

EVALUATION OF THE HEART TO HEART CARDIAC EDUCATION PROGRAM  
FROM THE PARTICIPANT'S PERSPECTIVE

by

ALLAN JOSEPH PERRON

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to the Faculty of Graduate Studies  
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requirements for the degree of

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**EVALUATION OF THE HEART TO HEART CARDIAC EDUCATION PROGRAM  
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**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University  
of Manitoba in partial fulfillment of the requirements of the degree  
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## ABSTRACT

This pre-experimental one group pre-test post test descriptive study evaluated, from the participant's perspective, the eight week video and facilitator based National Heart and Stroke Foundation of Canada's Heart to Heart cardiac education program. Heart to Heart is a phase two rehabilitation program targeted at individuals adjusting to home life after discharge from hospital. Overall goals involve enhancing knowledge about coronary disease and associated risk factors as well as promoting behavioral change to effect a reduction in these factors and as a consequence a reduction in morbidity. Data were collected from participants attending programs held in three City of Winnipeg hospitals and two rural facilities. Self administered questionnaires were given to ninety seven participants and sixty five participants at two time intervals: 1) at the beginning of the first two hour class (T1) and 2) to those participants who attended the last class of the eight week program (T2).

The Heart to Heart program goals and objectives guided the development of the questionnaire used to measure program outcomes. The Multidimensional Health Locus of Control construct was studied as an independent variable to determine if the program

differentially effected knowledge gain of participants with an internal versus external locus of control.

There were significant differences in knowledge gain for patients and their partners between the two testing times  $p=0.001$  and  $p=0.0001$ . Participant's locus of control and educational level were not predictive of knowledge gain, however partners fifty nine years or older on average showed greater knowledge gain than their younger counterparts,  $p=0.0324$ . A significant portion of participants reported modifying life style behaviours due to the information and support provided by the program.

Overall the proportion of the participants' satisfied with the program was high, particularly in respect to the role of the facilitator and group support. Participants recommended the program be promoted by physicians and available to all patients suffering from "heart problems" and their partners.

Although study findings are limited by the research design, the program appears beneficial to cardiac patients and their partners. The researcher recommends the Manitoba Heart and Stroke Foundation actively promote the program to physicians and other health care professionals. Hopefully health care providers will recognize the benefits of the program and will in turn promote the program with their cardiac patients. The request of the participants for timely access to a program post discharge from hospital should be considered by the Manitoba Heart and Stroke Foundation when determining the program sites and frequency of classes.

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## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Problem

Cardiovascular disease is the leading cause of death and disability for adult men and women world wide (Heart and Stroke Foundation of Canada, 1995). Canadian rates are higher than other industrialized countries such as Japan and France (Health and Welfare Canada, 1991). In Canada thirty eight percent of all deaths are due to cardiovascular disease. The number of deaths in 1992 due to cardiovascular diseases in Canada, according to the Heart and Stroke Foundation of Canada, totalled 76,211. Twenty two percent of cardiovascular deaths are due to ischemic heart disease of which fifty percent are due to acute myocardial infarction. Manitoba leads the prairie provinces with the highest incidence of death due to cardiovascular disease (Gelsky, MacDonald, & Young, 1991).

The costs in terms of human life are staggering as measured by potential years of life lost. Premature death from cardiovascular disease is responsible for an estimated 290,000 years of life lost prior to age 75. The economic cost including hospital expenditures, medical care, drugs, research, benefits, and pensions is significant. The Bureau of Chronic Disease Epidemiology Health Canada reported that cardiovascular disease accounted in 1993 for

\$8.3 billion of expenditures and was the most expensive disease category.

It is widely accepted that controllable risk factors contributing to cardiovascular disease include smoking, high blood pressure, elevated blood cholesterol, and other dyslipoproteinemias, inactivity, and obesity. Uncontrollable risk factors include genetics, gender, and age (Canadian Heart Health Surveys, CMAJ, June 1, 1992).

The Heart Health Surveys carried out between 1987 and 1990 demonstrated a significant deficit in awareness in the Canadian population of the major risk factors of heart disease and their synergistic effects. Only one in five Canadians recognize high blood pressure, one in four recognize elevated blood cholesterol, and one in three obesity as risk factors. The Canadian population believes that stress and lack of exercise are the more important risk factors (CMAJ, 1992, p. 48). Owens, McCann, and Hutelmyer (1978) found that, in spite of frequent explanations, study participants continued to misinterpret the term risk factor.

The Lalonde report (1974) indicated that further improvement in the level of health of Canadians lies mainly in improving the environment, modifying self imposed risks including attitudes, and adding to our knowledge of human biology. Macdonald, Joffres, Stachenko, Horlick, and Fodor (1992) acknowledged that interventions aimed at a percentage reduction of three controllable risk factors, elevated plasma triglycerides and low HDL cholesterol, smoking, and obesity would result in the equivalent of

the eradication of any one of them in terms of mortality from cardiovascular disease. Ornish, Brown, Scherwitz, Billings, Armstrong, Ports, McLanahan, Kirkeeide, Brand, and Gould (1990) found in a prospective randomized controlled trial of patients with cardiac disease that comprehensive lifestyle changes over the period of a year can significantly reverse even severe coronary atherosclerosis.

The high fiscal and human costs of cardiovascular disease and the evidence supporting risk factor modification encourages health professionals and organizations to develop programs to assist individuals to modify unhealthy lifestyle behaviours. The Heart and Stroke Foundation of Canada has taken a leading role in the development of preventive strategies to reduce the morbidity and mortality of cardiovascular disease.

Cardiac rehabilitation programs have been developed to assist patients with the diagnosis of cardiovascular disease to return to their normal functioning lifestyle and to modify their risk behaviours to prevent further occurrences (Sivarajan, Newton, Almes, Kempf, Mansfield, & Bruce, 1983). Chan (1990) identified that cardiac patients place a high value on cardiac education programs. The central focus of many health education programs is based on the simple paradigm that favourable attitudes towards health coupled with increased knowledge will promote adaptive behaviours (Parcel & Baranowski, 1981). McSweeney (1993) acknowledged that most people are willing to improve their health by altering their behaviours, however research indicates a high

rate of noncompliance and return to old patterns of behaviour after completion of such programs.

The Heart and Stroke Foundation of Canada, in keeping with its mandate to reduce disability and death from heart disease through education and the promotion of healthy lifestyles, developed the eight week Heart to Heart cardiac education program to educate and support adult men and women who have experienced angina, myocardial infarction, or cardiac surgery. The objectives of the program are:

1. to provide a knowledge base for understanding heart disease--its cause, diagnosis, treatment, recovery, and rehabilitation processes.
2. to access the widest possible support base--personal, professional and community--for optimal functioning.
3. to create a supportive environment in which these objectives and the participants' specific objectives may be realized (Heart and Stroke Foundation Canada, Heart to Heart Program Guide, 1992).

The critical element of success for health education programs must always include an emphasis on behaviour change and not simply knowledge gain as an outcome (Parcel & Baranowski, 1981; Weiss, 1972).

The Heart to Heart cardiac education program delivers its message and hopes to impact behaviour change through several strategies. The strategies include video presentations, group learning and support, handout materials, and facilitator support.



The video presentations included modelled behaviour by a middle aged couple. The male spouse has experienced a recent myocardial infarction and is adapting at home to lifestyle changes. Video based expert information on risk factor modification is interspersed throughout the eight week series. The standardization of program content is achieved by instructing the facilitators who were health professionals: to act as a facilitator of the group process, to direct the participants to resources that would empower them to direct their own lifestyle changes, to avoid the use of expert speakers, and, to avoid introducing content based on their own specialty. The facilitators of the programs evaluated in this study consisted of nurses, dietitians, and a pastoral care associate.

The program content was delivered in weekly two hour sessions for eight consecutive weeks. Topics included cardiology, nutrition, exercise, medications, emotions, and stress.

Evaluation of the program was carried out at several sites throughout the Province of Manitoba from September 1995 to May 1996.

The program facilitators received training from the Manitoba Heart and Stroke Foundation prior to leading their sessions. The education included instruction about the patient empowerment philosophy inherent in the program as well as a standardized process to deliver the video based program.

## 1.2 Research Questions

Three research questions guided the evaluation of the Heart to Heart program. The purposes of this evaluative research study were to:

1. describe the effects the program had on the participants in terms of knowledge gain, risk factor modification, program satisfaction including the facilitator role, and compliance with medications.
2. determine if there is a difference in the effect of the program on participants with an internal versus an external locus of control.
3. determine the perceived benefit of the four strategies of program delivery to the participants.
4. describe the participants' suggestions on methods to improve the program.

## 1.3 Summary

Cardiovascular disease is the leading cause of death for adults in the developed world. Management of cardiovascular health risks by the modification of unhealthy lifestyle behaviours is considered by many experts as an excellent strategy for individuals to improve their quantity and quality of life. Research indicates that the majority of persons are unable to maintain behaviour changes over the long term.

The problem considered in this research is the evaluation of a program designed to support and assist patients with known

cardiac disease to make lifestyle behaviour changes in order to decrease their risk of premature disability and death.

The Heart and Stroke Foundation of Manitoba will follow the participants to determine long term behaviour changes one year post program.

## CHAPTER TWO: CONCEPTUAL FRAMEWORK

### 2.1 Program Evaluation

Evaluative research measures the effects of a program, practice, procedure, or policy (Polit & Hungler, 1987; Green & Lewis, 1986). The classic goal directed evaluation measures the effects of a program against its stated goals. The outcome is used as a means of contributing to subsequent decision making (Weiss, 1972). Goal directed evaluation has been criticized for its narrow conceptualization because a program may produce effects other than accomplishing the stated goals (Polit et al., 1987; Green et al., 1986).

In spite of the criticism, the traditional goal directed approach remains the gold standard for program evaluation and guided this study (Green et al., 1986). Heart to Heart program goals and beliefs guided the development of the instrument to measure program outcomes.

The Heart to Heart program is built on several principles and beliefs. These are:

1. The diagnosis and treatment of heart disease have significant effect on the individual, family and, through social and work relationships, on the community.

2. The active involvement of the individual, family, and community is essential to a program of recovery and rehabilitation.

3. The impact of heart disease on the individual can only be experienced by them. It cannot be externally defined. Consequently, the lifestyle changes required to accommodate illness have to be determined by the individual realizing his/her own definition of optimal functioning. Plainly put, individuals know their own health problems and have to decide what to do about them in order to live the way they want.

4. The individual is able to take responsibility for recovery, and rehabilitation, and with accurate, meaningful and timely information, and a supportive environment is able to achieve it.

5. Participatory learning in a group setting must provide opportunities for individuals to learn in the style which works best for them, including the concrete experience of information, reflection upon it, analysis and action.

6. The program must be flexible and adaptable to meet the various needs of participants, with consideration for the special needs of different ethno-racial groups, women, the elderly, and persons with disabilities, and varying literacy levels (Heart and Stroke Foundation Canada, Heart to Heart Program Guide, 1992).

The principles, beliefs, and methods of the program appear grounded in social learning theory with a strong focus on self

directed behaviour change. The social environment, including the classroom, plays a role in providing support for personal decisions concerning modification of health risk behaviours. Conceptually the program parallels the 1986 Ottawa charter's definition of Health Promotion, as the "process of enabling people to increase control over, and to improve, their health" (Green & Raeburn, 1988). Health promotion in the traditional health sciences model deals with primary prevention, how to avoid disease; secondary prevention, how to cure disease; or tertiary prevention, how to control further complications (Stachtchenko & Jenicek, 1990). The Heart to Heart Program targets tertiary prevention on the health promotion continuum. In this model "the locus of responsibility and unit of analysis is the individual who is seen as having ultimate responsibility for his objective health status" (Stachtchenko et al., 1990). The programs strong focus on self responsibility for lifestyle behaviour change leads to the use of locus of control as part of the conceptual framework guiding this study.

The program, including the facilitator, is considered to be one of the independent variables of this study.

## 2.2 Multidimensional Health Locus of Control

Locus of control, a construct described by Rotter in the late sixties, grounded in social learning theory, postulates that individuals develop general expectancies about the effects of their

behaviour derived from their social learning experiences (Wallston & Wallston, 1978; Oberle, 1991).

Social learning theory provides a theoretical framework for analyzing human thought and behaviour. Social learning theory was developed in response to the mechanical unidirectional stimulus-response-reinforcement paradigm of operant conditioning. Behaviour in this unidirectional operant conditioning approach is represented by  $B=f(P,E)$ . B signifies behaviour, P is the person, and E is the environment. Social learning theorists coined the term reciprocal determinism to describe the belief that behavioral outcomes result from the interdependent effects of personal factors, the environment and behaviour, symbolically represented by [B P E] (Bandura, 1977, p. 9-10). Expectancies for reward or punishment interact with personal values as well as situational constraints in the determination of behaviour. Locus of control for unvalued goals should have little or no meaning for an individual's behaviour (Lefcourt, 1981). The concept of self regulation influenced the development of the locus of control construct. Learning is believed to occur in the social context vicariously through modelling, symbolic coding, and self regulation. Individuals who demonstrate an internal locus of control are believed to favour programs that involve opportunities for individual choice and responsibility for action. Such programs promote personal goal setting, independence from caregiver, self monitoring, and enhancement of personal confidence. Programs strong in social support are believed to be of benefit to

individuals with an external locus of control. Involvement of family, use of group process, modelling of expected behaviours and vicarious reinforcement are attributes of programs that enhance the learning of persons with an external locus of control. Does the program design strategies differentially enhance knowledge acquisition of participants with an internal or external locus of control? This research question emanated from the conceptual framework.

Wallston et al. (1978) developed an 18 item Likert multi-dimensional health locus of control scale that provides individuals with three independent scores based on their belief that health outcomes are under the control of self, powerful others, or chance. Internal consistency of the scale is,  $r=0.67-0.86$ ; test-retest on parallel forms,  $r=0.73-0.80$ . Internal-external locus of control is believed to represent a stable individual difference construct.

Health Locus of Control beliefs are thought to influence personal decisions to change lifestyles. Internals believe that their health is attributable to their behaviours hence are more likely to make lifestyle changes that would improve their health. Externals believing their health status to be under the control of powerful others, fate, or luck are less likely to engage in risk reduction behaviours (Kist-Kline & Lipnickey, 1989; Oberle, 1991).

Wallston et al. (1978) suggest that the locus of control instrument can be used to evaluate health education programs by measuring participant behaviour changes following completion of a program. In earlier research Wallston suggested that participants



with a strong internal focus would perform better than external persons due to internal value of self responsibility for health outcomes. Social learning theory strongly supports the concept of self regulation as necessary for behaviour change. Later research indicated that educational programs, to be effective, should be structured to match the participant's locus of control. Locus of control provides three independent variables for study and evaluation of the Heart to Heart program. Internality, the belief that the self is responsible for behavioral outcomes. Chance or fate, the belief in the basic unordered and random nature of the world. Powerful others, the belief in the basic order and predictability of the world coupled with the expectancy that powerful others are in control. Research using locus of control in health will be further discussed in the review of the literature.

## CHAPTER THREE: REVIEW OF THE LITERATURE

### 3.1 Introduction

Health education has many definitions. Simonds (1976) cited in Glanz, Lewis, and Rimer (1990, p. 7) defined health education as "bringing about behavioral changes in individuals, groups and larger populations from behaviours that are presumed to be detrimental to health, to behaviours that are conducive to present and future health." Glanz et al., (1990) describe three categories of health behaviours, preventative health behaviour, illness behaviour, and sick-role behaviour. A longstanding comprehensive definition developed by Kasl and Cobb (1966) cited in Glanz et al., (1990, p. 10) define these three categories.

Preventative health behaviour: any activity undertaken by an individual who believes himself to be healthy, for the purpose of preventing or detecting illness in an asymptomatic state.

Illness behaviour: any activity undertaken by an individual who perceives himself to be ill, to define the state of his health, and to discover a suitable remedy.

Sick-role behaviour: any activity undertaken by an individual who considers himself to be ill, for the purpose of getting well. It includes receiving treatment from medical providers, generally

involves a whole range of dependent behaviours, and leads to some degree of exemption of one's usual responsibilities.

