KNOWLEDGE REQUIREMENTS OF CORONARY ARTERY BYPASS GRAFT PATIENTS AND THEIR PARTNERS DURING THE THIRD TO FOURTH WEEK PERIOD AFTER DISCHARGE FROM THE HOSPITAL

By

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ABSTRACT

The purpose of this study was to describe the knowledge requirements of primary coronary artery bypass graft (CABG) patients and their partners during the third to fourth week after discharge from the hospital. In addition, comparisons and correlations of knowledge requirements between the primary CABG patients and their partners were made.

This descriptive comparative study was conducted in a major teaching hospital in western Canada that specializes in cardiovascular surgeries. A convenience sample of 40 participants—20 primary CABG patients and their partners completed a questionnaire, the Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners During the Third to Fourth Week Period After Discharge from the Hospital, and also demographic guides.

Knowledge requirements did not significantly differ between the primary CABG patients and their partners. However, there were differences reported as demonstrated by the partners’ desire for more knowledge requirements than the primary CABG patients. Moreover, the primary CABG patients and their partners demonstrated a statistically significant correlation of the majority of knowledge requirements. Trends in the ratings with respect to health related characteristics suggested that CABG surgery was associated with lifestyle changes and an optimism for the future in both primary CABG patients and their partners.

The findings were discussed relative to the conceptual framework for the study, other research studies, and the methodological problems inherent in the study.
Implications and recommendations for nursing practice and nursing research were suggested.
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CHAPTER ONE: INTRODUCTION

Background to the Problem

Although deaths due to cardiovascular disease (CVD) have decreased since the mid 1960's, it is still a major cause of death, disability, and illness. In 1990, 39% of all deaths were due to CVD in Canada (Heart & Stroke Foundation of Canada, 1993; Ministry of Supply & Services, 1990). The decrease in death rates from CVD in Canada could be the result of a more widespread use of advanced open heart surgical procedures. However, open heart surgical procedures are only one explanation for this decrease in death rates due to CVD. In recent years, progress has been made in identifying the multiple factors that put individuals at risk for developing CVD. Successful programs of prevention have demonstrated that through the modification of risk factors such as cessation of smoking, decreased lipids in the diet, weight loss, and moderate levels of physical activity on a regular basis, death and illness from CVD can be reduced (Heart & Stroke Foundation 1993; Ministry of Health, Province of British Columbia & Health and Welfare Canada, 1990).

Although open heart surgery has been found to be successful in the treatment of CVD, it is not without risk. This surgery is a major procedure which has a significant impact on the immediate coping skills of patients and their families (Beckie, 1989; Benson Gortner, Rankin, & Wolfe 1988; King, 1985; Stanley & Frantz, 1988; Stanton, Jenkins, Savageau, Harken, & Aucoin, 1984; Tack & Gilliss, 1990; Wright, 1987). With the trend toward discharging patients from the hospital
early in their recovery (King & Parrinello, 1988; Tack & Gilliss, 1990), postoperative teaching is essential.

The event of coronary artery bypass graft (CABG) surgery may create knowledge requirements for patients in topic areas such as: diet and activity guidelines for patients and their partners during the post-operative period. In order to help patients during this period, their partners may be obliged to adopt roles which are assistive, supportive, and participative in nature (Dracup, Meleis, Baker, & Edlefsen, 1984; Newton & Killien, 1988; Sikorski, 1985). Nurses play a critical role in the teaching of patients and their families following CABG surgery (Beckie, 1989; Newton & Killien, 1988). At the time of discharge, an understanding of knowledge requirements of CABG patients and their families provides an essential basis upon which effective post-operative teaching may be planned and implemented. Postoperative teaching of CABG patients and their partners is an important component of nursing practice (Beckie 1989; Newton & Killien, 1988).

The knowledge requirements of CABG patients and their partners during the third to fourth week period after discharge from the hospital have been virtually ignored by nurse researchers. The period from three months up to two years postdischarge seems to be the common time span during which nurse researchers focus on the effects of CABG surgery and the relationship of the surgical experience to the knowledge requirements of patients, such as exercise tolerance (Allen, Becker, & Swank, 1990; Holm, Fink, Christman, Reits, & Ashley, 1985; Roviaro, Holmes, & Holmsten, 1984; Sczekalla Meyer & Latz, 1979; Stanton et al., 1984). The critical care phase, the immediate time period after surgery seems to be the common time
during which researchers focus on the effects of CABG surgery regarding the knowledge requirements of partners, for example, to receive information about the patient and to have questions answered honestly (Norheim, 1989; Rogers Ward, Constancia, & Kern, 1990; Rukholm, Bailey, & Coutu-Wakulczyk, 1992). According to Newton and Killien (1988), CABG patients’ and their partners’ knowledge requirements (referred to as learning needs) increased in importance between one week and six weeks after discharge from the hospital. However, it was unknown in this study by Newton & Killien when exactly between one and six weeks CABG patients’ and their partners’ knowledge requirements increased. Therefore, this researcher was interested in the third to fourth week after discharge from the hospital.

**Conceptual Framework for Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners**

The conceptual framework to assess knowledge requirements of primary CABG patients and their partners was developed by this researcher. This researcher perceives nurses and nursing as being concerned with individuals who require new abilities in order to satisfy eight fundamental human needs and thus sustain life. Furthermore, individuals constantly use abilities which are either innate or learned.

