Knowledge, Experience, Perceptions, and Beliefs of Women with Cardiovascular Disease in Northwestern Ontario

by

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ABSTRACT

Cardiovascular disease (CVD) is the primary killer of men and women. Mortality rates in Northwestern Ontario (NWO) continue to be higher than the provincial average. Current trends suggest that cardiac-related deaths for women in Canada will increase by 28% between 1995 and 2016, whereas deaths for men will slightly decline. The effects of CVD in women within a gender context have been understudied. There is a need to understand women's lived experience with CVD to help determine more effective health-promoting strategies for women. A qualitative and quantitative descriptive and exploratory study was designed to examine women's lived experiences with CVD. A structured gender health questionnaire was developed as part of the study. Taped-interviews were conducted with 30 women (15 rural, 15 urban) with established heart disease living in NWO. Quantitative and qualitative data were analyzed from transcripts. Through the process of sharing their experiences, the women articulated how the disease impacted their life, what lifestyle adaptations they have made, and what psychological and psychosocial interventions have been or would be beneficial to them. Heart disease appears to have a lasting negative influence on how a woman rates her health in relation to others in her age group.

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Introduction

Cardiovascular disease (CVD) is the primary killer of both men and women in Northwestern Ontario (NWO), and mortality rates continue to be higher than the provincial average (NWO District Health Council, 2003a). Residents of NWO have higher rates of many of the risk factors for cardiac disease than people in the rest of the province, and individuals are presenting younger with multiple risk factors (NWO District Health Council). A needs assessment of NWO identified delays in care because of long travel distances, inadequate health human resources, an aging population, higher number of families living in poverty, increased lifestyle risk factors, and higher mortality rates due to CVD than elsewhere in the province (Lacroix, 2003). Epidemiological studies and clinical trials have identified gender differences in the incidence and risk factors for sudden death. "Current Canadian trends in age-specific mortality rates suggest that the number of cardiac related deaths for women will increase by 28% between 1995 and 2016 while deaths for men will slightly decline" (NWO District Health Council, p. 7).

Cardiovascular health interventions specific to women are limited. In a literature review of 65 population-based studies, Krummel et al. (2001) reported that "the effects of cardiovascular interventions in women have been inappropriately understudied" (p. 117). Overarching recommendations made by Krummel et al. were to:

- Conduct qualitative research to determine the kinds of interventions women want.
- Examine relapse, prevention, motivation, and maintenance of change behaviour.

- Tailor programs to the stage of the life cycle; a woman's readiness to change; and subgroups (i.e., minority, low socioeconomic status [SES], and obese women).
- Evaluate policy and environmental interventions.

King and Arthur (2003) also pointed out the need to:

> Develop a clearer understanding of (a) the mechanisms that underlie people's choices to manage their CHD [coronary heart disease] risk, (b) whether mechanisms exist that are truly gender-specific, and if so (c) the influence that these mechanisms have on management of CHD risk. (p. 278)

In their search of the literature, Benson, Arthur, and Rideout (1997) were able to locate only four qualitative studies (1984 to 1993) that had a major focus on women's experience with CVD. To address gaps in this area of research, Benson et al. conducted focus group sessions with 14 women, 1 to 6 months following a myocardial infarction. Their data supported the emergence of four major themes: "validation; perceived gender differences; role expectations/role tensions; and helps and hindrances to recovery" (p. 16). The participants suggested a number of strategies that would be helpful to them, including in-home support, follow-up contact, resource availability, and a support group.

K. McCormick and Bunting (2002) conducted an extensive review of the literature to identify all qualitative nursing research from 1981 to 2000 that examined women living with cardiovascular-related concerns. Nine studies were selected and further examined through feminist theory to assess their benefit to women, representation of values, recognition of oppressing conditions, commitment to social change, awareness of human diversity, and presentation of women's strengths. The researchers reported that the weakest components of this research were in the areas of commitment to social change and presentation of women's strengths, two important dimensions in women's health studies.

In their study of 13 women who had experienced an acute cardiac event, Fleury, Sedikides, and Lunsford (2001) collected qualitative data on a weekly basis within a group format over a period of 9 months. The primary purpose of the group was to provide support for the women. Findings of these data emphasized the psychosocial adjustment following diagnosis of a chronic illness as a process of acknowledgement and self-reformation. The researchers suggested that ongoing research is essential "to further explain the process of recovery as well as increase quality of life after a cardiac event, adherence to health behaviour change, and positive rehabilitation outcome" (p. 80).

Statement of Purpose

The incidence of CVD is higher in NWO than the rest of the province, and cardiac- related deaths for women are increasing. There is a need to develop a clearer understanding of the mechanisms that underlie women's choices to manage their CVD. The purpose of this research was to assess the knowledge, attitudes, beliefs, and perceptions of women ages 45 and older living with CVD and residing in NWO.

Goals and Objectives of the Study

- To critically examine published literature, reports, and other documentation related to gender health and women's perceptions of CVD and health-promoting behaviours.
- To develop a gender health questionnaire to be used in conjunction with structured researcher-to-participant interviews. The questionnaire will assess the participants' lifestyle choices, coping styles, and lived experiences with CVD.

- To assess the types of physical and psychosocial interventions that women believe have been or would be of benefit to them in their recovery and in risk factor reduction and promotion of healthy behaviours.
- To explore the differences and similarities between women who live in an urban area (Thunder Bay) and those who live in a rural area (communities within a 2-hour drive of Thunder Bay). These differences include service utilization, age demographic, beliefs, knowledge about CVD, coping styles, and self-perceived health. The examination of women's experience with CVD will inform health care providers to develop gender-specific strategies for the health promotion, treatment, and management of this chronic and often disabling disease.

Significance of the Study

The findings from this study of gender health in women with CVD will contribute to the knowledge of health professionals when planning and developing targeted programs in health promotion, treatment, and secondary prevention strategies for women in NWO. This research will provide further insight into women's perceptions, beliefs, and health-seeking behaviours in relation to CVD, a life-threatening and chronic illness. The process of eliciting and documenting women's lived experiences within a gender-health sociocultural construct will inform nursing research. Lastly, this study will engage women in the identification of their relatedness with other women, validate the essence of their lived experience, impart the value of gender-sensitive health care, and rekindle an awareness of shared experience and knowledge.

Pender's Theory of Health Promotion

Pender's health promotion model (HPM) first appeared in the nursing literature in the 1980s and was "proposed as a framework for integrating nursing and behavioural science perspectives on factors influencing health behaviors" (Pender, 1996, p. 51). The model provides a depiction of the multidimensional nature of people as they interact with environmental influences to attain health, which allows for the examination of gender-sensitive health-promoting behaviours. In a competence or approach-oriented model such as Pender's HPM, fear or threats as sources for motivation are not seen to be long lasting and thus lack the same motivational strength as threats in the distant future. Pender suggested that because the model does not rely on personal threat as the primary source of health motivation, it has potential applicability across the life span. However, Pender also suggested possible disease avoidance as a prime motivator for lifestyle change following a catastrophic illness such as CVD.

The HPM integrates constructs from expectancy-value theory and social learning (i.e., social-cognitive) theory within a nursing perspective of holistic human functioning. The HPM has been revised to include three new variables: "activity-related affect, commitment to a plan of action, and immediate competing demands and preferences" (Pender, 1996, p. 66). Individual characteristics and experiences (i.e., prior-related behaviour and personal factors) interrelate with behaviour-specific cognition and affect (i.e., perceived benefits, barriers, self-efficacy, activity-related affect, and interpersonal and structural influences), which initiates a commitment to a plan of action. This commitment will move an individual into and through the desired behaviour, either hampered or helped by competing demands or health-promoting behaviours. The paper includes a summary of expectancy-value theory and social-cognitive theory, as well as assumptions of the model (see Appendix A).

Pender (1996) described research studies that she and her colleagues had undertaken to evaluate the HPM in15 Phase II and Phase III cardiac rehabilitation programs in a Midwestern state in the United States. The purpose of this study was to determine the usefulness of the model in explaining occurrences of health-promoting lifestyles among rehabilitation participants and predicting lifestyle at a future time. Data questionnaire booklets were completed by a total of 576 pairs of participant-significant other duos from a predominantly European-American ethnicity, ranging in age from 30 to 84 years. Four of the seven cognitive-perceptual variables were selected for analysis (i.e., importance of health, control of health, definition of health, and health status). Self-motivation, not in the model, was entered into the regression analysis.

Study findings suggested that the cognitive-perceptual and modifying factors explained 21% of the variance in lifestyle, with self-motivation contributing an additional 6% of the explained variance. "Significant HPM predictors for lifestyle scores were definition of health; control of health; demographics (age, education, gender); interpersonal influences (lifestyle of significant other); and behavioural factors (phase of cardiac rehabilitation)" (Pender, 1996, p. 57). The total set of variables predicted 25% of the variance in health-promoting lifestyle 3 months later. Modifying factors were age and SES, which had direct pathways to lifestyle. Perceived control of health did not have a direct pathway to lifestyle, which raised the question of the utility of the HPM to predict health-related lifestyles among cardiac rehabilitation populations. Pender agreed that although some participants had reported a shift in their motivation from fearing recurrence of a coronary event to a desire to optimize their personal health, it is possible that disease avoidance may continue to be a prime motivator. If this is so, other avoidance models or a mixed model may be a more appropriate framework for explaining and predicting variance in lifestyle for groups "in whom a recent occurrence of catastrophic illness may make avoidance motives predominant" (Pender, p. 58).

Literature Review

A literature review is "an extensive examination of sources to generate a picture of what is known and not known about a particular situation" (Steven, 2003b, p. 3). A search was conducted of published literature, reports, and electronic information from selected Web sites using the key words of gender health, women and cardiovascular disease, health promotion, and Northwestern Ontario. This paper will present findings on the evolution of the women's movement with respect to gender health, an overview of CVD, primary prevention and risk factors for the disease, current diagnostics and treatment strategies, rehabilitation and secondary prevention, and quality-of-life issues.

Gender Health

Historically, women have been defined in relation to men. In earlier times, this relationship was seen to be hierarchical, with women situated on the lower level. The 1800s brought enlightenment to this debate when women were seen to be a new species whose biology was deemed to be destiny, and women's destiny was one of fear and weakness (Krieger & Fee, 1994). Gender health, within this context, evolved to one of reproductive health and "women's genitals began to be 'observed' by physicians in the mid-nineteenth century" (Harrison, 1992, p. 102).

The perception of women's health as secondary to men's persisted until the mid-1900s, when the feminist movement countered these beliefs of inferiority status. Women were inspired by insights gained through shared experience and knowledge (Fee & Krieger, 1994). The simultaneous focus of the feminist movement and the women's health movement was to help women gain control over their own bodies. Among their goals of unrestricted access to birth control, the prevention of domestic violence and rape, and support for rights of equality, the movement focused society's attention on formalizing the distinction between sex and gender (Fee & Krieger).

Avgar (1997) suggested that the women's health movement would emerge as a new discipline within health care. This new movement would have the potential to develop a model of primary care for women based on wellness and health promotion, in addition to disease prevention and treatment. The model would look beyond biological characteristics to "a view of the whole person and one that is based on partnerships and links across health-related disciplines" (Avgar, p. 58). Gender-sensitive care, however, is complex and continues to evolve as relationships between men and women change and develop. Miers (2002) reviewed seven key features of gender concept and purported that the possibilities for gender-sensitive care may be supported through feminist approaches and a postmodern understanding of social discourse in shaping our understanding of gender relations.

Early activists of the women's health movement spoke and wrote as though women were a homogeneous group with the same interests (Fee & Krieger, 1994). "The predominantly white [*sic*] middle class women active in the feminist movement in the early 1970s privileged patriarchy over race, class, and sexual orientation in theorizing the subordination of women" (J. McCormick, Kirkham, & Hayes, 1998, p. 497). Subgroups of women such as visible minorities, aged women, lesbians, disabled women, and women living in poverty were underrepresented (Janzen, 1998; Olson, 1994). This locus of influence shifted with the emergence of active organizations such as the National Black Women's Health Project, the National Latina Health Organization, and the National Asian Women's Health Organization (University of California, San Francisco, 2001). The women's movement has maintained continuity through gender and economic development within the wider context of global intellectual and activist trends. The United Nations Development Fund for Women in the 1970s united women through economic improvement and helped the movement evolve as a catalyst for global change (Snyder, 2003).

A resurgence of interest in the women's movement in the 1990s resulted from the growing impact of women in health professions and the establishment of organizations to oversee health and social policy change (Day, 2002; Donner, 2003; Health Canada, 2000b; Lacroix & Pascoe, 2003; Women's Health Bureau, 2003b; World Health Organization [WHO], 2002). In 1990, the United States enacted the Women's Health Equity Act to address deficiencies in women's health research, services, and prevention strategies (University of California, San Francisco, 2001). Canada followed in 1996 with guidelines for pharmaceutical companies to include women in clinical trials in the same proportion as they would be expected to benefit from the research (Begin, 1999; Women's Health Bureau). In 2000, the International Heart Health Community reaffirmed the Victoria Declaration with a new focus on heart disease and stroke among women, bringing together two important international movements: heart health and women's health (Health Canada).

Lockyer and Bury (2002) examined the implications for women of a gendered construction of coronary heart disease. Nursing, medical and social science literature from 1969 to 2002 were reviewed to explore women's experiences with heart disease. Findings supported the construction of a disease of affluence that affects high-achieving men, which has influenced not only health professionals' perceptions but also lay theories of who may be at risk to develop the disease. This has led to a service provision to meet men's needs, resulting in women being diagnosed further along the disease trajectory and less often referred for investigation, treatment, and rehabilitation. The researchers suggested that the implications of this construction for the care of women with coronary heart disease may result in "gender-neutral" care (Lockyer & Bury, p. 432).

One of the primary issues with the concept of gender health within research is that "it is impossible to be both inside culture and outside it at the same time; [thus,] sexual differences are always already informed by gender" (J. McCormick et al., 1998, p. 498). In response to the debate that feminist theory is essentialist in the use of *sex* and *gender*, many positions have been advanced to further define the categories or provide constructs for interpretation. J. McCormick et al. concluded that feminists and researchers in women's health need to continue using these categories in a "conscious and deliberate way to achieve desired political ends for women and women's health" (p. 503).

To assist in gender research, the Women's Health Bureau, a division of Health Canada (2000a) developed the gender-based analysis (GBA) analytical tool, which uses sex and gender to conceptualize information and clarify differences between men and women (Health Canada). The GBA will support policy, program, and research staff within the bureau. Donner (2003) further developed the tool as a guide for practical application by regional health authorities.

As a sociocultural construct, gender does not fit well with research clinical trials that are held as the benchmark for providing definitive evidence in clinical efficacy and which are highly favored by medicine (Grant, 2000). Feminists have challenged these claims of "positivism, particularly the notions of objectivity and value-freedom in research [and] this has led to support for research models that tap into lived experiences" (Grant, p. 10). The debate should not be about qualitative versus quantitative research, but focus instead on ways in which different types of data may be utilized in understanding health care. The paucity of research into women's health and the lack of a GBA led Grant to conclude that women are invisible.

Although the research community acknowledges the need for a greater understanding of the influence of gender in relation to health, inequality continues to exist between women's and men's health outcomes. The lack of understanding of gender-based differences is, in part, a legacy of research clinical trials that included only White males (Women's Health Bureau, 2003b). Flaskerud and Nyamathi (2000) studied issues in the recruitment of women and ethnic people of colour in health intervention research from two conceptual approaches to inclusion: cultural responsiveness and resource provision. Their findings suggested that researchers should consider such factors as participants' cultural values, ethnicity, and language when developing recruitment strategies.

Equally important, the provision of resources such as financial support, skills, and knowledge is fundamental to empowerment for women and ethnic people of colour to affect their own lives and health. Gender differences in research, even in other countries, continue to refer to biological differences and do not take into consideration sociocultural factors (Ahmad, Stewart, Cameron, & Hyman, 2001; Lear, Chen, Birmingham, & Frohlich, 2003; Nishijo, Satarug, Honda, Tsuritani, & Aoshima, 2004).

Meinert and Gilpin (2001) examined the estimation of gender bias in clinical trials that have traditionally favored male participation. The researchers found that differentials from studies conducted from 1976 to 1995 favored females, noting sizeable excess in female-only trials in recent years compared to only a slight excess of male-only trials in the decade prior. Harris and Douglas (2000) examined research funded by the National Heart, Lung, and Blood Institute between 1965 and 1998 and found an overall female enrollment rate of 54%, which exceeded the 49% prevalence of CVD in women in the general population. These findings led Harris and Douglas to conclude, "Federal efforts to increase the representation of women in clinical trials have been moderately successful primarily because of the institution of a small number of large, single-sex trials involving coronary artery disease" (p. 475). Although this type of equality may demonstrate progress with respect to examining biological differences, the value of the findings, such as why women respond differently to treatments than men, may have more significance if viewed within the sociocultural context of gender health.

Women and CVD

Mortality rates for all CVDs declined during the 1990s. The number of deaths remained steady at approximately 40,000 males and 39,000 females in 1999, a reflection of the increasing population over age 65 (Heart and Stroke Foundation of Canada, 2003). Based on population projections, the number of deaths for women will increase until 2015, surpassing deaths among men, because women tend to live longer than men and the CVD mortality rate increases with age (Heart and Stroke Foundation of Canada).

Mortality rates provide only part of the picture. Of the 5.7% of Canadians with heart disease, nearly a quarter of this cohort aged 70 plus reported feeling less healthy than the rest of the Canadian population, have restricted activities, and may need help with activities of daily living (Heart and Stroke Foundation of Canada, 2003). CVD, including stroke and heart disease, continues to be a major cause of disability among women (Women's Health Bureau, 2003b; WHO, 2005b). "Across all age groups, women are more likely than men to report chronic conditions, comorbidity, and severe and moderate disability" (Health Canada, 2003, p. 66). Therefore, even though women have a projected life expectancy of 6.3 years more than men because of a compression of morbidity in their later years, women as a group only enjoy 1.5 more disability-free years, "often characterized by isolation, disability and health problems" (Women's Health Bureau, p. 6). The Heart and Stroke Foundation of Canada reported that in 2000, 90% of Canadians without heart disease self-reported their quality of life as being good, very good, or excellent. By contrast, people with self-reported heart disease or stroke reported a much lower quality of life (51% and 36.8%, respectively).

The presenting symptoms of heart attack are significantly different for women than for men (DeVon & Zerwic, 2002). Atypical symptoms for heart disease are part of the reason more women (37%) than men (35%) die from CVD (Heart and Stroke Foundation of Canada, 2003). Women themselves are either unaware or do not acknowledge that CVD carries a greater risk for them than breast cancer. This general lack of awareness puts women at greater risk for stroke and heart disease (Women's Health Bureau, 2003b). In helping to address this increased risk for women, the Women's Health Bureau concluded, "Prevention, diagnosis and treatment must reflect an understanding that the symptoms, the course of the illness, the effect of medications and the suitability of certain surgical procedures are different for women and men" (p. 7).

"Adult onset diabetes is a significant risk factor for the development of high blood pressure, stroke and heart and vascular disease, particularly in women" (Heart and Stroke Foundation of Canada, 2003, p. 30). Diabetes not only increases the incidence of CVD but is also related to higher rates of mortality. The prevalence of diabetes increased between 1994 and 2000 to rates of 4.6% of males and 3.6% of females in Canada, and the prevalence rises with age (Heart and Stroke Foundation of Canada). Issues of underreporting and non-diagnosing, due mainly to an avoidance of medical attention, cloud the true prevalence rate for women (Health Canada, 2003). Aboriginal Canadians have a higher rate of diabetes (4.9%) when compared to 4.7% for all Canadians (Heart and Stroke Foundation of Canada). High-risk factors for developing diabetes include excess weight and lower SES, especially for women.

Psychological disorders, specifically depressive disorders, which are diagnosed in up to 10% of the general population, have a higher prevalence (up to 22%) in people who have experienced a myocardial infarction (WHO, 2003a). Women with heart disease experience depression 4 times greater than women without heart disease (Hansen, 2003). Grace, Abbey, et al. (2005) conducted a longitudinal study of 913 unstable angina and myocardial infarction patients from 12 coronary care units (590 males, 323 females; $M =$

61.9 +/- 12.00 years; 69% response rate) who were followed at 6 and 12 months postcardiac event. Three quarters of the participants were married, 53% had a confirmed myocardial infarction, and 47% were diagnosed as having unstable angina. The researchers reported rates of depressive symptomatology of 31.3% at baseline, 25.2% at 6 months, and 21.7% at 12 months. Approximately 5% of the participants were taking an antidepressant, and 20% attended cardiac rehabilitation during their first recovery year.

The participants with greater depressive symptomatology attended fewer rehabilitation sessions, and women who attended were significantly more depressed than their male counterparts (Grace, Abbey, et al., 2005; $p = .01$). Minimal psychosocial interventions were offered to the participants. Younger participants with unstable angina and with lower family income fared worse ($p = .0001$). Only 24.7% reported being asked by a health care provider over the past year, most frequently their family physician, if they had been depressed. The most dominant factor causing persistent feelings of depression or discouragement was attributed to uncertainty about the future because of a heart condition.

Depression is also highly prevalent among people with diabetes (up to 27%), and women with diabetes experience depression twice as often as women without diabetes (WHO, 2003a). This evidence led Health Canada (2003) to recommend that research be conducted to determine if aggressive treatment of depression improves diabetes metabolic control, which could have a significant impact on health outcomes. There are no national data available on the prevalence of depression among Aboriginal women both on and off reserve (Health Canada).

Johansen, Nargundkar, Nair, Taylor, and ElSaadany (1998) analyzed 1994-1995 National Population Health Survey data and found that a gradient existed between CVD and SES. People in Canada who are the most at risk of developing heart disease have a low SES and a low level of education (less than high school), smoke, and are physically inactive. The researchers concluded that "people with multiple risks tend to be older, have less education and low income, and live in the Atlantic Provinces, Quebec, or Ontario" (p. 270).

Primary Prevention

Primary prevention is the attempt to reduce the likelihood of disease developing in an individual through risk reduction or lifestyle modification. Strategies are directed at individuals with a high risk for disease or at the population as a whole (Majumdar, Tsuyuki, & McAlister, 2001).