The review of the literature will confine itself to tertiary prevention programs aimed at influencing illness behaviour in cardiac disease. Education in tertiary prevention can be envisioned on a continuum from informal unstructured patient instructions/advice, through formal phase 1 patient education programs to phase 4 supervised cardiac rehabilitation programs (Hall, 1993). Oldridge, Guyatt, Fischer, and Rimm (1988) define cardiac rehabilitation as the "sum of activity required to ensure cardiac patients the best possible physical, mental, and social conditions so that they may by their own efforts regain as normal as possible a place in the community and lead an active life." (p.945)

Phase 1 occurs while patients are in hospital, phase 2 is the adjustment to home life after discharge, phase 3 is a supervised graded exercise program coupled with education aimed at reducing other risk behaviours, phase 4 is a cardiac maintenance program for continued cardiovascular risk intervention.

The ultimate goal in the health education of persons experiencing the illness role is to promote compliance with specific treatment regimes or health practices during each phase of cardiac recovery (Wang, 1994). Scalzi, Burke, and Greenland (1980) identified adjustments to changes in lifestyle as one of the critical problems of coronary patients.

Research indicates that many factors are involved in patients' adjustments to lifestyle changes with knowledge about the condition, treatment, and risk factors associated with cardiac disease considered a necessary precursor to compliance (Scalzi et al., 1980; Marshall, Penckofer, & Llewellyn, 1986). Studies have demonstrated that patients and their partners frequently report dissatisfaction with the quality and quantity of information and support they receive from their care givers (Thompson, Webster, & Meddis, 1990).

The Heart to Heart program is a phase 2 cardiac rehabilitation program emphasising knowledge acquisition through information giving, discussion, and group social support as key factors in adjustment to living with cardiac disease and the initiation of self-directed modification of health risk behaviour. The literature review outlines studies that have attempted to measure the efficacy of such programs on knowledge and lifestyle changes.

### 3.2 Knowledge

Education of patients recovering from cardiac disease has received a great deal of attention in the literature. Evidence indicates that patients have a need for information throughout all phases of cardiac rehabilitation (Wang, 1994; Bubela & Galloway, 1990; Wingate, 1990; Karlik & Yarcheski, 1987; Hanisch, 1993; Moynihan, 1984; Flynn & Frantz, 1987). Information seeking is a means of coping with a stressful event (Hanisch, 1993).

Moynihan (1984), using a descriptive survey approach, identified the self perceived needs of seventeen cardiac patients to include specific information on diet, medication, risk factors, hobbies, activity limitations, sexual activity, medical follow up, and emotional response followed by education of families and friends.

Hanisch (1993) found four informational items to be very important to patients experiencing their first myocardial infarction. The items include specifically: 1. instructions on type and amount of activity/restrictions; 2. what is normal and to be expected after a cardiac event; 3. medications; and, 4. signs and symptoms of complications that need medical attention. Karlik (1987), in replication of a previous study by Gerard and Peterson (1984), supported the finding that both acute and convalescent patients with myocardial infarction ranked understanding of risk factors as the most important learning need, suggesting that patients want to learn about those factors that might prevent another attack.

Numerous studies demonstrate a relationship between patient education programs and specified cardiac knowledge gain (Pommier, 1992; Mills, Barnes, Rodell, & Terry, 1985; Owens, McCann, & Hutelmyer, 1978).

Using a quasi experimental two year time series design with matched groups of experimental and control subjects, n=19 and n=13, Scalzi et al. (1980) tested the hypothesis that first time myocardial infarction patients who participated in an organized

educational program demonstrate a greater understanding of the illness, prescribed treatment plan, and would demonstrate a higher degree of compliance than a control group of patients. Mean knowledge gain and smoking cessation scores initially showed no significant differences between groups; leading the authors to conclude that knowledge retention is limited during the acute cardiac phase, and continued instruction after discharge improved knowledge. The experimental treatment consisted of inpatient cardiac education focusing on increasing patients' knowledge of cardiac disease and methods of risk reduction, supplemented with printed materials and audio-cassette tapes for use at home. Information was augmented as needed by health professionals at the clinic visits scheduled at one, three, six, twelve, eighteen, and twenty four months post-discharge. The authors concluded that continued instruction in follow up clinic visits appeared to improve knowledge and compliance more effectively than the usual referred care received by the control group from their physicians.

Garding, Kerr, and Bay (1988), studying the convalescence period of first time myocardial infarction patients prior to their commencement of normal activities, demonstrated that an individualized telephone teaching program administered to the experimental group following discharge significantly increased knowledge gain in six areas: cardiac disease, diet, medications, exercise, rest, and physical activity restrictions. In a similar study participants receiving a supportive-educative telephone program demonstrated significant knowledge gain over the control

group (Beckie, 1989). Penckofer and LLevellyn (1989) studying long term effects of structured versus non structured patient education program on a convenience sample of patients undergoing coronary artery bypass surgery found few significant long term differences between groups. The authors reported an initial knowledge increase with both groups and concluded that patient education led to positive outcomes at one year as evidenced by improved well being. Marshall et al. (1986), studying a similar population and using a similar design, found significant knowledge increase in risk factors, activity, diet, and medications with structured postoperative teaching. Pommier (1992) studied one hundred patients with coronary artery disease using a pre-test post-test design and found significant increase in knowledge scores that positively correlated with number of years of formal education and the number of previous coronary artery disease classes attended. Owens, McCann, and Hutelmyer (1978) identified a significant knowledge increase in patients with cardiac disease attending a series of daily group discussions as inpatients.

Although there are conflicting results, the literature supports patient education programs as necessary from the participants' point of view and relatively successful as a means of increasing the knowledge level of patients living with cardiac disease.

### 3.3 Compliance

Since lifestyle has been linked to the incidence of heart disease, it is believed that increasing the patient's knowledge will result in a lifestyle change and therefore a decrease in risk for further cardiovascular disease (Raleigh, 1987). Compliance is defined as the "extent to which a patient's behaviour, in terms of taking medications, following diets, or executing other lifestyle changes, coincides with the clinical prescription" (Andrew, Oldridge, Parker, Cunningham, Rechnitzer, Jones, Buck, Kavanagh, Shepard, Sutton, & McDonald, 1981).

McSweeney (1993) indicates a clear trend of non compliance and high relapse rates to old patterns of behaviour after successful short term behaviour changes. He also indicates that little is known about facilitators of behaviour change or why some persons successfully maintain behaviour changes.

Barriers to behaviour change include social support influences, internal factors such as motivation and environmental factors (McSweeney, 1993).

Many authors, Abbott and Berry (1991); Mumford, Schlesinger, and Glass, (1982); and Ruiz, Dibble, Gillis, and Gortner, (1992) acknowledge the importance of cardiac rehabilitation programs in the adjustment of patients following myocardial infarction.

Sivarajan et al. (1983) studied the effects of outpatient teaching and counselling on a group of patients after myocardial infarction. The experimental design measured the effects of the program on cigarette smoking, dietary intake of selected food



items, and weight changes. Cardiovascular nurse specialists delivered the content to the study participants in weekly twenty to forty minute classes with ample time for discussion. The content of the program centred on eight cardiac topics: 1) cardiac anatomy and physiology, 2) coronary artery disease risk factors, 3) dietary changes, 4) exercise and activity, 5) nutrition, 6) stress and relaxation, 7) returning to work and sexual activity, 8) emotional reactions to myocardial infarction. The authors concluded the program produced limited behavioral changes. However control and treatment groups evidenced positive behaviour changes, suggesting that a myocardial infarction acts as a strong stimulus for behaviour change with respect to risk factors.

Structured postoperative teaching is reported by Marshall et al. (1986) to increase compliance six weeks postoperatively in a group of patients undergoing coronary artery bypass surgery. The study showed that compliance was improved in behaviours related to diet, medications, smoking, and activity.

In a treatment group of nineteen first time myocardial infarction patients, continued instruction after patient discharge improved compliance in the following areas: medication, weight reduction, progression of physical activity, resumption of sexual activity, and dietary restriction (Scalzi et al., 1980).

Using intensive ethnographic interviews McSweeney (1993) studied eight couples who had attended a phase 2 cardiac rehabilitation program within three to twelve months of interviews. The couples were considered compliant. Risk factors that were

changed and maintained by all sixteen informants were exercise activities, dietary modifications, weight loss, and reduction in stress level. Five informants smoked prior to the program, one informant continued to smoke at time of interview. This study demonstrated a twenty percent non-compliance rate for smoking behaviour change. The rate of non compliance reported in the literature to lifestyle behaviour change such as stopping cigarette smoking, maintaining exercise activities, and weight loss range from 15 to 93 percent (Marston, 1977). Andrew et al. (1981) report a non-compliance rate of greater than fifty percent in many studies.

The informants in McSweeney's (1993) study described positive internal self talk as a significant factor in overcoming resistive attitudes to lifestyle behaviour change. The informants reported that the rehabilitation program was the most significant external support factor in making and maintaining lifestyle changes.

Oldridge, Gordon, Guyatt, Fischer, and Rimm (1988) carried out a meta analysis on the combined results of ten randomized clinical trials to determine the benefits of cardiac rehabilitation after myocardial infarction. The intervention programs studied included risk factor management plus exercise, or exercise advice, or exercise with some risk factor management lasting at least six weeks. The authors conclude that comprehensive cardiac rehabilitation has a beneficial effect on mortality in the range of 25 percent reduction over control subjects at the 95 percent confidence level.

Oldridge, Guyatt, Jones, Crowe, Singer, Feeny, Mckelvie, Runions, Streiner, and Torrance (1993), in a study of 201 acute myocardial infarction patients randomized to eight week rehabilitation program or to usual care, found specific treatment effects to include an improved emotions dimension, decreased state of anxiety measured by a health related quality of life questionnaire and an increased exercise tolerance.

Ruiz, Dibble, Gillis, and Gortner (1992) found subjects in a nursing education intervention program reported a higher level of recovery as shown by reports of greater performance of general activities at eight weeks in contrast to subjects who received routine nursing care after cardiac surgery.

Hedback, Perk, Engvall, and Areskog (1990) found significant results from an organized cardiac rehabilitation program on smoking, exercise, and blood pressure measurements for patients after coronary artery bypass grafting.

Key concepts that have been linked to relapse include: social support influences, environmental factors, and internal factors (McSweeney, 1993). Thompson (1989) reported that anxiety and depression can significantly impact the outcome of successful rehabilitation from myocardial infarction. Horlik, Cameron, Firor, Bhalerao, and Baltzan (1984) found in a study of 83 matched post myocardial infarction patients, little benefit from an education and group discussion program. The authors suggest the high perceived health status and positive adjustment scores of the

participants left little room for improvement, producing a ceiling effect.

Overall, in spite of some conflicting results, the research supports the need and benefits of cardiac teaching and rehabilitation for the participants. However compliance remains a significant problem in health care in spite of the benefits of a wide variety of cardiac rehabilitation programs.

### 3.4 Locus of Control

#### 3.4.1 Independent Variable

Human behaviour is complex and multidimensional. Regardless, health care professionals continually seek an understanding of such behaviour in order to assist in the development, implementation and evaluation of health care and treatment programs. The review of the literature will focus on those studies related to health care.

Locus of control (LOC) was first conceptualized in Seeman and Evan's (1962) classic quasi-experimental study of powerlessness as a factor which affects a person's response to critical circumstances. Hospitalized tuberculosis patients, matched for socio-economic factors, demonstrated a difference in information seeking behaviours. Patients with high personal control were more concerned with obtaining information about their illness than were low personal control patients.

Rotter's (1966) work produced the concept of internal-external locus of control continuum and a unidimensional scale to measure this construct. Locus of control has been the subject of many

studies since Rotter's description of the construct. Rotter in (1975) estimated that over 600 published studies dealt with some aspect on internal versus external control of reinforcement. Strickland (1979) outlined those diverse areas as achievement, behaviour, social action, defensiveness and psychopathology, alertness and attention, health attitudes, and behaviour.

Dabbs and Kirscht (1971) studied individuals with an internal LOC and reported that internals were more likely to be immunized against influenza than were externals. Theisen, MacNeil, Lumley, Kettener, Goldberg, and Borzak (1995) found that unrecognized acute myocardial infarction (MI) patients more strongly believed that their health was determined by chance locus of control factors. Finnegan and Suler (1984) in a study of 35 first time coronary artery disease participants found no significant relationship between personality variables measured by locus of control and maintenance of health changes.

Lowery and DuCette (1976) examined the internal-external LOC characteristics of long-term diabetes patients and found internals to be more active seekers of information than externals. However the research did not support the superiority of internals in regard to maintaining their health throughout the course of their disease. The uncontrollable aspect of the disease was postulated to have the effect of reducing the amount of action taken by these patients once such actions were found to have little or no control over their disease, that is to say that a resignation of sorts was believed to be a factor. Crumwell, Butterfield, Brayfield, and

Curry (1977) found the main effect of LOC to be that MI patients exhibiting external tendencies spend more time in coronary care than internals. Poll and De-Nour (1980) discovered internal locus of control to correlate significantly with adjustment and compliance to diet.

Wallston, Maides, and Wallston (1976) studied health related information seeking in 88 college students as a function of health related locus of control and health value. The authors reported that internal high health value subjects chose more pamphlets than internal low health value, external high health value, or external low health value subjects. The authors replicated the study with 97 subjects and found similar results indicating that information seeking is a joint function of expectancy and reinforcement value.

The health behaviour of cessation of smoking was examined by Kaplan and Cowles (1978) in a sample of 31 individuals attending a smoking cessation program. An initial seven week training phase comprised of weekly small group sessions, in which no consistently internal or external messages were given, was followed by the experimental manipulation phase. Experimental manipulation consisted of participants being assigned to one of the following treatment groups: 1) no contact for eight weeks, 2) self monitoring of smoking, 3) telephone contact twice a week, and 4) both telephone contact and self monitoring. Participants with an internal locus of control and high health value experienced a significant decrease in smoking behaviour. The authors conclude that the results support the general hypothesis that situation

specific measures of expectancies and values can be useful in the prediction of behaviour in that situation.

Palank (1990) also discerned that a strong relationship was indicated by some early research between protective behaviours and internality. Yet these results were not consistent with the work of Laffrey and Isenberg (1983) who studied a convenience sample of 75 women attending adult education classes. They found internal health locus of control (IHLC) to be uncorrelated to value placed on health or the perceived value of exercise. The authors conclude that the generalized locus of control construct may not have tapped into the clients' beliefs and suggest an exercise specific locus of control would correlate to physical exercise. Zindler-Wernet and Weiss (1987) reported similar results using an ex post facto design with a convenience sample of 123 employees working at a health sciences campus. The study examined the relationship between chance locus of control (CHLC) and the potential for preventative health behaviour. Individuals with a history of preventative health practice scored significantly lower on CHLC and powerful others health locus of control (PHLC). High internal locus of control was predictive of a history of preventative health behaviour in those individuals. However, when nine socio-economic covariates were included in the analysis, they found no relationship between health value, locus of control, and health behaviour.

Focusing on the combined health promotion activities of safety, nutrition, prevention, substance use, relaxation, and

exercise, Brown, Muhlenkamp, Osborn, and Fox (1983) found contrary results to the findings of Wallston, et al. (1976) that IHLC, high health value, and health-related information seeking behaviour were correlated. The study substantiated the negative relationship between CHLC and total health promotion activity.

Duffy (1988) found significant correlates between LOC beliefs, health value, and preventative health behaviour in a sample of 262 women in midlife years. Winefield (1982), in a sample of healthy and socially advantaged young people, found little evidence of locus of control being related to current health or daily health practices. The author also found in a study of a small sample of 28 post myocardial infarction patients no relationship at 0.05 significance level between Multidimensional Health Locus of Control (MHLC) sub-scales and compliance to medical advice concerning weight, smoking, and exercise. Long, Williams, Gaynor, and Clark (1988) studied 162 students and found significant correlates between locus of control and health.

Lewis, Morisky, and Flynn (1978) tested the construct validity of the HLC scale with a group of 285 patients being treated for essential hypertension. Using compliance to medications as the dependent variable, they found internally orientated subjects with high levels of perceived home assistance obtained the highest levels of compliance. Counter to theoretical expectations the second highest compliers were externally orientated patients with low levels of home assistance. The authors speculated that the results may be explained by internals who adopted a posture of



externality to reduce cognitive dissonance that resulted as a function of the low level of home assistance. Internally orientated individuals with low levels of perceived home assistance were lower compliers. The lowest compliers were externally orientated individuals with high perceived levels of home assistance. Kirscht (1972) studied the relationship between locus of control, perceived susceptibility to illness, and benefits of preventative actions. Internals identified preventative measures as more beneficial than externals.