Individuals are conceptualized as having eight fundamental human needs which are as follows:

1. **Nutritional:** The need for the ingestion of the appropriate types and amounts of food and fluid.
2. **Respiratory:** The need for breathing without any difficulties.
3. Eliminatory: The need for the collection and elimination of waste products.

4. Activity: The need for daily functioning-for example, ambulate, dress, undress, feed, and bathe self; other activities include physical activities, recreation, hobbies, occupations, interests, and projects.

5. Sleep & Relaxation: The need for a natural, regularly recurring rest for the body, during which there is little or no conscious thought (Webster’s new dictionary and thesaurus, 1990, p. 5133). To make or become less stiff or rigid or tense; cease or reduce one’s attention or efforts; the restoration of equilibrium following disturbances (The concise Oxford dictionary, 1991, p. 1014).

6. Psychosocial: The need to associate with others and to give and receive friendship, love, and affection; to develop and maintain meaningful relationships; social and leisure activities.

7. Acknowledgement: The need for recognition and acceptance of a positive self in the following: concept, image, esteem, respect, status, confidence, competence, achievement, knowledge, skills, and learning.

8. Safety: The need to protect self from undue harm and injury.

These eight fundamental human needs interrelate such that satisfaction of one need may influence the satisfaction of other needs. Furthermore, lack of satisfaction of one need may influence the satisfaction of other needs. In addition, there is no hierarchy of the needs.

The events of CABG surgery, procedures, and tests affect the abilities of individuals in their potential capacity for satisfaction of the eight fundamental human
needs. Individuals who have experienced CABG surgery must learn new abilities in order to satisfy the eight fundamental human needs. Likewise, partners of CABG patients must learn new abilities in order to help patients satisfy eight fundamental human needs. Therefore, CABG patients and their partners require teaching in order to learn new abilities and thus satisfy eight fundamental human needs.

The learning of new abilities will help patients and their partners satisfy the fundamental human needs, especially in new or changing situations where needs may be unmet. Teaching facilitates learning of new abilities. Nursing views the function of teaching new abilities required to satisfy eight fundamental needs as one of its primary roles.

The conceptual framework dictates that the role of the nurse is to facilitate learning by patients and their partners through teaching. The nurse teaches new abilities to patients and their partners in order to satisfy eight fundamental human needs.

To review how the conceptual framework was utilized in relation to the study, patients and their partners' knowledge requirements identified from the literature are presented and related to the eight fundamental human needs. The knowledge requirements explicating from the literature were commonly identified areas by CABG patients, their partners, and health care professionals.

The knowledge requirements necessitated by CABG patients in order to help them develop and use new abilities to meet eight fundamental human needs relate to:


5. Sexual activity - when to resume sexual activity (Newton & Killien, 1988; Stanton et al., 1984).


The knowledge requirements documented in the literature that were experienced by partners of CABG patients in order to help patients develop and use new abilities to meet eight fundamental human needs relate to:


7. Stress management - how to cope effectively, behavioural fluctuations, anxiety (Newton & Killien, 1988).


The perceptions regarding knowledge requirements identified in the literature are essentially not the same from the perspective of patients, their partners, and nurses. For example, three studies (Chan, 1990; Gerard & Peterson, 1984; Karlik & Yarcheski, 1987) found patients with cardiac disease gave higher importance than the nurses on learning the content areas of medications, anatomy and physiology, and risk factors. The few studies that have been done suggest that nurses are inaccurate in estimating their patients' knowledge requirements (Arenth & Mamon, 1985; Chan, 1990; Farrell, 1991; Gerard & Peterson, 1984; Karlik & Yarcheski, 1987). In addition, no studies can be identified in the literature that suggest that nurses are accurate or inaccurate in estimating the partners' knowledge requirements. However, according to Newton & Killien (1988) the knowledge requirements of partners occur at different times post CABG surgery than the knowledge requirements of the patients. The implication for nursing practice is that if nurses act on their own perceptions they might teach content not needed, teach at a time when not useful and furthermore, fail to teach essential content when required.
Problem

Despite the frequency and success of CABG surgery, there is a small body of information concerning knowledge requirements of CABG patients and their partners during the third to fourth week period after discharge from the hospital.

Coronary artery bypass graft patients may require new information and skills in order to help them manage postoperatively. Partners of CABG patients may require new information and skills in order to help patients during the rehabilitation process. To help patients during this process, partners may need to adopt roles which are assistive, supportive, and participative. Coronary artery bypass graft surgery affects patients and their partners as a family, and family members tend to influence each other in reciprocal ways (Sirles & Selleck, 1989). Nurses as health care educators play a critical role in the teaching of new information and skills required by CABG patients and their partners during the rehabilitation process.

This study was designed to examine knowledge requirements of primary CABG patients and their partners during the third to fourth week period after discharge from the hospital.

Purpose

The purpose of this study was three-fold:

(1) to describe knowledge requirement(s) of primary CABG patients during the third to fourth week period after discharge from the hospital;

(2) to describe knowledge requirement(s) of partners of primary CABG patients during the third to fourth week period after discharge from the hospital;
Research Questions

This study has addressed the following four research questions:

1. What are the knowledge requirement(s) of primary CABG patients during the third to fourth week period after discharge from the hospital?

2. What are the knowledge requirement(s) of partners of primary CABG patients during the third to fourth week period after discharge from the hospital?

3. How do the knowledge requirement(s) of primary CABG patients compare with their partners during the third to fourth week period after discharge from the hospital?