For almost a half century, starting when the Framingham Heart Study first published information about major cardiovascular risk factors, epidemiological, science, and clinical studies have confirmed the causal roles of hypertension, smoking, diabetes, and dyslipidemia in the generation and progression of atherosclerotic vascular disease (Canadian Association of Cardiac Rehabilitation [CACR], 2004). Since then, other major risk factors have been identified, including physical inactivity and obesity. Family history of early coronary disease also is an important risk factor for CVD and may be an independent risk factor for stroke. Factors contributing to the association between family members include familial dyslipidemias, lifestyle, and molecular defects in vascular physiology (Heart and Stroke Foundation of Canada, 2003). In addition, risk factors differ between men and women. Men are more likely to smoke, consume fewer fruits and vegetables, and be overweight; women tend to be more physically inactive and more often report having high blood pressure (Heart and Stroke Foundation of Canada).

A report developed by the Heart and Stroke Foundation of Canada (2003) predicted an increase in the number of cases of CVDs over the next 20 years because of an aging population and the prevalence of risk factors for the disease. Eight out of 10 Canadians (80.2%) have at least one risk factor for heart disease: smoking, physical inactivity, overweight, high blood pressure, or diabetes. This risk is compounded for 39.1% of Canadians who have two risk factors and 11.1% for those who have three or more risk factors. When assessing the economic and health burden of heart disease in developed countries, the WHO (2005b) has identified tobacco use, high blood pressure, alcohol consumption, high cholesterol, high body mass index, low consumption of fruits and vegetables, and physical inactivity as risk factors for the disease (Heart and Stroke Foundation of Canada). Although not a major independent risk factor, the consumption of fruits and vegetables below the recommended daily amounts of 5 to 9 servings would increase the prevalence of one or more combined risk factors in the Canadian population up to 90% (Heart and Stroke Foundation of Canada).

An examination of the 1994-1995 National Population Health Survey data was undertaken by Johansen et al. (1998) to determine the relative risk of recurring cardiac events. These data showed that despite the proven benefits of exercise, 70% of Canadians with heart disease are not physically active and a higher proportion of women than men are inactive. Over one third of men and women between ages 35 and 64 who had been diagnosed with heart disease reported that they continue to smoke, and 48% of people with heart disease have high blood pressure. Although limitations to these data include the non-validation of self-reported incidence, this prevalence of risk factors raises concern about a general lack of knowledge of potential consequences. Risk reduction needs to be further examined relative to gender. Perhaps with a better understanding of the interplay of sociocultural influences on both men's and women's health, intervention strategies can be more specifically tailored.

Coping with stress and life events is very different for men and women. These differences in coping styles for women have been associated with higher levels of depression, increased rates of low self-image, and more suicide attempts than men (Statistics Canada, 2001; Women's Health Bureau, 2003b). Many of the psychological assessment methods were constructed to capture gender differences and often apply male standards and definitions as norms. The awareness of this gap by the Women's Health Surveillance Network in Canada has resulted in the national monitoring and reporting of three additional gender-sensitive priorities for women: mental health, chronic pain, and violence (Women's Health Bureau).

In a study of prevalence and profiles of behavioural and biomedical risk factors of heart disease in 843 Canadian women ($M = 39.1$ years), Plotnikoff, Hugo, and Cousineau (2001) examined sociodemographic characteristics and primary risk factors. Women who reported having less education, lower SES and employment levels, and more likely to be living alone had a greater proportion of high-risk factors for heart disease when compared to women who had no risk factors. The major high-risk factors identified were smoking, poor dietary habits, and lack of physical activity. Based on these findings, Plotnikoff et al. suggested targeting more focused health promotion efforts to socioeconomically disadvantaged women ages 25 to 45. They also recommended that risk assessment for heart disease include sociodemographic characteristics for tailoring heart health programs in the community.

More recently, large research studies, such as the Women's Health Initiative (WHI) and the Heart and Estrogen/Progestin Replacement Study (HERS), showed unexpectedly adverse risks of conventional hormone replacement therapy, which created a heightened awareness for a critical review of heart disease prevention strategies for women (Day, 2002; Mosca et al., 2004). One of these initiatives was the development of a collaborative expert panel with a mandate to develop the first ever evidence-based guidelines for CVD prevention in women (Mosca et al.). This undertaking included the review of nearly 7,000 titles and abstracts to arrive at a meta-analysis of 92 articles, supported by evidence from a further 399 articles. The guidelines cover a continuum of risk assessment for CVD, which defines risk groups by their absolute probability of having a coronary event in 10 years, according to the Framingham Risk Assessment tool (Cleveland Clinic, 2006; Mosca et al.). The recommendations in the guidelines are designed to assist health care providers in optimizing cardiovascular preventive care for all women ages 20 and older.

Diagnostics and Treatment

Evaluating women with chest pain or other symptoms indicative of heart disease poses a challenge when choosing appropriate diagnostic tests. Pretest risk is classified as low, intermediate, or high. "Clinical practitioners often consider intermediate risk to be a pretest probability of 15% to 85%. This large group of intermediate-risk women is the one for whom the most clinical uncertainty and the greatest need for diagnostic noninvasive testing exist" (Deaton, Kunik, Hachamovitch, Redberg, & Shaw, 2001,

p. 41). Decisions regarding revascularization and clinical management are frequently based on noninvasive test results, which have been found to vary by gender. Deaton et al. conducted a comparative analysis of test statistics on diagnostic test accuracy in women and found that sensitivity ranged from 62% to 98% and specificity ranged from 48% to 78%.

Collins, Clark, Peterson, and Kressin (2002) examined patients' perceptions of their interaction with health care providers regarding cardiac testing in relation to racial variations in the use of cardiac procedures. The researchers convened four focus groups of 13 patients who had a recent positive stress test; the participants were stratified by race (White vs. Black). Verbatim transcripts were analyzed qualitatively by a team of behavioural scientists and general internists to identify significant dimensions of communication and patient-health care provider relationships. Four domains of communication were identified:

- Substance of the information was described as incomplete, vague, ambiguous, and unclear.
- Recommendations were inconsistent with expectations or awakened fears based on distressing previous experiences.
- Patients had to be convinced of the need for additional invasive tests and procedures.
- Patients highlighted the importance of trusting their health care providers.

The researchers suggested that although patients desire clarity from providers, they are often confused regarding information received. "Both a lack of substance and vagueness of the information received may be linked to feelings of mistrust toward physicians when considering further diagnostic testing" (Collins et al., pp. 1-27).

In the Women's Ischemia Syndrome Evaluation (WISE) study, Reis et al. (2001) examined chest pain in the absence of obstructive coronary artery disease, which is common in women and frequently is associated with debilitating symptoms and repeated clinical evaluations. The researchers measured coronary flow velocity reserve to evaluate microvasculature and risk factors for arteriosclerosis in 159 women ($M = 52.9$ years), which led to a recommendation that a diagnosis of coronary microvascular dysfunction be considered in these cases.

Ahmed, Bairey Merz, and Sopko (2006), investigators with WISE, further examined the spectrum of angina symptoms, diagnostic strategies for micro- and macrovascular coronary disease, and the role of psychosocial and hormonal influences in ischemic heart disease presentation. Using coronary vasomotor testing during angiography, the investigators observed prevalent abnormalities in coronary flow reserve, suggestive of microvascular coronary dysfunction in relation to adverse morbidity and mortality among the women in the study.

Leinwand (2003), a molecular biologist at the University of Colorado, reviewed rodent studies with regard to sex-dependent differences in cardiovascular systems of laboratory animals. A major limiting factor, namely, the predominance of male rodents in these past studies, is changing; consequently, more female rodents are now being analyzed. Leinwand purported that sex is an extremely potent modifier of the myocardium, and there are basic structural differences in male and female cardiovascular systems, such as degree of hypertrophy of cardiac muscle and differences in diastolic and systolic function. Future studies may determine how the expression of genes on the Y and X chromosomes contributes to differences in risk for heart disease.

Current treatment options for CVD include medications; surgical interventions (Percutaneous Transluminal Coronary Angioplasty [PTCA] and Coronary Artery Bypass Graft [CABG]); and lifestyle changes (i.e., diet, exercise, smoking, and stress management; Genest, Frohlich, Fodor, & McPherson, 2003; Heart and Stroke Foundation of Canada, 2003). Recommendations for the management of dyslipidemia and the prevention of CVD were updated in 2003 to include three levels of risk and two treatment targets (Genest et al.). These revised guidelines have attempted to harmonize cardiovascular risk assessment across North America, and models for estimating the risk of coronary artery disease have been developed for both men and women. Provoking evidence from clinical trials is encouraging in the prevention and, in some cases, regression of atherosclerosis (Brown et al., 2001). However, the nondifferentiation of results for women from men in relation to biological and gender differences raises unnecessary barriers on subsequent research in this area.

Women are not consistently provided with the same diagnostic and treatment options as men, including diagnostics, revascularization, surgical intervention, or even appropriate pain management for angina (Bengtson, Karlsson, & Herlitz, 2000; Humphries et al., 2001; Miller et al., 2001; Williams, Bennett, & Feely, 2003). Women are also less likely to use preventative measures such as acetylsalicylic acid (ASA), even though Canadian and American preventive guidelines support this therapy for people with CVD or at high risk (CACR, 2004; U.S. Preventive Services Task Force, 2002). Evidence has suggested that decisions by medical practitioners may be influenced by women's reporting symptoms of heart disease on average 10 years later than men, seeking medical assistance for cardiac symptoms later than men, and having lower rates of participation in cardiac rehabilitation programs (Bengtson et al.; Heart and Stroke Foundation of Canada, 2003; Humphries et al).

In an analysis of clinical data from 1995 and 1996 for 12,271 patients hospitalized in Nova Scotia, Saskatchewan, Alberta, and British Columbia for acute myocardial infarction, Johansen, Nair, Mao, and Wolfson (2002) found that a year after their heart attacks, only one quarter of patients admitted to hospital (18.1% women and 28.6% men) were revascularized. The researchers reported that the mortality rates of patients following a myocardial infarction were lower for males (5% vs. 25%) and females (9% vs. 33%) who had been revascularized when compared to patients not undergoing these treatments.

Revascularization was less likely for both men and women with multiple comorbidities (Johansen et al., 2002). A woman's age at time of onset of cardiovascular symptoms was thought to be a factor in treatment options, as data showed that for both genders, rates were higher for patients in their 40s and early 50s, and then declined with older ages; each additional year represented a 2% reduction for men and a 3% reduction for women. Regional variations within the provinces were calculated by mortality rate, which ranged from 15% to 31% in Alberta and 14% to 29% in British Columbia, and may be related to hospital admission policies. Rates for Nova Scotia (18%-22%) and Saskatchewan (23%-24%) had less variation (Johansen et al.). Although there was no consensus on the optimal rate of revascularization, these findings supported the need to inquire why outcomes differ between men and women, and to ensure that revascularization is a viable option for people of all ages.

Mehilli et al. (2003) examined the impact of gender on restenosis in a large cohort of consecutive patients undergoing coronary stenting, systematic angiography, and clinical follow-up at 6 months (*N* = 1,024 women and 3,349 men). Clinical events were assessed for a period of one year after the procedure. The findings suggested that compared to men, women have a lower risk of restenosis after coronary stenting, despite the preponderance of two major risk factors for restenosis: diabetes and small vessel size.

Secondary Prevention

Secondary prevention refers to slowing the progression of CVD, reducing disability, and prolonging life in individuals with the disease. The main barrier to secondary prevention is the inadequate implementation of treatment that has a proven effect (Majumdar et al., 2001).

Cardiac rehabilitation, a secondary prevention strategy developed in the 1970s, provides early rehabilitation and risk factor management, which are essential to regaining function postcardiovascular event and reducing future cardiac events (Lear & Ignaszewski, 2001). A study by Niebauer et al. (1997) on the long-term effects of physical exercise and a low-fat diet on the progression of coronary artery disease in 113 male patients determined that moderate to aggressive lipid lowering and regular exercise slowed the progression and, in some cases, led to a regression of the disease. Johansen et al. (1998) reported that "relatively little is known about the effectiveness of risk modification for the secondary prevention of heart disease among older people, and evidence indicates that they tend to enroll in rehabilitation programs at substantially lower rates than do younger patients" (p. 27).

Women with CVD benefit equally or better than men from regular physical activity and a lipid-lowering diet (Lichtenstein et al., 2002; Speck & Harrell, 2003). Men and women differ in their patterns of physical activity, "suggesting the importance of gender-specific research and interventions" (Speck & Harrell, p. 282). In a study of 40 women who had experienced a myocardial infarction, Moore, Ruland, Pashkow, and Blackburn (1998) found that the women exercised an average of 5.2 sessions within their target heart rate during the entire 3-month study period, well below recommended physical activity guidelines. The attrition rate from the rehabilitation program was 50% by the end of the third month; 73% of women did not exercise the recommended average of three or more times a week.

Evenson and Fleury (2000) surveyed 72 rehabilitation programs in North Carolina (response rate of 85%) to identify barriers to participation and adherence to outpatient rehabilitation programs. Their analysis did not differentiate between male and female participants. The results showed that the most common barrier was financial, followed by lack of patient motivation, patient work or time conflicts, and lack of physician support or referral. Wiles and Kinmonth (2001) conducted in-depth interviews with 25 patients (49% women) postmyocardial infarction living in Britain. Their findings suggested that information received from health care professionals encourages patients to regard their heart attacks as acute events rather than a symptom of a chronic disease. This understanding is thought to contribute to the low motivation to make long-term lifestyle changes.

Cooper, Jackson, Weinman, and Horne (2002) undertook a systematic review of 15 studies conducted between 1978 and 2001 to investigate the factors associated with cardiac rehabilitation attendance. The researchers noted that an assessment of the possible impact of ethnicity could not be done because "mainly homogeneous patient groups were recruited within the studies despite the fact that patient populations, especially those in large cities, are often culturally diverse" (p. 550). The predictor variables identified with nonattendance were patients who were older (undefined), had lower income/greater depravation, were in denial of the severity of their illness, and had less belief that they could influence the outcomes. One important factor, namely, physician endorsement of cardiac rehabilitation programs, was found to independently influence attendance, but the researchers also noted that elderly and female patients may have been subject to referral bias.

Attendance was also affected by the view that patients held of their exercise capability, illness beliefs, and degree of control over health. Job status, gender, and health concerns also played a role in attendance behaviour. Cooper et al. (2002) found that patients were more positively influenced to attend a rehabilitation program if they were married; however, the married women in the study were less likely to attend because of conflicts between attendance and family responsibilities. This difference may have been attributable to gender roles that assign women the double loads of work and family, which can impede recovery over the long and short term. "In fact, the NPHS [1996-1997 National Population Health Survey] data showed that women with heart disease were just as likely to be caring for their family as were women without heart disease" (Johansen, 1999, p. 43).

In a prospective study of 1,902 patients (20% women) in a cardiac rehabilitation program conducted over 6 years, Turner, Bethell, Evans, Goddard, and Mullee (2002) measured the participants for pre- and postprogram physical fitness, hospital anxiety, and depression. For the 76% of patients who completed the program, anxiety and depression decreased, but physical fitness increased. The participants were twice as likely as nondepressed participants to default if they suffered depression. Likewise, participants with a diagnosis of angina or PTCA had a default ratio of 2:1 when compared to participants with a diagnosis of myocardial infarction or CABG.

Moore (1996) interviewed 10 women (*M* = 72 years) who had recently participated in a cardiac rehabilitation program and found that the women valued feeling safe, responded well to pleasant and encouraging staff, enjoyed the social interaction, needed emotional support from staff, and responded more favorably to exercise options other than cycle and treadmill. Prior to participation, the women indicated they had no idea what to expect from the program.

Logsdon, Usui, Cronin, and Miracle (1998) conducted a correlational, longitudinal study of a convenience sample of 86 women who had undergone CABG surgery; 58 (*M* = 60.5 years) completed the three interviews. The majority of the women had a marked limitation of physical activity prior to surgery. Two aspects of social support were measured: (a) expected support, and (b) discrepancy between support expectancy and support received. At the first interview, the women were asked to predict the amount of social support they expected (*M* = 149.6, *SD* = 22.1, range = 73-180). The differences were not significant, and self-esteem remained the same over the three time intervals. Depression and tension scores were low at all three interview points. The researchers concluded that social support may influence outcomes through an enhancement of self-esteem. Higher self-esteem was associated with lower depression and tension, leading to less disruption in social interaction and recreation.

Fridlund (2000) postulated that today's cardiovascular rehabilitation programs are not female adapted and, further, that health care professionals involved are not aware of this fact. The findings of a study of 240 women attending multidisciplinary cardiovascular rehabilitation programs in 18 hospitals in Sweden showed that only 53% of them actually participated. Approximately half of the women reported hypertension and angina at the onset of their myocardial infarction, and some of the participants had received CABG/PTCA. Twelve months later, the women who had participated in a rehabilitation program reported a statistically significant increase in angina, surgical procedures, and rehospitalizations when compared to the women who did not participate in the program. Fridlund suggested that a more female-adapted cardiovascular rehabilitation program should be considerably longer than the traditional 3 months, which is based on men's informational needs, and would provide an environment of emotional support and belonging.

In a literature review of studies relative to women with CVD and their response to health interventions, Krummel et al. (2001) examined home-based programs and found that tailoring activity materials to women's readiness results in increased physical activity. Telephone contact on a regular basis increases long-term adherence in both high-intensity and moderate intensity training more than a group-based format. Women respond better to lifestyle physical activity recommendations than structured exercise. Behavioural strategies that effectively increased the study participants' physical activity were daily self-monitoring, feedback, contracts, and incentives. It is interesting to note that only small changes and adaptations to traditional programming are necessary to facilitate long-term adherence and behavioural changes.

Quality of Life

Compared to 28% of men diagnosed with heart disease, 48% of women with heart disease have at least two other chronic comorbid conditions (Johansen, 1999). Women suffer chronic pain more often, have more disability days, have fewer employment opportunities, live in low-income households, and have generally poorer health and a lower quality of life than men. Two of the reasons suggested for this difference are that the diagnosis of heart disease is more complicated in women than men and there is a higher rate of mortality for women during the first year postacute myocardial infarction.

Bennett, Baker, and Huster (1998) examined a group of 30 hospitalized, chronically ill women diagnosed with heart failure, a disease often associated with impaired quality of life. The women who had lower quality of life scores reported greater physical symptom impact and poorer perceptions of their physical health status. In a study on gender differences in one-year survival and quality of life for patients with congestive heart failure, Chin and Goldman (1998) reported that 24% of the patients died, regardless of gender. Among the survivors, health-related scores for quality of life had improved from admission a year earlier but were still generally low, particularly for women. This trend held even when adjusting for clinical and socioeconomic variables as well as baseline quality-of-life scores. “Women rated the quality of inpatient care lower than men and also tended to rate the quality of follow-up outpatient care lower” (Chin & Goldman, p. 1033).

Shephard and Franklin (2001) noted that in the past, there was an excessive focus on longevity rather than the quality of the cardiac patient's life. The researchers reviewed publications within a 10-year period to examine the various techniques for measuring quality of life. They found potential options included a Gestalt-type instrument; a disease-specific instrument; a function-specific instrument; and a detailed, generic questionnaire. A gender-specific instrument is desirable because of the differences between men and women in psychosocial functioning and emotional behaviour. The researchers postulated that quality of life is decreased 30% for the first 3 months following a nonfatal myocardial infarction and that a remaining residual effect of about 10% remains over the individual's life span when recovery has stabilized.

In a meta-analysis of 84 studies of quality of life in cardiac patient populations published between 1987 and 1991, Kinney, Burfitt, Stullenbarger, Rees, and DeBolt (1996) found a small but significant positive effect of pharmacological, mechanical, surgical, nursing, or other treatment on quality of life. The mean age of the participants was 57.1 years. Males represented 68% of the sample, a "gender distribution...expected in this population" (Kinney et al., p. 4). One of the major concerns arising from this analysis was the failure to define quality of life as a concept in 46.4% of the studies examined. This deficiency may be a barrier to providing a blueprint for measurement of dimensions indicative of the concept. The researchers pointed out that a similar systematic review of clinical trials in oncology had illuminated patterns, trends, and gaps that led to the recommended policies for the inclusion of quality-of-life endpoints in oncology trials. Their goal was to effect health and social policy change in research for people with CVD.

"Improvements in quality of life (QOL) and high levels of patient satisfaction are associated with cardiovascular risk reduction (CRR) programs" (Berra, 2003, p. 319), a fairly new prevention strategy. Determinants of quality of life were identified in clinical trials of CVD as physical, emotional, intellectual, economic, social, and self-perceived health status. Berra suggested that the continuum of quality of life be determined by the dynamics among social relationships, financial situations, work-related issues, physical limitations, and intellectual challenges. The task for health care professionals is to improve their understanding of patients' beliefs, values, and life goals in order to promote quality of life through choice in selecting health promotion options.

Summary of Literature Review

"In many respects, the consequences of heart disease appear to be particularly severe for women" (Johansen, 1999, p. 42). As a group, women receive less targeted primary and secondary prevention initiatives, are treated less aggressively for coronary artery disease, and continue to have higher rates of disability. The socioeconomic circumstances of women with heart disease are less favorable than their male counterparts, and women are just as likely to be caring for their families during their own recovery. Even though women have an increased presence in clinical research studies, the mechanisms underlying the influence of gender have not yet been fully examined or explained. "Funding agencies need to advance a research agenda aimed at prospectively examining the issues surrounding gender and development of coronary heart disease, as well as developing and testing practical and sustainable gender-specific interventions" (King & Arthur, 2003, p. 274).

Needs Assessment – Northwestern Ontario

A needs assessment is "a systemic procedure for determining the nature and extent of problems experienced by a specified population that effect health either directly or indirectly" (Nalezyty, 2003, p. 3). Health problems are described within environmental, social, economic, and behavioural determinants. Therefore, health care needs are identified in a comprehensive, unbiased, and organized way. A needs assessment for NWO was developed from a synthesis of information derived from various sources that have highlighted issues related to CVD in women. (Heart and Stroke Foundation of Canada, 2003; Heart Health Resource Centre, 2004; Mosca et al., 2004; NWO District Health Council, 2000, 2001, 2003a, 2003b; Romanow, 2002; Steven, 2001b). An NWO environmental scan and supplemental information are provided in Appendices B and C.