Seeman and Seeman (1983) in a longitudinal study of one year, of 1,054 respondents examined health in three domains, preventative care, health knowledge, and acute and chronic illness. The findings support the research of Wallston et al. (1976) in that internals learn more about the nature and management of their disease and practice more preventative health behaviours. Interestingly the authors suggest that a sense of control is associated with better physical health overall.

Younger, Marsch, and Grap (1995) studied 110 subjects with coronary artery disease entered in a phase I cardiac education program. The purpose of the study was to determine the relationship of health locus of control, cardiac rehabilitation, and mastery of illness related stress. The authors found internal health locus of control to correlate with growth, total mastery, and change. The findings suggest that internally orientated individuals master life transitions overcoming difficult situations that leave the person more efficacious than before the event.

Interestingly participation in the cardiac rehabilitation program was unrelated to locus of control.

In a review of a multitude of research studies, Strickland (1978) and Wallston and Wallston (1981) agree a correlation exists between internal LOC and health-related behaviours. They also report evidence of greater health information-seeking among "internals" as consistent with a great deal of research on LOC and that LOC is but one of a complex of factors affecting health behaviour. In spite of the inconsistency demonstrated in the research findings regarding the relationship between locus of control and behaviour, the authors believed that locus of control could provide direction for health education programs.

#### 3.4.2 Locus of Control Scales

The Wallstons' research in the late seventies made extensive use of the LOC measurements as they perceived that LOC was relevant to specific health/sick role behaviours (with respect to seeking health information, taking medication, making/keeping physician appointments, exercise, maintaining diet, and giving up smoking.)

The Wallstons' belief that LOC measures expectancy was at the heart of the development of their health locus of control scales. In essence, expectancy means that one expects that one's behaviour either is or is not directly related to one's outcomes.

The health locus of control (HLC) scale was developed by Wallston, Wallston, Kaplan, and Maides in 1976 as a means to measure the internality or externality traits of study subjects and

consisted of 11 items. "Health externals" were defined as those whose generalized expectancies of health determinants indicate little personal control for outcomes. "Health internals" were defined as those who believe the locus of control for personal health is a result of their own behaviour choices. This health LOC (HCL) scale was a generalized expectancy measure and unidimensional in nature.

The shift towards the development of a multidimensional scale by the Wallstons was influenced by the work of Hanna Levenson between 1973 to 1975. Her work challenged Rotter's unidimensional construct of the LOC conceptualization. Levenson's studies isolated fate and chance factors and led to the development of three 8 item likert-like scales of "Internal, Powerful Other, and Chance" to measure LOC beliefs which were demonstrated to have discriminant validity. Levenson's scales were not specific to health expectations but did identify three distinct dimensions of LOC which influenced the subsequent modelling of health specific LOC scales.

Wanting to improve the measurement health-related LOC items, Wallston, Wallston, and DeVellis in 1978 expanded and revamped the HLC scale as a multidimensional tool, developing the Multidimensional Health Locus of Control (MHLC) scale which measured the three distinct dimensions: 1. Internality (IHLC), 2. Chance Externality (CHLC), and 3. Powerful Others Externality (PHLC). The degree to which individuals believe that health outcomes are under the control of self, powerful others, or chance

is thus measured by this instrument, accordingly reflecting health-related LOC beliefs and this tool has been widely used in subsequent research studies to date. A team of experts reviewed the tool for content validity. Cronbach alpha reliability for the MHLC scale ranged from 0.67 to 0.77.

Winefield (1982) subjected the scale to factor analysis and found the internal and powerful other scales to be stable over time. Powerful others is significantly higher during the acute episode. Chance scale showed little reliability over time and should be considered a state rather than a trait characteristic.

Rock, Meyerowitz, Maisto, and Wallston (1987) using cluster analysis with a sample of 400 healthy undergraduate students discovered the existence of six MHLC clusters: (1) pure internal; (2) double external; (3) pure chance; (4) yea sayer; (5) nay sayer; and, (6) believer in control. The authors conclude that previous research may have oversimplified the complexity of LOC. They also suggest that clusters may vary as a result of type of population and health status. Health factors that may influence clusters are absence or presence of disease, type and severity of the disease, and factors influencing the delivery of treatment.

Wallston and Wallston conclude in 1978 that studies provide known-group validity data for the MHLC scale (see Table 29 page 93 for mean scores for MHLC scales summarized across types of subjects).

### 3.4.3 Dependent Variable

Locus of control has been used in research as both a dependant and an independent variable. The results of some work, using LOC as a dependant variable indicate that treatments/life situations may influence LOC beliefs.

A 1980 study by DeVillis, DeVillis, Wallston, and Wallston, (cited in Lefcourt 1981), of epileptics strongly supports, in their reporting, the notion that negative experiences over which little control is held are conducive to the dual beliefs of high external control and low internal control. An investigation of primiparous parents by Nicholson (1980) implied that in both mothers and fathers participating in the study, hospitalization led to changes in the LOC positions from more internal to less internal control. It was speculated these changes occurred in part due to the nature of hospitalization as an environment which is characterized by low control.

Winefield (1982) demonstrated stability of internal and powerful others locus of control over a seven month time period but no evidence to support chance locus of control as a stable characteristic over time. Recent personal experiences with minor ailments and illness do not affect locus of control. However early experiences with serious illnesses negatively correlates to beliefs in self control over health (Lau, 1982).

Tolor (1978) anticipated that subjects with a history of frequent or severe childhood illness or accident would exhibit/report a tendency to be more external in their LOC beliefs.

This expectation was met only by the female subjects who reported more external beliefs and to which Tolor ascribed a reasoning of "sex differences."

Binik and Devin's work (1979) revealed no HLC differences in renal dialysis patients (home, patient-managed, or staff-assisted dialysis). Poll and De-Nour (1989) in a study of adjustment to chronic haemodialysis conclude an external orientation exists in persons on chronic dialysis. The findings support locus of control beliefs being affected by situations as dependence on a machine is not conducive to personal control beliefs.

Saltzer (1979) found highly internal beliefs among women commencing a voluntary medical weight reduction program. Bloom (1979) compared mastectomy patients at two time intervals. After receiving counselling, the treated subjects scored lower on external than the control subjects. Diller, Gordon, Friedenbergs, Rucdeschel-Hibbard, Levine, Wolf, Ezrachi, Lipkins, Lucido, and Francis (1979) studied in three month intervals the effects of psychosocial rehabilitation intervention on cancer patients. The findings were that intervention groups remained stable over time while control groups became more external. The changes were considered to conservatively demonstrate changes in LOC of subjects not receiving intervention treatment.

Jordan-Marsh and Neutra (1985) studied 337 individuals attending a 24 day residential lifestyle change program. The program consisted of risk factor education, skill building, and a medical program. The findings indicated the LOC could shift from

more external to more internal and the general consensus appears to be the acceptance that LOC can be altered during treatment. Littlefield and Adams (1987), in their examination of alternative perinatal care, found both pregnant women groups' LOC showed more reliance on powerful others after their deliveries, regardless of whether they experienced a normal delivery room, or alternative birthing centre.

The potentiality of affecting a shift in LOC produced research into the effects of treatment programs structured to change LOC. Pender (1985) measured effects of progressive muscle relaxation on 22 hypertensive patients before and after a six week programme. Subjects who were trained scored significantly higher in IHLC than the control subjects. A similar relaxation study by Hase and Douglas (1987), using MI patients, found treatment patients retained IHLC scores while control subjects shifted towards externality. The sample means for external locus of control for healthy elderly over the age of 65 years is similar to the healthy adult sample age 20 to 67 years. However the sample mean for internality in the elderly was significantly higher at 26.96 indicating a higher internal health orientation in the healthier elderly. Wallston and Wallston (1981) found the sample mean for healthy adults  $n=1287$  to be 25.55 for internal locus of control. Speake, Cowart, and Pellet (1989) found similar results in a sample of well elderly regarding locus of control. The authors reported as well that an internal locus of control is positively associated with lifestyle practices, while chance and powerful others LOC are

associated with fewer health practices. A 1983 study of 40 healthy elderly by Thomas and Hooper found that internality tended to increase with age.

Wallston and Wallston (1981) conclude that chronically ill patients tend to hold fairly high external beliefs while persons having the greatest health internality are those who engage in preventative health behaviour.

Nalberg (1979), cited in Lefcourt (1981), evaluated in an unpublished doctoral thesis a health-risk-reduction program by assigning college students to one of two treatment groups or a control group. The interventions of peer health education and mail feedback did not alter the locus of control beliefs of the participants. The sample held overall high internal locus of control beliefs indicating that a ceiling effect may have confounded the results. Schiller, Steckler, Dawson, and Heyman (1979) also evaluated a health education program expecting to witness significant changes in all three dimension of LOC based on intervention. They did not find significant changes although not all available data were analyzed and the ceiling effect may have been a factor in their study as well.

The studies using the LOC as a dependant variable indicate some, although not conclusive, evidence to support the belief that health education programs may be able to shift individuals from a fatalistic approach or chance orientation to one of internal self care.



#### 3.4.4 Locus of Control and Other Variables

Health locus of control has been the subject of other work using HLC as an independent variable. A determination was predicted to classify subjects as high health-value internals or low health-value subjects in two studies (Wallston, Kaplan, & Maides, 1976; Wallston, Maides & Wallston, 1976). Their findings were that high health-value subjects were willing to read more pamphlets than were low health-value subjects.

Dishman, Sallis, and Orenstein (1985), suggest that individuals who strongly value exercise, who believe they have control over health outcomes, and who expect personal health benefits from exercise are likely to engage in and continue with an exercise program.

Rotter (1975) and Wallston, Maides, and Wallston (1976) state that there is no theoretical basis to expect prediction of health behaviour by LOC as an independent variable unless used in conjunction with a health value measure. Further it should be noted that LOC and health value are only two of the influencing variables on health behaviour. Wallston and Wallston conclude that "when health locus of control is perceived of as a dependant variable, the evidence for the validity of the measures appears greater than when the construct is used as a predictor of behaviour."

Palank (1991) echoes the perception that "HLC is only predictive of health behaviour for those people who value health highly." Redeker (1988) confirmed these findings in a sample of 48

women when she found health beliefs combined with internal locus of control to predict the frequency of breast self examination. Lakin (1988) reported a positive correlation between internality and a willingness to pursue activities of self-care.

Brown et al. found in 1983 that a combined effect of MHLIC and health values could account for a significant portion of variance in health promotion behaviours.

Wassem (1991) tested the relationship between health locus of control and the course of multiple sclerosis. Independent variables studied were disability status and health locus of control. Dependent variables included course of multiple sclerosis, knowledge of multiple sclerosis, and self care practices. Wassem reported internally orientated respondents had a milder course of multiple sclerosis ( $p < 0.05$ ) had higher levels of knowledge ( $p = 0.018$ ) and practised more self care ( $p = 0.037$ ) than externally orientated respondents.

Thomas and Hooper (1983), Rauckhorst (1987), Speake, Cowart, and Pellett (1989) found elderly populations to exhibit significant correlation between the trait of internality and a variety of health promotive behaviours.

Several works attempted to explore the relationship between LOC and compliance to therapeutic regimes. Shillinger (1983) and Hussey and Gilliland (1989) concluded in a review that LOC was one of the factors which has a major impact on compliance.

Kerr (1986) studied a volunteer sample of 115 hypertensive (diastolic blood pressure  $> 90$  mmHg (DBP)) persons who self reported

to be taking prescription hypertensive medications. The quasi experimental design showed that MHLC accounted for 8.6 percent of the variance in improvement in DBP in these participants. Kerr reported a significant relationship between higher internal locus of control scores and lowered DBP, after three months of therapeutic regime. Another finding was that the least successful patients, in terms of blood pressure reduction, were those scoring high chance LOC (CHLC).

Weight control subjects studied by Gierzewski (1983) resulted in observations contrary to expectations in that externality was more positively correlated with compliance than was internality.

In a substance abuse study, Huckstadt (1987) found that after matching subjects for socio-economic factors, significantly more internals were found in the group of non-alcoholics, followed by the recovering alcoholic group, and trailing were the alcoholics.

Hallal (1982) and Redeken (1989) both found LOC was insignificant as a single indicator of breast self-examination (BSE). Once health beliefs were included in Redeker's analysis, the explained variance increased to 18 percent. Further they found that the BSE classification as a practitioner or non-practitioner could be successfully predicted 80 percent of the time when IHLC, health beliefs and two other predictors were identified. A study by Nemcek (1989) comprised of black participants found least frequent breast self examination by higher PHLC scorers.

Nemcek (1989) indicate results which vary on the basis of an ethnic factor. Sugarek, Deyo, and Holmes (1988) specifically

examined this ethnic factor and other factors in 101 women with respect to LOC and found ethnicity and six or less years of formal education significantly related to PHLC and CHLC in a positive direction.

Waller and Bates (1991) studied health locus of control, self efficacy beliefs, and lifestyle behaviours in a sample of 57 healthy elderly subjects. The study demonstrated that participants with high generalized self efficacy and internal control beliefs accept responsibility for maintaining good health status and believe they have the ability to practice healthy behaviours. The authors speculate these individuals would gain the most from health education programs. Interestingly 91.2 percent of the sample scored as high internals.

Oberle was highly critical in her 1991 review of the literature as she cited weak to moderate correlation of LOC to a variety of socio-economic factors and behavioural indicators and an even lower effect of LOC once other variables were considered. She observed many weaknesses such as small sample size and low portions of explained variance in the research which led her to conclude not only that the results of many studies are unconvincing with respect to the effects of LOC on behaviour, but also that LOC by itself is a relatively poor indicator of behaviour. Oberle however does not suggest abandoning the construct, but does indicate more research of an experimental nature is required, in which teaching programmes are tailored to locus of control and the outcomes evaluated.

Best and Steffy (1975) matched locus of control orientation to treatment programs and found that individuals matched to the treatments had maintained changes while those not matched to treatment had returned to baseline behaviour. Mumford et al. (1982) in a quantitative review of 34 controlled trials suggested participants benefit most from interventions consistent with their coping styles. Wallston and Wallston (1981) were convinced by the available research that locus of control beliefs could provide direction for health education programs especially when the programs were matched to the individual's locus of control beliefs.

#### 3.4.5 Conclusion

The review of the literature supports the use of the locus of control construct as an independent variable to evaluate the effectiveness of a treatment program. The Heart to Heart program combines many of the constructs of social learning theory and appears to be a balanced program tailored to a self selecting group of individuals with cardiac disease. The underlying assumption is the program will appeal equally to individuals with internal and external locus of control beliefs. Significant differences in knowledge outcomes between internal versus external participants may indicate program adjustments are required to maximize program effectiveness with cardiac patients.

## CHAPTER FOUR: METHODOLOGY

### 4.1 Introduction

The purpose of this study was to evaluate the Heart to Heart cardiac education program developed by the Heart and Stroke Foundation of Canada. This chapter will describe the research process and methodology used in the evaluation of the program. The sample size, setting, instruments used, methods and procedures of data collection, and participant inclusion criteria are discussed.

### 4.2 Design

The design of the study was pre-experimental one group pretest-posttest, symbolically represented as 01 X 02. The participants acted as their own control. This design allows a description of the effects of the program on the participants but prevents the inference of casual relationships between the variables (Polit & Hungler, 1987, p. 133).

### 4.3 Independent and Dependent Variables

The Heart to Heart cardiac educational program was considered to be the treatment (independent) variable because it was utilized as the teaching tool to determine its impact on the dependent variables. The other independent variables under study were the

participants locus of control obtained at time one (T1) through the completion of the 18 item Multidimensional Health Locus of Control instrument, age and education level.

The dependent or outcome measures believed to be impacted by the participants' locus of control and the program which were collected at T1 and T2 are knowledge, smoking behaviour, exercise, dietary habits, level of stress, and compliance to medication regimes. The question items were developed by the researcher adapting items from several sources which included: Women and Heart Health Questionnaire 1995; the 1993 Heart to Heart pilot test instrument developed by the Manitoba Heart and Stroke Foundation; the Canada Health Survey Lifestyle and Your Health (1981); and the teaching evaluation questionnaire for post-myocardial infarction patients developed by Rahe, Scalzi, and Shine (1975). Survey questions measuring smoking behaviour was obtained from thesis work completed in 1986 by Aquino Russell. The researcher studied the eight part video based cardiac education program to ensure the question items reflected the content of the program. The overall instrument was developed with the assistance of Dr. Jim Welsh, external member, and reviewed for content validity and item construction by the Education Committee of the Manitoba Heart and Stroke Foundation, the researcher's thesis committee, and statistician Dr Jeff Sloan.