4. Is there a difference in ranking of knowledge requirements between the primary CABG patients and their partners during the third to fourth week period after discharge from the hospital?

Definition of Terms

For the purpose of this study, the following terms were defined:

1. Ability: "primarily denotes the quality or character of being able; as to do or perform; actual power, whether native or acquired (Webster's new dictionary of synonyms, 1984, p. 3). For the purposes of this study ability was defined as
being either innate or learned which allows an individual to satisfy eight fundamental human needs.

2. Cardiovascular disease (CVD): Disease processes of the cardiovascular system which includes acute myocardial infarction, ischemic heart disease, high blood pressure, stroke, arrhythmias, hypertension, valvular heart disease, and peripheral vascular disease (Heart and Stroke Foundation of Canada, 1993).

3. Coronary artery bypass graft (CABG): The obstruction in the coronary artery is bypassed by anastomosing one end of the saphenous vein graft to the aorta and the other end to the coronary artery just past the obstruction. The internal mammary artery (IMA) is used as a pedicle graft whereby the proximal end remains attached to the second branch of the subclavian artery and the distal end is attached below the obstruction of the coronary artery (Hudak, Gallo, & Benz, 1990).

4. Fundamental human need: An essential human requisite of individuals in order to sustain life. For the purposes of this study, fundamental human need was defined as an essential human requisite of CABG patients and their partners in order to sustain life.

5. Knowledge requirement(s): Abilities identified by individuals necessary to satisfy eight fundamental human needs. For purposes of this study knowledge requirement(s) was defined as a gap between present abilities and required abilities of CABG patients and their partners necessary to satisfy eight fundamental human needs.
6. **Major complications:** For the purposes of this study, major complications were defined as chest wound infections, cardiovascular accidents, and acute renal failure experienced by CABG patients.

7. **Partner:** Spouse or companion who lives with a CABG patient.

8. **Primary CABG patient:** An individual, who for the first time, has undergone coronary artery bypass graft(s) surgery.

9. **Rehabilitation:** The process by which patients are restored to their optimal physical, medical, psychological, social, emotional, vocational, and economic status (Greenland & Chu, 1988). In addition, for the purposes of this study, rehabilitation referred to the time period after discharge from the hospital.

10. **Lifestyle changes:** For the purposes of this study, lifestyle changes are personally defined by the participants.

**Assumptions**

For the purposes of this study, the following assumptions have been made:

1: Adults identify what they need to know and arrange that learning around life's problems.

2: Participants were able to identify learning needs.

3: Participants responded to the questionnaires honestly and interpreted each item as intended.

4: Participants responded to the questionnaires during the instructed time period.
Limitations

The following limitations were recognized:

(1) All participants needed to be proficient in English, therefore the knowledge requirements of those not proficient in English are not well represented.

(2) A convenience sample from one acute care hospital was used, and therefore, the sample does not represent the population of primary CABG patients.

(3) Due to the time and resource constraints, a small sample size was used which may have decreased the generalizability of the study findings.

(4) The design of the study reflected an emphasis on self-report data obtained from the participants. Due to the personal nature of the research topic, it is possible that participants may have been reluctant to share personal data.

(5) The data may be influenced by characteristics of the participants such as, socioeconomic status and education level. Therefore, these variables are not accounted for.

(6) Due to the lack of valid and reliable instruments to determine or assess knowledge requirements of CABG patients and their partners, it was necessary to utilize two modified instruments with no validity and reliability data established.

(7) The variable number (1 to 5) of items or question(s) per content areas may have communicated to participants that one content area was more significant or important than another content area which may or may not have influenced their answers to the items. For example, a content area with 5 items may
have communicated to the participants that it was more important than another content area with 1 item.

Significance

This study has both scientific and practical significance. There is a paucity of literature concerning the knowledge requirements of CABG patients and their partners, particularly during the third to fourth week period after discharge from the hospital. In order to plan and implement effective patient education after discharge from the hospital, nurses require the relevant information necessary to teach CABG patients and their partners. An examination of the knowledge requirements of CABG patients and their partners following discharge may result in an increased understanding of these knowledge requirements by nurses. The knowledge requirements examined as a result of this study may be utilized by nurses involved in the education of CABG patients and their partners.

Patient education has become an important part of nursing practice after CABG surgery and thus a major component of the cardiac recovery period (King & Parrinello, 1988; Steele & Ruzicki, 1987). To be effective health care educators, nurses must address the knowledge requirements of CABG patients and their partners. Specific knowledge requirements of CABG patients and their partners may be planned and implemented in accordance with the findings of this study.
Overview of the Thesis Content

This thesis consists of five chapters. Chapter One has presented the background to the problem, conceptual framework, problem statement, purpose, research questions, definition of terms, assumptions, limitations, and significance. In Chapter Two, selected literature is reviewed under four headings: physical, psychosocial, and functional outcomes in CABG patients, coronary artery bypass graft patients' and their partners' knowledge requirements, approaches to managing knowledge requirements: learning theories and teaching methods, and instruments for examining knowledge requirements of CABG patients' and their spouses'. In Chapter Three the methodology is addressed including a description of the research design, sample selection, selection criteria, data collection instruments and demographic collection guides, rational for analysis of integrated close-ended and open-ended questions, collection procedure, data analysis, and ethical considerations. Following, in Chapter Four, the sample is described and the findings are presented and discussed. Lastly, in Chapter Five a summary is provided, and conclusions and implications for nursing practice and research are presented.
CHAPTER TWO: REVIEW OF SELECTED LITERATURE

Introduction

The purpose of the literature review is to provide a framework within which to review the knowledge requirements of CABG patients and their partners. The identified areas for literature review include:

1. Physical, psychosocial, and functional outcomes in CABG patients.
2. Coronary artery bypass graft patients' and their partners' knowledge requirements.
3. Approaches to managing knowledge requirements: learning theories and teaching methods.
4. Instruments for examining knowledge requirements of CABG patients and their spouses.