In his report, Romanow (2002) concluded that health reformation in the 1990s led to many provinces rationalizing the delivery and administration of health care, resulting in different approaches to improving access. In rural and more remote areas, these approaches included outreach programs, financial assistance for travel, and Telehealth services. Although acknowledging that these efforts may have helped, Romanow pointed out:

> The problem is far from solved.... People in rural communities have poorer health status and greater needs for primary health care, yet they are not as well served and have more difficulty accessing health care services than people in urban centres. (p. 162)

Lower educational attainment, higher unemployment, and poorer access to health care influence the health status of people in smaller communities, yet the impact of these factors has not been studied in a comprehensive way. One of the guiding principles for a vision of health for residents of rural communities is the development of policies, strategies, and programs based on evidence that is informed by research (Romanow, 2002). In keeping with this principle, this study provided further evidence for gender-sensitive health promotion and prevention programs for women at risk for CVD living in Thunder Bay and the surrounding rural communities.

Methodology

The study of the human experience of health, a central concern of nursing, is particularly well served by both quantitative and qualitative research methods. Qualitative research is a naturalistic methodology that examines a phenomenon within a textual form, that is, narratives or written words from interviews that are recorded and transcribed for analysis. The goal of qualitative methods is "to be able to see the world as those who are having the experience you are studying see it" (Cohen, 2002, p. 126). The WHO (2003b) supported qualitative research as complementary to quantitative strategies, giving researchers insight into the physiology of a system.

Within philosophical research paradigms, "ontology...is the science or study of being or existence and its relation to nonexistence" (Cohen, 2002, p. 128). Therefore, the philosophy of ontology supports that multiple realities exist, and that culture and environment may exert an influence. Qualitative studies guided by the ontological view allow the researcher to critically examine a phenomenon, such as CVD, within the context of gender health.

Gurbutt and Gurbutt (2002) explored the issue of women researching other women in practice-based research and distilled two issues: the effect of the context on the data collected and the effect of self in the interview. Implications for qualitative researchers include the need to demonstrate transparency in the data collection process. This transparency provides objectivity and ensures that the researcher has taken into account personal bias or blindness and the nature of the relationship. One way to accomplish transparency is to use a structured questionnaire to guide the interview. By providing consistent application of the questions, the researcher minimizes interviewer bias. As part of this research study, the researcher developed a gender health questionnaire that builds on work previously completed by Steven (2001a).

Research Questions

1. What is the human experience of women in NWO with CVD?
2. What types of physical and psychosocial interventions do women believe would be/have been beneficial to their health experience?

Study Design and Sample

A qualitative and quantitative descriptive, exploratory study was designed to examine women's lived experiences with CVD. An interview questionnaire (see Appendix D) and formal research proposal were developed and submitted to Lakehead University for ethics approval (Steven, 2003a; Young, 1999). The letter of ethics approval for the research study was granted October 12, 2004 (see Appendix E). An oral presentation of the research proposal was completed in February 2005.

The study required a sample of 30 participants (15 urban, 15 rural) recruited through purposive sampling methods from a list of patients receiving medical care at a cardiology clinic in Thunder Bay, Ontario. With the assistance of the academic advisor, permission was granted by a cardiologist for the researcher to conduct purposive sampling. The women were selected using the following criteria:

- Ages 45 to 80 years.
- Documented diagnosis of CVD within the past 6 months to 3 years, including angina, ischemic heart disease, acute myocardial infarction, and arrhythmias.
- Living in Thunder Bay or the surrounding rural area within a 2-hour drive.

Purposive sampling is increasingly common when selecting potential participants who are considered to be typical of the population and can illuminate the phenomenon being studied. Although this nonprobability sampling strategy restricts generalization, Haber (2002) suggested several instances when a purposive sample may be appropriate, including "the collection of descriptive data (e.g. as in qualitative studies) that seek to describe the lived experience of a particular phenomenon" (p. 247). In qualitative studies, sample size is not predetermined and tends to be small because of the large volume of verbal data that must be analyzed and the prolonged contact with the study participants.

The researcher travelled from Vancouver to Thunder Bay, arriving October 24, 2004. Sampling and scheduling of the participant interviews were completed over 3 days. The researcher contacted each prospective participant by telephone, informed her of the study, and invited her to participate. A total of 31 people agreed to be in the study. One extra participant from the rural group was recruited as a potential replacement, which proved to be prudent because a prospective participant from the rural group was suddenly hospitalized and unavailable to participate.

Interview dates, times, and locations were arranged for the convenience of the participants and scheduled within a 9-day period from October 28, 2004, to November 5, 2004 (*M* = 3.3 interviews per day). All interviews were conducted in the participants' homes. Prior to the participant signing an informed consent (see Appendix F), the researcher read to the participant both the contents of the consent and the researcher's agreement form and cover letter (see Appendix G). The researcher answered any questions, witnessed the participant sign the consent, and signed the cover letter and left it with the participant.

Although unstructured person-to-person interviews may allow for the collection of richer and more complex data when compared to survey questionnaires, there exists a sampling bias that the researcher should be prepared to minimize. "Interviewer bias occurs when the interviewer unwittingly leads the respondent to answer in a certain way" (Sullivan-Bolyai & Grey, 2002, p. 304) and is especially problematic in studies with unstructured interview formats. In this study, a structured questionnaire was used to guide the researcher in the interview, provide consistency in the collection of discrete content, and minimize interviewer bias. The interviews lasted between 1 and 1.5 hours and were tape recorded for later transcription and analysis.

Each participant was assigned a unique alphanumeric, which was noted on an individually assigned audio tape and an interview questionnaire. Signed consents and other identifying information were kept separate from the tapes and completed questionnaires to maintain confidentiality during the transcription process. Extra care was taken to ensure that all documentation, including the tapes, was kept confidential and secure throughout the process, for example, transported from Thunder Bay to Vancouver as take-on baggage. Security and confidentiality of the transcribed documents, tapes, questionnaires, electronic database, and supplemental information were and continue to be maintained in strict accordance with Lakehead University's regulations and the Canadian Nursing Association's Code of Ethics (2006). Funding for the study, including travel, accommodations, and printing supplies, was provided by the researcher.

Reliability and Validity

Research instruments with acceptable reliability or validity to measure the variable(s) of interest are not always available or applicable. Testing the concepts of validity, that is, measuring what should be measured, and testing reliability, namely, yielding the same results on repeated measures, are established parts of the process of instrument development (Lobiondo-Wood & Haber, 2002). However, instrument development is complex and time-consuming, and requires a level of expertise (Sullivan-Bolyai & Grey, 2002). Liehr and Marcus (2002) commented that qualitative research should combine the scientific and artistic natures of nursing to enhance understanding of the human health experience. Ergo, the capacity of qualitative methods help to guide nursing practice, contribute to instrument design, and foster the development of nursing theory. One of the outcomes of this research was the development of an interview instrument, the Women's Knowledge, Experience, Perceptions, and Beliefs of CVD Questionnaire.

Questionnaire Development

The researcher was given permission to use and modify a similar questionnaire, *Breast and Cervical Cancer Screening. Knowledge, Attitudes, Beliefs and Practices in Selected Ethno-Cultural Groups. Northwestern Ontario*, previously developed by Steven

(2001a). This tool was used to examine cardiac and oncology services in rural communities in NWO, the results of which were published by Steven et al. (2004). For this study, questions pertaining to demographics, general health, smoking, eating habits, and exercise were retained and minimally changed. Development of questions related to heart disease was guided by the literature and in discussion with the academic advisor. Questions were arranged to facilitate logical discussion in an interview format, guiding the participant from diagnosis to treatment and concluding with their current health status.

Data Analysis

Quantitative data in this study were categorized, clustered, and coded, and qualitative data were analyzed for content. Steps to analyze the content generally include a thorough reading of and a sensitivity to the entire transcription, identification of shifts in participant thought, specification of significant phrases that express the central meaning of a segment, grouping of similar segments, and synthesis of the essence in all participants' descriptions (Liehr & Marcus, 2002; LoBiondo-Wood, 2002).

The researcher developed a database in the Statistical Package for the Social Sciences software (SPSS) for quantitative data elements. These included demographics; general health; lifestyle habits; and selected steps in the lived experience such as symptoms, supportive information, medications and medical follow-up, and perceived health. These data were analyzed using frequency, descriptive, correlation, and Pearson chi-square tests. Microsoft Excel software was used to examine qualitative data categorized into themes and to provide context for the quantitative findings.

Technical error occurred in three interviews when the tape recorder was turned off midway through the interview and turned on later in the interview. The transcriptions in these cases were supplemented with notations made on the questionnaires during the interviews, which provided sufficient information to complete the analysis.

Results

Demographics

Participants in the study ranged in age from 46 to 81 years (*M* = 66, *SD* = 11.2). Urban residents were a few years older (*M* = 67.2, *SD* = 12.1) than their rural contemporaries (*M* = 64.8, *SD* = 10.4). When the ages of the participants were grouped into 10-year categories, the sample was representative of the increased incidence of heart disease with age, a nonmodifiable risk factor: ages 46 to 50 (13.3%), 51 to 59 (16.7%), 61 to 69 (26.7%), 70 to 79 (36.7%), and 80 to 81 (6.7%). Two thirds of the women in the study identified themselves as Canadian; the others picked a specific ethnicity, such as Dutch, Finnish, English, Ukrainian, East Indian, and Spanish. None of the women self-identified as Aboriginal. Women in both the urban and the rural group were educated at least at the grade school level (26.6%), with the majority attaining high school (46.6%) or higher (college 16.7%, university undergraduate 10%). Levels of education were fairly equivalent between urban and rural participants.

Less than a quarter (23.3%) of the women worked outside the home either in full-time or part-time occupations such as bookkeeper, retail, house cleaner, delivery driver, and laundry worker. Two of these women were waiting to return to work. Five women aged 48 to 61 (*M* = 55.6, *SD* = 5.03) were unemployed: 3 were on long-term disability; one had quit her job; and one had not worked since arriving in Canada. Age at diagnosis for these 5 women ranged from 40 to 59 (*M* = 49.6, *SD* = 6.88). Four (80%) lived in the rural area, and all had comorbidities such as fibromyalgia, diabetes, cancer, hypertension, and high cholesterol. Over half of the women in the sample (60%) were retired. There were no observable differences regarding type of occupation or place of residence.

Thirty percent of the women lived alone, having been widowed or divorced; 63.3% were married; and 6.7% lived in common-law relationships. Many of their husbands were retired (66.7%), whereas some other husbands worked at either full-time (28.6%) or part-time (4.8%) jobs. Over three quarters of their spouses/partners had completed either grade school (36.6%) or high school (40%), and the others had completed either college (6.7%) or university studies (16.7%), one at a doctorate level. Their husbands' occupations varied from professor to farmer, with approximately 60% having occupations that required physical labour, such as trades, construction, elevator workers, and papermakers. No observable difference was noted between type of job and urban or rural living. The length of marriage in a first relationship ranged from 7 to 59 years (*M* = 36.1, *SD* = 17.8 for urban; *M* = 36.6, *SD* = 16.1 for rural). Nine spouses were deceased (7 urban, 2 rural). Reasons for death were heart disease (78%), respiratory disease (11%), and cancer (11%). Four of the women had remarried. Length of these second relationships ranged from 7 to 29 years; 2 of these spouses were deceased from cancer.

Twenty-eight participants (93.3%) had borne one to 9 children (*M* = 2.6, *SD* = 1.9), with the oldest ranging in age from 11 to 60 years (*M* = 42.7, *SD* = 13.4). Twenty-one of these mothers (70%) had from 2 to 22 grandchildren, with the oldest ranging in age from 3 to 35 years (*M* = 20.5, *SD* = 10.2). All but 3 of the grandmothers reported regularly visiting with their grandchildren; exceptions were due to distance.

All of the participants in the study had family doctors, 83.3% of whom were male. Their choice of physician, based on gender and/or ethnicity, was not apparent except for one woman who went to a doctor who could communicate in Spanish. She required the help of an interpreter, her husband, at interview.

The participants were asked to confirm if they were diagnosed with five chronic diseases that are common in midlife (i.e., 45 to 65 years): hypertension, high cholesterol, heart disease, diabetes, and cancer (WHO, 2005a, 2005b). Four of the participants reported they did not have heart disease, and 2 did not know if they had heart disease. Further discussion on the diagnosis of heart disease is provided in the Symptoms and Diagnosis section.

Experience with CVD

The questionnaire was constructed to ask the participants to confirm their self-reported diagnosis of heart disease before describing their experiences. The reason for this was to change the focus of the interview dialogue from general health and lifestyle to the participants' experience. It is interesting to note that 4 of the 6 women who formerly reported not having heart disease, now affirmed that they either did have or might have heart disease.

One reported she had coronary artery blockages and had received angioplasty. A second woman, who reported having a silent heart attack, said, "The doctors say they can't figure me out." A third woman, diagnosed with a coronary artery blockage by nuclear stress test, was unsure of her status. A fourth woman, who had two coronary artery blockages, was unsure of what this meant and was quite anxious. She asked:

> What does 70 and 40% mean to me? Nobody has ever specifically said, "Okay, this is really what it means. This is what you can do. This is what you can't do." As far as I'm concerned, I am a waiting, ticking time bomb, and they're [the doctors] just waiting for it to get up so that I can get into pain, and then when I get into pain, then I'm going to go and have an angiogram and then I'm going to be fine.

Of the two women who reported they did not have heart disease, one was being investigated for "excruciating" chest pain and had experienced a transient ischemic attack earlier that summer; the other had been hospitalized for a possible heart attack. This last woman recalled that she had experienced a dizzy spell the week of the interview and said, "I had to holler to her [daughter] to come and help me to get back to bed. Then it passed."

The participants described 14 different types of heart-related symptoms that motivated them to seek medical attention. All 30 women reported having experienced symptoms (*M* = 2.8, *SD* 2.3, range = 1 to 8). Nearly half of the women (46.7%) reported experiencing only one symptom (see Appendix H), 13.3% had 2 symptoms, 16.7% had 3 symptoms, and 23.3% experienced between 4 and 8 symptoms. As shown in Figure 1, the most common symptoms reported were chest pain (46.7%), shortness of breath (43.3%), fatigue (33.3%), and pain down left arm (33.3%).

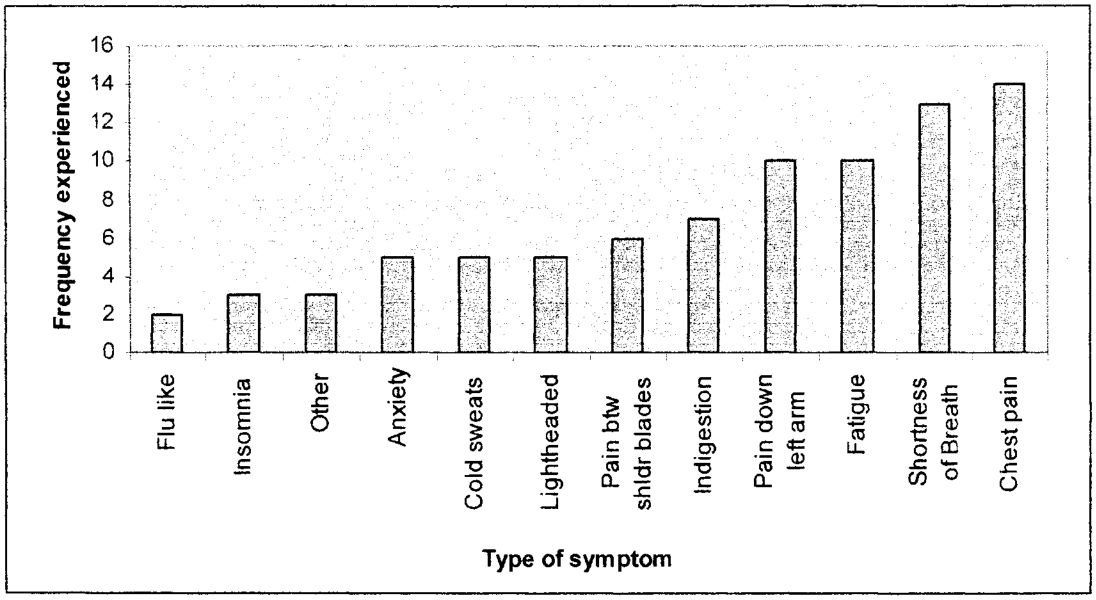

Figure 1. Heart disease-related symptoms.

Women who did not experience the classic or typical symptom of midsternum chest pain expressed confusion, and this seemed to make their diagnosis of heart disease less real to them. One of these woman reported going to an emergency department because of pain in her throat that choked her when she lay down. After a quick examination, she stated that the doctor told her, " 'You're going to stay in the hospital, you have [had] a heart attack.' I say, 'I do what?' I say, 'Oh come on, don't be stupid.' He said, 'No, I'm not'." She reported, "Still today, I keep saying I cannot figure it out. I always believe you have pain in your chest and that was my thought." A second woman with extreme fatigue, shoulder pain, and anxiety, who had suffered a heart attack, reported reading about atypical symptoms for women in literature put out by the Heart and Stroke Foundation of Canada (2003). She said:

> You know, it's funny because if I had realized that you could have a heart attack without chest pain.... There was a vision that I had, first of all, that before you'd have a heart attack, I figured they were all like you see on TV. I didn't think I had

> a heart attack, that's what it boils down to, so I waited. I didn't even go to the doctor.

Age at diagnosis for the 28 women who confirmed they had heart disease ranged from 31 to 78 years (*M* = 56.8, *SD* = 11.6). The most common diagnosis was acute myocardial infarction (46.7%), followed by ischemic heart disease (16.7%), angina (13.3%), and arrhythmias (13.3%). There was one case of congestive heart failure. Nine out of 14 women (64.2%) diagnosed with acute myocardial infarction lived in the rural area. Initial medical assessment of the women's symptoms was provided in one of three places: the physician's office (50%), hospital emergency department (46.7%), or in an ambulance (3.3%). At interview, the husband of the woman transported by ambulance, and acting as her interpreter, reported a delay in the ambulance attendants' response to his 911 call. He reasoned that this delay occurred because he had placed the call from a rural telephone number, asking to have his wife attended to at a city address. This woman reported she vaguely recalled being put into the ambulance. Later, it was confirmed that she had suffered a serious heart attack, reportedly later assessed by a specialist from Hamilton to have 20% functioning heart muscle remaining. Her husband stated, "Another 10 minutes more, and it would have been too late."

In addition to the usual diagnostic testing for heart disease provided to all of the study participants, such as electrocardiograms (ECG), chest X-rays, echocardiograms, stress tests, and nuclear stress tests, 23 (76.6%) also had received an angiogram. As a result, 14 (60.8%) of the women having had an angiogram were subsequently referred to Eastern Ontario hospitals for angioplasty or bypass surgery.

Diagnostic strategies for women with suspected coronary artery disease can be very challenging for many reasons, including limited test specificity and sensitivity, and the women's physical abilities and degree of tolerance (Arruda-Olson et al., 2002; Deaton et al., 2001; DeCara, 2003). One woman, aged 77, undergoing assessment for atrial tachycardia with a 24-hour Holter monitor, described the device as "heavy and they drag on you" and found that her activities were limited by the monitor. She stated:

> You can't really be doing everything that you usually do. You can't go out and garden with that thing and you don't want to get anything wrong with it. I tried to as much as I can, but it is not always the same.

Another woman with extreme fatigue reported that she had a chest X-ray and ECG monitored by a cardiologist, and both were normal. Her symptoms persisted. She stated, "I never had this pain in my back like this. It's different than what I have all the time [from a back injury]; it goes down, not up." While waiting for an angiogram, the woman said she collapsed at work with a heart attack. She reported being hospitalized "for quite a while," and "when they saw the angiogram, Dr… sent me to London as quickly as she could get me [there]." A woman who had a heart attack while at home was subsequently tested by angiogram, which, she reported, showed "a couple of really, really small blockages, but it was fine." She stated, "I did not have the heart attack because of the blockages."

The experience of undergoing treadmill or bicycle stress testing can be very stressful and physically demanding. For 2 of the participants, lack of information about the test and misinterpretation of results led them to avoid subsequent testing. One of the women stated, "It was easier to change doctors than go back for a stress test when I was to go back. I haven't been through the first, you know, that first minute and a half thing? I was dying back then." Another, who had been hospitalized for a transient ischemic attack, knew that her doctor wanted her to have another stress test, but she said, "It'll be just about the money for me to have another stress test on the treadmill, because I can't do that. I just get all tuckered out. …you know the legs are just all weak."

There were also different perceptions of discomfort related to stress testing, especially if the experience precipitated symptoms. One of the participants, who was undergoing testing for ischemic heart disease, said, "Occasionally, [I will] get a tightness in my chest...and heartburn. Twice on the treadmill, I've gotten heartburn, and I've gotten off. The one time it was enough they had given me this spray." Another women with chest pain "more so from the angina than I did from the actual heart attack" described her experience with a nuclear stress test as relaxing while the pictures were being taken. She also stated, "I couldn't stay on the treadmill long enough because I couldn't breathe."

Dobutamine-atropine stress echocardiography is an alternative method of stressing the cardiovascular system, similar to treadmill stress tests. More recently, this methodology has been assessed for accuracy in prognostic evaluation. In a study of 300 women ($M = 61$ years), Cordovil et al. (2004) found drug-induced stress echocardiology to have a probability of 96% of a cardiac event during follow-up with a positive stress test and 18% probability of a cardiac event (false positive) with negative tests ($p = .0001$). In the interview, one of the women, who was prescribed a stress test before she had knee replacement surgery, reported her experience with the dobutamine-atropine stress echocardiography as "that awful drug-induced one. I found that very, extremely uncomfortable. I wasn't happy with that at all. My heart was palpitating." This participant had angina at age 32; triple bypass at 39; and had had not visited her cardiologist in 2 years, which was just prior to the drug-induced stress test. She said:

> I guess I've been putting it off. I guess I'm afraid of getting on that treadmill and not being able to do it. And I want to do the best I can. I want to be able to go for the longest I can.

Whereas many of the women did not provide detailed results of their tests, 2 of the women, aged 69 and 71, were very specific when reporting results from their stress tests. One woman "lasted about 3½ minutes, which wasn't enough for them to really tell anything too much." The second woman described her results from two subsequent nuclear stress tests, 2 years apart, as "one was 5.5 minutes and 19 seconds, and the other was 5 minutes and 21 seconds." She said that her doctor had concluded that the closeness of the two performances over a 2-year interval indicated that things were fine.