The quantitative and qualitative data was gathered through participant self report. (See Appendices C and D for questionnaires used at T1 and T2).

(a) Knowledge

The participants' understanding of cardiac risk factors and behaviours associated with healthy and unhealthy lifestyle practices were measured through twelve true, false, or don't know and two complete the blanks questions. In addition understanding of exercise requirements was determined through correlation of the amount of self reported activity and whether the participants thought they were getting enough physical activity.

(b) Smoking Behaviour

Smoking behaviour was measured using a quantitative questionnaire developed by Aquino Russell 1986. The questions allowed the participants to describe their smoking behaviour in detail at T1 and T2. In addition, smoking participants were asked to outline the major reason why they continue to smoke at T1 and T2. The reasons for smoking may provide information that could assist in program improvement.

(c) Physical Activity

An interval level scale was used to measure time in hour increments spent per week by the participants in leisure physical activity. The scale measured activity in two categories light/moderate and heavy. In addition a question measured changes in physical activity at T1 and T2. A qualitative question allowed the participants to describe changes made in activity. A nominal



scale measured the reasons why participants felt they did not exercise enough.

(d) Dietary Habits

A four item likert-like scale measured the participants' dietary use of salt and fats. Assessment of knowledge, use of Canada Food Guide, and dietary changes was measured by yes/no questions. Qualitative questions allowed the participants to report dietary changes made or reasons why dietary changes were not made.

(e) Stress

A single question answered on a four item likert-like scale measured the perception of individual stress level. Stress coping behaviours were measured using a nominal scale. Reasons given pre and post test were analyzed to determine if the program caused a change in coping strategies. A qualitative question allowed the participants to describe how the program helped with their stress.

(f) Compliance with Medications

Patients on prescription medications reported their compliance on a four point likert scale. A qualitative question measured how the program assisted the patient to comply with their medication regime.

(g) Demographics

Demographic data were collected which included participant gender, age, marital status, support person, initiative to take the program, and education level. Patients' type of cardiac problem was categorized as heart bypass surgery, heart attack, angina, angioplasty surgery, valve surgery, or other, as well as combinations of the different types. The length of time from heart attack, heart surgery, or angina attack to the commencement of the program was categorized into five, six month intervals from one month to two years and greater than two years. As well, the participants described how the heart condition affected their lives.

(h) Post Program

Post program information was gathered on the number of classes attended. Five components of the program: the eight part video series, group discussions, facilitator support, group member support, and handout materials were evaluated on a four point likert-like scale from being not beneficial to extremely beneficial to the participants. The participants' evaluation of the impact of the program on their smoking, dietary, and exercise habits as well as medication compliance, confidence in making changes, and comfort living with their heart condition was measured on a four point likert-like scale from no impact to very large impact. A qualitative question described the most important benefit the participants derived from the program.

The facilitator role was measured by scoring six questions on a four point likert-like scale. The scale items ranged from strongly disagree to strongly agree.

The strength of program satisfaction was measured with four items that evaluated overall satisfaction, program recommendation, access to the program, and physician responsibility to inform patient about the program. These items were scored on the scale strongly disagree to strongly agree.

The Heart and Stroke Foundation believes that the Heart to Heart program provides a comfort level that decreases patients' dependence on the health care system. One question addressed this issue.

Three qualitative questions elicited participants' opinions about the program. Participants described what they liked best about the program, what they liked least, and strategies to improve the program.

#### 4.4 Population, Sample and Inclusion Criteria

A convenience sample was used to select the study participants from a population of patients and their partners who had experienced cardiac disease. The participants self selected by registering for the Heart to Heart cardiac education program at sites in urban and rural Manitoba.

Participants were eligible for inclusion in the study based on the following criteria:

1. able to read and write in the English language

2. able to understand and sign a consent to participate
3. 18 years of age or older
4. patients with diagnosed cardiac disease (angina, myocardial infarction, or cardiac surgery)
5. partners of patients with diagnosed cardiac disease
6. live within the province of Manitoba
7. attend the Heart to Heart program

#### 4.5 Sample Recruitment Procedure

Participants were recruited by program facilitators at four urban and two rural sites. The participants paid a fee of \$25.00 to attend the sessions. The facilitators acted as data collection assistants for the study. The researcher prepared a letter of instruction (Appendix A) which was reviewed with the facilitators by telephone, thus ensuring consistent application of the research procedures across the different sites.

#### 4.6 Data Collection

In keeping with the research design, the investigator developed two instruments which were administered at the beginning of the program during the first class (T1) and the last class (T2). The pre and post test instruments were pre-coded. The participants acted as their own controls. Completed questionnaires were sealed in envelopes by the participants and mailed back to the researcher. The facilitators ensured that the questionnaires were completed on an individual basis.

#### 4.7 Pilot Testing

The instruments and procedures were pilot tested for face validity with four alumnae of the Heart to Heart program prior to their use in the study. The participants found the questionnaire format satisfactory, questions clear and easy to understand, and reflective of the content of the Heart to Heart program. The pilot test resulted in the addition of pretest question number 3 in the stress section. Post test additions included the section on self selection and course attendance. Questions 3 and 4 of the stress section, question 3 of the medication section and the addition of question 15 under the impact section of the instrument. Discussions with the participants indicated they were very satisfied with the program. The pilot test data was not statistically analyzed.

#### 4.8 Ethical Considerations

All study participants signed an informed consent. The site facilitators reviewed the consent form (Appendix B) at the beginning of the study, stressed the voluntary nature of the evaluation, and that the participants were free to withdraw at any time. The voluntary nature of the study was included on the cover page of the instruments. Subjects were informed that their responses would be kept in confidence, access limited to the researcher, members of the thesis committee, and the Education Director of the Manitoba Heart and Stroke Foundation.

Participants' names were kept separate from the data through coding procedures to prevent accidental breach of confidentiality. The data is locked in a filing cabinet at the researcher's residence for the mandatory seven years recommended by the Medical Research Council. The study received ethical approval from the Faculty of Nursing Ethical Review Committee June 26 1995.

#### 4.9 Data Analysis

The quantitative data was analyzed using descriptive statistics and nonparametric tests suitable for nominal and ordinal data. Methods used included: Sign test, Chi-square, Spearman rho, one way analysis of variance, cross tabulations, and T test to analyze the data. The SAS statistical program was used for data analysis. Content analysis was used to search for themes in the open ended qualitative responses.

## CHAPTER FIVE: RESULTS

### 5.0 Introduction

This study involved a descriptive analysis of the Heart to Heart Cardiac Education Program using triangulation of quantitative and qualitative data received from the patients and their partners at two time intervals. Pretest data gathered included sample demographics, multidimensional health locus of control, general cardiac knowledge, lifestyle behaviors, and medication compliance. Post test data gathered included class attendance, general cardiac knowledge, lifestyle behaviors, medication compliance, perceived benefits of program components, perceived impact of program on behavior change, facilitator evaluation, program satisfaction and perceived effect of program on patient and partner comfort living with heart disease and dependence on the health care system.

The descriptive data for this study will be presented in this chapter in the following order:

- 5.1 Demographic characteristics of the samples
- 5.2 Influence to participate in program
- 5.3 Program Attendance
- 5.4 Knowledge Change (Dependent variable)
- 5.5 Multidimensional Health Locus of Control (Independent Variable)

## 5.6 Lifestyle Behavior Change (Dependent Variables)

5.6.1 Smoking

5.6.2 Exercise

5.6.3 Dietary habits

5.6.4 Stress level

5.6.5 Medication compliance

## 5.7 POST PROGRAM EVALUATION

5.7.1 Perceived benefit of teaching methods

5.8 Perceived impact of program on lifestyle changes

5.9 Evaluation of facilitator role, program satisfaction, dependence on the health care system and program access.

## 5.1 Demographic characteristics of the participants

Data were obtained at two time intervals from two groups namely patients and partners who attended the Heart to Heart Cardiac Education Program. Data collection occurred from September 1995 to May 1996.

Table 1. Distribution of participants by gender at pre test and post test

PARTICIPANTS	T1* and T2	male		female		total	
		n	%	n	%	n	%
patients	T1	36	** (67)	18	(33)	54	(100)
	T2	25	(68)	12	(32)	37	(100)
partners	T1	4	(09)	39	(91)	43	(100)
	T2	3	(12)	23	(88)	26	(100)

\*Time one (T1) occurred at pre test and time two (T2) occurred at post test. \*\*Figures in brackets are percentages.



Geographic area of residence:

Forty four patients and 33 partners reside in the City of Winnipeg. Ten patients and 10 partners live in rural Manitoba.

Site of Program:

Forty six of fifty four (85%) of the patients and 36/43 (84%) of the partners attended classes held in one of three urban hospitals 15% of patients and 16% of partners attended classes held in two rural facilities.

Table 2. Distribution of patients by marital status

Marital Status	n	%
single	2	(04)
married/common law	39	(72)
divorced/separated/widowed	12	(22)
missing data	1	(02)
total	54	(100)

Living arrangements:

Thirteen of fifty four (24%) of the patients reported living alone, 41/54 (76%) reported living with at least one other person.

Support Person For the Patient:

The primary support person for 36/54 (67%) of the patients was their spouse. Four of fifty four (7%) indicated a friend, 6/54 (11%) indicated persons other than spouse, brother, sister, friend. Seven of fifty four (13%) indicated they had no support person in their lives. One of fifty four (2%) failed to respond to the question.

Education levels of patient and partner groups:

Table 3 indicates the highest level of education of the participants. Fifty three patients and 42 partners responded.

Table 3. Distribution of participants by education

Schooling	patient		partner	
	n	%	n	%
grade 1-8	7	(13)	2	(05)
grade 9-12	11	(21)	13	(31)
completed high school	7	(13)	6	(14)
some tech/vocational training	6	(11)	5	(12)
completed tech/vocational training	4	(08)	7	(16)
completed some university	7	(13)	4	(10)
completed university degree or more	10	(19)	4	(10)
other	1	(02)	1	(02)
total	53	(100)	42	(100)

Eighteen of fifty three (33.9%) of the patients and 15/42 (35.7%) of the partners had less than a high school education.

Table 4. Distribution of participants by age

Age category	patient		partner	
	n	%	n	%
15 to 25 years of age	0	(00)	1	(02)
26 to 36 years of age	0	(00)	1	(02)
37 to 47 years of age	3	(5.5)	10	(23)
48 to 58 years of age	12	(22)	15	(35)
59 to 69 years of age	22	(41)	13	(30)
70 to 80 years of age	14	(26)	3	(07)
80 plus years of age	3	(5.5)	0	(00)
total	54	(100)	43	(100)

All of the patients were 37 years of age or over. Thirty four of fifty four (63%) of the patient sample ranged from 48 to 69 years of age. Twenty eight of forty three (65%) of the partner sample ranged from 48 to 69 years of age.

Cross tabulation of age by gender indicated that the age category of less than or equal to 58 years, represented 2/18 (11%) of the female and 13/36 (36%) of the males patients. No males were in the 80 or over age category with 3/18 (16.6%) of the female patients falling in this category.

Table 5 shows the type of "heart problems" the patients were experiencing.

Table 5. Distribution of "heart problems" reported by the patient group

"Heart Problems"	n	%
myocardial infarction (MI)	18	(33)
angina	6	(11)
MI and angioplasty surgery	6	(11)
MI and angina	6	(11)
MI/angina/bypass surgery	4	(07)
MI/angina/angioplasty surgery	3	(05)
MI and bypass surgery	2	(04)
bypass surgery	2	(04)
other*	2	(04)
valve surgery	1	(02)
angina and other	1	(02)
angina and angioplasty surgery	1	(02)
angina and bypass surgery	1	(02)
MI/angina/bypass surgery/angioplasty surgery	1	(02)
total	54	(100)

\*High blood pressure, leaking mitral valve and apical hypertrophic cardiomyopathy.

In order to identify when the participants were accessing the program patients were asked to indicate the day and month of their "heart problem" eg time of diagnosis of MI or most recent surgery. The data were divided into five equal categories of six month intervals. Of the 49 patients who provided information on this variable 32/49 (65%) attended the program within six months, 11/49 (22%) within one year and 2/49 (4%) were greater than one year of their "heart problem". Four of forty nine (8%) of patients

attended the program two years after their first "heart problem" occurred.

## 5.2 Influence to Participate in the Program

Patients answered the question, "On whose initiative/recommendation did you join the Heart to Heart program?" choosing from five options that were available. Table 6 indicates the most frequent to least frequent options chosen by the patient group.

Table 6. Rank order of the person(s) who influenced the patient to take the program

Influence/Initiative	n	%
health professional(s) recommendation	24	(38)
my own initiative	23	(36)
my partner's initiative	8	(13)
others initiative	5	(08)
friends recommendation	4	(06)
total	64	(100)

Patients and partners were also asked to provide written comments on reasons for participating in the program. Content analysis of the written comments of 45 patients yielded the following results: thirty two of the patients specifically attended to learn more or gain helpful knowledge about their condition. Sample of answers include: "to gain better knowledge of my condition", "to better understand my heart problem", "to find some answers to what happened to me". Coping with heart disease was a category of response expressed by three of the patients "to enable

me to cope with heart disease" was a response representative of this group. Four of the patients mentioned their disease as reasons for attending with no further explanation. "My doctor forced me and recommendation by professional" were the answers of four patients. One patient answered "to improve my chances of postponing further complications and to improve my quality of life". Only one patient indicated an awareness of the group support nature of the program.

Thirty six partners provided written comments. Content analysis showed the predominant response categories were of knowledge gain and understanding of heart disease, support for the patient, and personal coping with their partner's heart condition. For example one partner stated "to find out where we can change in our lifestyle to improve my spouse's condition, to get the support needed for him to understand and accept changes necessary and for myself on how to cope with all".

Another commented, "to learn about the condition and for emotional support and to learn from others in the group".

### 5.3 Program Attendance

Thirty one of fifty four patients (57.4%) and 26/43 (60.4%) of partners attended the final class in the program and completed the post program questionnaire.

Twenty six of thirty one (84%) of patients and 20/26 (77%) of partners completed 7 or more classes.

#### 5.4 Knowledge Change

Knowledge change was one of the dependent variables of the study.

Participants answered twelve true/false/don't know and two short answer questions with five correct responses, making a total possible score of seventeen points. A correct answer scored a single point, incorrect or don't know scored zero.

The mean score for the patients at pretest was 11.74/17 (69%) and for the partners 11.80/17 (69.4%) In the post test the mean score for the patients was 13.05/17 (77%) and for the partners 14.10/17 (83%) Thirty seven of fifty four (69%) of patients and 28/43 (65%) of the partners provided data for the pre and post measure of knowledge change.

The paired t test was employed to measure the significance of the pretest/post test change in knowledge scores of the participants. The results show statistically significant changes in knowledge scores for both groups. The results for the patient group showed a mean change of 1.38, t statistic with 36 degrees of freedom=2.9107, with a p value 0.001. The results for the partner group indicated a mean change equal to 2.14, t statistic with 27 degrees of freedom=5.7382, with a p value=0.0001.

Age and education as independent variables were correlated with the dependent measure of knowledge change. Two age categories less than 59 years and greater than or equal to 59 years were developed to provide sufficient numbers of participants to test against knowledge change using Chi-square (table 7).

Table 7. Results of Chi-square test of the relationship between knowledge change and age

PARTICIPANTS	n	Chi-square	*df	Prob>Chi-square
patients	37	0.0061	1	0.9375
partners	28	4.5772	1	0.0324**

\*df equals degrees of freedom. \*\*significant correlation.

The data shows that older partners greater than or equal to 59 years of age on average showed greater knowledge gain than their younger counterparts.

Table 8. Results of Chi-square test of the relationship between knowledge change and education

PARTICIPANTS	n	Chi-square	df	Prob>Chi-square
patients	37	0.0116	2	0.9942
partners	28	0.3679	2	0.8320

Education was divided into two categories: less than high school and greater than or equal to a high school education and correlated with knowledge gain. Table 8 indicates that the participant's knowledge gain was not related to their level of education based on the age categories chosen.