Physical, Psychosocial, and Functional Outcomes in Primary Coronary Artery Bypass Graft Patients

Both the nursing and medical literature emphasized the measurement of physical, psychosocial, and functional outcomes for patients who have undergone CABG surgery:

(1) physical outcomes including relief of angina pectoris, exercise tolerance, and prolongation of life (Allen, 1990; Steele & Ruzicki, 1987).
psychosocial outcomes including coping strategies, emotional responses, social activities, leisure activities, and daily living activities (Allen, 1990; Allen et al., 1990; Roviaro et al., 1984) and

(3) functional outcomes including changes or resumption of employment

Steele and Ruzicki (1987) evaluated the effectiveness of teaching physical activities to CABG patients during hospitalization. The separate sample pre-test/post-test design was chosen so that subject responses on the pre-test would not influence scores on the post-test. Furthermore, the separate sample design controlled both the main effect of testing and the interaction of testing. At the time of discharge, three content areas were assessed:

(1) knowledge which included physical activity (climbing stairs, driving, walking, sports, and lifting), sexual activity, stress reduction, home exercise program, disease process, symptoms of over exertion, symptoms to report to physician, diet, and risk factors;

(2) confidence rating which included patients' confidence level toward required activities; and

(3) behavioural responses which included patients' perception of compliance with required activities.

This study demonstrated that patient teaching was an effective component in the care of the patient recovering from CABG surgery during hospitalization.
Subjects in the teaching program demonstrated a significant increase in knowledge; patients learned specific content while hospitalized. Prior to discharge, patients reported feeling confident with compliance with the discharge information. Furthermore, six weeks after discharge, they reported compliance with the discharge information. However at this time, dietary changes was reported to be the most concern for patients such as, the introduction of more fruits, vegetable, and grains into their diet, and dining away from home. In addition, there was limited improvement relative to stress modification.

Steele and Ruzicki (1987) suggested that dietary changes and stress modification best be covered in an outpatient setting and therefore, allowing other essential information to be emphasized during the limited hospital stay. Furthermore, educational programs for long-term behavioural changes such as dietary changes and stress modification could be managed and monitored more effectively and consistently in an outpatient setting. These findings are relevant when considering the decreased length of stay for hospitalized patients. Inpatient educational programs must be limited to what is possible and practical for nurses to teach during the patients’ hospitalization experience.

Allen (1990) examined recent investigations of both the physical and psychosocial outcomes after CABG surgery. Physical and psychosocial outcomes were grouped into categories that reflect the expected goal of CABG surgery. The expected goals of CABG surgery included prolongation of life (survival of up to four years after CABG surgery), relief of angina pectoris, improvement of exercise tolerance, improvement in functional status (social activities, leisure activities, and
psychologic adjustments), and return to work. The results of this investigation indicated CABG surgery to be more effective than medical therapy in relieving angina and improving exercise tolerance. However, resumption of social and leisure activities, return to work, and reduction in overall mortality for most patients who undergo CABG surgery, was not demonstrated. In fact, results of studies have shown that pre-operative levels of functional status continued or deteriorated after surgery (CASS Principal Investigators & Their Associates, 1983; O'Connor, 1983; Westaby et al., 1979). Allen (1990) recommended that further study was needed to explain this paradoxical relation between demonstrated physical improvement and enduring poor functional status after CABG surgery.

Roviaro et al., (1984) assessed the cardiovascular, psychological, and psychosocial functioning of 58 patients who had either experienced myocardial infarction or undergone CABG surgery. Twenty-eight patients participated in an exercise-based cardiac rehabilitation program, whereas 20 patients participated in a routine-care program. Assessment took place before treatment (cardiac rehabilitation program) or routine-care program, after three months of the treatment or the routine-care program, and four months later. Results indicated that when compared to patients in the routine-care program, patients in the cardiac rehabilitation program demonstrated better understanding of their disease and treatment recommendations and compliance with their treatment recommendations. Furthermore, patients in the cardiac rehabilitation program evidenced reliable gains on measures reflecting cardiovascular, psychological, and social functioning.
Although it appears likely that it was the exercise training that caused improvement in cardiovascular functioning, it is less clear as to which factors were responsible for the changes in psychological functioning. Indeed, it is often assumed that the effects of an exercise program on psychological functioning occur due to changes in fitness, however this is not always the case. For example, in two investigations it was found that most of the personality changes that were associated with participants in an exercise program were independent of actual changes in fitness (Jasnokski & Holmes, 1981; Jasnokski, Holmes, Solomon, & Aguiar, 1981).