The women in this study reported that their doctors had found them to be a "mystery" or a "puzzle" because testing results were not definitive. In one case, a woman in her mid-40s who was planning a trip overseas asked her doctor for "something to take away the angina." She had been through noninvasive testing over a 5-month period, and her internist "didn't want me to go, but yet he wasn't willing to give me all the information that he knew." She reported having a very difficult time on the trip, with her breathing being especially laboured at higher elevations. Two months after her return home, an angiogram showed three blockages; she saw a surgeon within 2 days after the test. "As soon as it was confirmed…, after examining me and after looking at everything [the internist stated] 'I don't believe you have heart disease'." Another woman, aged 62, was being tested for shortness of breath and chest pain upon exertion. She was prescribed heart medication including nitroglycerine spray. She said her doctor used the word "atypical." "So then, when I go to the cardiologist, and he says, 'What are you here for? You look pretty good; you can't be a heart patient,' I said, 'I'm here because my doctor sent me here because I failed two tests.' He said, 'We get people who have a positive cardio-lite test, and they're okay.' Then he read [the report] further, and he saw that it actually said on there that I had a blockage."

Medical Care and Treatment

When the type of treatment the 30 women received was divided into two categorizes of intervention, that is, invasive (angioplasty and bypass surgery) and noninvasive (medication therapy), the study sample was nearly divided in half. Invasive procedures were performed on 14 women (46.7%), 7 had angioplasties, and 7 had bypass surgery. Noninvasive treatment was provided for 53.3% of the women.

In two cases where bypass surgery was performed, the participants reported being told that their arteries were very tiny. One woman who had a triple bypass, said that she had been taken to a prominent Centre of Excellence in the United States, where a "whole heart team" performed surgery with instruments designed especially for her small coronary arteries. She said, "They gave me a 30% chance of surviving [the surgical procedure]." When the surgery was over, she recalled hearing cheers from the gallery where people had been watching the groundbreaking procedure. The 7 women who experienced an angioplasty either had a relatively pain-free procedure or a very painful course of action. One woman reported the last 2 to 5 minutes were the worst.

> It really hurt and I told...them I really feel it, it is hurting. The nurse said, "Well you think that you're coming on a heart attack or something?" I said, "I don't

> know, I don't know what heart attacks are supposed to be like." She said, "Can you hang in there?" Then the doctor said, "Can you just hold on for a while?" I said, "I'll try." But it was just real piercing.

Another woman reported that when the stent was being put in place, she thought she was going to die on the table.

> I'll never forget this; it felt like he had an elephant foot on my chest. I didn't want to cry, but the tears were coming down, and I kept saying to him, "Is it almost over?" I can take pain, but that was horrendous.

The recommended standard therapy for pharmacological management of patients with documented atherosclerotic ischemic heart disease is the prescription of beta-blockers, statins, and ACE inhibitors, supplemented daily with a nonprescription ASA tablet (CACR, 2004). Medication therapy was assessed for the 14 women, aged 48 to 78 ($M = 64.9$), who had experienced an acute myocardial infarction. As shown in Appendix I, only 4 of the women (28.5%) were prescribed all four of the recommended drug classifications. A fifth woman, early postoperative, had been prescribed a beta-blocker; a statin; an ACE inhibitor; and Plavix, a platelet aggregation inhibitor. Two other women were taking non-ASA platelet aggregation inhibitors but were deficient in other drug categories.

When the women were asked if their doctors had explained their treatment to them, 66.7% of the 28 women who responded stated that they had received information about their treatment and were completely satisfied with the explanation. Another 3.3% were only somewhat satisfied, and 23.3% were not satisfied.

One woman, when told she had two blockages of 40% and 70%, respectively, disclosed that she had questioned the doctor about having an angiogram. "He says, 'Oh well, you don't need that until you have chest pain'." The message she internalized was that she was a "train wreck waiting to happen." She stated, "That's how you feel because you've been given no other information other than it's going to happen." Another woman described her doctor as "very business-like." "Some doctors show a little more comfort. She just says, 'Well, we'll take your blood pressure, or why are you here?'"

One of the participants, who reported taking Lasix for fluid retention in menopause, stated that she suffered a cardiac arrest because of low potassium. She said that she was in hospital at the time of the arrest, having gone in because she was "feeling rotten." Subsequent testing reportedly showed no blockages in her coronary arteries. Her explanation for why the arrest had occurred was that she had gone for her annual medical and "nobody ever told me to come after that." She concluded, "Look, if the doctor gives it out, I don't know that I have to take another pill with it." She now obtains pharmaceutical abstracts for each medication that she takes.

One of the women, when asked what she would change about her experience, summed it up in a "wish list":

> You could have the fanciest hospitals, you could have everything, but if there was a way that things were more coordinated, things were explained better and things were followed through, you know, the follow through. Like Dr..., I'm positive that he thinks that somebody else told me, so he doesn't have to tell me.

Emotional support while in hospital is an important adjunct to care, especially when patients are experiencing an acute cardiac event or undergoing invasive procedures.

The 17 participants (56.6%) admitted to hospital in their course of treatment reported that they had mainly received emotional support from their family or friends (54.5%) and less from nurses (27.2%) or doctors (18.1%). As one woman put it, "I think they [the nurses] were sensible, but they are so busy. So I was sort of like the kid down the hall." When asked what type of support she might have found helpful, another woman scheduled for bypass surgery replied, "I think there could have been some type of counselor there because, you know, I was pretty anxious there the night before and, you know, a little weepy, and I probably could have used somebody to talk to." A third woman commented that there was no support for her family member when they went to Hamilton; he had been there for her but, "when he left me in the hospital, there was no one for him." These women also relied heavily on their spouses and other family members to provide support when they came home from hospital.

Help with postrecovery activities of daily living and medication management by spouses, daughters, sons, other relations, and friends was credited by 52.4% of the 14 women who had had bypass surgery or angioplasty. Professional home care services were provided in 3 cases (14.2%) and 2 other women reported having received a telephone call from the hospital where they had their surgery.

One of the women, hospitalized following a heart attack, said that when she came home:

> You felt like you were kind of in limbo. You didn't know for sure. You knew what you wanted to do, you just didn't know if you could do it....It took quite some time before you could do some of the things you wanted to do without ending up with chest pain, and that was scary.

Two of the women who had bypass surgery talked about washing floors, doing laundry, cooking, and even shopping within 2 days of arriving home postoperative. One woman said she felt "great" but had a setback the second night she was home when she hallucinated about a lady with knives. She said that she told her doctor the next day and, "He said, 'It's very normal...because they give you so many drugs.'" Then after that, I was kind of scared to go back to bed because I didn't want to sleep because I didn't want this lady to come back." The second woman stated, "I just went ahead and did it. I found it hard to stretch out to wipe the counter because of the chest. When you bend over to brush your teeth, the bones weren't settled yet, so you can hear erg, erg [her sounds]. That went on for weeks." She also said she would not have requested help because "I am stubborn, and I figure that there is no reason why I can't do all of this."

A participant recently discharged after bypass surgery and resting during our interview said that she had asked her doctor for home care services. She stated the doctor said:

> "In the past, we used to refer out, but that's not the way they work now." He gave me a CCAC, or whatever, in the book. He says you just phone them, [and] they will send somebody in to evaluate everything, but he told me they are very strict about those things. So I just left it at that because I knew my sister and daughter was [*sic*] coming. I said, 'Why go through the hassle?' It's just I didn't want to add one more stress to my life at that time.

In another case, a husband related his role in his wife's care after she had suffered a serious, debilitating myocardial infarction. The woman had been in hospital for about a week before returning to her rural home. Her husband stated:

> Then you were let out [of hospital] and with a fist full of pills and nothing else. Just said, "Come back in a week, 10 days to Dr..." What was it? About a week after you got out, she collapsed again, and she went into hysteria. I phoned the ambulance. She had water in the lungs. I said, "Why weren't we informed that this could happen?" She was filled right up to the top with water. She couldn't even breathe…that's when I blew up.

This husband, with no instruction, was managing his wife's medications, diet, and activity. When asked if he received an explanation as to why this might have occurred, he replied, "Because she didn't have any water pills. The doctor never said that she couldn't have the salt, or she couldn't have this or that, and that's what happened."

Physical and Psychosocial Interventions

When the participants were asked what type of information they had received from health care providers, the women advised they were informed through discussions with pharmacists; attending lectures; reading magazines and other popular press media; purchasing current books; attending groups (Mended Hearts, Rural-Roundabouts, cardiac rehabilitation, diabetes clinic, and Parkinson's clinic); consulting with other providers, such as the nurse practitioner in a cardiology office, dietitians, family doctors, and cardiologists; and sharing their experiences with others.. One participant reported that she found accessing credible information difficult. In her search for information, she had used the Internet; talked with strangers in drug stores and at bus stops; and had gone for aromatherapy at a spirituality store, hoping it would help. One other woman reported:

> A friend of mine said, “You know what? It’s just like doing an oil change in a car.” Then I would get upset more because you don’t know what it is…and it’s very scary. To me, I was going there [to Hamilton hospital] to die.

Of the 20 participants who had received heart-related information from health providers (6 cases missing, 4 had not received information), 43.4% reported they had received this information in the hospital, 16.7% at the doctor’s office, and 6.7% in their homes. Information was given to them mainly by doctors (33.3%) and nurses (23.3%). Two of the participants scheduled for bypass surgery had contact preoperatively with other women who had undergone the procedure. These participants found this one-to-one information sharing very valuable in helping them prepare for surgery.

The 4 women who reported not receiving or could not remember receiving information from a health care provider were from the rural group. Three did not actively seek information, whereas the fourth woman who was interested in receiving information, commented, “That’s the worse thing about the whole thing. I just sort of [was] left out there dangling, and because I didn’t die, there was no issue. I was never made to feel that things had to change for me.” Earlier in the interview, this participant had called her myocardial infarction “just a warning heart attack.” She continued to have symptoms of fatigue that required her to take rest periods at lunchtime and in the evening. One of her “great fear[s]” was:

> I’d be driving down the highway or something, and something would happen, and I’d hurt somebody else. So, I was a little paranoid for a while there. That comes when I get angina. It gives me enough time to stop. I feel safer now, oh yeah. Now that I’m more used to it, and I think that I can figure the pain out.

When asked, "Did the individual go over the information with you?" the majority (90%) of participants who received information agreed with this statement. All of the women confirmed that they had found the information helpful in gaining a better understanding of their disease and lifestyle choices. One woman said, "At first, it was scary, until I kept reading, and then it wasn't that scary. I got used to what is happening to me."

Participation in a hospital heart-related informational program or a cardiac rehabilitation program was reported by 37% (10) of the 27 participants (2 receiving ongoing tests, one missing data). Six of these 10 participants who participated in cardiac rehabilitation programs lived in a rural area. One woman attending an 8-week hospital program stated, "I gave up because they tell you maybe next week, or in 2 weeks that we will have it, so I lost patience after that and didn't go." Others who did attend the whole program found it to be beneficial; one participant remarked, "It was great." Data for supplemental questions related to cardiac rehabilitation programs, such as length of program, time of attendance and potential/actual barriers, was limited and could not be meaningfully analyzed or presented. Reasons for this paucity of information include:

- Poor recall due to long time intervals from event to interview ($M = 9.7$ years).
- Expressed confusion with a structured cardiac rehabilitation program versus informational meetings by other groups such as Mended Hearts and the Heart and Stroke Foundation of Ontario (n.d.)
- Lack of awareness of where programs are offered (hospital, Heritage Village, or Confederation College).

Lifestyle Adaptation

All but 5 women reported comorbidities as listed in the questionnaire; 26.6% had two chronic diseases, 43.3% had three, and 13.3% had four. The remaining 5 women had other comorbidities: arthritis, Parkinson's disease, fibromyalgia, memory loss, and osteopenia. No significant relationships were found among each of the 5 chronic diseases listed on the questionnaire. Nonsignificant positive relationships were detected between hypertension and heart disease ($r = .234, p = .214$) and cancer and heart disease ($r = .260$, $p = .166$). This association between cancer and heart disease may be based, in part, on the number of women in the study with a history of cancer (23.3%) and of an advanced age (70% of the sample was 60 years plus). A nonsignificant negative relationship was found between cholesterol and heart disease ($r = -.299, p = .109$) and hypertension and rural living ($r = -.134, p = .481$). More details on the incidence of each chronic illness and mean ages of the women at diagnosis is provided in Appendix J.

Twenty-nine of the women reported taking medications for four of the five chronic diseases. The other woman had been on an antihypertensive for 3 years previous, but the medication had been discontinued because of a large weight loss and dropping blood pressure.

There were a total of 122 prescribed medications ($M = 4.1$, $SD = 2.1$); the women took from 0 to 10 medications daily. As shown in Figure 2, the highest number of prescription medications was for the treatment of hypertension (79.3%); the women were each prescribed 1 to 4 medications ($M = 1.3$, $SD = 0.6$). A cholesterol-lowering statin drug was prescribed for 62.1% of the women; no other drug types were prescribed for hypercholesteremia. Heart medications were prescribed for 19 women (65.5%), who were taking from 1 to 3 types of medications ($M = 1.5$, $SD = 0.7$). Of the 10 women who were not prescribed a heart medication, 3 had arrhythmias; 2 had ischemic heart disease; one had angina; 3 had histories of acute myocardial infarction (one angioplasty, one bypass); and one had been investigated for chest discomfort and related symptoms. HRT was prescribed to 4 women in the study; 2 women each took one medication; 2 others were each prescribed 2 medications. Nine of the women (31%) had been diagnosed with hypothyroidism, and each was prescribed a daily supplement.

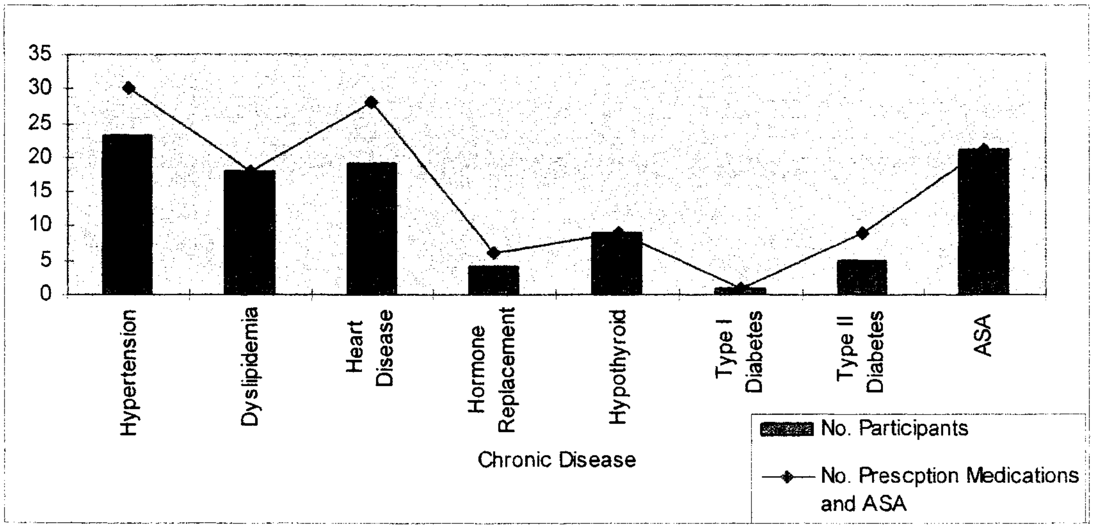

Figure 2. Medications prescribed for five chronic diseases.

Seven women reported having been diagnosed with either Type I or Type II diabetes; 5 were taking oral medications; one was on daily insulin injections; and one, diagnosed in 1986, did not have medication prescribed. Twenty-one women (72.4%) reported taking acetylsalicylic acid (ASA) daily, either low dose or enteric coated 325-mg tablets.

A comparison was made between the level of perceived confidence the women had with their health at the time of diagnosis/intervention and at interview. The participants were asked to rate their confidence level from one of three categories:

uncertain about what to do, somewhat certain about what to do, and confident about what to do. Mean scores from these data reflected an increased confidence level in the time interval between diagnosis/intervention ($M = 2.1$, $SD = .87$) and time of interview ($M = 2.5$, $SD = .73$). As shown in Table 1, Pearson chi-square values were insignificant for initial scores, which had little variation within the sample. Scoring at the time of interview, however, demonstrated that the women had a higher perceived level of confidence with their health ($p = .002$, $df = 2$).

Table 1

Self-Reported Level of Confidence with Health

How do You Feel About Your Health?	Early postevent (diagnosis and/or intervention)	At time of interview
Uncertain about what to do	10	4
Somewhat certain about what to do	8	7
Confident about what to do	12	19
Total Scores	30	30
Pearson chi-square value	.800	12.600
Degrees of Freedom	$df = 2$	$df = 2$
Significance Level	$p = .670$	$p = .002$

The participants' awareness of risk factors for heart disease was assessed by asking them for a list of three risk factors. Twenty-seven women easily recited risk factors, as categorized in Figure 3. Three women responded that they "don't know" or "really can't say." When asked, "If you wanted to tell other women about heart disease, what would you tell them?" participant responses followed five general themes:

- Practice healthy lifestyle habits in relation to diet, physical activity, and tobacco.
- Manage diseases like high blood pressure, high cholesterol, and diabetes.

- Avoid or manage stressful situations.
- Visit your physician regularly, do not wait to have symptoms investigated, and make sure you are taken seriously.
- Start early by forming good lifestyle habits with your children.

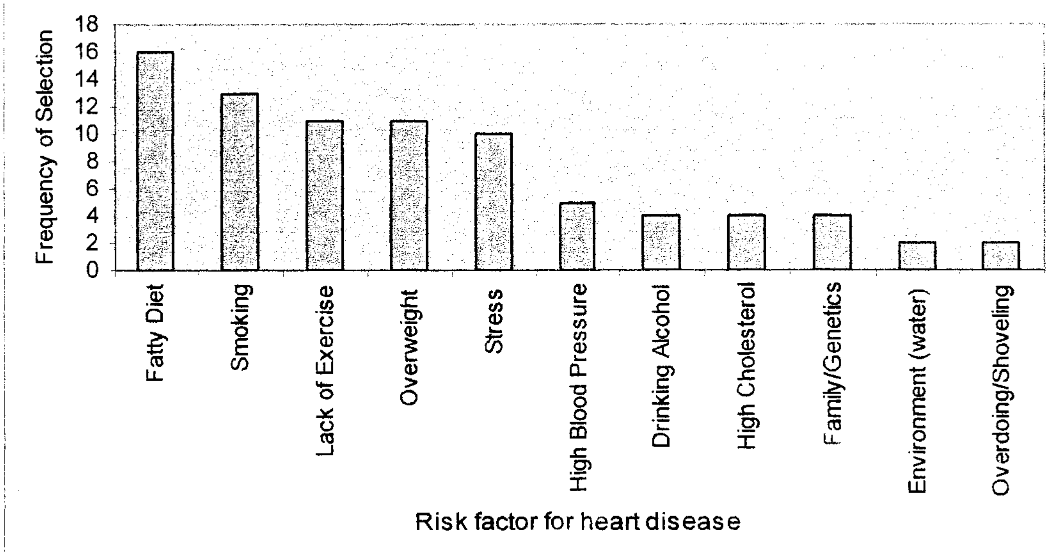

Figure 3. Participant selection of risk factors for heart disease.

One of the women advised that she would tell other women that "what they are told for symptoms are not accurate." Another participant said that she would say "not to listen to what they [the doctors] know and realize women have a different heart attack than men." A participant who was undergoing further tests for ischemic heart disease and had been doing extensive reading said:

> I'd tell them that heart disease is the number one killer of women, and if you think that it's not a female disease, forget it. Stop learning about breast cancer, and think about heart disease. You'll die of heart disease before most of us will die of breast cancer.

In one instance, a woman who smoked, had poorly controlled diabetes, and had been diagnosed with coronary artery blockages disclosed she was so overwhelmed and afraid she had no answers for anyone else; she felt "lost in the woods."

Family History of Heart Disease

Clinical research into dyslipedemias has provided evidence that early family history of heart disease is a risk factor for the next generation (Genest et al., 2003). In this study, four criteria were used to assess risk. Three were related to family genetics and the fourth was related to lifestyle by association:

- Father 55 years or younger at diagnosis.
- Mother 65 years or younger at diagnosis.
- Siblings at any age at diagnosis (first-degree relative).
- Spouse/Partner at any age at diagnosis (associated lifestyle).

Of the 29 participants for whom information was available, 30% reported their fathers had been diagnosed with heart disease younger than 55 years, 16.7% reported a mother diagnosed under 65 years, 44.4% described heart disease in siblings (two participants had no siblings), and 46.7% stated that their spouses/partners had been diagnosed with heart disease.

Many of the women reported making changes in their dietary habits because of their own disease(s) or that of their spouses/partners (including cancer and diabetes). For the women, this meant learning healthier food preparation and serving fewer fatty foods, less salt and less red meat to their families. In a few cases, such as where the women had not changed their dietary habits or had tried to change but slipped back, the spouses/partners had not changed their habits either.

In explaining the reasons she thought her dietary habits had slipped back, one woman said:

> Well, I ate less meat and red meat. …so we've got our own beef and we've got chickens, and you know, so I don't buy meat. I've got my own meat. My husband eats a lot of meat.

She bought margarine but used butter because she said her husband "won't eat margarine, so we have butter on our toast." Another participant talked about her lifelong poor dietary habits when, as a girl, "I would rather buy the French fries and Coke when my girlfriends would smoke." She and her husband enjoyed "doughnut parties." About every 2 months, they said that they would buy a dozen doughnuts and start off "with 3 each, and by the 10 o'clock news, we thought we may as well finish off this party, and then we drained the box. We can't leave the suckers alone once we get them in the house." The husband added, "Then we look for the bigger box when there are 16 to a box."

Consumption of alcohol products within the previous 2 weeks was assessed by asking the participants how many drinks of beer, wine, or liquor they had consumed (see Appendix K). The majority (70%) responded that they had not had a drink in the past 2 weeks or even longer. Of the remaining 9 participants, 20% had consumed alcohol within the past 1 to 3 days, 3.3% within the past 4 to 6 days, and 6.7% within the past 11 to 14 days. Frequency of consumption ranged from one to 3 drinks per day, with 6 of women having only one drink per day, one having 2 drinks per day, and 2 having 3 drinks per day. The *Low-Risk Drinking Guidelines*, endorsed by several Canadian addiction management organizations, recommend a maximum of 2 drinks a day, with a weekly limit of 9 for women (Shah, 2003).

