expected, the serious heart disease patients had a significantly higher powerful others locus of control orientation when compared with the "worried well" respondents. Furthermore, the results suggest that the cancer patients also had

a significantly higher powerful others health locus of control orientation when compared with the "worried well" respondents. Although this latter finding was not predicted, there appears to be evidence from the present research that lends support to this finding.

Specifically, the IHLC scale scores of the cancer patients indicated that they perceived their illness as one over which they, by themselves, had relatively little or no control. However, the CHLC scale scores of the cancer patients suggested that they did not perceive cancer as an illness in which chance, fate, or luck played an important role in determining its outcome. Therefore, it is possible that the relatively high PHLC scale scores obtained by the cancer patients indicated that they perceived cancer as an illness over which there was some control, even though powerful others exerted that control.

It is interesting to note that the analyses of the PHLC scale scores for all three studies produced highly similar results. For each study, there were significant differences found between the higher PHLC scale scores of the treatment groups and the lower PHLC scale scores of the control groups. In addition, no significant differences were found between the PHLC scale scores of the treatment groups in all three studies. The consistency of these results could suggest that, regardless of whether the life-threatening illness was serious heart disease or cancer, individuals' perceptions of

these illnesses were highly associated with an increased dependence on powerful others to help exert control over their health.

The results from the present research generally suggested that the perceptions and attitudes that people had towards serious heart disease and cancer differentially affected their health locus of control beliefs. As predicted, perceptions of serious heart disease generally resulted in high internal health locus of control beliefs relative to perceptions of cancer, and high powerful others health locus of control beliefs relative to the control groups. Contrary to expectations, individuals' perceptions of cancer were only moderately related to chance health locus of control beliefs. The results from the three studies consistently revealed, however, that individuals' perceptions of cancer did effect high powerful others health locus of control beliefs relative to the control groups.

The results obtained in the present research point to the importance of assessing health locus of control in terms of a multidimensional approach. It would not have been sufficient to state that people perceive serious heart disease as an illness that is internally controlled, and they perceive cancer as an illness that is externally controlled. Rather, the well-defined difference, as noted by Levenson (1974), between the control by powerful others orientation and the control by chance orientation was apparent in the present

research. Although cancer was not perceived as an illness over which individuals, by themselves, had control, neither was it perceived as an illness whose course was determined by fate, luck, or chance. However, the powerful others orientation was endorsed relative to individuals' perceptions of cancer and these beliefs could be interpreted as a way of having control, although indirectly, over their health.

The findings from the present research could have important implications for individuals in the health-care professions. Because certain attitudes and perceptions about serious heart disease and cancer affected, to some degree, the health locus of control beliefs of the respondents in the present study, it may be important for health-care professionals, and other individuals who are involved in the treatment process, to be aware of the differences in health locus of control beliefs that may exist across these, and various other, illness groups. Awareness of these differences could assist the health-care professionals in formulating treatment programmes that are congruent with their clients' health locus of control beliefs.

A recommendation for further research would include replication of the present research. In addition, it would be interesting to examine whether the health locus of control beliefs of individuals in these groups differ as a function of their sex. Ideally, this would involve an equal number of males and females in each of the groups. This was

not possible in the present research due to certain limitations in the recruitment procedures. For example, the respondents in the "worried well" group were clients of the same doctor, even though several other doctors were asked to direct their clients to the researcher following their general physical check-up. However, the clients of these doctors either did not fit the criteria set for the study, or they did not want to participate in the research. Thus, the disproportionate number of females to males in this group was due to the fact that these respondents were clients of a female doctor whose general practice was largely made up of female clients.

Similarly, there were unequal numbers of males and females in each of the other clinical groups due to limited availability of respondents and other variables beyond the researcher's control. This should serve only to draw attention to the difficulties in collecting data from actual clinical populations and not to point out that there were shortcomings in the present research. The findings that were obtained in this research can be considered much more conclusive because actual clinical populations were used in addition to other groups of healthy introductory psychology students.

Additional research could examine the health locus of control beliefs of individuals with different types of serious heart disease and different types of cancer in order to determine whether different locus of control beliefs exist within these illnesses.