In the study by Jasnokski & Holmes (1981), data reflecting aerobic performance and personality functioning were obtained from 103 participants before and after they experienced a 15 week aerobic training program. The results of regression and covariance analyses revealed that better personality functioning was reliably associated with higher initial levels of aerobic fitness, participation in the training program independent of changes in fitness, and with changes in fitness. For the most part, personality changes were consistently related to reports of different aspects of better personality functioning such as: increased self-assurance, increased emotional stability, less depressions, less pretentiousness, imagination, decreased inhibitions, increased liberalness, and decreased tensions. Therefore, it appears that increased physical fitness is related to various aspects of better personality functioning.

Allen et al., (1990) studied functional status outcomes such as, physical functioning and social and leisure functioning of 125 males at 1 month and 6 months after CABG surgery. The results of this study indicated that functional status
outcomes improved significantly from 1 month before surgery to 6 months after surgery. However at 6 months after surgery, 13% of patients continued to report functional status disabilities, and 45% reported no improvement in the level of participation in normal physical, social, and leisure activities. These results are alike other studies, whereby many patients showed no improvement in their activities of normal daily living, although they were not functionally disabled (CASS Principal Investigators & Their Associates, 1983; O'Connor, 1983).

Prolongation of life, which is defined as survival of up to five years after treatment, has been addressed in several studies (CASS Principal Investigators & Their Associates, 1983; European Coronary Surgery Study Group, 1982; Read, Murphy, Hultgren, & Takaro 1978). In general, the results of these three randomized studies demonstrated surgically treated patients experienced prolongation of life compared to medically treated patients. For example, according to the results of the European Coronary Surgery Study Group (1982), in the surgical group, symptomatic improvement in terms of postoperative angina and exercise performance was significantly superior to that of the medical group. However, after five years the difference between the two treatments tended to decrease with time, a finding also reported by others (Campeau, Lesperance, & Hermann, 1979; Tecklenberg, Alderman, & Miller, 1975).

Numerous research articles dealt with the retention or resumption of work by patients who had experienced CABG surgery (Anderson et al., 1980; Clancy et al., 1984; Niles et al., 1980; Rimm et al., 1976; Westaby et al., 1979). These studies included 69 to 893 participants. They used a questionnaire or direct questioning to
solicit patient input, and were conducted nine to thirty-three months after surgery. Anderson et al., (1980), Niles et al., (1980), Rimm et al., (1976), and Westaby et al., (1979) all concluded from their results that the event of CABG surgery impacted considerably on the employment status of the patients. In this case, Westaby et al., (1979) concluded that CABG surgery provided dramatic symptomatic relief in up to ninety percent of patients and permitted rehabilitation and return to gainful employment irrespective of type of labour. In another case, Niles et al., (1980) claimed a societal cost-benefit argument for CABG surgery as most patients experienced improvement in symptoms and could return to a productive livelihood. They also concluded that an overall, relief or improvement in symptoms (for example, angina) was accomplished in ninety percent of patients, and there was a ten percent net increase to the work force after operation. In addition, Rimm et al., (1976) pointed out that in older patients, who were closer to retirement age, CABG surgery may have been the deciding event that led to retirement.

Clancy et al., (1984) demonstrated that patients’ perceptions are significant indicators of returning to work after CABG surgery. Of the patients who perceived they were not able to return to work, only 23% returned to work; but of the patients who perceived they were able to return to work, 68% returned to work. In addition, of the 22 patients who perceived their physical condition had improved since surgery, 21 had returned to work. Furthermore, of the 19 patients who perceived that their ability to tolerate physical activity had increased after surgery, 16 returned to work.
No significant relationship was found between the patients’ perception that work contributed to the occurrence of heart disease and the return to work after CABG surgery. Of the patients who perceived that work contributed to their heart disease, 52% did not return to work and 48% returned to work. This result was surprising as it was hypothesized that this perception would be significantly related to return to work.

**Primary Coronary Artery Bypass Graft Patients’ and Their Partners’ Knowledge Requirements**

Sczekalla Meyer & Latz (1979) were among the first nurse investigators to identify what open heart surgical patients defined as their knowledge requirements (which were referred to as learning needs). They interviewed 50 CABG patients, as well as heart valve replacement patients, between one and nine months after surgery. A questionnaire was used to determine what these patients remembered being told before discharge and also the nature of the information received by patients. In addition, a semi-structured interview was conducted which determined what additional information they needed after discharge. The open ended question, "Was there anything you were not told that you would have found helpful during your recovery period?" resulted in patients describing their anxieties, uncertainties, and specific learning needs. The most important specific learning needs included how to increase activities, how much to lift, and when to resume sexual relations. Furthermore, concerns were expressed about pain and discomfort, medications
(especially anticoagulants), diet (low-cholesterol and low-salt cooking), signs and symptoms of complications, and procedures for reporting them.

It is reasonable and useful to look carefully at the answers relative to the patients' anxieties, uncertainties, and specific learning needs. Most of the patients underwent surgery at large teaching hospitals and were cared for by multiple teams of health care professionals. Hence, the patients interacted with large numbers of health care professionals at a time of stress which may have made it difficult for the patients to remember what they were told. Furthermore, patients and health care professionals may define teaching differently, and patients may not define less formal, less structured sessions as teaching. In addition, although a nurse who was a clinical specialist had the main responsibility for patient teaching, this person was not always available for individual teaching (Sczekalla Meyer & Latz, 1979).