#### 5.5 Multidimensional Health Locus of Control (MHLC)

MHLC was studied as an independent variable. The eighteen item "likert like" MHLC scale developed by Wallston & Wallston (1978) was used to measure the three distinct dimensions regarding participants belief that their health was under the control of self, chance or powerful others. Each sub-scale consists of six



questions measuring the relative strength of belief on each dimension, internal health locus of control (IHLC), powerful others health locus of control (PHLC) and chance health locus of control (CHLC).

Forty seven patients and thirty seven partners completed the locus of control questionnaire at the beginning of the Heart to Heart program (T1).

Table 9. Participant scores on the multidimensional health locus of control scale

PARTICIPANTS	Mean Scores			
	n	IHLC*	CHLC**	PHLC***
patients	47	24.98	15.68	22.19
partners	37	25.38	15.43	19.87

\*Internal health locus of control, \*\*chance health locus of control, \*\*\*powerful others health locus of control.

#### 5.5.1 Locus of Control and Knowledge Change

In order to test the relationship between knowledge change and locus of control the nonparametric measure of association Spearman Rho was utilized.

Table 10. The relationship of multidimensional health locus of control scores and knowledge change

Locus of Control by Knowledge	spearman rho	prob>lrhol
internal health locus of control and knowledge change	-0.0198	0.9129
chance health locus of control and knowledge change	-0.0754	0.6818
chance health locus of control and internal health locus of control	0.1209	0.4401
powerful other health locus of control and knowledge change	-0.0287	0.8742
powerful other health locus of control and internal health locus of control	0.3849	0.0083*
powerful other health locus of control and chance health locus of control	0.2471	0.1102

\*significant correlation.

A small correlation between powerful other health locus of control and internal health locus of control was detected  $p=0.0083$ . A correlation was not found between knowledge change scores and the other multidimensional health locus of control scores.

Using the median split (score=18.0 for each sub-scale) the groups were divided into high and low; internal, chance, and powerful other health locus of control groups (table 11).

Table 11. The number of participants in the high and low multidimensional health locus of control groups (MHLC)

MHLC group	*IHLC high	IHLC low	na	*CHLC high	CHLC low	na	*PHLC high	PHLC low	na
PATIENT	21	12	4	16	16	5	16	17	4
PARTNER	14	11	3	7	19	2	6	20	2

|na denotes missing data, \*See definitions legend table 9 page 11.

Table 12 shows one way analysis of variance to test the relationship between the high and low groups and knowledge change.

Table 12. The relationship between the knowledge change scores, high and low multidimensional health locus of control group scores and the missing data

PATIENT GROUP n=34	*df	mean square	F ratio	p value
**IHLC	2	3.05968	0.3556	0.7034
CHLC	2	2.51385	0.2910	0.7493
PHCL	2	5.89731	0.6989	0.5042
PARTNER GROUP n=25				
IHLC	2	1.57576	0.3852	0.6843
CHLC	2	0.10526	0.0250	0.9753
PHCL	2	5.08929	1.3358	0.2811

\*degrees of freedom for the three group comparison. \*\*See definitions Legend Table 9, page 11.

The test of one way analysis of variance demonstrated no differences of significance in knowledge gain between high and low groups on all the dimensions of the locus of control scales for both patient and partner samples.

## 5.6 Lifestyle Behaviors (Dependent Variables)

### 5.6.1 Smoking Behavior

Table 13. Distribution of all participants by smoking habits pre test and post test

	PATIENT				PARTNER			
	*T1		**T2		T1		T2	
behavior	n	%	n	%	n	%	n	%
never smoked	16	(31)	13	(35)	15	(43)	9	(33)
used to smoke occasionally	3	(06)	6	(16)	6	(17)	6	(22)
used to smoke daily	29	(56)	18	(49)	12	(34)	7	(26)
now smoke occasionally	2	(04)	0	(00)	0	(00)	0	(00)
now smoke daily	2	(04)	0	(00)	5	(08)	5	(05)
total	52	(100)	37	(100)	38	(100)	27	(100)

\*T1=pre test, \*\*T2=post test.

Report of participant smoking behaviors at T1:

Four of fifty two (8%) patients reported as smokers. The number of cigarettes smoked ranged from smoking less than five to a high of ten cigarettes per day. Two patients reported smoking less and one reported smoking more. None of the smokers reported changing to a stronger or weaker cigarette. Two smokers reported trying to stop smoking, 32/52 (62%) patients reported being ex smokers prior to starting the program. Five of thirty eight (13%) partners reported as current smokers. The number of cigarettes smoked ranged from of 11 to 26 or more cigarettes per day. Two

partners reported smoking less, none reported smoking more, or changing to a stronger or weaker cigarette. None of the smokers reported trying to stop smoking. Eighteen of thirty eight (47%) partners reported being ex smokers prior to starting the program.

Report of participant smoking behaviors at T2:

All of the patients who smoked at T1 failed to complete the post program smoking questions. However one of the four (25%) of smokers, reported stopping smoking in the written comments. Five of the partners who smoked at T1 completed the post program smoking questions. The number of cigarettes smoked ranged from 6 to 25 per day. Two of the five (40%) partners reported no change, 2/5 (40%) reported smoking less, 2/5 (40%) reported trying to stop at the completion of the program.

Patients and partners were asked before and after the program to answer the question "If you continue to smoke, what is the main reason why you have not stopped smoking?"

At T1 the four patients who smoked wrote: 1) "stress", 2) "did stop smoking for three months and gained seventeen lbs of weight that I don't need! Also had a very bad time sleeping at night", 3) "no reason, but find it very difficult", 4) "find it impossible". AT T2 three patients did not answer the question, one patient reported having stopped smoking. Three of the five partners responded to the question. Two wrote "stress" and one wrote "stop and start, can't seem to quit for longer than five years-eighteen months-one year". One did not answer the question.

At T2 4/5 (80%) of the partner group who currently smoked answered the smoking questions, 1) "lack of will power", 2) "not ready at this time, have quit before and will again", 3) "very nervous", 4) "I have tried many times but to no avail. My doctor has given me a prescription for the patch but I can't afford them". None of the partners reported stopping smoking. The evidence demonstrates the majority of participants were non smokers. The program was unable to assist the smokers to stop smoking however the program had some effect in encouraging a reduction in smoking behaviour. Smoking behavior according to the participants is very difficult to modify.

#### 5.6.2 Exercise

Table 14 shows how participants at T1 and T2 categorized their exercise activity by time spent in hours per week and level of intensity. Activity intensity levels were categorized as light and heavy.

Light exercise was defined as physical activity such as strolling, gardening; heavy exercise was defined as brisk walking, aerobics, or jogging. Time was categorized as less than four hours per week and greater than or equal to four hours per week.

Table 14. Distribution of time and intensity of physical activity pre and post program

PATIENT GROUP	T1				T2			
	light		heavy		light		heavy	
time in hrs/week	n	%	n	%	n	%	n	%
< 4 hrs per week	14	(26)	31	(65)	12	(32)	23	(64)
> 4 hrs per week	39	(74)	17	(35)	26	(68)	13	(36)
total	53	(100)	48	(100)	38	(100)	36	(100)
PARTNER GROUP								
< 4 hrs per week	13	(34)	24	(65)	12	(43)	16	(59)
> 4 hrs per week	25	(66)	13	(35)	16	(57)	11	(41)
total	38	(100)	37	(100)	28	(100)	27	(100)

The exercise patterns of the participants were determined through cross tabulation of the heavy and light exercise intensity categories at T1 and T2. The table indicates of the 39 patients who exercised lightly greater than or equal to four hours per week, 17/39 (35%) also exercised heavy, greater than, or equal to four hours per week at T1. At T2 of the 26 patients who exercised lightly, greater than, or equal to four hours per week, thirteen (36%) also exercised heavy, greater than, or equal to four hours per week. At T1 of the 25 partners who exercised lightly, greater than, or equal to four hours per week, thirteen (35%) also exercised heavy, greater than or equal to four hours per week. At T2 of the sixteen partners who exercised lightly, greater than or equal to four hours per week, eleven (41%) also exercised heavily, greater than or equal to four hours per week.

Table 15 indicates the proportion of participants indicating a change in physical activity from T1 to T2.

Table 15. Proportion of changes in physical activity reported by the participants

PATIENT GROUP		T1 activity change				total	
		yes n	%	no n	%	n	%
T2	yes	19	(54)	4	(11)	23	(66)
activity change	no	9	(26)	3	(09)	12	(34)
total n		28	(100)	7	(100)	35	(100)
PARTNER GROUP		T1 activity change				total	
		yes n	%	no n	%	n	%
T2	yes	7	(100)	7	(88)	14	(93)
activity change	no	0	(00)	1	(12)	1	(7)
total n		7	(100)	8	(100)	15	(100)

Thirty five patients and fifteen partners provided data for pairing at T2. Twenty three of thirty five (66%) of the patients and 14/15 (93%) of the partners reported making significant changes in their physical activity due to the program.  $Z=1.89$   $p<0.0359$  and  $Z=3.33$   $p<0.0005$  respectively.

Participants provided written comments at T1 and T2 to the question, "What changes have you made in your physical activity?"

Content analysis of the written comments indicated three changes in activity mentioned most frequently were: 1) an increase in walking activity, 2) joining an exercise facility and 3) reduction of strenuous activities. Changes in physical activity were started at T1 by seven of ten partners (70%). At post test



15/20 (75%) reported increased exercise. The patients at T1 reported the decrease in strenuous activities. A sample of written comments from twenty three patients include: "avoid heavy lifting or excessive exercise of any kind", "walking more slowly for shorter periods", "physical activity reduced because of angina", "do not overwork", "no vacuum, lawn care or snow removal", "less strenuous work", and "doing things in moderation". An increase in physical activity was started at T1 by 16/43 (37%) of the patients with 11/28 (39%) indicating further increase in exercise at T2. A sample of written comments from the participants include: "walking three times per week", "we walk more frequently than we used to", "began a walking program", "I started walking again" and "walking more instead of driving". Three of forty three (7%) of patients wrote "no changes" at pretest while 8/28 (29%) wrote "no changes" at post test. One of nine (11%) of partners wrote "no changes" at pretest while 4/19 (21%) wrote "no change" at post test.

Table 16 shows participant responses to the following question at T1 and T2. Do you think you get enough physical activity?

Table 16. Proportion of participants who think they do or do not get enough physical activity

PARTICIPANTS	T1		T2	
	yes n %	no n %	yes n %	no n %
patient	28 (55)	23 (45)	19 (49)	20 (51)
partner	16 (40)	24 (60)	12 (43)	16 (57)

Table 17 shows participant answers to the physical activity questions which were paired and cross tabulated with light and heavy exercise categories. The relationship between the amount of activity reported and if the participants considered they were getting enough physical activity, was determined.

Table 17. Relationship between exercise intensity and whether the participants considered the amount of exercise as adequate reported at T2

PATIENT GROUP	light exercise	<4 hrs/week		>_4hrs/week		total		
		n	%	n	%	n	%	
enough exercise	yes	6	(35)	11	(65)	17	(100)	
	no	6	(32)	13	(68)	19	(100)	
	total n	12		24		36	(100)	
	heavy exercise	<4hrs/week		>_4hrs/week		total		
		n	%	n	%	n	%	
enough exercise	yes	8	(50)	8	(50)	16	(100)	
	no	15	(83)	3	(17)	18	(100)	
	total n	23		11		34	(100)	
PARTNER GROUP	light exercise		<4hrs/week		>_4hrs/week		total	
	n	%	n	%	n	%	n	%
enough exercise	yes	5	(45)	6	(55)	11	(100)	
	no	5	(33)	10	(67)	15	(100)	
	total n	10		16		26	(100)	
	heavy exercise	<4hrs/week		>_4hrs/week		total		
		n	%	n	%	n	%	
enough exercise	yes	4	(36)	7	(64)	11	(100)	
	no	11	(79)	3	(21)	14	(100)	
	total	15		10		25	(100)	

Of the 17 patients who said they got enough exercise, 11/17 (65%) actually exercised lightly greater than or equal to four hours per week. Of those 19 patients who said they did not get

enough exercise, 13/19 (68%) actually exercised lightly, greater than, or equal to four hours per week.

Of the 16 patients who said they got enough physical activity, 8/16 (50%) actually exercised heavily, greater than, or equal to four hours per week. Of the 18 who said they did not get enough exercise, 3/18 (17%) actually exercised heavily, greater than, or equal to four hours per week.

Of the 11 partners who said they got enough exercise, 6/11 (55%) actually exercised lightly, greater than, or equal to four hours per week. Of those 15 partners who said they did not get enough exercise, 10/15 (67%) actually exercised lightly, greater than, or equal to four hours per week.

Of the 11 partners who said they got enough physical activity, 7/11 (64%) actually exercised heavily, greater than, or equal to four hours per week. Of the 14 who said they did not get enough exercise, 3/14 (21%) actually exercised heavily, greater than, or equal to four hours per week.

Table 18 shows categorization of participant reasons for not exercising.

Table 18. Reasons for not exercising

Reasons	PATIENT				PARTNER			
	T1* n	%	T2** n	%	T1 n	%	T2 n	%
not enough time due to work outside the home	3	(08)	0	(00)	6	(11)	2	(08)
not enough time due to family commitments	2	(05)	4	(12)	7	(13)	7	(27)
not interested dislike exercise	2	(05)	0	(00)	3	(05)	0	(00)
too expensive	0	(00)	3	(09)	4	(07)	0	(00)
no facilities close by	2	(05)	4	(12)	3	(5.5)	2	(08)
no one to exercise with	3	(08)	4	(12)	5	(09)	1	(04)
lack of energy	9	(24)	5	(15)	8	(15)	4	(15)
lack of motivation	7	(19)	6	(18)	10	(19)	6	(23)
other	9	(24)	8	(23)	8	(15)	4	(15)
total	37	(100)	34	(100)	54	(100)	26	(100)

\*T1 pre test \*\*T2 post test.

Lack of energy, lack of motivation and other category were the most frequently chosen reasons for not exercising more often both at T1 and T2 in the patient and partner groups. The written reasons cited under other were diseases and physical limitations preventing exercise.

### 5.6.3 Dietary Habits

Participants answered six questions related to dietary habits at T1 and T2. Four of the questions were scored on a four point likert "like" scale, two of the questions required yes or no answers. The simple sign test was utilized to test the significance of proportion change from T1 to T2. A one tailed t test was used to test the hypothesis that  $H_0$ : the proportion of participants indicating a (positive change) is less than or equal to the proportion of participants indicating a (negative change),  $H_a$ : p (positive change) is greater than p (negative change) for  $\alpha = .05$ . Alpha level of significance = .05.

Table 19. Results of sign test for participant's dietary habits

PATIENT GROUP	ties	positive	negative	p value
use of salt during food preparation	21	10	3	.0461*
addition of salt to food after cooking	28	7	0	.0078
limiting fat intake	21	9	5	.2120
checking food labels	17	9	8	.5000
awareness of Canada food guide	27	6	0	.0156*
adherence to the Canada food guide recommendations	19	5	3	.3633

PARTNER GROUP	ties	positive	negative	p value
use of salt during food preparation	11	11	4	.0592
addition of salt to food after cooking	16	6	5	.5000
limiting fat intake	17	6	4	.3770
checking food labels	17	6	4	.3770
awareness of Canada food guide	20	4	0	.0625
adherence to the Canada food guide recommendations	17	5	2	.2266

\*Significant alpha  $p=0.05$ .

As shown in Table 19 a significant change occurred in the patient group in use of salt during food preparation and awareness of the Canada food guide. For all other behaviors listed for both the patient and the partner groups the null hypothesis could not be rejected.

Table 20. Influence of program on overall diet changes in the patient group

		diet changes T1		
		yes	no	n
diet changes T2	yes	23	5	28
	no	5	2	7
total		28	7	35

Twenty eight of thirty five (80%) of the patients reported making changes to their diet as a result of the program (Z statistic used to test the hypotheses  $H_0:p=.50$ ,  $H_a:p>.50$ .  $Z=3.55$   $p$  value=.0005) a significant proportion of patients made diet

changes through the program (more than 50%  $p > 0.50$ , therefore the null hypothesis  $p = 0.50$  was rejected.

Table 21. Influence of the program on overall diet changes in the partner group

		diet changes T1		
		yes	no	n
diet	yes	17	6	23
changes T2	no	2	0	2
	total	19	6	25

Twenty three of twenty five (92%) of the partners reported making changes to their diet through the program. (Z statistic used to test the hypotheses  $H_0: p = .50$ ,  $H_a: p > .50$ .  $Z = 4.2$   $p$  value  $> 0.0001$ ) a significant proportion of partners reported making diet changes due to the program (more than 50%  $p > 0.50$  and the null hypothesis was rejected.