Further research could continue to address the issue of developing treatment plans and educational programmes that are congruent with health locus of control beliefs and measuring the outcome of the treatment. It would also be of interest to collect MHLC data from various clinical populations in an attempt to become more familiar with the health locus of control beliefs of these populations. In this way, health-care professionals would have a better understanding of their patients' health locus of control beliefs relative to their illness groups and, subsequently, might be better able to develop treatment plans that are consistent with these beliefs.

Reference Notes

1. Wallston, K.A. & Wallston, B.S. Health related locus of control scales. Paper presented at American Psychological Association symposium on Goal specific locus of control scales - a new step in I-E Research, at the meeting of the American Psychological Association, September, 1978, Toronto, Canada.

2. Donovan, M. Putting aside myths about cancer. A public lecture presented at the University of Calgary, Alberta, November, 1982.

References

Abrams, R.D. The patient with cancer - his changing pattern of communication. New England Journal of Medicine, 1966, 274 (6), 317-322.

Achterberg, J., Lawlis, G.F., Simonton, O.C. & Matthews-Simonton, S. Psychological factors and blood chemistry as disease outcome predictors for cancer patients. Multivariate Experimental Clinical Research. 1977, 3, 107-122.

Achterberg, J., Matthews-Simonton, S., & Simonton, O.C. Psychology of the exceptional cancer patient: A description of patients who outlive predicted life expectancies. Psychotherapy: Theory, Research and Practice, 1977, 14, 416-422.

Badia, P. & Runyon, R.P. Fundamentals of behavioral research. Don Mills, Ontario: Addison-Wesley Publishing Company, 1982.

Briney, K.L. Cardiovascular disease. Belmont, California: Wadsworth Publishing Company, Inc., 1970.

Cromwell, R.L., Butterfield, E.C., Brayfield, F.M. & Curry, J.J. Acute myocardial infarction: Reaction and recovery. St. Louis: C.V. Mosby, 1977.

DeBakey, M. & Gotto, A. The living heart. New York: Charter Books, A Grosset and Dunlap Company, 1977.

DeVellis, R.F., DeVellis, B.M., Wallston, K.A., & Wallston, B.S. Epilepsy and learned helplessness. Basic and Applied Social Psychology, 1980, 1, 241-253.

Garrity, T.F. Vocational adjustment after first myocardial infarction: comparative assessment of several variables suggested in the literature. Social Science and Medicine, 1973, 7, 705-717.

Hackett, T. & Weisman, A.D. Denial as a factor in patients with heart disease and cancer. In L. White (Ed.) Care of patients with fatal illness. Annals of New York Academy of Sciences, 1969, 164, 802-817.

Kilmann, P.R., Albert, B.M., & Sotile, W.M. Relationship between locus of control, structure of therapy, and outcome. Journal of Consulting and Clinical Psychology, 1975, 43 (4), 588.

Krantz, D.S., Baum, A., & Wideman, M.V. Assessment of preferences for self-treatment and information in medical care. Journal of Personality and Social Psychology, 1980, 39, 977-990.

Lefcourt, H.M. Internal-external control of reinforcement: A review. Psychological Bulletin, 1966, 65, 206-220.

Lefcourt, H.M. Recent developments in the study of locus of control. In B.A. Maher (Ed.), Progress in experimental research in personality (Vol. 6). New York: Academic Press, 1972.

Lefcourt, H.M. Locus of control. New York: Lawrence Erlbaum Associates, 1976.

Lefcourt, H.M. (Ed.). Research with the locus of control construct (Vol. 1). New York: Academic Press, 1981.

LeShan, L. An emotional life-history pattern associated with neoplastic disease. Annals of the New York Academy of Sciences, 1966, 125, 780-793.

Levenson, H. Multidimensional locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 1973, 41 (3), 397-404.

Levenson, H. Activism and powerful others: Distinctions within the concept of internal-external control. Journal of Personality Assessment, 1974, 38, 377-383.

Levenson, H. Differentiating among internality, powerful others, and chance. In H.M. Lefcourt (Ed.), Research with the locus of control construct (Vol. 1). New York: Academic Press, 1981.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., & Bent, D.H. SPSS: Statistical Package for the Social Sciences (2nd edition). Toronto, Ontario: McGraw-Hill, 1975.