When asked if they had smoked cigarettes in the past, 14 (46.6%) of the participants gave an affirmative response. Of this group, 12 (85.7%) had successfully quit smoking, and 2 continued to smoke cigarettes at time of interview. Mean age at which the women starting smoking was 18.4 years (*SD* = 3.3, range = 14 to 25); mean age when they quit smoking was 50.8 years (*SD* =15.8, range = 21 to 78). Eleven of the participants were matched for age when they started smoking, age when they quit smoking, and age at diagnosis for heart disease (the 12th woman did not report a diagnosis of heart disease). Two variables, age when quit smoking and age at diagnosis of heart disease, were significantly related (r = .820, p = .01). Although a relationship was noted between age at starting to smoke and age at diagnosis (r = .308, p = .306), this association was not significant. As shown in Appendix K, the women who had smoked were evenly divided between urban and rural areas.

Self-reported dietary practices by the participants generally reflected a level of awareness of heart healthy food choices. Over half of the women selected the healthiest options in response to questions about meat/protein (76.7%), dairy/eggs (66.7%), desserts (63.3%), cooking/food preparation (80%), breads/grains (60%), frequency of fast foods (96.7%), use of salt (90%), alcohol consumption (70%), and caffeine drinks (56.7%). Fruit and vegetable consumption was generally poor, with only 20% of the women reported having the 5 or more servings per day recommended by Canada's Food Guide (Health Canada, 2006).

There were no significant relationships between type of dietary habits and where the participants lived. However, the interrelatedness between dietary habits themselves was supported by positive correlations between food preparation and dessert choices

($r = .508, p = .01$), breads/grains ($r = .466, p = .01$), and use of salt ($r = .551, p = .01$). Dessert choices were also independently correlated with use of salt ($r = .646, p = .01$); dairy/eggs ($r = .527, p = .01$); and breads/grains ($r = .529, p = .01$).

The participants were asked if they had made dietary changes after being diagnosed with heart disease, to which 66.7% agreed. Healthy changes to their diet included cutting out fats, limiting sweets, and reducing calories.

One of the women explained that since her bypass surgery, she and her husband got counselling and decided to eat more chicken and fish, "the better fish, like salmon." She reported that the counselling came through the cardiac rehabilitation program and from reading, and that her husband has also made a lot of changes. A second woman who changed her cooking habits completely said that she is committed to healthy eating and only keeps healthier foods in the house for her family. Some of the women were part way toward heart healthy dietary habits, but others had either fell back into less healthy habits or had not really begun to change.

One woman with good dietary habits, except for eating high-fat desserts, adding salt, and drinking 3 to 4 caffeinated beverages daily, reported that she had not made too many changes to her diet. She remarked that she needed to be sure to have fat in her husband's diet; otherwise, "he's going to disappear because he's a very hard, hard worker."

Other women admitted to having made positive changes but fell back into previous habits; a participant disclosed that this was because of her husband's eating habits ("he eats a lot of meat"). She said that she has maintained some changes for herself, such as using margarine instead of butter, roasting or boiling meats, and eating low-fat yogurt. This woman also had a history of cancer 2 years previous and was waiting for a biopsy result. She said, "I look at it this way, what's the worse way to die...from heart disease or cancer?"

Two other women knew that their dietary choices were poor, but they had made very small changes over time, such as eating less red meat. One woman disclosed that she skips meals and then binges, but she is trying to change. She works cleaning houses and although she has cut back from up to 5 houses to 2 in a day, she reported working through lunch. Breakfast consisted of two pieces of toast and coffee, and she reported that she would not eat again until 2 or 3 o'clock, when she would go home and "eat everything in sight."

All of the women participated in some form of physical activity, the most common being indoor activities, such as laundry, cooking, cleaning, and other housework, and moderate paced walking for short distances, for example, in the yard (rural) or a few city blocks (urban). As shown in Figure 4, the women reported a total of 18 different types of physical activity. The category "Other" includes team activities such as volleyball, aquatics, hiking, and dancing. The women were active in one to 7 physical activities ($M = 3.2$, $SD = 1.6$). More than one of the women reported these types of activities were not all that they did. Frequency of physical activity ranged from one to 7 days per week ($M = 4.4$, $SD = 2.5$), and many of the activities required moderate intensity. The women did not report how long they carried out an activity, but they did talk in terms of being "active." Some of the women reported that they were active most of the day, and others talked about how they interspersed breaks into their day so that they could keep active. Many of the activities, such as canoeing, cross-country skiing, hiking, outdoor yard work, and gardening, required the women to be active for most of a day. Other activities like volleyball, dancing, aquatics, and aerobics were structured for 1 to 2 hours of activity.

In response to the question, "What is your favorite type of exercise?" one woman replied, "I guess none," and she admitted getting little or no exercise because of a lack of motivation. After acknowledging housework and attending to her outside flowerbeds as physical activity, the woman recanted and chose bowling, walking, and gardening as activities she loved to do. None of these involved a structured exercise program or gym membership, which may have clouded the woman's perceptions of how active she really was.

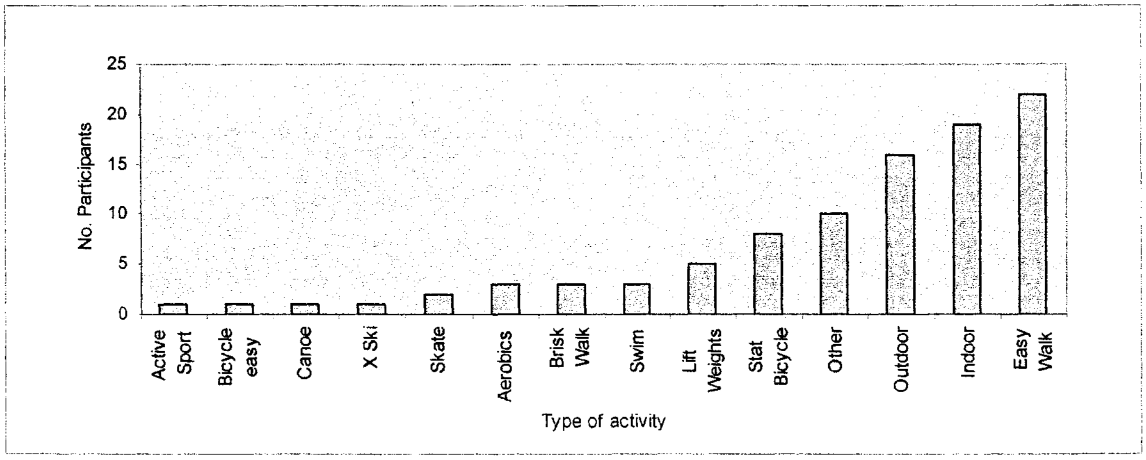

Figure 4. Type of physical activity.

All of the participants stated that they had been physically active to some degree in past years, raising families and working in and outside the home. When asked if they preferred to exercise by themselves or with a friend/family member, 46.7% chose group sports or being with another person. Although 53.3% of the women preferred solitary activities, many reported they would have liked to go with a friend but found this difficult to arrange.

When the participants were asked to describe a typical day's activities, 53.3% stated their activity level was about the same as they had remembered and had no restrictions. Activity level had decreased for 46.6% of the women who found they now tired more easily, took regular rest periods, and had to pace their activities. Reasons given for this change in activity included: aging; comorbidities such as arthritis, Parkinson's disease, chemotherapy, angina, and fatigue; and postoperative recovery (angioplasty and bypass surgery).

Information seeking is one of the positive steps toward behaviour change. Two thirds of the women reported that they actively seek out information related to their heart condition, most often looking for or picking up information at the hospital, in the newspaper, or through family/friends. The women said that they looked less often for information at the doctor's office or on the Internet. Other sources where women found information included a diabetes clinic; a Parkinson's disease clinic; lectures at the university; books on heart disease; and resources from family/friends, for example, the BC Health Guide, cookbooks, and health magazines (Kemper, 2005). In order of priority, the types of information the participants expressed interest in receiving were heart disease, nutrition (diet and weight management), exercise, stress management, medications, and symptom management. Four women stated that they were either not interested in receiving information at this time or preferred their own resources.

Stress management techniques favored by the participants were, in order of priority, talking with others, physical activities, and deep breathing and relaxation exercises. The participants also chose many other techniques such as gardening, music, yoga, reading, knitting, watching television, prayer, and laughter. A few of the participants disclosed stress relief strategies they knew were not as healthy. Some of the comments were as follows:

- "One of mine is eating. I tend to eat a lot more if I'm stressed. Sometimes, I'll say now smarten up and go clean some dresser drawers or something; never mind eating."
- "So, I'm not going to worry anymore, I said to hell with everybody, and that's it."
- "When I get really stressed out, I go upstairs, and lock myself in the room, read, and calm down."
- "What's the use of crying about something that you can't do anything about?"
- "Well, I think I'm pretty tough that way. I dealt with it."

The women were asked if they shared their experiences with other women, to which 93.3% reported they did. More women shared information with family and friends (67.8%) than in women's groups (17.8%), which included aquatics classes, Mended Hearts, and a cardiac rehabilitation program.

The women reported high compliance (90%) in taking their medications regularly. Three women either took their medications most of the time (6.7%) or some of the time (3.3%). The majority of women had not reported any untoward affects from the medications they were currently taking, but others had recollections of drug reactions that were somewhat disabling. One woman said that she had a setback with a pill that caused her to cough:

> I sat up here a few nights because I couldn't stop coughing. … I thought I had a cold. Then I mentioned it to my [family] doctor, and he said, "When do you go see Dr… [Cardiologist]?" I told him the date, and he said, "Mention this to her."
>
> This woman's medication was not changed until her visit with the cardiologist.
>
> Women who were less compliant appeared to be disorganized or uninformed. One woman, a diabetic, skipped her Metformin and ate erratically, knowing the resulting high blood sugars would cause her to feel unwell. Reasons for her patchy medication compliance included not having tablets with her when she went out; forgetting to take one with meals; skipping meals altogether, especially breakfast; and going to sleep in the early evening and not taking her bedtime dose. Another woman with high blood pressure disclosed that she did not like taking pills, so she would take the antihypertensive only for a while, "and then I would stop to see how my blood pressure was doing. Now I would be good for a week or so, and then it would go up and I would go back on." Her doctor told her to "stay on it," but the real change for her came after reading a letter to a newspaper columnist in which a man had reported having an enlarged heart as a result of not taking his antihypertensive regularly. The woman reported, "Well, after that, I finished taking them."

All of the participants reported that they did not find accessing health care to be a problem, although the waiting time for appointments was recognized as a systemic issue. The women confirmed that they all had family physicians and were comfortable with their relationships. When necessary, the women reported going to a walk-in clinic or the hospital emergency department for treatment of acute symptoms. Eleven women (36.7%)

had regular office visits with their family physicians at 6 months or less, 30% had visits at intervals of 6 months to a year, and 33.3% preferred episodic visits. Many of the women with comorbid conditions also went to see other doctors, such as orthopedic surgeons and specialists in endocrinology, neurology, and rheumatology. Two thirds of the women visited the cardiologist every 6 months to a year; the others went every 1 to 2 years (3.3%), or for episodic care (20%). Only 3 women (10%) reported going to the cardiologist at 6 months or less.

There were women in the study who found they were treated less seriously by the medical profession. A participant, well informed of heart disease through reading, found the cardiologist "dismissive." She had her husband accompany her to the appointment, which she reported was a good thing "because if I had said that [asking the doctor questions], he would have just thought I was being a bitch."

One of the women with hypertension noted that her systolic blood pressure was up to 156 millimeters Hemoglobin (mm/Hg), which was higher than usual for her. She made an appointment with her doctor and asked if she could have a stress test. She reported:

> He kind of laughed, "You must have heard on TV talking about that everybody should go for a stress test." I said, "No, I've been thinking about it for quite some time," and when I heard it on TV, I said I'm doing it.

The testing revealed a blockage, and she then asked for a referral to a cardiologist for a second opinion.

According to social cognitive theory, self- beliefs are formed through self-observations and self-reflective thought (Pender, 1996). On reflection of the events since their diagnosis and treatment for heart disease, 60% of the participants disclosed they had made other changes in their lives, in addition to diet and physical activity. These changes were varied and included both positive and negative aspects. Some women gained a greater awareness of their needs so that, for example, they visited with girlfriends more often, relaxed more; enlisted the help of their spouses; and were more proactive in preventive health strategies (i.e., stopped smoking, scheduled regular physician visits and screening tests, and learned symptom management).

The women expressed a level of confidence in knowing their bodies better and being able to recognize when they needed to seek medical attention. Others found their lives structured around rest periods, having to pace activities, feeling a loss of independence such as not being able to drive, having social restrictions that also strained friendships, and generally feeling forced to slow down. One woman who had had an angioplasty was weepy at interview and talked about depression. She said that her daughter was fearful and that it was "like having a mother with cancer."

In describing their health in general, 10% of the women rated themselves in excellent health, 46.7% in very good health, 20% in good health, 13.3% in fair health, and 10% in poor health. There was no significant correlation between age and perceived health status.

The participants were asked to compare their health with other women the same age. Forty percent described their health as better than another woman their age, 36.7% rated themselves and others their age about the same, and 23.3% said their health was worse than a woman the same age. A closer analysis of these data showed 6 out of 9 participants (66.6%) ranging in age from 46 to 59 rated their health as worse when compared to other women of the same age. The women in their 60s, 70s, and 80s rated themselves as having better health (36.6%) or the same (33.3%) as others their age. Only one woman over age 60 rated herself as worse. A test for correlation between the two variables of describe your own health and describe your health compared to other women, showed a significant negative relationship ($r = -.523, p = .01$).

It is interesting to note the perception of self-health in relation to another's health can be markedly influenced by the opinion of another. In one interview where the husband was present, the woman rated herself as "a little better than some of our friends." Her husband interjected, "I think the majority of them are a little bit better than you, though." She responded, "Really? Better than me?" His reply was, "I think so, but then again you are 2 or 3 years older then them." When asked again by the researcher to select one of the three ratings, the woman responded, "I don't know then." One other woman, who asked her husband to be her interpreter, fully participated in the interview process. She independently described her general health as excellent, rated her health as worse when compared to a contemporary, and reported having little control over her health. Another woman, who had experienced a cardiac arrest reportedly due to low potassium, continued to divert her husband's angry remarks during the interview. When he went into detail about her experience and his confrontation with the doctor, his wife dismissed his remarks and tempered her comments to assuage his anger.

In responding to the question, "In your opinion, how much control do you have over your health?" 53.3% felt they had a lot of control, 30% a fair bit of control, 10% were uncertain about control, and 6.7% felt they had no control. No one rated herself as having "not very much control." The two variables of general health and control over health were further analyzed with a Pearson chi-square goodness of fit test, which yielded nonsignificant results (*r* = .207, *df* = 8, *p* = .272) between the variables, supporting a null hypothesis that in this sample, there was not a predictable relationship between self-reported description of health and level of control. This finding is further demonstrated in Figure 5.

When asked what changes would they have made to their experiences, the women suggested:

- Having more support in the home, especially when they returned home from surgery. The type of help and support varied from postoperative care, medication management, diabetes teaching, and information about heart disease and lifestyle modifications.
- Better follow-up and continuity by health care providers so that the women would know what appointments to make; receive meaningful interpretation of test results; have better preparation when making arrangements for revascularization surgery; and know better how and where to access support services (home care, travel reimbursement, pre-surgical preparation).
- Better awareness of available resources, including reliable information about heart disease and lifestyle modifications, cardiac rehabilitation, and other supportive programs.
- Information about support groups in the community where women can share experiences and support each other, especially during postacute episodes, pre- and postsurgery, and during transition.

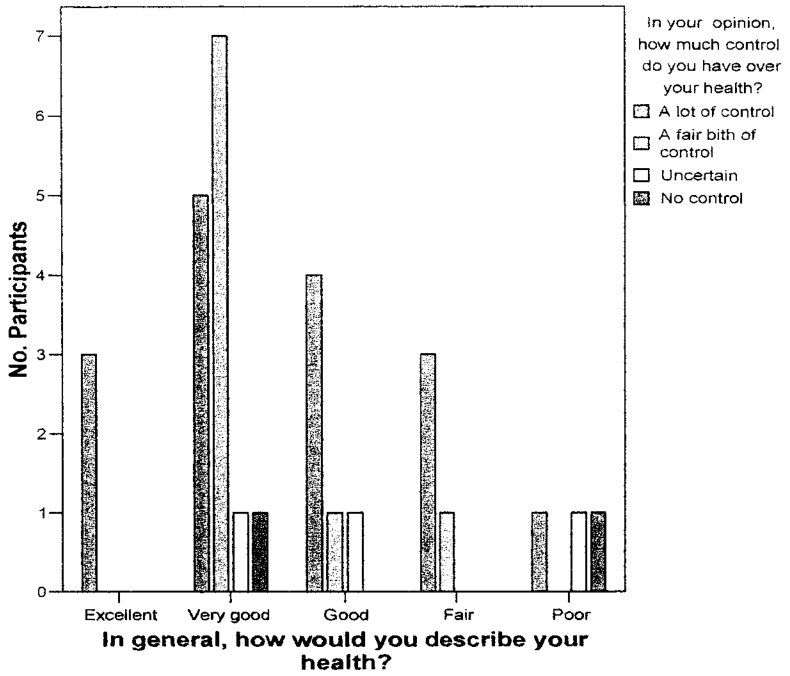

Figure 5. Current perceived health and level of control.

Discussion

CVD is the number one killer of men and women in Canada and the leading cause of hospital admissions for men and women, excluding obstetrics. The most common diagnoses reported are ischemic heart disease, coronary artery disease, and stroke.

Residents in NWO have higher rates of risk factors for cardiac disease than the provincial average, and individuals are presenting younger with multiple risk factors. Current Canadian trends suggest the number of cardiac-related deaths for women will increase by 28% between 1995 and 2016 (NWO District Health Council, 2003a).

The objectives of this research were to examine published literature related to gender health; develop a gender-health questionnaire; assess the knowledge, experience, perceptions, and beliefs of women with CVD; assess the types of physical and psychosocial interventions the women found, or would find, helpful; and explore differences and similarities between women in urban and rural settings. The researcher was guided by the following questions:

- What is the human experience of women in NWO with CVD?
- What types of physical and psychosocial interventions do women believe would be or have been beneficial to their health experience?

Discussion of the key findings is organized into three themes: experience with CVD, physical and psychosocial interventions, and lifestyle adaptation.

Experience with CVD

The 30 women in this study ranged in age from 46 to 81 years (*M* = 66, *SD* = 11.2) and had at least a grade school education. Over three quarters (76.7%) were retired or stayed at home. Three women were on long-term disability. Thirty percent of the women lived alone; the others lived with spouses/partners. Most of the women had a social network of children and grandchildren, other family and friends. Rosenfeld (2000) reported a decreased mortality rate from coronary artery disease for women who had more social support and strong ties to their community.

Six of the 30 participants (20%) initially reported they had either not been diagnosed with heart disease or were unsure. On further discussion, it became apparent from their past treatment (invasive and noninvasive) and self-described symptoms that they were unaware, uninformed, or had perceived the information they received differently than intended. Pender (1996) suggested that one of the significant predictors for lifestyle scores is the definition of health, which has serious implications for women not fully informed of their true status involving CVD. Evenson and Fleury (2000) found that the understanding of a person's health contributes to motivation for long-term lifestyle change. A possible contribution to misperceptions is the focus on acute episodic care during the symptom phase of the disease and less emphasis on chronic disease management and lifestyle change. CVD in women is not an important cause of premature death, but it is a major cause of disability (Women's Health Bureau, 2003b).

The types and numbers of symptoms these women experienced are consistent with what is published (Heart and Stroke Foundation of Canada, 2003). Nearly half of the women (46.7%) reported experiencing only one symptom, 13.3% had 2 symptoms, 16.7% had 3 symptoms, and 23.3% experienced between 4 and 8 symptoms. The most common symptoms reported were chest pain (46.7%), shortness of breath (43.3%), fatigue (33.3%), and pain down left arm (33.3%). The women who had not experienced a crushing, midsternum chest pain synonymous with heart attacks portrayed in popular media, expressed surprise they had not all experienced this classic symptom. Many said they had felt tired, had shortness of breath, and experienced pain in their arm or neck, but the lack of chest pain made the diagnosis of a heart attack seem less real to them. In their patient charts at the cardiologist's office, symptoms were described as either "typical" or "atypical." The findings of this study suggest these two categories are outdated and provide little insight into CVD in women.

Evidence suggests there is generally a 10-year time lag between men (55 years) and women (65 years) reporting symptoms of heart disease (Heart and Stroke Foundation of Canada, 2003; Shah, 2003). In this study, age at diagnosis ranged from 31 to 78 years (*M* = 57.1, *SD* = 11.5). A total of 23 women (76.6%) had premature cardiac events before age 65; the remaining 7 were in their mid- to late-70s. This finding indicates that young women living in NWO are at higher risk for heart disease and that their offspring are also at higher risk because of the significant intergenerational risk factor of a positive family history.

The women reported varying results from conventional testing methods for CVD such as ECGs, stress tests, and nuclear stress tests. Some reported that their doctors found them to be puzzling or a mystery to diagnose. Evidence supports that noninvasive testing modalities are problematic for women for several reasons, including diverse symptomatology, lack of gender differences in test accuracy, lower test specificity due in part to a wide age range, and less participation in clinical trials. Deaton et al. (2001) conducted a comparative analysis on diagnostic accuracy in women for stress tests, echocardiograms, nuclear perfusion scans, and ECGs, among others. They found lower sensitivity and specificity when the tests were used for women. It is challenging for practitioners to choose cost-effective tests that have sufficient sensitivity and specificity to properly diagnose heart disease in women.

A more costly diagnostic tool, angiogram, was provided to 76.6% of the women to assist in their diagnosis. Having this service in Thunder Bay has proved valuable, and the women now accept, and even expect, angiograms as one of a spectrum of cardiac testing methods available to them. From this relatively small sample of women, 46.6% were sent out of town for angioplasty or bypass surgery. Revascularization rates for these women were higher than those reported for the Calgary Regional Health Authority (43.1%, both men and women) in 1995-1996, purportedly the highest rate in Canada (Johansen et al., 2002).

Although comparisons of these revascularization rates were not set within the same time period (*M* = 9.7 years in this study vs. 12 months in Calgary), these data indicate that the women in NWO have appropriate access to specialized services, albeit not in their community (Johansen et al., 2002). Although the arrangement for NWO residents to have revascularization services take place in Eastern Ontario and Manitoba hospitals has served to provide access to specialized cardiac services, it comes with many costs to the women and their families. The women reported delays from 2 to 6 months, expensive transportation and accommodation costs for themselves and their family members, difficulty with the Travel Grant program, and the need for emotional support during hospitalization. Given the incidence of CVD in NWO, the opening of the new Thunder Bay Regional Health Sciences Centre (TBRHSC) and, more recently, the School of Medicine, the women were hopeful that this type of service would be provided closer to home.