It was not until the mid 1980's that further studies examined the knowledge requirements of CABG patients after discharge from the hospital (Beckie, 1989; Hanisch, 1993; King & Parrinello, 1988). King and Parrinello (1988) described recovery from CABG surgery from patients' perspectives after discharge from the hospital. Thirty-four participants were interviewed by the telephone six times over a two month period. However, repeated use of the same interview schedule over time might have inflated reports of symptoms by suggesting to participants what responses were expected. In addition, the development of a therapeutic relationship between the researcher and participant may have deflated "naturally" occurring symptoms. Furthermore, participants were not questioned with respect to sexual
activity which would have been appropriate to include given the purpose of the research study.

The participants described their general feelings of well-being, occurrences of symptoms (fatigue, sleep disturbances, changes in appetite, changes in bowel function, and incisional discomforts), activity level, and changes in mood. The symptoms and activity levels reported by the majority of subjects were consistent with those described in the nursing literature. King and Parrinello (1988) recommended that the results of this study could be used to guide the assessment of patients recovering from CABG surgery and as a basis for discharge teaching with patients and families.

Beckie (1989) investigated the impact of a supportive-educative telephone program on the knowledge and anxiety levels of CABG patients during the first 6 weeks after hospital discharge. An anxiety inventory and a knowledge test was implemented on 74 patients. As hypothesized, the knowledge level was increased in the areas of coronary artery disease, diet, medications, physical activity restriction, exercise, and rest. Furthermore, there was a statistically significant inverse relationship between participants’ knowledge and anxiety levels. Thus, the supportive-educative telephone program appeared to increase self-care knowledge and decrease the anxiety of patients after open heart surgery. However, there was no attempt made to observe the expected self-care behaviour of the participants.

Supportive-educative telephone programs should include the impact of the program on patient behaviour such as, observing the patient actually performing self-care tasks. This would provide more valid and reliable evidence of program
effectiveness than participant self-report. In addition, to help decrease CABG patients' anxiety level after the event of surgery, sexual functioning, and stress management are other relevant rehabilitation variables of CABG patients that could be included in a supportive-educative telephone program (Beckie, 1989).

Hanisch (1993) explored the perceived importance of selected informational needs of cardiac rehabilitation patients who had either experienced a myocardial infarction or a CABG. Forty-one patients were sent a 30-item questionnaire during the 6 week to 6 month period after discharge from the hospital. The questionnaire consisted of 30 specific informational items directed towards cardiac rehabilitation experiences. These specific informational items included cardiac risk factors, type and amount of activity, time-frame for resuming work, medications, signs and symptoms of complications that need medical attention, and how to care for self after return to work.

The findings of the study by Hanisch (1993) indicated that cardiac rehabilitation patients perceived all 30 informational items as important. For instance, all the informational items included on the questionnaire were perceived as very important by at least 15 participants. In addition, the involvement of a partner or family in the rehabilitation teaching was perceived as important by participants. Hanisch recommended that future research studies be conducted comparing the informational needs of groups of subjects, such as patients and spouses, patients and nurses, and females as patients compared to males as patients. Further recommended were research studies determining the most effective method or combination of
methods for educating patients who have experienced a myocardial infarction or CABG surgery.

Up until the middle 1980’s, the knowledge requirements of partners of CABG patients had been the subject of a limited number of investigations. However, since this time the knowledge requirements of partners and other family members have been explored in numerous studies. For instance, four studies were identified that included patients’ family members (Gilliss, Gortner, Hauck, Shinn, Sparacino, & Tompkins, 1993; Newton & Killien, 1988; Nicklin, 1986; Sikorski, 1985; Tack & Gilliss, 1990).

Sikorski (1985) interviewed 30 wives of CABG patients during the second or third week after their husbands’ were discharged from the hospital. The majority of wives expressed concerns about their husbands’ diet, weight, and preparation of low-sodium and low-cholesterol meals. The most frequently expressed concerns were future heart problems, death, prognosis, surgical success, behavioral fluctuations, and potential for recurrence of arterial blockages. Although the wives had a good knowledge base of the physical discomforts related to CABG surgery, they expressed concerns about their spouses’ pain, posture, sleeping difficulties, and leg edema. In addition, the wives had an excellent knowledge base of recommended activities, but they lacked information about sexual activity. Lastly, the greatest and most frequently expressed concerns related to the amount, type, and time of resumption for specific activities.

Nicklin (1986) described the types of problems encountered at home by CABG patients and myocardial infarction patients and their families with a telephone callback system. The sample consisted of 217 calls (159 were surgically related) of
which numerous individuals presented more than one problem. This resulted in a total of 253 problems for which advice was given. Problems were categorized into one of the following eight groups by symptoms as verbalized by the individual: cardiopulmonary (chest pain, arm numbness, shortness of breath, arrhythmias, palpitations), gastrointestinal (diarrhea, constipation, nausea, vomiting, gas), medication, chest and leg incision, leg problems (sore, swollen), psychosocial, activity, and miscellaneous (ie. musculoskeletal, headache, dizzy, weak, temperature). The most frequent concerns were cardiopulmonary problems, followed by medication problems and gastrointestinal problems.

It is important to recognize that other resources, besides nurse researchers, were used for obtaining information relative to study results, such as family physicians. Although this subgroup is important, it can be speculated that the type of information that patients would share with their family physician would be more of a medical nature as opposed to nursing. Subsequently, this would sway the results of the research study, towards information with a medical focus.