Rokeach, M. The nature of human values. New York: Free Press, 1973.

Rotter, J.B. Social learning and clinical psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1954.

Rotter, J.B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (Whole No. 609).

Rotter, J.B. Some problems and misconceptions related to the construct of internal versus external control of reinforcement. Journal of Consulting and Clinical Psychology, 1975, 43 (1), 56-67.

Seeman, M. & Evans, J.W. Alienation and learning in a hospital setting. American Sociological Review, 1962, 27 772-783.

Sohl, P.A. Psychogenic factors in the etiology of cancer. Smith College Studies in Social Work, 1975, 45 (2) 109-136.

Strickland, B.R. Internal versus external control of reinforcement. In T. Blass (Ed.), Personality and social behaviors. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1977.

Taylor, S.E. Hospital patient behavior: Reactance, helplessness, or control? Journal of Social Issues, 1979, 35, 156-184.

Throop, W.F. & MacDonald, A.P. Internal-external locus of control: A bibliography. Psychological Reports, 1971, 28, 175-190.

Toner, J.B., & Manuck, S.B. Health locus of control and health-related information seeking at a hypertension screening. Social Science and Medicine, 1979, 13A, 823-825.

Wallston, B.S., Wallston, K.A., Kaplan, G.D., & Maides, S.A. Development and validation of the health locus of control (HLC) scale. Journal of Consulting and Clinical Psychology, 1976, 44 (4), 580-585. (a)

Wallston, K.A., Maides, S.A., & Wallston, B.S. Health-related information seeking as a function of health-related locus of control and health value. Journal of Research in Personality, 1976, 10 215-222. (b)

Wallston, K.A., Wallston, B.S., & DeVellis, R. Development of the multidimensional health locus of control (MHLC) scales. Health Education Monographs, 1978, 6 (2), 160-170.

Wallston, K.A. & Wallston, B.S. Health locus of control scales. In H.M. Lefcourt (Ed.), Research with the locus of control construct (Vol. 1). New York: Academic Press, 1981.

Weisman, A.D. On dying and denying. New York: Behavioral Publications, Inc., 1972.

APPENDIX A

Name: _____

Sex: _____

Age: _____

Marital Status: _____

Religion: _____

Rating Scale

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

			Responses
1.	If I get sick, it is my own behaviour which determines how soon I get well again.	(1)	_____
2.	No matter what I do, if I am going to get sick, I will get sick.	(2)	_____
3.	Having regular contact with my physician is the best way for me to avoid illness.	(3)	_____
4.	Most things that affect my health happen to me by accident.	(4)	_____
5.	Whenever I don't feel well, I should consult a medically trained professional.	(5)	_____
6.	I am in control of my health.	(6)	_____
7.	My family has a lot to do with my becoming sick or staying healthy.	(7)	_____

Rating Scale

1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree

			Responses
8.	When I get sick, I am to blame.	(8)	_____
9.	Luck plays a big part in determining how soon I will recover from an illness.	(9)	_____
10.	Health professionals control my health.	(10)	_____
11.	My good health is largely a matter of good fortune.	(11)	_____
12.	The main thing which affects my health is what I myself do.	(12)	_____
13.	If I take care of myself, I can avoid illness.	(13)	_____
14.	When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	(14)	_____
15.	No matter what I do, I'm likely to get sick.	(15)	_____
16.	If it's meant to be, I will stay healthy.	(16)	_____
17.	If I take the right actions, I can stay healthy.	(17)	_____
18.	Regarding my health, I can only do what my doctor tells me to do.	(18)	_____

APPENDIX B

Internal Health Locus of Control (IHLC) items

1. If I get sick, it is my own behaviour which determines how soon I get well again.
6. I am in control of my health.
8. When I get sick I am to blame.
12. The main thing which affects my health is what I myself do.
13. If I take care of myself, I can avoid illness.
17. If I take the right actions, I can stay healthy.