Participants were asked at T1 to identify the specific dietary changes they had made due to the "heart problems", and at T2 to identify the changes made as a result of the program. Forty two patients and 27 partners provided data at T1, 30 patients and 25 partners provided written answers at T2. Participants were knowledgeable at T1 of the changes required for a healthy diet. The data revealed the participants were reducing the amount of saturated fat, salt, cholesterol, and amount of food consumed in their diet. They were also increasing the amounts of fruits, vegetables and grains. One partner reported using "low fat foods,

1% milk, becel, egg beaters, broiled foods, lots of skinless chicken, butter milk, less desert and yogurt versus ice cream".

Another reported using "very low fat intake of saturates, very little red meat, low salt very little used in cooking. Reading labels carefully when buying food at store regarding cholesterol, saturated fats, salt, calories and fibre.

Post program the patient and partner groups gained further knowledge in the nuances of a healthy heart diet. "More aware of tricky labels", "to follow my low fat diet more severely even in restaurant", "cutting down on fat in cooking and baking, shopping for low fat items, not bringing high fat content snack foods into the house" are representative data on this theme. It was determined that of the participants who reported no dietary changes post program, necessary diet changes had been made prior to coming to the Heart to Heart program e.g. diabetes patients who were already on a controlled diet.

#### 5.6.4 Stress Level

Patients and partners were asked to identify their perception of the amount of stress in their lives on a 4 point likert "like" scale at T1 and T2. There was no significant program effect on the perceived level of stress (Table 22).

Table 22. Participants perception of the level of stress in their lives results of the sign test

	ties	positive	negative	p value
PATIENT GROUP	22	5	5	.6230
PARTNER GROUP	15	4	2	.3438



Table 23 indicates methods participants reported to deal with their stress. Of the specific methods identified to reduce stress, exercise was most frequently mentioned by patients and partners at T1 and T2.

Table 23. Participant report on methods to reduce stress

methods	PATIENT				PARTNER			
	T1		T2		T1		T2	
	n	%	n	%	n	%	n	%
doing one thing at a time	19	(24)	24	(28)	14	(20)	17	(26)
talking out the problem	13	(16)	14	(16)	17	(25)	17	(26)
relaxation techniques	17	(21)	19	(22)	7	(10)	8	(12)
exercise	26	(33)	24	(28)	20	(29)	19	(29)
none of the above	4	(05)	0	(00)	4	(06)	0	(00)
other methods	1	(01)	5	(06)	7	(10)	5	(08)
total	80	(100)	86	(100)	69	(100)	66	(101)

Twenty six patients and eighteen partners provided written comments indicating how the program had helped them deal with their stress. The predominant category of response for both groups was one of awareness of stress in their lives. "Ability to recognize stressful situations", "it has made me aware of the stress I have" were examples of the participant answers. The second category was one of learning new stress management techniques. "Take a break when you feel stressed out", "take time out even for a few minutes and do relaxation exercises", "new methods to deal with stress",

and "learn to relax are examples of this theme. The final category was one of communication and sharing of feelings. "Just talking with everyone and sharing our concerns helped me very much. I was not the only one feeling I was to blame and so depressed".

#### 5.6.5 Medication Compliance

Using a four point likert "like" scale patients were asked at T1 and T2 to indicate whether they took their pills as prescribed by their physician. Scale item choices available were: 1) almost never, 2) rarely, 3) frequently, and 4) almost always. At the pre test 48/51 (94%) reported almost always taking their medications and 3/51 (6%) reported frequently taking pills as ordered. At T2 33 patients behavior similar to T1. When asked at T2 if the program helped the patient to take their pills as ordered by their physician 13/33 (39%) reported yes and 20/33 (61%) reported no. Twenty patients indicated by written comment how the program helped them with their medications. Almost half the patients reported that the program was not helpful. Benefits identified by the 11/20 (55%) of patients included: "understanding the value of medication to their health", "learning specific techniques to aid in taking medication", "information as to times when to take heart medication", "by knowing the types of pills and what they do for me", "awareness it would be dangerous to stop taking pills", "to make reminders to take pills" and "made me aware of the intent to build up the effect of the pills over a period of time, accept a degree of dependency on the pills".

## 5.7 Post Program Evaluation

## 5.7.1 Perceived Benefit of Teaching Methods

Table 24 indicates how five teaching/learning methods were scored by the patients and partners on a four point likert "like" scale.

Table 24. Participant evaluation of the benefit of the learning methods

PATIENT GROUP	no benefit		some benefit		very beneficial		extremely beneficial		total	
	n	%	n	%	n	%	n	%	n	%
video	0	(00)	12	(32)	19	(51)	6	(16)	37	(100)
group discussion	1	(03)	8	(22)	15	(41)	13	(35)	37	(100)
facilitator support	1	(03)	4	(11)	16	(43)	16	(43)	37	(100)
group support	0	(00)	11	(31)	16	(44)	9	(25)	36	(100)
handout materials	1	(03)	2	(06)	19	(53)	14	(39)	36	(100)
PARTNER GROUP	no benefit		some benefit		very beneficial		extremely beneficial		total	
	n	%	n	%	n	%	n	%	n	%
video	0	(00)	8	(29)	14	(50)	6	(21)	28	(100)
group discussion	0	(00)	4	(14)	16	(57)	8	(29)	28	(100)
facilitator support	0	(00)	1	(04)	14	(52)	12	(44)	27	(100)
group support	0	(00)	7	(27)	11	(42)	8	(31)	26	(100)
handout materials	1	(04)	6	(21)	10	(36)	11	(39)	28	(100)

As depicted in Table 25 scale scores were combined into a two item scale consisting of small or large benefit and rank ordered from the most to least beneficial to the participants.

Table 25. Rank order of participant evaluation of learning methods

PATIENT GROUP	large benefit		small benefit		total	
	n	%	n	%	n	%
handout materials	33	(92)	3	(08)	36	(100)
facilitator support	32	(86)	5	(14)	37	(100)
group discussion	28	(76)	9	(24)	37	(100)
group support	25	(69)	11	(31)	36	(100)
video presentations	25	(68)	12	(30)	37	(100)
PARTNER GROUP						
facilitator support	26	(96)	2	(04)	28	(100)
group discussion	24	(86)	4	(14)	28	(100)
handout materials	21	(75)	7	(25)	28	(100)
group support	19	(73)	7	(27)	26	(100)
video presentations	20	(71)	8	(29)	28	(100)

The data reveals that the video presentations were of least benefit to the participants from their perspective.

#### 5.7.2 Perceived Impact of Program on Lifestyle Behavior Changes

Table 26 shows how the participants indicated at T2 the impact of the program on the specific behaviors and attitude.

Table 26. Participant evaluation of the program impact on their behavior and attitude

PATIENT GROUP	no impact	some impact	large impact	very large impact	total n
smoking	22 (76)	4 (14)	1 (03)	2 (07)	**29
diet	2 (06)	7 (22)	16 (50)	7 (22)	32
exercise	2 (06)	9 (28)	17 (53)	4 (13)	32
confidence making changes	2 (06)	15 (43)	12 (34)	6 (17)	35
comfort living with "heart problem"	2 (06)	14 (38)	10 (27)	11 (30)	37
taking medications	9 (28)	11 (34)	5 (16)	7 (22)	32
PARTNER GROUP	no impact	some impact	large impact	very large impact	total n
smoking	15 (65)	5 (22)	0 (00)	3 (13)	23
diet	2 (08)	10 (38)	7 (27)	7 (27)	26
exercise	3 (12)	9 (36)	8 (32)	5 (20)	25
confidence making changes	2 (10)	7 (33)	9 (43)	3 (14)	21
comfort living with "heart problem"	6 (43)	2 (14)	2 (14)	4 (29)	14
taking medication	*	*	*	*	*

\*not answered by the partner group, \*\*indicates 100% of n.

Table 27 shows the data collapsed into two categories of no impact and greater than or equal to some impact (Z statistic used to test the null hypothesis that the proportion of the participants

indicating no impact is equal to the proportion of the participants indicating some impact  $p=.50$ .

Table 27. Significance of program impact from the participant's perspective

PATIENT GROUP	no impact		greater than or equal to some impact		Z statistic	p value
	n	%	n	%		
smoking	22	(76)	7	(24)	-2.80	.0026*
diet	2	(06)	30	(94)	4.97	<.0002*
exercise	2	(06)	30	(94)	4.97	<.0002*
confidence making changes	2	(06)	33	(94)	5.20	<.0002*
comfort living with "heart problem"	2	(05)	35	(95)	5.47	<.0002*
taking medication	9	(28)	23	(72)	2.48	.0082*
PARTNER GROUP						
smoking	15	(65)	8	(35)	-1.43	.0808
diet	2	(08)	24	(92)	4.28	<.0002*
exercise	3	(12)	22	(88)	3.80	<.0002*
confidence making changes	2	(10)	19	(90)	3.66	<.0002*
comfort living with "heart problem"	6	(43)	8	(57)	0.52	.3085
taking medications	**		**		**	**

\*Significant finding  $p < 0.05$ .

With the exception of smoking more than 50% of the patients indicated the program had some impact on their behaviors. More than 50% of the partners indicated the program had an impact on

diet, exercise, and confidence making changes and a non significant impact on smoking and comfort living with someone with a "heart problem". The inverse significance related to smoking is probably explained by the very low incidence of smoking behaviour among the participants at T1.

Participants were asked to identify the most important benefit to them of taking the program. Content analysis of written responses from 27 patients identified four major categories. 1) knowledge: the reinforcement of previously learned knowledge and the learning of new knowledge about their heart condition. "Understanding my heart problem and how I am affected by my diet, exercise and how pills control my heart", "knowing more about angina and stress", "the whole program gave you a good idea of how to take or make changes in your lifestyle", and "reinforced what I already know". 2) gaining perspective: "knowing that others have the same problems and concerns", "seeing people much worse off than myself", "others in the same boat" and "has made me aware of others that have similar problems to mine". 3) self determination: "realizing it is up to the individual to deal with the problem", "you can live with your heart condition", and promoted a "change in eating and exercise habits". 4) support: "talking out the problem with people who understand", "seeing others cope", and "hearing how other people have coped with their condition".

Twenty one partners answered the question generating four categories of responses. 1) sharing: "that we have discussed material covered on the way home each evening", "sharing and

talking with others", and "knowing that we are not alone in our feelings and concerns" 2) coping: "learn how to help my spouse cope with his ailment and understand better" and "the program helped me talk about heart problems and watch for dangers and live with what I have". 3) gaining perspective: "seeing and being with others who have similar problems and are doing well" and "other people are dealing with the same things I am facing". 4) knowledge: "some very useful information", "making me aware of problem areas", and "made me more aware of the problems my husband is going through after and before his coronary by-pass".

#### 5.7.3 Evaluation of Facilitator Role, Program Satisfaction, Dependence on Health Care System and Program Access

Table 28 depicts eleven statements used to evaluate the Heart to Heart program including the key role of facilitator. Participants were asked to score the statements on a four point likert "like" scale which was then collapsed into positive or negative categories with a Z score calculated to test  $H_0:p=0.5$   $H_a:p>0.5$ .



Table 28. Program evaluation

PATIENT GROUP	negative n      %	positive n      %	total n      %	Z score	p value
the facilitator was able to help me participate in group discussions	1    (03)	34   (97)	35 (100)	5.56	*<.0002
the facilitator usually dominated the discussion	28   (78)	8    (22)	36 (100)	3.36	*<.0002
the facilitator was able to help me express my feelings	1    (03)	33   (97)	34 (100)	5.64	*<.0002
the facilitator was able to help me identify community resources	0    (00)	32 (100)	32 (100)	5.65	*<.0002
the facilitator provided helpful medical information	2    (06)	32   (94)	34 (100)	5.13	*<.0002
overall, I was satisfied with the facilitator	1    (03)	36   (97)	37 (100)	5.71	*<.0002
would recommend the program	0    (00)	36 (100)	36 (100)	6.0	*<.0002
physicians should inform their patients about the program	0    (00)	37 (100)	37 (100)	6.08	*<.0002
all persons should have access to this program	0    (00)	37 (100)	37 (100)	6.08	*<.0002
the program has decreased my dependence on the health care system	14   (45)	17   (55)	31 (100)	0.556	.3085

Overall, I was satisfied with the program	0 (00)	37 (100)	37(100)	6.08	*<.0002
PARTNER GROUP	negative n %	positive n %	total n %	Z Score	p value
the facilitator was able to help me participate in group discussions	0 (00)	25 (100)	25(100)	5.0	*<.0002
the facilitator usually dominated the discussion	20 (71)	8 (29)	28(100)	2.22	*.0139
the facilitator was able to help me express my feelings	1 (04)	26 (96)	27(100)	4.78	*<.0002
the facilitator was able to identify community resources	4 (15)	22 (85)	26(100)	3.56	*.0002
the facilitator provided helpful medical information	0 (00)	27 (100)	27(100)	5.19	*<.0002
Overall, I was satisfied with the facilitator	0 (00)	26 (100)	26(100)	5.09	*<.0002
I would recommend the program	0 (00)	28 (100)	28(100)	5.29	*<.0002
physicians should inform their patients about the program	0 (00)	26 (100)	26(100)	5.09	*<.0002
all persons should have access to the program	0 (00)	28 (100)	28(100)	5.29	*<.0002

the program has decreased my dependence on the health care system	6 (32)	13 (68)	19(100)	1.56	.0668
overall, I was satisfied with the program	2 (07)	26 (93)	28(100)	4.55	*<.0002

\*Significant findings at alpha=.05.

The facilitators were highly valued by the participants with more than 50% of the participants agreeing or strongly agreeing that the facilitators were able to help them to: participate in group discussions, express their feelings, identify community resources, and provide helpful medical information. The participants indicated that the facilitators did not dominate the discussions. Overall the participants were very satisfied with the facilitators. More than 50% of the participants agree or strongly agree they would recommend the program to persons with heart disease, all persons with heart disease should have access to the program and physicians should inform their patients with heart disease about the program, overall they were satisfied with the program. The participants indicated that the program did not decrease their dependence on the health care system  $p=0.3085$  for the patients and  $p=0.0668$  for the partners.

The program was further evaluated with three qualitative program evaluative questions. (1) What did you like best about the program? (2) What did you like least about the program? and (3) What single thing would you suggest to improve the Heart to Heart program?

Fifty five informants responded to the first question regarding what the participants liked best about the program. A sense of caring and community which developed among the participants and the facilitator highlighted many of the answers. "That other people cared", "fellowship", "the communal spirit we were all the same". This question as well, generated similar category of responses as the question related to the benefit of the program, "gaining perspective", "knowledge gain" and "sharing". Many of the participants also highlighted specific teaching methods such as the handout material, video presentations, group discussions, and the ability of the facilitator as the best parts of the program.

Thirty eight participants responded to the second question regarding what was least liked about the program. Fourteen of thirty eight (37%) were unable to find fault with the program. Written comments from 24/38 (63%) of the participants included uncertainty as to the optimum length of class. "Too short", "maybe too long eight weeks", and "not long enough". Cost of parking and filling out the research questionnaire received negative written comment. The group experience received written comment, some participants feeling the size of group hindered the experience. "Our group was small therefore not enough sharing", "would have preferred a larger group", "sometimes I think it's hard to share your feelings in a group" and "group discussion times a little awkward for many people".

The final question received written comments from forty participants regarding how they felt the program could be improved. Sixteen provided suggestions, while seventeen had no suggestions to make.

"A team approach to the program", "get guest speakers", and "try to get specialized people to assist on subjects" was a strategy identified to improve the program. Two participants felt the groups should be disease specific. Discharge planning/access was a category of response identified in the data. "To know where and when to start the sessions directly from the hospital discharge", "more programs", "that they would have more Heart to Heart programs in a year" and "more advertising". Length of program was identified with conflicting views. "6 week program instead of 8 weeks", "it might be a longer program and maybe have a follow up with group in 6 months to see how people are coming along". Three participants commented on the video presentations. "To show more about the presentation of the diseases on video or explanations", "update video" and "the information on the medication video was excellent but presented too quickly by the pharmacist on the tape".