Noninvasive (medication) therapy was provided as the only treatment to 53.3% of the women in the study; all of the others had received an angioplasty or bypass surgery in addition to medications. Davies et al. (1997) studied patients with ischemia during stress testing and ECG monitoring to determine if prognosis is improved by more aggressive treatment with anti-ischemia drugs or revascularization. Their findings suggested that a strategy of initial revascularization improves prognosis in comparison to medicinal therapy.

Canadian guidelines for patients with atherosclerotic ischemic heart disease have been published in the literature and consolidated in the (2004) CACR program update. The guidelines from the Association are clear: "ASABETASTATOPRIL [ASA, beta-blockers, statins, and ACE inhibitors] should be prescribed for all persons with documented coronary artery disease and perhaps in those pre-symptomatic persons at highest risk" (p. 163). In this study, only 4 (28.5%) of the 14 women with a history of acute myocardial infarction had their medications assigned to each of the four recommended categories. Further study in this area is needed to ensure that patients are receiving optimum treatment and to strengthen the mechanisms for knowledge transfer from science to practice.

The women reported a lack of home support services when they returned home postoperative from having revascularization procedures or when they were discharged from hospital in Thunder Bay following an acute episode. In one notable case, a woman experienced a near fatal catastrophe and rehospitalization for heart failure before receiving professional home care. In over half the cases, the women relied on spouses, family members, and friends to support them posthospital discharge. Aside from the lack of services to these women, teachable moments were lost when patient education would have made a difference in lifestyle change and chronic disease management. Even at the time of interview, some of the women remained confused and afraid. There was heavy reliance on a nurse practitioner who works in the cardiology clinic, as well as the cardiologist, to answer questions and provide information.

Less than a third of the women in this study participated in structured heart health programs or cardiac rehabilitation. This finding is consistent with the literature, which report high rates of nonparticipation and attrition rates between 50% and 73% (Evenson & Fleury, 2000). Grace, Evindar, Kung, Scholey, and Stewart (2004) sampled 272 patients with atherosclerosis who were treated at Trillium Health Centre, Toronto, Ontario and automatically referred to a cardiac rehabilitation program. The researchers monitored sociodemographics such as age, sex, ethnocultural background, level of education, and income. Barriers and enabling factors were recorded. For those attending cardiac rehabilitation (73.2%), there was lower denial; few logistical barriers (distance, cost); and lower perceptions of atherosclerotic heart disease as cyclical or episodic. The researchers concluded that because none of the predisposing factors was significant, attendance was influenced by enabling factors and perceived need.

Fridlund (2000) suggested that today's cardiac rehabilitation programs are not female adapted. A gender-based cardiac rehabilitation program has been developed by Women's College Hospital in Toronto, Ontario. Groups of 12 to 16 women spend 6 months in the program learning about diet, exercise, stress management, and health management from a multidisciplinary team. The program model encourages feedback from participants because the continued development of the program is iterative (Sunnybrook and Women's College Health Sciences Centre, 2006). Another alternative, home-based cardiac rehabilitation programs, is growing and is supported by evidence that there is a positive impact on exercise tolerance, lipid profile, systolic blood pressure, and psychosocial well-being (Grace, McDonald, Fishman, & Caruso, 2005).

Physical and Psychosocial Interventions

The women in the study reported actively seeking information from a variety of sources that varied in reliability. When asked by the researcher what type of information they would be interested in, even after many years postdiagnosis for some, the majority made selections related to diet management, stress management, and heart disease. This finding suggests continuing opportunities for disseminating information on health promotion and chronic disease management.

Daily smoking, a significant, modifiable risk factor for heart disease, had decreased in this sample of women from 40% to 6.6%, well below the average of 23.4% for NWO (NWO District Health Council, 2003b). A significant relationship was found between age when quit smoking and age at diagnosis of heart disease ($r = .908, p = .01$). There was a less significant relationship between age at starting to smoke and age at diagnosis ($r = .363$). The women reported that they started smoking in their early teens and 20s, a time when many young adults experiment with risky behaviours. The trend of adolescent smoking in girls 15 to 19 years has decreased from a high of 41.7% in 1981 to 25.6% in 1991. Between 1996 and 1997, the rate again rose to 31% (Greaves & Barr, 2000). The women in this study reported that they either quit smoking shortly before or just after their cardiac event. Mean age when the women quit smoking was 50.8 years, a time when many other biological and social changes occur.

Dietary habits reported by the women generally reflected a level of awareness of heart healthy food choices. The distribution of low-, medium-, and high-risk practices was inconsistent with these women, and only one reported practicing all low-risk behaviours. Consumption of 5 to 10 fruits and vegetables was reported for 20% of the women, as compared to 28.9% for people in NWO. Reasons given for this were cost; seasonal variation; personal preference; and in some cases, being widowed and cooking for one. One variable, frequency of eating fast foods was consistently low.

The interrelatedness of dietary variables was tested and supported by correlations at $p = .01$ between food preparation and three other independent variables: dessert choices, breads/grains, and use of salt. Further, the variable of dessert choices was correlated at $p = .01$ with use of salt, dairy/eggs, and breads/grains. This unexpected finding suggests that "diet" as a risk factor is far more complex to modify and that there are interplays between habits. For example, teaching people with hypertension to change their food preparation habits may also influence their use of salt. Similarly, people who make poor dessert choices, which are mainly made with white flour, would be less likely to eat whole grains. These findings also reinforce that behaviour modification is an ongoing process. Recognizing the relationships between dietary choices can help in developing more targeted patient education and health promotion strategies.

In comparison with the NWO average of 24% for moderately active leisure physical activity, 100% of the women in the study reported being physically active to some degree and participated in aerobics, active sports, brisk walking, lifting weights, easy walking, outdoor work, and other activities such as aquatics. Except for 2 of the women, the participants reported that they had been physically active for most of their life. Guidelines for coronary heart disease reduction include an accumulation of greater than or equal to 30 minutes of moderate intensity of cardiovascular endurance-type physical activity on most, and preferably, all days of the week (CACR, 2004; Weise, 2002).

Lifestyle Adaptation

Coping with comorbid conditions may negatively affect activities of daily living and quality of life. All of the women in this study had comorbidities, either as listed on the questionnaire or other ailments such as Parkinson's, fibromyalgia, and arthritis. The majority (83.2%) reported having two to four chronic diseases. An unexpected finding, namely, a nonsignificant relationship between a diagnosis of hypertension and rural living ($p = .109$), may indicate higher levels of stress or salt intake in the rural area.

Increasing age as a risk factor for hypertension did not appear to make a difference between urban (*M* = 67.2) and rural (*M* = 64.8) participants. The women, on average, were prescribed 4.2 medications per day to manage their chronic conditions, which had cost implications, especially for the women without medical benefits.

Health Canada (2003) reported that women are more likely than men to report chronic conditions, comorbidities, and severe to moderate disabilities. The largest burden of disease in Canada, and the world, is the prevalence of chronic disease (MacKay & Mensah, 2004; WHO, 2005a, 2005b). Many chronic conditions share common features, and comparable management strategies can be effective for more than one. The women in the study had effected positive changes in the self-management of their diseases, such as dietary changes and physical activity.

A focus on health promotion rather than only on disease or symptom management would expand opportunities for self-care and present an opportunity for people to better manage their chronic diseases. Clark et al. (2006) suggested a paradigm shift that integrates health promotion into the care of people with chronic disease. A few of the suggested strategies for promoting healthy behaviours are verbal encouragement to set realistic goals; specific lifestyle information and benefit; identification of high-risk situations for rehearsal; adjustments to exercise and medication routines to maximize success; and promotion of interventions that strengthen mind-body interactions, such as journaling or writing about emotions. Shifting from a disease foreground to one of wellness may enhance the quality of life for people living with chronic disease.

Self-reported health status was rated by the women at the time of interview and these rates compared to the average for people living in NWO in 2000-2001 (NWO

District Health Council, 2003b). As shown in Table 2, the women rated themselves lower in the excellent and good categories; more women rated themselves as having fair or poor health status.

Table 2

Self-Reported Health Status

Category	Study Sample	Northwestern Ontario
Excellent	10.0%	23.1%
Very Good	46.7%	33.7%
Good	20.0%	28.9%
Fair	13.3%	10.2%
Poor	10.0%	4.0%

These findings are similar to the (1996-1997) National Health Survey data reported by Johansen (1999), who found that people with heart disease rated themselves to be in fair or poor health 6 times more often than people not afflicted with the disease. For 56.6% of the study participants who were diagnosed and treated more than 5 years previous to the study (*M* = 8.83 years, *SD* = 9.2), their recollection or perception of what excellent health was like may be dimmed. Conversely, the older participants may have set their expectations differently because of many life changes such as age, being widowed, disabling symptoms, other comorbidities, or a residual effect from their heart disease. Shephard and Franklin (2001) postulated that quality of life decreases 30% the first 3 months following a nonfatal myocardial infarction and that a remaining residual effect of about 10% remains over the individual's life span. The younger women who rated themselves as poor because they had debilitating symptoms (i.e., angina and fatigue) may have had a fresher perspective of what excellent health meant to them and were in the early stages of loss, adjusting to a less-than-excellent health status.

Over time, the women reported they gained confidence in managing their heart disease. A comparison made between the level of perceived confidence at diagnosis/intervention ($M = 2.1$, $SD = .87$) and at interview ($M = 2.5$, $SD = .73$) showed an increase over time. Earlier in the disease process, the women reported less variation between feeling uncertain and being confident about what to do. This may have been due to personal coping styles or role expectation; for example, one woman talked about being stubborn, and another said she "dealt with it." At interview, almost two thirds of the women rated themselves as confident, with less variability between scores, which was significant at $p = .002$, $df = 2$. This level of confidence may be related to the current ages of the women (70% over 60 years) and, for some, the long interval from the event to the present time ($M = 9.7$ years).

When the women compared their health status with other women of the same age, the results showed that two thirds of the younger women ages 46 to 59 rated themselves as having worse health. Conversely, the much older women rated themselves either better than or the same as their contemporaries. Self-health and comparison with others was found to have a significant negative relationship ($r = -.523$, $p = .01$), where self-health ratings on their own were related but with no significance ($r = -.102$, $p = .593$). These findings may be indicative of many factors, such as the number of associates and friends with which to compare, developmental milestones, goal attainment changes over time, maturity, life experience, and support systems. Chronic, debilitating disease at a younger age can interfere with normal growth and development. In this sample, 8 of the women had experienced heart disease before the age of 40.

Control over one's health is one of the significant health promotion model predictors for lifestyle scores, but does not have a direct pathway to lifestyle, such as age and SES (Pender, 1996). Over half the women reported having a lot or a fair bit of control (83.3%), whereas 16.7% were uncertain or had no control. The older women (61 to 81 years) reported having a lot or fair bit of control more often (60%) than the younger women, who were more uncertain about being in control of their health. This study found no predictable relationship between self-reported description of health and perceived level of control, which supports the concern Pender put forward that the utility of the HPM may not be effective in predicting health-related lifestyles among cardiac rehabilitation populations. Pender suggested possible disease avoidance as a prime motivator for lifestyle change following a catastrophic illness.

The women as a group were not homogeneous. This study has provided further insight into the similarities and differences between the women themselves, the complexity of CVD, the spectrum of coping styles and attitudes, and the positive health behaviours displayed by the women. The findings of this research support the need for more targeted health-promoting strategies for women living with heart disease and other chronic conditions.

Limitations

Qualitative studies have an intrinsic bias within the design: the effect of context on the data collected and the effect of self in the interview (Gurbutt & Gurbutt, 2002). In this study, the attempt to control bias was done by guiding the interview with a structured questionnaire. Although the questions were sequenced in a way to facilitate discussion of symptoms, diagnosis, treatment, and current health status, the experiences related by the participants did not always follow a preset course. Rather, they were told as a story, with digressions and emotional segues. During the interview, the participants would seek and/or validate information related to their dietary habits, medications, tests, and resources from the interviewer due somewhat to their trust in the nursing profession, length of time together, and the gender and receptive style of the interviewer. Conversely, the interviewer, in her role as a professional nurse, could not turn a blind eye to situations that had potential harm for the participants. For example, one woman who had experienced substantial damage to her heart muscle was prescribed Lasix, but was not on a potassium supplement. She was advised to consult with her cardiologist at her next visit.

A sampling bias was realized in having no representation by Aboriginal women in the groups. The Aboriginal population is increasing in NWO, and studies have shown a growing incidence of ischemic heart disease in this population (NWO District Health Council, 2003b). The methodology used for sampling in this study was an attempt to select potential participants who had ethnic diversity representative of NWO, including Finnish, Ukrainian, Italian, Polish, and English. In addition, age, diagnosis, and length of time with heart disease were also considered. This selection technique was somewhat limited because of constraints within the electronic scheduling system and actual time constraints for the researcher. Patient information could only be accessed through sorting by surname and visit date. This limitation in the system provided a level of difficulty in detecting ethnicity from what may have been a husband's surname. Within a 3-day time frame, the researcher selected and audited approximately 190 patient charts.

The interview questionnaire developed for this study was not pretested for validity with a small sample group. This step was not an oversight but was the result of many issues, including travel between Vancouver and Thunder Bay, associated costs, and time constraints. To minimize this limitation, the questionnaire was developed from a previous interview tool developed by Steven (2001a) to gather qualitative and quantitative data in a similar study of gender health. That tool was tested on a sample group and was used for the interviews. Results of that research have been published (Steven et al., 2004).

Through a retrospective analysis of the application of the questionnaire in an interview process, the logical flow of the women's shared experiences, and the quality of the data gathered in this study, the researcher would recommend minor changes to 12 questions (e.g., expand selections, alter categories, and improve sentence structure) and omit 5 other questions found to be either redundant or too medically focused (e.g., discharge medications, tests in hospital).

Implications for Future Research

Within the literature is a growing recognition of the influence of gender on many aspects of a woman's condition. "Studies of gender differences in health care suggest the need to develop an understanding of changing gender relationships" (Health Canada, 2003, p. 1). This study adds to the scholarship of how gender influences a woman's experience with a chronic disease. In this research, measurable, quantifiable differences were detected between a life-threatening event and lifestyle (i.e., smoking cessation and heart disease); an interrelationship between food preparation and dietary habits; a women's perceived control over her health; and overall level of confidence in health status. Future research is needed to examine women in cultural, socioeconomic, and other distinct groupings to determine where differences and similarities exist, define effective interventions and lifestyle adaptations, and inform policy and practice changes.

The challenge of chronic health conditions is acknowledged as a worldwide problem that will require the application of core competencies from a public health perspective such as registries, systems thinking, primary care, and working across the care continuum (WHO, 2005). The community-based Chronic Disease Management Programme is widely accepted and encourages self-management patient education to manage comorbid conditions. "Self-management for people with chronic disease is now widely accepted as a necessary part of treatment" (WHO, p. 25). Cardiovascular risk factors, phenomena revealed through publications from the Framingham Heart Study less than a half century ago, have only more recently become part of the common lexicon (National Heart, Lung, and Blood Institute, 2006). Yet the women in this study, regardless of age, had an awareness of the risk factors for heart disease and could advise others.

Findings from this study suggest a need for further research of gender in relation to a woman's self-management behaviour, including information-seeking activities, how health care is accessed, motivation in changing and maintaining healthy lifestyles, and the development of effective coping strategies. There is a also a need to examine women's lived experiences within diverse ethnocultural groups such as Aboriginal women; women of colour; immigrant women; Asian women; women of different ages; and others with distinct diversity, including women living in rural and remote areas.

Recommendations

Based on findings from this study, the following recommendations are proposed to address unmet needs:

- Coordinated nursing services be made available to women in Thunder Bay and the rural areas to provide:
    - Information and support to better prepare women undergoing diagnostics and testing for CVD, including stress tests, nuclear scans, coronary artery scoring, and angiograms.
    - Preoperative teaching and support prior to surgery, and postoperative follow-up in their homes for a predetermined length of time.
    - Follow-up postdischarge from TBRHSC for women recently diagnosed with CVD. Services should include health promotion, risk factor reduction, chronic disease management strategies, assessment for depressive symptomatology, and quality-of-life issues.
- Referrals to cardiac rehabilitation programs should be automatic following a diagnosis of CVD. Consideration should be given to removal of barriers, such as cost, for the first year, and to the development of home-based rehabilitation programs that are gender specific.
- Further development of women's information and support groups, such as Mended Hearts, to provide opportunities for women with heart disease to share knowledge and socialize.

- Further development of strategies for knowledge transfer from science to clinical, for example evidence-based practice guidelines, utilizing such means as Telehealth, electronic communication, lectures, and peer review to disseminate information into rural and remote regions.

Summary

CVD remains the number one killer of men and women in Canada. Residents of NWO have a higher prevalence of CVD than other parts of the province. Women are more adversely affected by CVD, yet there is a paucity of literature examining gender-specific differences in women's response to treatment and prevention strategies. Although pharmacological, diagnostic, and surgical treatments have improved outcomes for men, women do not experience these same benefits for reasons mainly unknown. This research has served to investigate women's lived experience with CVD in an urban centre and rural communities in NWO, and to identify physical and psychosocial interventions that women have found, or would find, beneficial to their recovery, risk modification, and health-promoting behaviours. Findings of this research may be disseminated to health professionals, interested stakeholders, and to the women themselves who participated in this study.

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APPENDIX A

Health Promotion Model

Expectancy-Value Theory

According to the expectancy-value theory, behaviour is rational and economical. Persons engaging in a given action will persist in it because the outcome is of positive personal value and, based on available information, the course of action will likely bring about the desired outcome. Therefore, persons will not invest effort or resources toward goals that hold little or no value for them, or those seen to be unachievable (Pender, 1996). The motivational significance of the expectancy-value theory is based on the relative dissatisfaction with the status quo when compared to the benefits of a favorable change.

Social-Cognitive Theory

Social-cognitive theory is a central construct in the HPM. Presented as an interactional theory of behaviour change, social-cognitive theory posits that environmental event, personal factors, and behaviour act as reciprocal determinants of each other. Emphasis is placed on self-direction, self-regulation, and perceptions of self-efficacy. The dynamic interplay between cognition and other personal factors with changes in the environment toward interactional causality provides an array of possibilities (Pender, 1996). According to social-cognitive theory, self-beliefs are formed through self-observations and self-reflective thought. These beliefs include self-attribution, self-evaluation, and self-efficacy. A person's perceived self-efficacy is a judgment of one's ability to be successful in goal attainment through a course of action. Self-efficacy is developed through "mastery experiences, vicarious learning verbal persuasion and somatic responses to particular situations" (Pender, p. 54). Perceptions of overestimation of self-efficacy can lead to failure, and marked underestimation can lead to lack of growth. The most functional efficacy judgments are those that slightly exceed present capabilities because they facilitate undertaking realistically demanding changes that build competencies and confidence. "The greater the perceived efficacy, the more vigorous and persistent individuals will be to engage in a behaviour, even in the face of obstacles and aversive experiences" (Pender, p. 54).

Assumptions and Application of the HPM

There are seven key assumptions of the HPM that reflect nursing and behavioural science perspectives, and emphasize the active role of the participant:

1. Persons seek to create conditions of living through which they can express their unique human health potential.
2. Persons have the capacity for reflective self-awareness, including assessment of their own competencies.
3. Person value growth in directions is viewed as positive and attempts to achieve a personally acceptable balance between change and stability.
4. Individuals seek to actively regulate their own behaviour.
5. Individuals in all their biopsychosocial complexity interact with the environment, progressively transforming the environment and being transformed over time.
6. Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life span.
7. Self-initiated reconfiguration of person-environment interactive patterns is essential to behaviour change (Pender, 1996, p. 55).

APPENDIX B

Northwestern Ontario Needs Assessment: Environmental Scan

From Lacroix, P. (2003). *Proposal to assess CVD in NWO.* Unpublished paper MPH5210, Lakehead University, Thunder Bay, Ontario.

Factor	Environmental Scan
Environmental and Economic Forces	Health care costs have been steadily escalating, which has precipitated significant redevelopment in how health care is delivered across Canada (e.g., fewer hospital beds, shorter lengths of stay, more ambulatory care, longer waiting lists for access to treatment). Need to develop more effective and efficient programming that is gender sensitive (targeted information, research trials, influence of aging population, rising prevalence of depression, chronic disease and disability, and socioeconomic disparities). NWO faces challenges in delivery of care that causes delays because of long travel distances, unpredictable weather, and inadequate human resources. There is need for health promotion and disease prevention programs to be available in every community, especially in remote, isolated areas. This poses issues of competency, sustainability, and affordability because of sparse population density.
Health Care Professionals And Agencies Involved in Cardiac Care	Specialization of professionals is increasing (medical and nursing). Recruitment and retention issues for nurses and physicians working in NWO, especially rural and more remote areas. Ongoing shortages of cardiologists and cardiac specialists. A cardiac rehabilitation program has been established in the TBRHSC, but there is a lack of cardiac rehabilitation services in the rest of NWO. TBRHSC planning for designation as a cardiac care centre (cardiac surgery). Increased number of health promotion initiatives in last 4 years (nonsmoking, physical activity, diet targeted) in NWO. Self-reported practice changes by physicians in NWO to treat CVD more aggressively. Guidelines for prevention of CVD in women recently revised by the American Heart Association.
Social, Political, and Regulatory Forces	There is national support for primary care initiatives and an emphasis on improving access to services in northern and remote communities in Canada.