Powerful Others Health Locus of Control (PHLC) items

3. Having regular contact with my physician is the best way for me to avoid illness.
5. Whenever I don't feel well, I should consult a medically trained professional.
7. My family has a lot to do with my becoming sick or staying healthy.
10. Health professionals control my health.
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.
18. Regarding my health, I can only do what my doctor tells me to do.

Chance Health Locus of Control (CHLC) items

2. No matter what I do, if I am going to get sick, I will get sick.
4. Most things that affect my health happen to me by accident.
9. Luck plays a big part in determining how soon I will recover from an illness.
11. My good health is largely a matter of good fortune.
15. No matter what I do, I'm likely to get sick.
16. If it's meant to be, I will stay healthy.

APPENDIX C

Below you will find a list of ten values listed in alphabetical order. We would like you to arrange them in order of their importance to YOU, as guiding principles in YOUR life.

Study the list carefully and pick out the one value which is the most important for you. Write the number "1" in the space to the left of the most important value. Then pick out the value which is second most important to you. Write the number "2" in the space to the left. Then continue in the same manner for the remaining values until you have included all ranks from 1 to 10. Each value should have a different rank.

We realize that some people find it difficult to distinguish the importance of some of these values. Do the best that you can, but please rank all 10 of them. The end result should truly show how YOU really feel.

_____ A COMFORTABLE LIFE (a prosperous life)

_____ AN EXCITING LIFE (a stimulating, active life)

_____ A SENSE OF ACCOMPLISHMENT (lasting contribution)

_____ FREEDOM (independence, free choice)

_____ HAPPINESS (contentedness)

_____ HEALTH (physical and mental well-being)

_____ INNER HARMONY (freedom from inner conflict)

_____ PLEASURE (an enjoyable, leisurely life)

_____ SELF-RESPECT (self-esteem)

_____ SOCIAL RECOGNITION (respect, admiration)

APPENDIX D

INSTRUCTION SHEET

We are trying to learn more about how people think and feel about their health. As part of this research, we would like you to rate the following 18 statements. Please use the Rating Scale outlined below to indicate your degree of agreement or disagreement with each statement.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

You are asked to respond carefully and thoughtfully to each statement. Please be sure to answer all the items. Remember that there are no right or wrong answers. Please try to answer as honestly as you can.

APPENDIX E

INSTRUCTION SHEET

We are trying to learn more about how people think and feel about their health. As part of this research, we would like you to try to imagine that, at some time in the past, you suffered a heart attack. With this in mind, we would like you to rate the following 18 statements. Please use the Rating Scale outlined below to indicate your degree of agreement or disagreement with each statement.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

You are asked to respond carefully and thoughtfully to each statement. Please be sure to answer all the items. Remember that there are no right or wrong answers. Please try to answer as honestly as you can.

APPENDIX F

INSTRUCTION SHEET

We are trying to learn more about how people think and feel about their health. As part of this research, we would like you to try to imagine that, at some time in the past, you were diagnosed as having cancer. With this in mind, we would like you to rate the following 18 statements. Please use the Rating Scale outlined below to indicate your degree of agreement or disagreement with each statement.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

You are asked to respond carefully and thoughtfully to each statement. Please be sure to answer all the items. Remember that there are no right or wrong answers. Please try to answer as honestly as you can.

APPENDIX G

CONSENT FORM

Information About: A study of people's feelings and beliefs about their health and illness.

I, _____ , understand that the research in which I am about to participate is concerned with feelings and beliefs about health in people who are physically well and in people who have experienced some medical problems over the last few months. I also understand that it was largely by chance that I was asked to take part in this research and that if, at any time, I wish to discontinue my participation, I will be free to do so.

I further understand that all information collected in this research will be kept confidential, and that any published data from this research will not contain identifying information about individual participants. In addition, the researcher has provided me with his name and phone number and I am fully aware that I can call him at any time in the future should I have any questions arising from my participation in this project. I also know that I have the opportunity to ask questions during the session and that all the questions will be answered to the best of the researcher's capabilities.

The researcher has explained to me the purpose of the study and the possible benefits which might arise from the information that is obtained.

I have read and understood all of the above information.

Patient's Signature: _____

Researcher's Signature: _____

Date and Time: _____