## CHAPTER SIX: DISCUSSION

### 6.1 Introduction

This chapter will discuss the results of the evaluation of the Heart to Heart cardiac education program from the participant's perspective. The implications of the study will be discussed under the headings: 1) discussion of findings, 2) implications for nursing research, education and practice and 3) program recommendations. Conclusions will be stated.

### 6.2 Discussion of findings

The purpose of this thesis was to determine the response of a group of self selected individuals to the Heart to Heart cardiac education program. The study participants were typical of the general population of patients suffering from cardiovascular disease. The patients were predominantly younger males and older females. The partners were for the most part females younger in age than their male partner.

A plethora of research has evaluated a wide range of cardiac education programs, with varying results reported in the literature. The educational strategies have varied widely, from one time in-hospital verbal instructions by health professionals to comprehensive phase 5 cardiac rehabilitation programs. The

strategies of the Heart to Heart program were directed towards impacting three goals, 1) increasing participant knowledge base, 2) widening their personal, professional, community support base, and 3) providing a supportive learning environment.

The most frequent result reported in the literature is one of significant knowledge gain by participants (Garding, et al., 1988, Penckofer, & Llewellyn, 1989, Owens et al., 1978). The Heart to Heart cardiac education program demonstrated a significant knowledge gain by the participants. The Lalonde report (1974) indicated a significant improvement in health care was possible through modification of lifestyle behaviors. Scalzi, et al. (1980) identified knowledge of risk factors as an important need of cardiac patients and a precursor to compliance to lifestyle changes. The understanding of risk factors is a specific and important aspect of knowledge gain positively impacted by the program. In spite of the statistically significant findings regarding knowledge gain by the participants, a percentage of the participants, (36% of patients and 54% of partners) were unable to write down on paper three controllable risk factors after taking the program. The finding indicates: perhaps more educational effort is required in this area, the participants have difficulty remembering risk factors not pertinent to their individual situation or the participants found the knowledge questions provoked anxiety related to a "testing" situation impacting their recall abilities.

Contrary to expectations, level of education did not predict knowledge gain. The use of high school education as the median split dividing the participants into only two groups may have diminished the effects one may have seen from University level education. However, a larger sample size would be required to determine statistical significance of a university education on knowledge gain. The finding that older partners learned more than the other groups may be explained by a lower knowledge level at the beginning of the program. Prior life experiences non-congruent with a focus on cardiac knowledge or lifestyle behaviours may have allowed more room for growth in these older participants. Overall the hypothesis: knowledge gain would be positively impacted by the program was supported by the evidence.

A second hypothesis concerned the relationship between locus of control beliefs and knowledge gain. The literature suggested participants with a high internal locus of control would seek more information and learn more than participants operating from a chance health locus of control or powerful other health locus of control (Wallston, & Wallston, (1981). This study did not support high internality of participants as a differential factor in knowledge gain. A possible explanation for this finding may be due to program design which was balanced for internality and externality of participants. The participant's scores were similar to the normative scores of other groups (table 29).



Table 29. Normative mean group scores for types of subjects compared to study participants

sample*	n	Internal (IHLC)	Chance (CHLC)	Powerful others (PHLC)
Chronic patients	609	25.78	17.64	22.54
College students	749	26.68	16.72	17.87
Healthy adults	1287	25.55	16.21	19.16
Persons engaged in preventative health behaviours	720	27.38	15.52	18.44
Study patients	47	24.98	15.68	22.19
Study partners	37	25.38	15.43	19.87

\* Mean scores for all groups (except for study participants) cited from Wallston, & Wallston, 1981 p. 204.

Wallston and Wallston 1981, concluded that chronically ill patients tend to hold fairly high external beliefs. The study findings support this premise as the patients were more externally oriented than their partners with their score for PHLC closely approximating score for chronic patients. The findings underscore the importance of the health professionals role in promoting compliance to behaviour change. The patients have a reduced belief in their own abilities to manage their health and a lower belief in fate as a determining factor.

Statistically significant evidence was shown for positive alterations in behaviour scores. Smoking behaviour of the participants was very low (5-8% at pretest) in comparison to the general Manitoba population smoking rate of 33% (Manitoba Heart Health Survey, 1991). The findings suggest the participants have modified their smoking behaviour due to their experience with "heart problems". Trelawny-Ross, & Russell 1987 found similar

results noting a trend of more patients giving up smoking post myocardial infarction than earlier studies. Smoking is an extremely difficult behaviour to change as evidenced by the written comments of the smokers post program. It is therefore not surprising that the Heart to Heart program was unable to modify smoking behaviour in a majority of the cases. Changes in smoking behaviour of these hard core smokers would probably require one on one intervention.

Statistically significant changes in physical activity were reported by the participants due to the program. The National Center for Chronic disease prevention and health promotion, (July 1996) suggest thirty minutes of moderate intensity activity (brisk walk) on all or most days of the week or approximately 210 minutes per week of exercise is sufficient for cardiovascular health. The Heart to Heart study findings indicates uncertainty in the participants regarding the amount and frequency of activity required for cardiovascular health. The uncertainty exists with approximately 35% of the patients who feel 240 minutes per week of light exercise (strolling) is enough exercise. A further 17-24% believe 240 minutes of strenuous exercise (brisk walking) per week is not enough. The findings appear to indicate some confusion post program among the participants concerning amount and intensity of exercise required. Interestingly, lack of energy and motivation appeared to be the major factors the participants felt hinder them from getting enough exercise. The report of the Surgeon General, (July 1996) suggests compliance to daily exercise can be improved

by obtaining the 30 minutes of exercise in divided doses. A study cited in the report suggests "greater adherence to a walking program among those walking several times per day than among those walking once per day, when the total amount of walking time was kept the same" (Surgeon General Report, July 1996, p.1). This fact can be stressed by the Heart to Heart program facilitators in order to reduce the confusion surrounding the type and amount of exercise required for cardiovascular health and to improve compliance.

Ninety four percent of patients indicate they almost always took their pills as ordered by their physician. Accuracy of self reported measures of compliance among patients indicates noncompliance tends to be under reported (Hilbert, 1984). The Heart to Heart findings may indicate under reporting by the participants. The findings of the Heart to Heart evaluation suggest the program was not helpful to 61% of the patients with their medications. The results may indicate medication teaching is a focus of the physician and other health professionals, that patients believe the medications are essential to their survival which impacted their compliance as well as knowledge requirements. However 39% of the sample did find the knowledge and support of the program helpful with their medications.

The participants reported significant dietary changes due to the program. Qualitative comments indicate the participants have an understanding of recommended dietary changes and have begun to alter their dietary habits. Use of salt during food preparation and awareness of the Canada Food Guide reached statistical

significance for the patient group, however all dietary behaviours such as reducing the use of salt and fat intake for both groups showed percentage decreases post program. These findings are important in lieu of the chances of reduction in heart disease with modification of harmful lifestyle behaviours. (Ornish, et al., 1990). The evidence of this study suggests the Heart to Heart cardiac education program is effective in increasing the knowledge level of the participants and modifying some of their harmful lifestyle behaviours.

#### Program Evaluation

An interesting finding of this study is the ranking of the learning methods/strategies by the participants. One would have expected the video to be of most benefit to the participants as the program centers around video vignettes. However, the high ranking of facilitator and group support, as well as group discussion appear to support the sense of community so important to the human species when faced with difficult life experiences. A key to the program success is the excellent work of the program facilitators who were able to help the participants: express their feelings, participate in group discussion, provide helpful medical information and identify community resources to aid in their recovery.

#### 6.3 Implications for Nursing Research and Education

The study findings are limited by the research design. The lack of a control group makes it difficult to isolate the effects

of the program. Other variables such as time, influence of other health professionals, and the experience of the "heart problem" may have individually or through an interaction of the variables, affected the outcomes. In addition, a variety of facilitators at the different program sites may have impacted the study results. The facilitators for the most part were nurses or dieticians the impact of their professional background on program outcomes is unknown. As the facilitators were all trained by the Heart and Stroke Foundation of Manitoba the confounding of this variable may have been reduced. The common variable throughout the eight week period of patient education was the participants' attendance at a Heart to Heart program. The study findings were strengthened by participants' estimate of program impact on lifestyle behaviour change. The participants reported some impact on their risk modification behaviours from the program except for smoking. Phillips (1991), suggests participant estimate of program impact can be useful to isolate the effects of training when more powerful methodologies are not practical (p. 163). The written comments from the participants identified the important benefits of taking the program to their knowledge and behaviour change. A sense of community which developed among the participants was described as a major benefit of the program facilitating change. The self selection of program participants limits the generalizability of study findings.

This study of course was not able to answer the important research question, as to whether the amount of changes invoked in

the participants by the program will have an effect on their morbidity and mortality. According to O'Connor et al. (1989) rehabilitation with exercise after myocardial infarction (phase 5 program) can reduce total and cardiovascular related mortality by 20%. It is questionable whether the Heart to Heart program with its non prescriptive and unsupervised exercise component can achieve similar results. Such a research question is worthy of study by the Heart and Stroke Foundation. The longitudinal follow up planned for the study participants may help to further evaluate the impact of the Heart to Heart program. The literature suggests non-compliance rates can be very high and vary widely depending on the behaviours (Andrew et al., 1981). One can speculate that quality and quantity of life may improve in those individuals who have made significant changes in reduction of risk factors and continue to adhere to healthy lifestyles habits. Improvement in health depends in part on reduction of harmful lifestyle habits. The Heart to Heart program impacts participants' understanding and modification of harmful lifestyle behaviours. The program should be supported and recommended by nurses to their clients with heart disease.

The role of locus of control construct as a single determinant of health behaviour is questionable. As suggested by Oberle (1991), experimental and quasi experimental studies are needed to study Locus of Control as a dependent variable. In such a study the teaching program would be tailored to the participants' locus of control and the outcomes evaluated. The value of the reinforcer

in health promotive behaviour needs to be evaluated as well in future studies before the construct provides practical application to nursing and health education.

#### 6.4 Program Recommendations

The program recommendations are in keeping with the participant evaluations and suggestions to improve the program.

1. Increase the marketing of the program in order that all patients with cardiovascular disease become aware of the program and its benefits.
2. Improve access to the program through a coordinated effort by the Heart and Stroke Foundation especially among the urban teaching sites. Patients should be aware at the time of visit to the physician or discharge from hospital where and when the next Heart to Heart program is being held.
3. The patients locus of control indicates a strong belief in the influence of physicians and other health care professionals (powerful others), however only 38% of the participants indicated health professionals recommended the program. As physicians, other health professionals, and hospitals remain the entry point for the study population, obtaining support from these various groups/facilities should be a priority of the Heart and Stroke Foundation.
4. According to the written comments of some of the participants, the video presentations require updating, for example the information presented by the pharmacist appears to require modification according to one participant.
5. More programs should be run throughout the year to ensure all patients have an opportunity to take the program within the optimum time (six to eight weeks) post cardiac event.



6. Continue the length of program and recommended group size. The current length of the program is eight weeks held at various sites throughout the province of Manitoba. The programs are run on a voluntary basis by program facilitators. The length of the program seems optimum to cover the required content. Only a few participants commented on the length of the program and felt changes should be made. The size of the group received negative comment when four or less couples attended.

7. The use of expert guest speakers may enhance the program, especially in the area of physical activity.

#### 6.5 Conclusions

Glanz (1990) indicates effective health education requires an understanding of target audiences, their health and social characteristics, and their beliefs, attitudes, values, skills, and past behaviours (p. 12). The application of social learning theory by the program designers (National Heart and Stroke Foundation of Canada) appears to have successfully met the needs of the participants with internal and external health control beliefs.

The evaluation of the program by the participants indicates that, notwithstanding suggestions for some changes in the education program, overall Heart to Heart made a difference to their understanding and adaptation to living with their "heart problem". The program should be promoted widely within the community.

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## APPENDIX A

## LETTER OF INSTRUCTION TO SITE FACILITATORS

Dear \_\_\_\_\_

Thank you for assisting with data collection for the evaluation of the *Heart to Heart Program*.

It is very important that you adhere to the following instructions when introducing the proposed research study to the participants:

1. Introduce the study at your first session, week one, after your welcome and opening introductions.
2. Please read to the group, the following statement:

Allan Perron, a Masters student with the Faculty of Nursing, University of Manitoba, is evaluating the *Heart to Heart Program* on behalf of the Heart and Stroke Foundation of Manitoba. The purpose of the study is to find out what effect the program has on you, the participants.

3. The study involves the signing of a consent and the completion of a 20 minute questionnaire now and another at the end of the program during our last class.
4. As a followup study, the Heart and Stroke Foundation would like to send you an additional questionnaire approximately one year after you completed the program.

Hand out one envelope to each couple. Please ensure a suitable work space for completing the questionnaire and have pens/pencils available.

5. The envelope contains two consent forms and two questionnaires which are the same. One is for the patient and one for the partner. If you came alone fill out one questionnaire/consent and return other forms to the envelope.

Ask the participants to read the consent form **carefully** and sign it if they are willing to participate. Stress that their participation is strictly voluntary.

6. Participants refusing to participate simply return the consent and questionnaire to envelope. Seal and return to you. Offer a diversion for those unwilling to participate.
7. Review the following questionnaire instructions with the group.
  - a) Please read the instructions and answer all the questions.

-2-

In most cases, you need only circle a number. Some written comments are necessary.

- b) If the perfect response does not seem to be on the questionnaire, please indicate the response which best approximates the perfect response.
  - c) Please make sure that you circle whether you are the patient or the partner.
  - d) Please complete the questionnaires on your own.
  - e) After completing all the questions, return the two consent forms and the two questionnaires to the envelope, seal and return to me (the facilitator).
8. It is very important that each couple/person return their consents and questionnaires to the same envelope from which they were removed.

#### FACILITATORS

After the data is collected, please thank the participants for their assistance.

Place all the sealed participant envelopes in the large postage envelope provided, seal and send by prepaid courier to

**Allan Perron  
84 St. Dunstons Bay  
WINNIPEG, Manitoba  
R3T 3H6**

Should you have any questions, please call me collect at

**(H) 204 - 269-3592, or  
(W) 204 - 477-3262**

Please note the procedure for the post-test is the same without the need for consent or explanation of the study. Hand out the envelopes addressed with each participant's name and start at instruction #6 above.

I appreciate your assistance with data collection. It should take no more than a total of about one hour of class time and we hope that the group can adjust so that the overall program is not compromised or lengthened.

Again, my sincere thanks for your assistance.

Sincerely,

Allan Perron

**APPENDIX B****HEART TO HEART PROGRAM EVALUATION  
PARTICIPANT CONSENT FORM**

The purpose of the study titled "*Evaluation of the Heart to Heart Program*" is to find out what effect the program has on you the participant.

The proposal has been approved by the Ethical Review Committee of the Faculty of Nursing, University of Manitoba.

*I understand and agree to the following:*

1. It is because I am taking the *Heart to Heart Program* that I am being asked to complete a questionnaire now and another at the end of the program.
2. The questionnaire will take about 20 minutes to complete.
3. The study is being conducted by Allan Perron as part of the requirements for his Masters in Nursing degree.
4. I understand that I may contact Allan Perron at any time if I have any questions about my participation in this study. His telephone number is 204 - 477-3262 (work) or 204 - 269-3592 (home).
5. All information which I provide will be kept confidential. Only the researcher, members of his thesis committee and the Director of Education, Manitoba Heart and Stroke Foundation will have access to my answers (names listed below).
6. I will not be identified in any way in the report of the study.
7. I understand that I may withdraw from th study at any time without penalty to myself.
8. I understand that there may not be any direct benefit to me but the results of the study may assist the Heart and Stroke Foundation of Manitoba to improve the program and benefit other persons in the future.
9. I understand that the Heart and Stroke Foundation of Manitoba may contact me one year after I have completed the program to arrange a follow-up survey.

-2-

10. I understand that the results of this study may be published. However, I understand that results will be reported as a group and that I will not be identified as an individual.

My signature below indicates my willingness to participate in this study.

Signature \_\_\_\_\_ Date \_\_\_\_\_

NAME: (please print) \_\_\_\_\_

I wish to receive a summary of the results of this study:  
1...yes      2...no

If Yes...