A longitudinal survey by Newton and Killien (1988) examined the timing and content of knowledge requirements, (referred to as learning needs) of patients and spouses after CABG surgery. In-person and telephone interviews were conducted at 1, 6, 12, and 24 weeks after discharge from the hospital. The most frequently expressed learning needs for both patients and spouses were activity guidelines, information about complications, signs and symptoms of complications, stress management, cardiopulmonary resuscitation, and medications. A greater percentage of spouses than patients expressed the need for additional information after surgery.
The spouses expressed the highest need for additional information at 1 week for 8 of the 12 content areas. These 8 content areas included information about potential complications, activity guidelines, cardiopulmonary resuscitation, stress management, pain management, medications, and low-sodium and low-cholesterol cooking.

The study by Newton and Killien (1988) demonstrated that in general, learning needs occurred at an earlier time during recovery for spouses than for patients. As length of stay in the hospital has decreased, spouses' role as caregiver has broadened. This finding supported those of Gilliss (1984), Gortner, Gilliss, Moran, Sparacino, & Kenneth (1985), and Sikorski (1985) who found that spouses had questions and concerns relative to their partners who had experienced CABG surgery.

Tack and Gilliss (1990) conducted a study of 75 CABG and heart valve replacement patients, and their caregivers at 1, 2, 3, 4, 6, and 8 weeks after discharge from the hospital. These 75 patients received telephone calls from nurses for the purpose of intervening to facilitate early recovery at home. During each call, nurses reinforced previous nursing interventions, answered questions, monitored recovery for early detection of problems, and provided interventions or references as needed. The nurses then recorded detailed notes on the patients' progress and concerns which served as the basis for findings reported in this research study. Since analysis is dependent on written records maintained by the nurses, the biases of these nurses may be reflected in their records.

The most frequently occurring nursing diagnoses recorded by the supervising nurses were: altered comfort, pain, ineffective coping, activity intolerance, sleep
pattern disturbance, and altered nutrition. Tack and Gilliss (1990) concluded that by anticipating common problems in recovery, nurses can be better prepared to assess, support, and teach patients after surgery. Therefore, patients can be better prepared for going home.

Gilliss et al., (1993) conducted a cluster-randomized controlled trial study of 156 participants including cardiac surgical patients and their caregivers for up to 6 months after discharge from the hospital. This study tested the effect of psychoeducational nursing intervention on rehabilitation outcomes of self-efficacy expectations, self-reported activity performance, mood state, and quality of life in the cardiac surgery patient. The psychoeducational nursing intervention included a slide-tape presentation with a private session by the study nurse to allow for individualization of content; and follow-up telephone calls to provide frequent support and information to the patient-caregiver pairs during the rehabilitation period.

Generally, the rehabilitation outcomes of self-efficacy, activity performance, mood state, and quality of life in cardiac patients were not significantly different between the experimental and control study groups. For instance, within 6 months patients in both study groups made similar gains with respect to self-efficacy and mood state. In addition, the measures of quality of life were stable for most participants although influenced by functional outcomes such as, activities. This is consistent with the findings of other research studies such as the study conducted by Allen et al., (1990). However, according to Allen et al., patients in the experimental study group reported significantly greater self-efficacy expectations for walking and
behaviour performance for walking, lifting, climbing stairs and, where applicable, for working.

The literature indicated that families may experience disorganization and stress in response to CABG surgery of a family member (Dracup et al., 1984; McRae & Chapman, 1991; Rankin & Gilliss, 1987). McRae and Chapman (1991) stated, "Considering that the patients that undergo these procedures [CABG surgery] are members of family units, the number of individuals affected by the experience is larger than statistics could indicate" (p. 14). In addition, Gilliss (1984) reported a significantly higher amount of stress associated with the spouse role versus that of the patient role of hospitalization for CABG surgery. Therefore, identification of the partners' knowledge requirements is necessary in order to provide support for families or significant others.

According to Rankin & Gilliss (1987), most cardiac families are in mid-life and confronting appropriate developmental tasks. At this time, these families are at high risk for developmental delay or failure if the nurse does not consider their needs. Furthermore, Dracup et al (1984) stated that a coronary event such as CABG surgery presents, "a massive disruption in the psychodynamic balance of the family . . . Anxiety, depression, sleep and appetite disturbances, and psychosomatic symptoms have been documented in interviews with spouses of coronary patients during the time of acute hospitalization" (p. 114). In addition, these researchers reported that the emotional distress experienced by patients and families continues, and in some cases intensifies, upon discharge from the hospital.
It has been documented that CABG surgery has an impact on families, especially the partners, in ways that may be different from those of the patients (Gilliss, 1984; Benson Gortner et al., 1988; Sikorski, 1985). The literature demonstrates the importance of providing information for the partners about the recovery phase of CABG patients. It seems necessary to include partners in the teaching process at the time of discharge from the hospital and also during the rehabilitation phase at home. However, the majority of research that describes the nature of recovery from surgery focuses on the critical care phase which is the time period immediately after surgery (Norheim, 1989; Rodgers Ward et al., 1990; Rukholm et al., 1992). Consequently, there is a limited body of knowledge concerning the knowledge requirements of partners at the time of discharge from the hospital, as well as during the rehabilitation phase at home.