Factor	Environmental Scan
	The Premier's Council on Health Strategy developed a vision of health with strategic priorities of the Ministry of Health that include an emphasis on health promotion and illness prevention; fostering strong and supportive families and communities; ensuring a safe, high-quality physical environment, increasing the number of years of good health for all citizens, and providing accessible, affordable, appropriate health services for all Ontarians. The Ministry of Health has adopted a health care framework articulated by WHO. This framework includes prevention, detection, diagnostics and treatment, community support, research and education, rationalization of resource allocation, and evaluation of program efficacy. The ministry's strategy for health is based upon targeting funds for, among other initiatives, prevention and detection, where shown to be effective, such as risk factors for heart disease, equitable service distribution and access, reallocation of resources where necessary, patient empowerment, enhancement of quality of care and improved coordination and integrated care through practice standards.
Patient Trends	Number of deaths due to CVD ha declined steadily since 1960s. The rate of decline is less for women. CVD is the number one killer of men and women in Canada and the United States. Greater public awareness of risk factors of cardiac health. Expecting more involvement in their care (assertive, questioning, informed) and that care will be provided closer to home. Aging population, Baby Boomer phenomenon, will influence many social programs, which will put further strain on health care with age-related risk factors for CVD and cancer. Women in research trials are studied as a homogeneous group, and more differentiation among subgroups is needed to determine more appropriate health promotion and treatment programming.
Demographic and Population Trends of NWO	<u>Population</u> In NWO, there are slightly fewer males 45 to 64 years (41,210 or 49%) than females (42,620 or 51%). 1996: Thunder Bay 157,620 population (density 1.44 people/sq. hectare); NWO 244,120 (density 0.47); projected decline in population of Thunder Bay with increased population in Kenora and Rainy River Dist. 1996: 52% of population of NWO (234,771) live in or around Thunder Bay; 33%

Factor	Environmental Scan
	live in small communities (1,000 to 10,000 pop); and 15% live on First Nations reserves or small, remote communities. SES, Education Higher number of families with income less than $10,000 than province (Thunder Bay 3.7%, Ontario 5%). Women have an average income of little more than half of their male counterparts (Thunder Bay female average income $19,960) More people in Thunder Bay have Grade 9 or less than the province of Ontario (9.88% vs. 8.73%). Lifestyle Issues Cardiac risk factors differ by age: increased smoking in younger group; hypercholesterolemia, hypertension, and diabetes in older group. Aboriginal people have increased health risks. Diabetes affects as many as 1 in 5 First Nations and Inuit individuals aged 45 to 55, and 1 in 3 aged 55 and older. Heart disease, hypertension, cancer, and arthritis are more prevalent in this population. High blood pressure is 2.8 times more prevalent in Aboriginal men and 2.5 times more prevalent in Aboriginal women than in non-Aboriginal Canadians. Residents of NWO have higher rates of many risk factors (e.g., higher levels of smoking; NWO 23.4%, Ont. 20.1%) and obesity than the province as a whole. Aboriginal people have daily smoking rates approximately twice of non-Aboriginal Canadian. Potential years of life lost (PYLL) in males and females in NWO are consistently higher than for the province of Ontario. Leading causes are ischemic heart disease, female breast cancer, diabetes mellitus, and suicide. Life expectancy is lower in NWO compared to rest of the province and among the lowest in Canada. Fewer people in NWO reported excellent and very good health (a strong prognosticator of future health) as compared to province (excellent: NWO 23.1%, Ont. 33.7%. Very good: NWO 26.6%, Ont. 36.8%). People in NWO are more physically active (30%) than others in the province (21.3%), and report similar levels of stress (NWO 25.2%, Ont. 25.7%). More people in NWO report binge drinking (5 or more drinks at least once per month) than the rest of the province (NWO 6.5%, Ont. 4.7%). CVD

Factor	Environmental Scan
	CVD continues to be the #1 killer of men and women in NWO, with more than 750 deaths/year. Almost 1 in 2 deaths in NWO in 2003 will be due to CVD. NWO has higher mortality rates for CVD than the province. NWO has one of the highest hospitalization rates for cardiac disease in Ontario Individuals with cardiac disease are younger and with multiple risks.
Trends in Health Care	Enrolment of women in clinical trials has increased over the past 30 to 40 years. Enhanced diagnostics and medication available for CVD (angioplasty, CABG, valvular replacements, pacemaker technology, diabetes management and technology for monitoring blood sugars, injecting insulin). Depression has been determined to be associated with a number of chronic disorders including CVD. Depression affects women approximately twice as often as men. Depression following a cardiac event or procedure has an association with a poorer prognosis Emphasis on regionalization of health care and rationalization of service d lack of funding. Development of linkages and partnerships in care (e.g., emergency service Telehealth, and educational programs). Enhanced technologies and data management (e.g., cardiac rehabilitation pilot project).

Factor	Environmental Scan
Opportunities and Challenges	Timely access to cardiac care services across the care continuum is a concern in NWO. Population in NWO reported higher rates of not receiving healthcare when needed as compared to the rest of the province. Patients are taking a more active role in their care (researching information on the Internet; sharing information with others; and seeking support via chat lines, discussion groups, and e-journaling). Integrating research into evidence-based practice for all professionals. Leveraging technological advances (e.g., Internet to test new ways to provide services to people over large geographic distances from organized health care programs such as cardiac rehabilitation). Increased outreach to communities through partnerships with a diversified stakeholder group (e.g., employers, community associations, secular groups, and community champions). Increasing demands on health care services will continue as the population ages, and while this may be ameliorated by creating a healthier elderly population through health promotion strategies, NWO residents already experience a higher number of multiple risk factors for CVD and other chronic illnesses than other Ontarians or Canadians.

APPENDIX C

NWO Supplemental Demographic and Health Information

Age Group	1996 Census	% change 91-96	1999	% change 96-99	2003	% change 99-03	2008	% change 03-08
Northwestern Ontario								
0 14	54,110	0.1	53,160	-1.8	48,228	-9.3	41,203	-14.6
15-24	34,040	-3.3	36,210	6.4	36,290	0.2	35,765	-1.4
25-44	76,875	-2.5	78,179	1.7	71,960	-8.1	64,493	-10.4
45-64	49,420	10.7	54,463	10.2	61,315	12.6	69,056	12.6
65-74	17,555	3.4	17,443	-0.6	16,678	-4.4	17,149	2.8
75 and older	12,125	12.9	13,383	10.4	14,724	10	15,465	5
Total	244,125	1.5	252,838	3.6	249,195	-1.4	232,801	-6.6
Kenora District								
0-14	16,635	9.3	17,252	3.7	16,075	-6.8	14,402	-15.6
15-24	9,240	3.1	10,513	13.8	11,136	5.9	11,477	3.1
25-44	19,490	3.9	20,840	6.9	19,876	-4.6	18,875	-5.0
45-64	11,800	15.2	13,217	12	15,025	13.7	17,322	15.3
65-74	3,690	6.5	3,900	5.7	4,014	2.9	4,301	7.1
75 and older	2,480	15.9	2,760	11.3	3,017	9.3	3,299	3.9
Total	63,335	7.8	68,482	8.1	69,143	0.96	69,676	0.8
Rainy River District								
0-14	5,250	-0.8	5,018	-4.4	4,501	-10.3	3,838	-14.7
15-24	3,200	-3.8	3,542	10.7	3,550	0.2	3,512	-1.1
25-44	6,720	-1.2	6,817	1404	6,434	-5.6	6,030	-6.3
45-64	4,635	7	5,015	8.2	5,593	11.5	6,239	11.6
65-74	1,870	-2.3	1,810	-3.2	1,668	-7.8	1,640	-1.7
75 and older	1,505	13.6	1,578	4.8	1,653	4.8	1,649	-0.2
Total	23,180	0.8	23,780	2.6	23,399	-1.6	22,908	-2.1
Thunder Bay District								
0-14	32,225	-4.2	30,890	-4.1	27,652	-10.5	22,990	-16.9
15-24	21,600	-5.7	22,155	2.6	21,604	-2.5	20,776	-3.8
25-44	50,665	-4.9	50,522	-0.3	45,650	-9.6	39,588	-13.3
45-64	32,985	9.7	36,231	9.8	40,697	12.3	45,495	11.8
65-74	11,995	3.5	11,733	2.2	10,996	-6.3	11,208	1.9
75 and older	8,140	12.1	9,045	11.1	10,054	11.2	10,517	4.6
Total	157,610	-0.8	160,576	1.9	156,653	-2.4	150,574	-3.9

- Source: Ministry of Health and Long-Term Care and Statistics Canada July 1999

Income	Kenora District		Rainy River District		Thunder Bay District		Northwestern Ontario		Ontario	
	# of families	%	# of families	%	# of families	%	# of families	%	# of families	%
Total Families	16,645		6,320		43,500		66,465		2,932,725	
Under $10,000	815	4.9	285	4.5	1,625	3.7	2,725	4.1	148,050	5.0
$10,000-$19,999	1,685	10.1	545	8.6	3,460	8.0	5,690	8.6	256,625	8.8
$20,000-$29,999	2,165	13.0	815	12.9	4,195	9.6	7,175	10.8	332,130	11.3
$30,000-$39,999	2,010	12.1	825	13.1	4,880	11.2	7,715	11.6	336,440	11.5
$40,000-$49,999	2,030	12.2	780	12.3	4,970	11.4	7,780	11.7	340,330	11.6
$50,000-$59,999	1,945	11.7	770	12.2	5,070	11.7	7,785	11.7	324,365	11.1
$60,000-$69,000	1,525	9.2	555	8.8	5,100	11.7	7,180	10.8	289,155	9.9
$70,000-$79,999	1,320	7.9	520	8.2	4,180	9.6	6,020	9.1	235,015	8.0
$80,000-$89,999	1,035	6.2	380	6.0	3,100	7.1	4,515	6.8	179,905	6.1
$90,000-$99,999	695	4.2	190	3.0	1,995	4.6	2,880	4.3	127,950	4.4
$100,000 & over	1,415	8.5	650	10.3	4,920	11.3	6,985	10.5	362,765	12.4

- Source: Statistics Canada, 1996 Census family income of all families (20% sample data).

Percent of the Population 12 Years and Older by Perceived Stress, Northwestern Ontario and Ontario, 2000/01

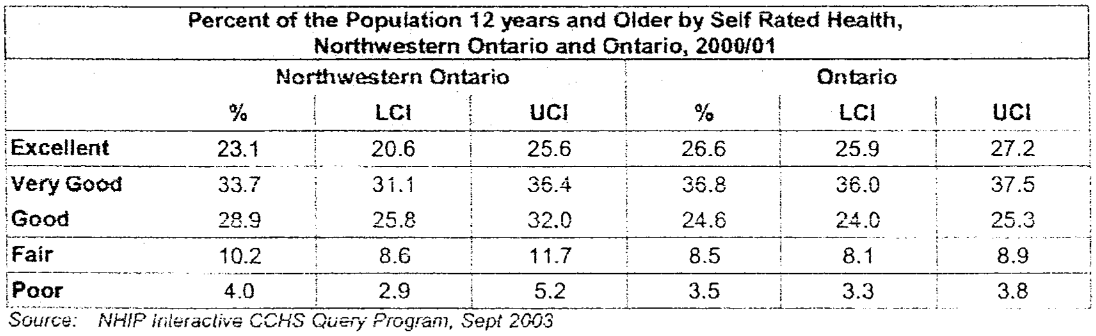
	Northwestern Ontario			Ontario		
	%	LCI	UCI	%	LCI	UCI
Quite a Bit of Stress	25.2	22.3	20.14	25.7	25.03	26.41

Source: *NHIP Interactive CCHS Query Program, Sept 2003*

Percent of Population Ages 20-64 by BMI, Canadian Standard, Northwestern Ontario and Ontario, 2000/01

	Acceptable Weight (BMI 20.0-24.9)	Some Excess Weight (25.0-27.0)	Overweight BMI (>27)
	Northwestern Ontario		
Males	29.6	21.0	45.6
Females	43.9	10.7	34.1
Total	36.6	16.0	40.0
	Ontario		
Males	38.6	19.4	36.9
Females	45.4	11.7	28.2
Total	42.0	15.6	32.6

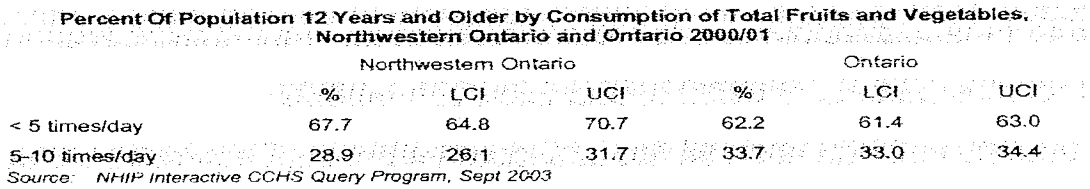
Source: Statistics Canada, Health Indicators, May 2002, Catalogue no. 82-221-XIE



Percent of the Population 12 years and Older by Self Rated Health, Northwestern Ontario and Ontario, 2000/01

	Northwestern Ontario			Ontario		
	%	LCI	UCI	%	LCI	UCI
Excellent	23.1	20.6	25.6	26.6	25.9	27.2
Very Good	33.7	31.1	36.4	36.8	36.0	37.5
Good	28.9	25.8	32.0	24.6	24.0	25.3
Fair	10.2	8.6	11.7	8.5	8.1	8.9
Poor	4.0	2.9	5.2	3.5	3.3	3.8

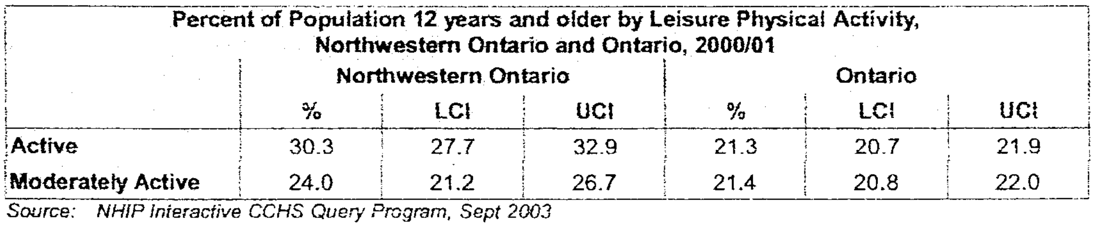
Source: NHIP Interactive CCHS Query Program, Sept 2003



Percent Of Population 12 Years and Older by Consumption of Total Fruits and Vegetables, Northwestern Ontario and Ontario 2000/01

	Northwestern Ontario			Ontario		
	%	LCI	UCI	%	LCI	UCI
< 5 times/day	67.7	64.8	70.7	62.2	61.4	63.0
5-10 times/day	28.9	26.1	31.7	33.7	33.0	34.4

Source: NHIP Interactive CCHS Query Program, Sept 2003

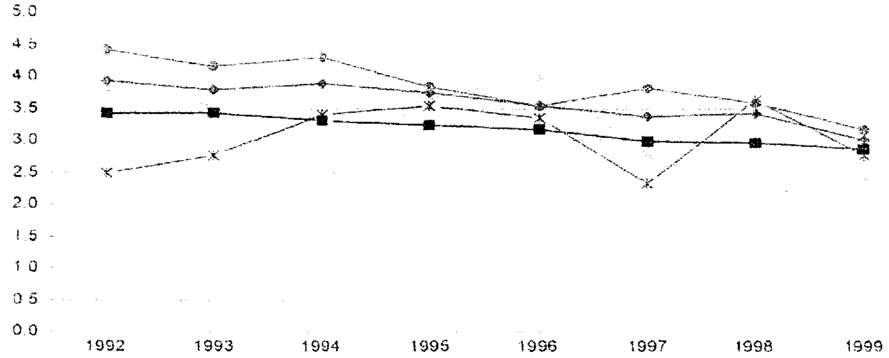


Percent of Population 12 years and older by Leisure Physical Activity, Northwestern Ontario and Ontario, 2000/01

	Northwestern Ontario			Ontario		
	%	LCI	UCI	%	LCI	UCI
Active	30.3	27.7	32.9	21.3	20.7	21.9
Moderately Active	24.0	21.2	26.7	21.4	20.8	22.0

Source: NHIP Interactive CCHS Query Program, Sept 2003

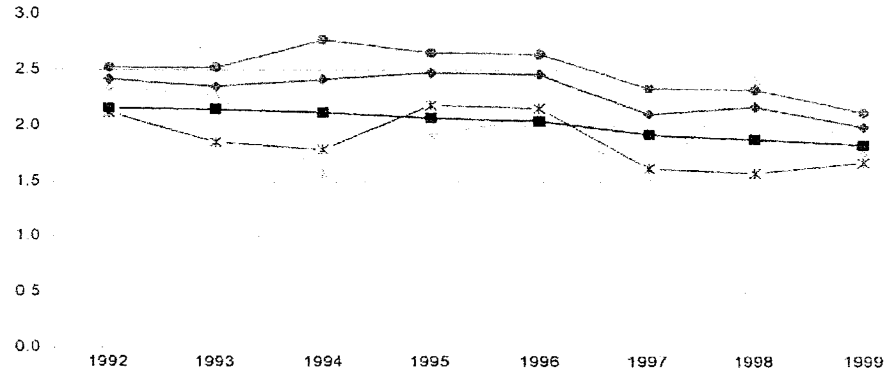
Age-Standardized Death Rate per 1,000 Males, Cardiovascular Disease (ICD-9, 390-459), 1992-1999



	1992	1993	1994	1995	1996	1997	1998	1999
Rainy River District	3.8	3.5	2.5	3.7	4.0	2.8	2.1	2.4
—✕— Kenora District	2.5	2.8	3.4	3.5	3.3	2.3	3.6	2.8
—●— Thunder Bay District	4.4	4.2	4.3	3.8	3.5	3.8	3.6	3.2
—◆— Northwestern Ontario	3.9	3.8	3.9	3.7	3.5	3.4	3.4	3.0
—■— Ontario	3.4	3.4	3.3	3.2	3.2	3.0	3.0	2.9

Source: *Northern Health Information Partnership, PYLL and Mortality Rates 2.2, August 2003*

Age-Standardized Death Rate per 1,000 Females, Cardiovascular Disease (ICD-9, 390-459), 1992-1999



	1992	1993	1994	1995	1996	1997	1998	1999
Rainy River District	2.4	2.3	1.6	1.9	2.1	1.5	2.4	1.8
—✕— Kenora District	2.1	1.8	1.8	2.2	2.2	1.6	1.6	1.7
—●— Thunder Bay District	2.5	2.5	2.8	2.7	2.6	2.3	2.3	2.1
—◆— Northwestern Ontario	2.4	2.4	2.4	2.5	2.5	2.1	2.2	2.0
—■— Ontario	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.8

Source: *Northern Health Information Partnership, PYLL and Mortality Rates 2.2, August 2003*

APPENDIX D

Interview Questionnaire

Knowledge, Experience, Perceptions, and Beliefs of Women with Cardiovascular Disease Living in Northwestern Ontario
Interview Questionnaire
October 2004
Interview (Audio taped)

My signature indicates I agree to participate in a study conducted by principal researcher Paulette Lacroix, Student, Master's of Public Health, Lakehead University and Dr. Darlene Steven, Professor, School of Nursing, Lakehead University, and others, on the **Knowledge, Experience, Perceptions, and Beliefs of Women with Cardiovascular Disease in Northwestern Ontario**

I consent to the following:

I am a volunteer and can withdraw at any time from the study.

I am a female 45 years of age and older.

There is no risk of physical or psychological harm to me.

I will receive upon request a copy of the study.

All information will be kept in a locked cupboard and shredded upon completion of the study.

The information letter has been read to me by the interviewer and the nature of the study, the purpose and procedures have been explained.

____________________	___________________________
Signature of Interviewer	Signature of Participant

____

Date

Subject Identification__________________

Date of Interview ____________________

Location of Interview __________________

Interviewer Guide

Part A

Demographic Data

1. What is your age? ☐

1. 40 to 45
2. 46 to 50
3. 51 to 55
4. 56 to 60
5. 61 to 65
6. 66 to 70
7. 71 to 75
8. 76 to 80
9. > 80

2. What is the highest education you received? ☐

1. Grade School
2. High School
3. College Diploma
4. University Undergraduate Degree
5. Graduate
6. Other (specify) _________

☐

3. Are you currently working outside of the home?

1. Yes, Full Time
2. Yes, Part Time
3. Not employed
4. Retired

4. What is/was your usual job or occupation?

____

5. Where do you live? ______________________________

☐

1. Urban (city centre)
2. Rural

6. To which ethnic or cultural group do you belong to?

Canadian
Chinese
East Indian
English
Ojibwa
Oji-Cree
Polish
Spanish
Ukrainian
Other

7. What is your marital status?

☐

1. Single
2. Married
3. Common-law
4. Separated
5. Widowed
6. Divorced

8. If married (common-law) what is the highest level of education your spouse obtained?

☐

1. Grade School
2. High School
3. College Diploma
4. University Undergraduate Degree
5. Graduate
6. Other (specify)

9. Is your spouse presently working?

☐

1. Yes, Full Time
2. Yes, Part Time
3. Not employed

4. Retired

10. What is/was your spouse's usual job/occupation?

____

11. If you are/or were married or living in a common-law relationship, please indicate:

	1st	2nd	3rd	4th
Date of Marriage				
Age at Marriage				
Age of Husband				
Length of relationship				
Reason relationship ended (separation, divorce, death)				
If spouse died, please specify cause of death				

12. Do you have children? ☐

1. Yes

2. No

If yes, how many children do you have? __________

How old are your children?

13. Do you have grandchildren? ☐

1. Yes

2. No

If yes, how many grandchildren do you have? ________

How old are your grandchildren?

Do you see your grandchildren regularly?

1. Yes

2. No

14. Do you have a family doctor? ☐
1. Yes
2. No

15. Is your doctor male or female? ☐
1. Male
2. Female

16. What do you believe is the ethnic background of your family doctor?

____

Part B

General Health

17. Have you ever been diagnosed by a physician as having any of the conditions listed below?

High blood pressure	age at diagnosis
High blood cholesterol	age at diagnosis
Heart disease	age at diagnosis
Diabetes (type __________)	age at diagnosis
Cancer (type __________)	age at diagnosis

18. Are you currently taking medications for any of the conditions listed above? If yes, specify.

Blood pressure medication
Cholesterol reduction medication
Heart medication
Birth control pills
Hormones
Thyroid medication

Insulin

List medications you are currently taking (prescribed and over-the-counter):

____

____

____

____

____

____

____

____

19. Have you ever smoked?
1. Yes ☐
2. No

20. Do you currently smoke?
1. Yes ☐
2. No
If yes, how many cigarettes do you smoke per day? ________

21. At what age did you start smoking? (age in years) ☐

22. At what age did you stop smoking? (age in years) ☐

Part C

Eating Habits

23. Meat/Protein ☐
1. Eat regular cuts of red meat
2. Eat a mixture of regular meats and other protein
3. Eat only lean meats, skinless poultry, or fish

4. Eat very little red meat, mostly poultry or fish
5. Seldom or never eat meat; eat vegetable proteins

24. Dairy Products/Eggs

High fat ice-cream, sour cream, yellow cheese, whole milk, eggs, butter

Low fat – skim milk, low fat yogurt, cottage cheese, egg whites/egg replacers

1. Nearly always eat high fat products
2. East mostly the high fat products, some low fat products ☐
3. Eat both about the same
4. Eat primarily low fat products. Some high fat
5. Eat only low fat products or none at all

25. Desserts

High fat – cake, deep fried pastry, pies, ice cream, custards, chocolate

Low fat – fruit salads, gelatin, melons, grapes, dried fruit, home baked goods using vegetable oil in moderation

1. Nearly always eat high fat products
2. East mostly the high fat products, some low fat products ☐
3. Eat both about the same
4. Eat primarily low fat products. Some high fat
5. Eat only low fat products or none at all

26. Cooking Fats/Food Preparation

High fat – frequent frying, deep fat frying, primarily use shortening, frequently add butter or other fats to foods for flavoring, use regular amount of fat called for in recipes

Low fat – broil, bake or boil. Primarily use vegetable oil, flavor food with seasoning, and keep added fat very low

1. Food nearly always cooked the high fat way
2. Food mostly cooked the high fat way
3. Food cooked both ways the same
4. Food cooked primarily the low fat way
5. Food cooked only the low fat way.