Name \_\_\_\_\_  
Address \_\_\_\_\_

Dr. Barbara Naimark, Faculty of Nursing, University of Manitoba  
Professor Judy Scanlan, Faculty of Nursing, University of Manitoba  
Dr. James Welsh, Faculty of Education, University of Manitoba  
Dawn Marie Turner, Director of Education, Heart and Stroke Foundation of Manitoba

# ***HEART TO HEART PARTICIPANT QUESTIONNAIRE***

**Allan Perron, RN, BScN  
Masters Student  
Faculty of Nursing  
University of Manitoba**

Thank you for agreeing to participate in the evaluation of the *Heart to Heart Program*.

This questionnaire is designed to find out how the program affects you.

Please read the instructions and answer all the items. In most cases, you need only circle a number. Some written comments are necessary. If the perfect response does not seem to be on the questionnaire, please indicate the response which best approximates the perfect response.

After completing all the questions, place the booklet and consent form in the envelope, seal it and return to your facilitator.

Participation in this study is entirely voluntary. If you do not wish to contribute to the study, simply return the questionnaire package unanswered.

**HEART TO HEART PARTICIPANT QUESTIONNAIRE:  
Pre-Program**

Thank you for agreeing to participate in the evaluation of the *Heart to Heart Program*.

**I. Please circle one answer:**

1.....I am attending as the patient

2.....I am attending as the partner

**II. Please indicate the town or city in which you live\_\_\_\_\_**

**III. Please indicate your program facilitator/teacher name\_\_\_\_\_**

**IV. What is your gender?**

1.....male

2.....female

**V. What is your age?**

1...15-25

2...26-36

3...37-47

4...48-58

5...59-69

6...70-80

7...80+

**VI. Do you live alone?**

1.....yes

2.....no

**VII. If you are the patient, your partner is:**

1...spouse

2...friend

3...brother/sister

4...other - please specify\_\_\_\_\_

**VIII. What is your marital status?**

1....single

2....married/common law

3....divorced/separated/widowed

Page 2

**IX. On whose initiative/recommendation did you join the *Heart to Heart Program*.**

Please circle all that apply.

1....my own initiative

2....my partner's initiative

3....health professional(s) recommendation

4....friends recommendation

5....other - please

specify \_\_\_\_\_

**X. Why did you decide to participate in the *Heart to Heart Program*?** \_\_\_\_\_**XI. What is your highest level of education?**

1....no formal schooling

2....Grade 1 - 8

3....Grade 9 - 12

4....completed high school

5....some technical/vocational training

6....completed tech/vocational training

7....completed some university

8....completed university degree or more

9....other \_\_\_\_\_

**XII. PATIENT ONLY:****Please indicate your heart problem. I have/had...**

1....heart bypass surgery

2....heart attack

3....angina

4....angioplasty surgery

5....valve surgery

6....other \_\_\_\_\_

**XIII. Please fill in the appropriate date for your heart problem.**

1....When was your heart attack? month \_\_\_\_\_ year \_\_\_\_\_

2....When was your heart surgery? month \_\_\_\_\_ year \_\_\_\_\_

3....When was your last angina attack? month \_\_\_\_\_ year \_\_\_\_\_

Please circle T, F, or DK (True, False, and Don't Know) for each of the following statements.  
**PLEASE DO NOT GUESS.**

1. Nicotine increases the heart rate, placing added stress on the heart.
2. Exercise is one way to reduce blood cholesterol.
3. Regular physical activity causes heart attacks.
4. Smoking is an effective way to relief stress.
5. Sources of saturated fats include red meats, butter, and cheese.
6. A person can lose weight by increasing their activity level or decreasing their caloric intake.
7. Smoking tends to keep your body weight down.
8. Brisk walking is a good aerobic exercise.
9. Feelings of anger, depression and fear are normal after a heart attack.
10. High blood pressure has little effect on your heart.
11. Sexual intercourse can usually be started six to eight weeks after a heart attack.
12. Beta blockers should be stopped immediately if you experience chest pains.

	true	false	don't know
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	
T	F	DK	

A risk factor is a habit or condition that contributes to a person's likelihood of developing a disease or disability.

13. What are two risk factors for heart disease that you CANNOT control?

1.....

2.....

14. What are three risk factors for heart disease that you CAN control?

1.....

2.....

3.....



Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choices, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe. Circle the number that best represents your belief.

	strongly disagree	moderately disagree	slightly disagree	slightly agree	moderately agree	strongly agree
1. If I get sick, it is my own behaviour that determines how soon I will get well again.	1	2	3	4	5	6
2. No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3. Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4. Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5. Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am in control of my own health.	1	2	3	4	5	6
7. My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8. When I get sick, I am to blame.	1	2	3	4	5	6
9. Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
10. Health professionals control my health.	1	2	3	4	5	6
11. My good health is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing that affects my health is what I myself do.	1	2	3	4	5	6
13. If I take care of myself, I can avoid illness.	1	2	3	4	5	6
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.	1	2	3	4	5	6

Page 2

		strongly disagree	moderately disagree	slightly disagree	slightly agree	moderately agree	strongly agree
15.	No matter what I do, I'm likely to get sick.	1	2	3	4	5	6
16.	If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17.	If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18.	Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6

### *Use of Tobacco Products*

Please circle all that apply. If you have *never smoked* circle *Number 1* then go to the next section on *Exercise*.

I. I.....I have never smoked

II. I used to smoke

1....occasionally      2....daily      3....date stopped smoking \_\_\_\_\_

III. I now smoke

1....occasionally      2....daily

IV. If you now smoke occasionally or daily, please check all that apply to you.

I now smoke:

1....cigarettes      2....a pipe      3....cigars  
4....cigarillo

V. If you now smoke cigarettes, how many do you smoke each day:

1....five or less      2....six - ten  
3....eleven - fifteen      4....sixteen - twenty  
5....twenty-one - twenty-five      6....twenty-six or more

VI. Has your smoking changed since the heart problem? Please check all that apply to you.

1....smoking more now      2....smoking less now  
3....switched to stronger brand      4....switched to a weaker brand  
5....no change      6....I am currently trying to stop smoking  
7....I have stopped smoking

VII. If you continue to smoke, what is the main reason why you have not stopped smoking? \_\_\_\_\_

\_\_\_\_\_

**Exercise**

- I. **In a typical week how many hours of leisure time do you spend doing light to moderate physical activity (e.g. strolling, gardening, etc.)? Please circle only answer only.**

- |                                   |                         |
|-----------------------------------|-------------------------|
| 1....less than one hour a week    | 2....one hour a week    |
| 3....two hours a week             | 4....three hours a week |
| 5....four hours a week            | 6....five hours a week  |
| 7....six hours a week             | 8....seven hours a week |
| 9....more than seven hours a week |                         |

- II. **In a typical week, how many hours of leisure time do you spend doing heavy physical activity (e.g. brisk walking, aerobics, jogging, etc.)? Please circle one answer only.**

- |                                   |                         |
|-----------------------------------|-------------------------|
| 1....less than one hour a week    | 2....one hour a week    |
| 3....two hours a week             | 4....three hours a week |
| 5....four hours a week            | 6....five hours a week  |
| 7....six hours a week             | 8....seven hours a week |
| 9....more than seven hours a week |                         |

- III. **Have you made any changes in your physical activity since the heart problem?**

- |          |         |
|----------|---------|
| 1....yes | 2....no |
|----------|---------|

If yes, what changes have you made: \_\_\_\_\_

- IV. **Do you think you get enough physical activity?**

- |          |         |
|----------|---------|
| 1....yes | 2....no |
|----------|---------|

If yes, go to next section question #1 *Dietary*.

- V. **If you feel you do not get enough physical activity, please indicate the reason(s) why you do not exercise more often. Please circle all that apply to you.**

- 1....not enough time due to work outside the home
- 2....not enough time due to family commitments
- 3....not interested/dislike exercise
- 4....too expensive
- 5....no facilities close by
- 6....no one to exercise with me
- 7....lack of energy
- 8....lack of motivation
- 9....other (please specify) \_\_\_\_\_

**Please circle the answer which best represents your dietary habits:**

I. Do you or your partner add salt to your food when preparing meals

II. Do you add salt to your food after it is cooked?

III. Do you try to limit your fat intake?

IV. Do you check food labels for salt/fat content?

V. Are you aware of the Canada Food Guide?

1....yes      2....no

VI. Do you follow the recommendations of the Canada Food Guide?

1....yes      2....no

VII. Have you made any changes in your diet since the heart problem?

1....yes      2....no

VIII. If YES, what are the changes you have made?

---



---

IX. if NO, what would you say is the main reason why changes have not been made?

---



---

	almost never	rarely	frequently	almost always
I.	1	2	3	4
II.	1	2	3	4
III.	1	2	3	4
IV.	1	2	3	4

**Please Turn Page →**

**Stress:**

I. I feel my life is stressful

almost never		rarely		frequently		almost always
1		2		3		4

II. Do you use any of these ways to reduce stress? Please circle all that apply.

- 1....doing one thing at a time      2....talking out the problem  
 3....relaxation techniques        4....exercise  
 5....none of the above            6....Other - please describe \_\_\_\_\_

III. The heart condition has affected my life?

- 1....yes                                      2....no

If yes, how as the heart condition affected your life? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Answer questions I and II of the Medication Section only if you are taking pills ordered by your doctor.**

**Medications:**

I. I take my pills as ordered by my doctor

II. I forget to take my pills

almost never		rarely		frequently		almost always
1		2		3		4
1		2		3		4

## **HEART TO HEART PARTICIPANT QUESTIONNAIRE**

**Allan Perron, RN, BScN  
Masters Student  
Faculty of Nursing  
University of Manitoba**

Thank you for agreeing to participate in the evaluation of the *Heart to Heart Program*.

This questionnaire is designed to find out how the program affects you.

Please read the instructions and answer all the items. In most cases, you need only circle a number. Some written comments are necessary. If the perfect response does not seem to be on the questionnaire, please indicate the response which best approximates the perfect response.

After completing all the questions, place the booklet in the envelope, seal it and return to your facilitator.

Participation in this study is entirely voluntary. If you do not wish to contribute to the study, simply return the questionnaire package unanswered.

**HEART TO HEART PARTICIPANT QUESTIONNAIRE:  
Post-Program**

1.	Please circle one answer: 1....I am attending as the patient                      2....I am attending as the partner
2.	Please indicate the number of classes attended:

**Please circle T, F, or DK (True, False, and Don't Know) for each of the following statements. PLEASE DO NOT GUESS**

	true	false	don't know
1. Nicotine increases the heart rate, placing added stress on the heart.	T	F	DK
2. Exercise is one way to reduce blood cholesterol.	T	F	DK
3. Regular physical activity causes heart attacks.	T	F	DK
4. Smoking is an effective way to relief stress.	T	F	DK
5. Sources of saturated fats include red meats, butter, and cheese.	T	F	DK
6. A person can lose weight by increasing their activity level or decreasing their caloric intake.	T	F	DK
7. Smoking tends to keep your body weight down.	T	F	DK
8. Brisk walking is a good aerobic exercise.	T	F	DK
9. Feelings of anger, depression and fear are normal after a heart attack.	T	F	DK
10. High blood pressure has little effect on your heart.	T	F	DK
11. Sexual intercourse can usually be started six to eight weeks after a heart attack.	T	F	DK
12. Beta blockers should be stopped immediately if you experience chest pains.	T	F	DK

A risk factor is a habit or condition that contributes to a person's likelihood of developing a disease or disability.

13. What are two risk factors for heart disease that you CANNOT control?  
 1.....

---

 2.....

---

14. What are three risk factors for heart disease that you CAN control?  
 1.....

---

 2.....

---

 3.....

---



### *Use of Tobacco Products*

Please circle all that apply. If you have *never smoked* circle *Number 1* then go to the next section on *Exercise*.

**I. I....I have never smoked**

**II. I used to smoke**

1....occasionally      2....daily      3....date stopped smoking\_\_\_\_\_

**III. I now smoke**

1....occasionally      2....daily

**IV. If you now smoke occasionally or daily, please check all that apply to you.**

**I now smoke:**

1....cigarettes      2....a pipe      3....cigars  
4....cigarillo

**V. If you now smoke cigarettes, how many do you smoke each day:**

1....five or less      2....six - ten  
3....eleven - fifteen      4....sixteen - twenty  
5....twenty-one - twenty-five      6....twenty-six or more

**VI. Has your smoking changed due to the program? Please check all that apply to you.**

1....smoking more now      2....smoking less now  
3....switched to stronger brand      4....switched to a weaker brand  
5....no change      6....I am currently trying to stop smoking  
7....I have stopped smoking

**VII. If you continue to smoke, what is the main reason why you have not stopped smoking?**\_\_\_\_\_

\_\_\_\_\_



**Please circle the answer which best represents your dietary habits:**

	almost never	rarely	frequently	almost always
I. Do you or your partner add salt to your food when preparing meals	1	2	3	4
II. Do you add salt to your food after it is cooked?	1	2	3	4
III. Do you try to limit your fat intake?	1	2	3	4
IV. Do you check food labels for salt/fat content?	1	2	3	4

V. Are you aware of the Canada Food Guide?

1....yes      2....no

VI. Do you follow the recommendations of the Canada Food Guide?

1....yes      2....no

VII. Have you made any changes in your diet due to the information in the program?

1....yes      2....no

VIII. If YES, what are the changes you have made?

---



---

IX. if NO, what would you say is the main reason why changes have not been made?

---



---

**Please Turn Page →**

**Stress:**

almost never          rarely          frequently          almost always

1	2	3	4
---	---	---	---

I. I feel my life is stressful

II. Do you use any of these ways to reduce stress? Please circle all that apply.

- 1....doing one thing at a time          2....talking out the problem  
 3....relaxation techniques          4....exercise  
 5....none of the above          6....Other - please describe \_\_\_\_\_

III. The program has helped me to deal with my stress?

- 1....yes                                          2....no

IV. If yes, **how** has the program helped you with your stress? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Medication Section**

I am taking pills ordered by my doctor:          1....yes          2....no

- \* **If NO, proceed to the next page**  
 \* **If YES, answer questions I, II and III:**

almost never          rarely          frequently          almost always

I. I take my pills as ordered by my doctor

1	2	3	4
1	2	3	4

II. I forget to take my pills

III. The program has helped me to take my pills as ordered by my physician:

- 1....yes                                          2....no

If yes, **how** has the program helped? \_\_\_\_\_

Please circle the number that best reflects your opinion about the benefits to you of each item.  
Please do not skip any item(s).

	not beneficial	somewhat beneficial	very beneficial	extremely beneficial
I. Video presentations	1	2	3	4
II. Group discussions	1	2	3	4
III. Support of facilitator	1	2	3	4
IV. Support of group members	1	2	3	4
V. Handout materials	1	2	3	4
VI. Guest speakers	1	2	3	4
VII. Other - please specify _____				

Please circle the number that best reflects the impact the program had on your behaviour.

	no impact	some impact	large impact	very large impact
VIII. Smoking habits	1	2	3	4
IX. Dietary habits	1	2	3	4
X. Exercise habits	1	2	3	4
XI. Taking my pills	1	2	3	4
XII. Confidence in making changes	1	2	3	4
XIII. Comfort living with my heart condition	1	2	3	4
XIV. What has been the most important benefit to you of taking the program? _____ _____				

Please turn page →

Please circle the response that best represents your opinion of each item.

	strongly disagree	disagree	agree	strongly agree
XV. The facilitator was able to help me participate in group discussions.	1	2	3	4
XVI. The facilitator usually dominated the discussions.	1	2	3	4
XVII. The facilitator was able to help me to express my feelings.	1	2	3	4
XVIII. The facilitator was able to help me identify community resources to assist with further recovery.	1	2	3	4
XIX. The facilitator provided helpful medical information.	1	2	3	4
XX. Overall, I was satisfied with the facilitator.	1	2	3	4
XXI. I would recommend the program to persons living with heart disease.	1	2	3	4
XXII. Physicians should inform their patients with heart disease about the program.	1	2	3	4
XXIII. All persons suffering from heart problems should have access to this program.	1	2	3	4
XXIV. The <i>Heart to Heart Program</i> has decreased my dependance on the health care system.	1	2	3	4
XXV. Overall, I was satisfied with the Heart to Heart Program	1	2	3	4

XXVI. What did you like best about the *Heart to Heart Program* \_\_\_\_\_

\_\_\_\_\_

XXVII. What did you like least about the *Heart to Heart Program* \_\_\_\_\_

\_\_\_\_\_

XXVIII. What single thing would you suggest to improve the *Heart to Heart Program* \_\_\_\_\_

\_\_\_\_\_