☐

27. Breads and Grains

Refined – white bread, rolls, biscuits, crackers, regular pancakes, waffles, white rice, typical breakfast cereals and baked goods

Whole grain – whole grain bread, rolls, brown rice, oatmeal and other whole grain cereals such as Shredded Wheat, Grape nuts

1. Nearly always eat refined grains
2. Eat mostly refined grains
3. Eat both about the same
4. Eat primarily whole grain products
5. Eat only whole grain products

☐

28. Fruits and Vegetables

How often do you eat fruits and vegetables?

1. 5 or more servings a day
2. 4 servings per day
3. 3 servings per day
4. 2 servings per day
5. 1 or less serving per day

☐

29. Fast Foods

How often do you eat fast food meals such as hamburgers, tacos, fried chicken, hotdogs, french fries?

1. Every day ☐
2. Several times per week
3. Occasionally
4. Seldom or never

30. Salt

How often do you add salt to your food at the table?

1. Always ☐
2. Most of the time
3. Little of the time
4. Never

31. Alcoholic Beverages

In the past two weeks, on how many days did you drink any alcoholic beverage such as beer, wine or liquor?

1. None in past two weeks
2. One to three days ☐
3. Four to six days
4. Seven to ten days
5. Eleven to fourteen days

32. How many alcoholic drinks did you have per day on average?

1. One
2. Two
3. Three ☐
4. Four
5. Five
6. Five or more

33. Caffeine Beverages (coffee, cola tea)

How many caffeine containing drinks do you usually have per day? ☐

1. One
2. Two
3. Three
4. Four
5. Five
6. Five or more

Part D

Exercise

34. What type of exercise do you do?

Aerobics	Walking at an easy pace
Active Sports (specify)	Skating
Bicycling, easy pace	Cross country skiing
Bicycling, fast pace	Swimming
Canoeing	Stationary bicycle
Raquetball	Tennis
Walking briskly	Outdoor work (lifting, carrying, shoveling)
Lifting weights	Indoor work (floors, vacuuming)

35. How often do you exercise per week? ☐

36. What is your favorite type of exercise? ______________________

37. Do you prefer to exercise by yourself or with a friend/family member? ☐

1. Self
2. With others

38. Have you always been physically active?

1. Yes ☐
2. No

If No, when did you become more physically active?

Part E

Heart Health

43. Have you been diagnosed with heart disease? ☐

1. Yes
2. No

44. If yes, what was your diagnosis? ☐

1. Angina
2. Acute Myocardial Infarction (heart attack)
3. Congestive Heart Failure
4. Unusual heart rhythm
5. Valve Replacement
6. Other (specify)

45. When were you diagnosed with heart disease? (Month/Year)

46. Does your family history include any of the following? ☐

1. Father had heart disease diagnosed at <55 years.
2. Mother had heart disease diagnosed at <65 years.
3. Other siblings diagnosed with heart disease (first degree relatives)
4. Spouse diagnosed with heart disease (first degree relatives)

47. What symptoms of heart disease did you experience?

1. chest pain
2. pain radiating down left arm
3. shortness of breath
4. cold sweats

5. soreness between shoulder blades
6. flu-like symptoms
7. fatigue
8. lightheadedness
9. insomnia
10. indigestion
11. an anxious feeling
12. Other (specify)

48. In describing your experience, when did the symptoms occur and how did you seek help?

____

____

____

49. Where did you first receive emergency attention? ☐

1. Physician's Office
2. Ambulance
3. Community hospital outside Thunder Bay
4. Thunder Bay Hospital (Mackellar, PAGH, Health Sciences)

50. Describe your experience in hospital.

____

____

____

51. Can you recall what tests you received in hospital? ☐

1. Bloodwork (e.g., cholesterol
2. Electrocardiogram (ECG)
3. Stress ECG (treadmill)
4. Ultrasound

6. CT Scan
5. Other (specify)

52. What type of treatment(s) did you receive in hospital? ☐
1. Medications only
2. Angiogram/Angioplasty
3. Open-heart bypass surgery

53. What type(s) of medication(s) were you prescribed when discharged home?
1. Low dose aspirin
2. Cholesterol lowering medication (e.g. statin)
3. ACE inhibitor
4. Betablocker
5. Other (specify)

54. Looking back on your experience is there anything you would change and, if so, what would that be?

____

____

____

55. Did the doctor who treated you explain the treatment to you? If yes, were you ☐
1. Completely satisfied
2. Somewhat satisfied
3. Not satisfied

56. Did you feel that sufficient emotional support was provided to you during your time in hospital?
1. Yes
2. No
If yes, who provided the most support?

1. Doctor
2. Nurses
3. Family ☐
4. Friends
5. Volunteers
6. Other (specify)

57. What type of support or help was available to you when you returned home?

1. Home Care Nurses
2. Heart and Stroke Foundation Volunteers
3. Spouse/Family ☐
4. Friends
5. Telephone support from the hospital
5. Other (specify)

58. What type of information related to heart disease did you receive from health care providers?

1. Brochures
2. Booklets
3. Individualized discharge plan of care
4. Audio/video tapes ☐
5. Computer web sites
6. Other (specify)

59. When did you receive this information?

1. In hospital ☐
2. At discharge
3. In your home
4. Other (specify)

60. Who gave this information to you?

1. Nurse

2. Doctor

3. Nutritionist

4. Exercise specialist ☐

5. Other (specify)

61. Did the individual go over the information with you? ☐

1. Yes

2. No

62. Did you find the information you received helpful? ☐

1. Yes

2. No

If yes, how was it helpful to you?

____

____

63. How did you feel about your health when you returned home? ☐

1. Uncertain about what to do

2. Somewhat certain about what to do

3. Confident about what to do

64. How do you feel about your health now? ☐

1. Uncertain about what to do

2. Somewhat certain about what to do

3. Confident about what to do

65. Did you participate in any heart-related programs while in hospital (diet, exercise, stress management, medications)? ☐

1. Yes

2. No

66. Did you participate in a cardiac rehabilitation program after you went home?

1. Yes ☐
2. No

67. If yes, specify.

1. Cardiac rehabilitation at a hospital
2. Heart and Stroke Foundation program ☐
3. Home program supervised by nurses
4. Other (specify)

68. How long did you participate in the rehabilitation program?

____________ weeks or _________months

69. If no, what were the reasons you did not participate?

1. Time constraints ☐
2. Cost
3. Transportation
4. Program not offered/available
5. Other (specify)

Part G

Secondary Prevention

70. Do you actively seek information about your condition? ☐

1. Yes
2. No

If yes, where do you look for information?

1. Doctor's office/clinic
2. Hospital
3. Newspaper ☐
4. Internet
5. Friends/Family

6. Health care provider (nurse)
7. Other (specify)

71. What type of information are you interested in?
1. Nutrition (diet, weight management)
2. Exercise
3. How to manage stress ☐
4. Heart disease
5. Medications
6. How to quit smoking
7. Symptom management
8. Anger management
9. Sexuality
10. Other (specify)

72. Describe a typical day's activities.

____

____

____

73. Has your activity level changed from before you were diagnosed with heart disease?
1. Yes ☐
2. No

If yes, how has it changed?

____

____

74. Have you made changes to your diet? ☐
1. Yes
2. No

If yes, what has changed?

75. Have there been other changes you've noticed in your life? ☐

1. Yes
2. No

If yes, please describe.

76. What types of strategies do you use to reduce stress in your life? ☐

1. Physical activity
2. Meditation
3. Deep breathing/relaxation exercises
4. Yoga/Pilates
5. Talking to others
6. Other (specify)

77. Do you take your medications regularly? ☐

1. Some of the time
2. Most of the time
3. All of the time

78. How often do you see your doctor for a check-up? ☐

1. Every 6 months
2. 6 months to a year
3. 1 – 2 years
4. Don't know

79. What are three risk factors for heart disease?

____

____

80. If you wanted to tell other women about heart disease, what would you tell them?

____

____

____

81. What are some of the strategies that you've used to manage your disease and why do these work for you?

____

____

____

82. Do you share your experience with other women? If yes, who do you share with?

1. Family members
2. Friends
3. Women's groups
4. Organized groups e.g. Heart and Stroke Foundation
5. Other (specify)

83. Is accessing health care difficult for you? ☐

1. Yes
2. No

If yes, why?

____

____

84. In order to keep yourself healthy what kinds of things do you do?

(Probe: Is there any special activity such as exercise, walking, and regular visits to the doctor?)

85. In order to do the things that you have just told me that keep you healthy, do you encounter any difficulty or problem? If yes, could you tell me what?

86. In general, how would you describe your health? ☐
1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

87. In your opinion, how would you describe your health in comparison to other women of your age? ☐
1. Better than
2. About the same
3. Worse then

88. In your opinion, how much control do you have over your health? ☐
1. A lot of control
2. A fair bit of control
3. Uncertain
4. Not very much control
5. No control

89. Are there any other comments you would like to make?

____

____

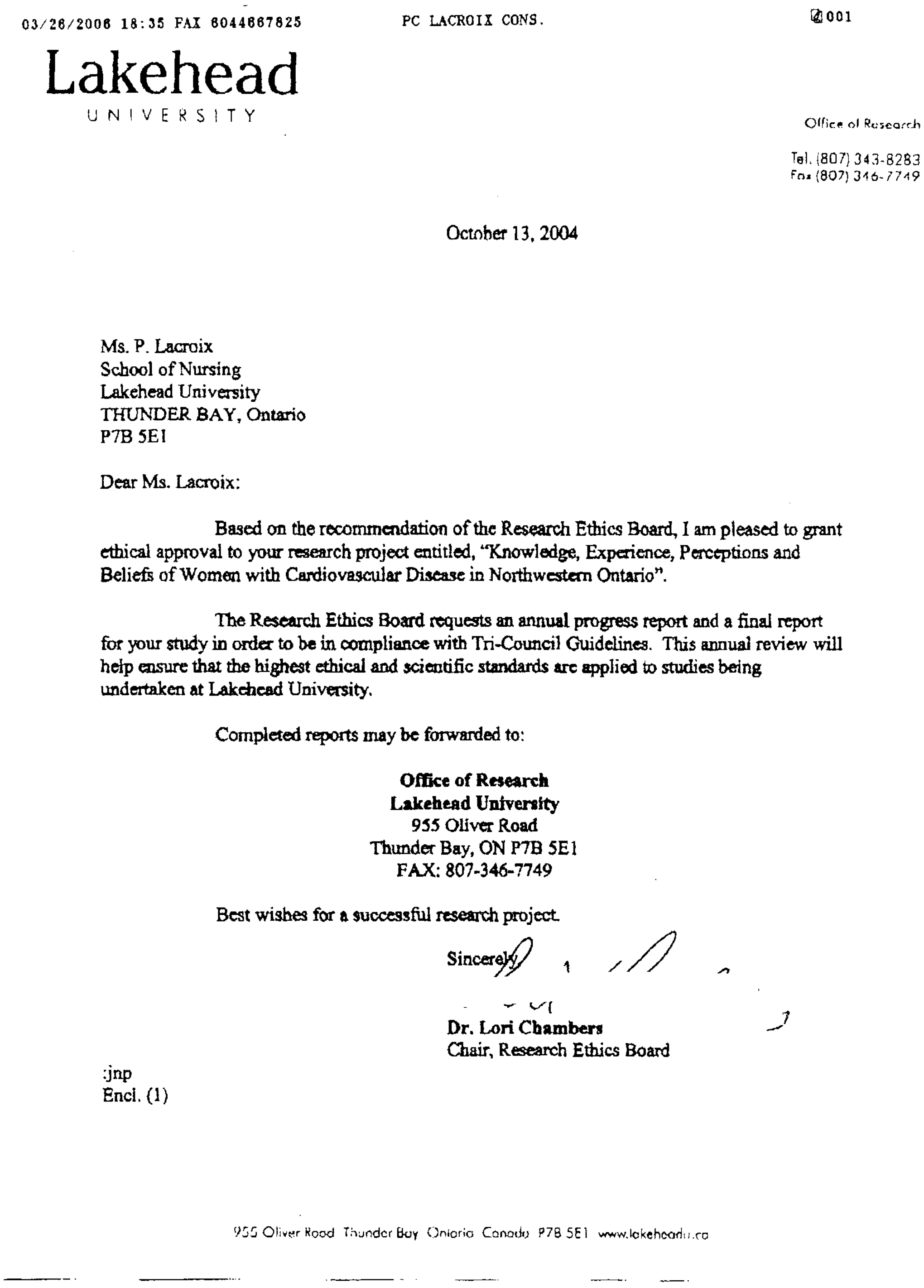
Thank you for participating in this study.

Reference:

Steven, D., Fitch, M., Dhaliwal, H., Kirk-Gardner, R., Sevean, P., Jamieson, J., et al. (2004). Knowledge, attitudes, beliefs, and practices regarding breast and cervical cancer screening in selected ethnocultural groups in Northwestern Ontario. *Oncology Nursing Forum, 31*(2), 305-311.

APPENDIX E

Ethics Approval



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Lakehead
UNIVERSITY

Office of Research

Tel. (807) 343-8283
Fax (807) 346-7749

October 13, 2004

Ms. P. Lacroix
School of Nursing
Lakehead University
THUNDER BAY, Ontario
P7B 5E1

Dear Ms. Lacroix:

Based on the recommendation of the Research Ethics Board, I am pleased to grant ethical approval to your research project entitled, "Knowledge, Experience, Perceptions and Beliefs of Women with Cardiovascular Disease in Northwestern Ontario".

The Research Ethics Board requests an annual progress report and a final report for your study in order to be in compliance with Tri-Council Guidelines. This annual review will help ensure that the highest ethical and scientific standards are applied to studies being undertaken at Lakehead University.

Completed reports may be forwarded to:

Office of Research
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1
FAX: 807-346-7749

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

:jnp
Encl. (1)

APPENDIX F

Participant Consent Form

My signature on this sheet indicates I agree to participate in a study by Paulette Lacroix and other researchers, on a study of "Knowledge, Experience, Perceptions and Beliefs of Women with Cardiovascular Disease in Northwestern Ontario".

I understand that during participation in the interview, the session will be taped.

I agree to the following:

I am a volunteer and can withdraw at any time during the study.

There is no apparent risk of physical or psychological harm.

The information I provide will remain confidential.

I will partake in the interview session and understand that this will be taped.

I will receive a summary of the project upon request following the completion of the project.

I have received explanations about the nature of the study, its purpose and procedures.

____ ______________________

Signature of Participant Date

APPENDIX G

Researcher's Agreement Form and Cover Letter

(On Lakehead University Letterhead)

Date

Dear Participant:

We are requesting your participation in a study titled "Knowledge, Experience, Perceptions and Beliefs of Women with Cardiovascular Disease in Northwestern Ontario".

The overall purpose of this study is to critically examine women's lived experience with cardiovascular disease and to assess what types of interventions worked, or would work, best for them. There has been very little research in this area of women's health.
The objectives of the study are:

- To critically examine published literature, reports and other documentation related to gender health and women's perceptions of cardiovascular disease and health-promoting behaviours.
- To develop a gender-health questionnaire to be used in conjunction with structured researcher-to-participant interviews.
- To assess the knowledge, experience, perceptions and beliefs of women with cardiovascular disease who live in Northwestern Ontario.
- To assess the types of physical and psychosocial interventions women believe have been/would be of benefit to them in their recovery, in risk factor reduction and promotion of healthy behaviours, and
- To explore the differences and similarities between women living in an urban area (Thunder Bay) and those living in a rural area (communities within 2 hours drive of Thunder Bay).

This research study is intended to examine the influence of gender in women's experience of cardiovascular disease. Gender is more than the biological differences between men and women, but is an inter-related pattern of social and cultural beliefs or perceptions that can constrain or enhance lived experiences. Therefore gender may be part of why women respond to health situations differently than men.

There is less access to a continuum of cardiac care services in Northwestern Ontario than in other parts of Ontario. In addition, barriers to services such as financial, distance, and weather conditions are an everyday reality for people living in the northern part of the province. In recent years people in Thunder Bay have experienced an increased availability in diagnostic services (angiograms) and an outpatient cardiac rehabilitation program. Enhanced funding for health promotion strategies in Thunder Bay and surrounding communities have been targeted to help people modify and/or reduce risk factors for cardiovascular disease and other chronic conditions. Many of these initiatives have focused on lifestyle changes to diet, exercise and smoking. One of the objectives of this research study will be to assess the types of cardiac care services utilized by women with cardiovascular disease, both in an urban and rural setting.

The information gained from this study will be used to assist health care professionals in developing programs that are sensitive to the needs of women with cardiovascular disease and their families. These programs would include prevention, risk modification, treatment and rehabilitation.

You will be requested to answer a set of structured questions in an interview with the researcher. The interview will take approximately 1 to 1-1/2 hours to complete and will be tape-recorded. Questions include, but are not limited to, age, sex, educational and economic status as well as experiences related to cardiovascular disease. You will be asked to sign an informed consent to participate in the study.

Your participation in this study is voluntary and you may withdraw from the study at any time. All information you provide (questionnaire, tape and transcribed notes) will be kept confidential in a locked filing cabinet and stored for seven years after which they will be shredded and/or appropriately destroyed prior to disposal.

Findings of the study will be released to the media and will be submitted for publication in a professional journal. A copy will be available to you at your request upon completion of the project.

If you have any questions, please do not hesitate to contact the researcher at (xxx) xxx-xxxx (call collect for long distance) or via email. Alternatively, you may contact my, academic advisor, at (xxx) xxx-xxxx at Lakehead University.

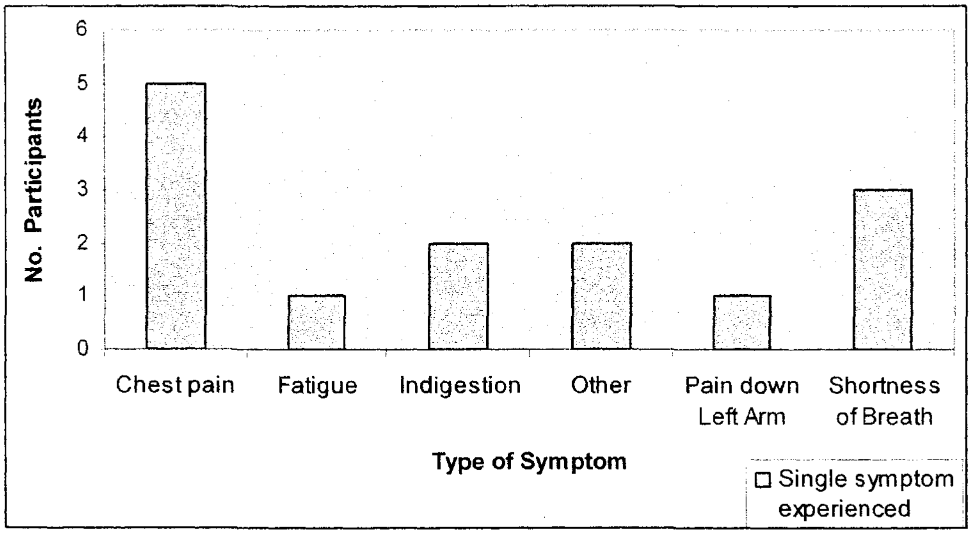
Thank you in advance for your willingness to participate in this study.

Sincerely,

Paulette Lacroix, RN, HBScN, MPH candidate	Darlene Steven, RN, PhD
Researcher	Professor, Lakehead University

APPENDIX H

Single Symptom Experienced by Participant before Cardiac Event



APPENDIX I

Medication Therapy with History of Acute Myocardial Infarction

Subject	Current Age	Treatment	Betablocker	Statin	Ace Inhibitor	ASA
A1	78	By-pass	x	x	x	1
A7	67	Medication		x	x	x
A11	61	By-pass	x	x	x	x
A14	69	Medication	x	x	x	x
A15	76	Medication	x			2
B1	59	By-pass		x		x
B4	69	Angioplasty	x	x		x
B5	51	Medication	x	x	x	x
B6	56	Angioplasty		x		1
B7	79	By-pass	x			x
B8	54	Medication	x	x	x	x
B13	48	By-pass	x		x	x
B14	67	Angioplasty	x	x		x
B15	75	Medication				x
1 Plavix 2 Warfarin						

APPENDIX J

Self-Reported Diagnosis of Chronic Disease

Chronic Disease	Number of Participants (*N* = 30)	Age at Diagnosis (years)		
		Mean	SD	Range
Hypertension	16 (53.3%)	53.3	14.3	26 to 78
High Cholesterol	16 (53.3%)	53.0	11.9	20 to 69
Heart Disease	24 (80%)	56.6	12.7	32 to 78
Diabetes	7 (23.3%) (Type I 3.3%) (Type II 20%)	54.3	14.7	37 to 74
Cancer	7 (23.3%)	60.2*	6.2	51 to 66

*age for 2 participants missing

APPENDIX K

Smoking, Dietary, Alcohol, and Caffeine Habits

Subject	Smoked	Smoke Now	Meat	dairy	desserts	food prep	bread	fruits veg	fast foods	salt	alcohol	caffeine
A1	■											
A2							■					
A3												
A4	■	■						■			■	
A5								■				
A6	■							■		■		
A7	■							■				
A8												
A9												■
A10												
A11				■	■	■	■			■		
A12	■	■						■				■
A13	■											
A14	■											■
A15				■	■			■	■			
B1	■							■				
B2												■
B3	■											
B4			■									
B5	■				■			■		■		
B6	■											
B7	■							■				
B8								■				
B9					■							
B10											■	
B11	■							■				
B12												
B13	■				■							
B14												
B15												

■ high risk	med risk	low risk