Approaches to Managing Knowledge Requirements:

Learning Theories and Teaching Methods

During the two decades between 1960 and 1980, there was a growing body of knowledge in learning theories and teaching methods regarding adult learning. Knowles (1984) referred to this body of knowledge as 'andragogy'. Andragogy is defined as, "... the art and science of helping adults learn" (Knowles, 1984, p.6). A significant change in thinking evolved from a pedagogical method (teacher directed) to an andragogical method (learner directed) of learning (Knowles, 1984).
The andragogical model proposed by Knowles (1990) is characterized by the following five assumptions:

1. Adult learners are self-directed and must know why they need to learn something prior to learning it.

2. The experiences' of adult learners are valued and are utilized as a learning resource for themselves and others.

3. Adult learners are ready to learn when the need to learn is required to cope more effectively with daily functions, tasks, and problems.

4. Adult learners are orientated to life-centered learning whereby motivation to learn is in response to a need of their life situation.

5. Adult learners are highly motivated by internal motivators (self-esteem, self-confidence, self-actualization, recognition, increased quality of life) rather than external motivators (Knowles, 1984).

Knowles (1984) recognized the contributions to adult learning theory made by Maslow (1970) and Rogers (1951). As clinical psychologists, they were concerned with the study and development of fully functioning persons, to use Rogers’ term, or self-actualizing persons, to use Maslow’s term. Development of fully functioning persons or self-actualizing person is relevant to adult learning.

Maslow (1970) viewed the need for safety as an active and dominant mobilizer of an individual’s resources in emergencies, such as disease and chronic situations. Maslow emphasized the need for safety as a part of the growth process whereby an individual must feel safe in order to learn (Knowles, 1990).
Rogers' (1951) approach to adult learning was based on principles which evolved from counselling adults. Principles applied by Rogers to adult education are as follows:

1. Learning is facilitated to fulfil the needs of the learner.
2. Learning is enhanced when the information is relevant to the needs of the learner.
3. Learning that is significant often threatens the individual. The teacher provides a supportive climate whereby the threat is reduced to a minimum for the learner.

Corkadel and McGlashan (1983) introduced principles similar to adult learning to develop a practical approach to the teaching-learning process. Learning needs assessment was emphasized as a vital component in the teaching-learning process. The nurse established mutual learning needs whereby nurse and patient perceived the same identified needs. A suggested technique to help establish mutual learning needs was "therapeutic seeding". This technique plants ideas concerning patient teaching in the patient's mind. An example of therapeutic seeding is: "Many of our CABG patients have questions about their activity when they go home. Do you have any?" A question such as this may help patients to identify and also establish mutually agreed upon areas of concern.
In order to measure knowledge requirements of CABG patients and their partners, reliable and valid instruments are required. Only two instruments, with limited use, were found which investigated knowledge requirements (referred to as learning needs), of CABG patients and their partners (Newton & Killien, 1988). One instrument was for CABG patients (Appendix A) and the other instrument was for their partners (Appendix B).

Newton and Killien’s (1988) two instruments were developed in order to conduct a longitudinal survey examining the timing and content of learning needs of 57 open heart patients and 31 spouses. Furthermore, in a second study, Prewitt (1989) investigated 60 CABG patients and 33 spouses using Newton’s and Killien’s instruments.

Newton and Killien’s (1988) instruments consisted of two parts: part one included an open-ended question and part two included quantitative interview questions. In part one of Newton and Killien’s (1988) instruments, they utilized the methods described by Krippendorf (1980) to categorize the learning needs of the responses to the open-ended question: "What things were you not told about or given adequate instruction about that would have been helpful to you during this recovery period?" For category development of the learning needs, a 10% sample of responses were used from all data collection periods - 1, 6, 12, and 24 weeks after discharge from the hospital. The verbatim responses from all the collection periods were independently analyzed for content by two coders; one an expert in cardiac
nursing and the other a nurse researcher without clinical expertise in this field. Categories of learning needs identified by each coder were compared and discussed until consensus was reached on the final coding (of categories). In addition, each coder independently coded a second 10% random sample of questionnaire responses using the final coding categories. Comparison of the independent coding demonstrated an interrater reliability of 0.95. Following, all the data were coded by a single coder who had participated in the development of the coding categories and reliability assessment. However, it was not stated by Newton & Killien (1988) whether or not validity assessment was carried out with respect to the categories of learning needs.

In part two of Newton and Killien's (1988) instruments, they utilized the literature to identify content areas relative to the learning needs of CABG patients and their spouses. The content areas were explicated from the literature and therefore have content validity. Eighteen content areas were classified for CABG patient (Appendix A) and twelve content areas were classified for their spouses (Appendix B). The CABG patients and spouses were interviewed with respect to the content areas at specific time periods of 1, 6, 12, and 24 weeks after discharge from the hospital (Appendix A and B).

It is important to note that the content areas were similar to the categories of learning needs identified by Newton and Killien (1988) such as activity, medications, emotional reactions, and cardiopulmonary resuscitation (Appendix C). Categories of learning needs were patient and spouse responses to the open-ended question (with respect to learning needs). The 7 categories of learning needs stated by patients and
spouses and developed through content analysis were similar to the content areas from the literature.

An advantage of Newton & Killien's (1988) interview instruments was that participants were first asked the open-ended question, "What things were you not told about or given adequate instruction about that would have been helpful to you during this recovery period?" The participants were asked this question at 1, 6, 12, and 24 weeks after discharge from the hospital. The intent of the researchers was to allow the participant to disclose whatever concerns were foremost without the bias of suggested topics. This approach allowed for the perspective of patient and spouse with respect to their learning needs. According to Brink & Wood (1988), when the objective is to discover what people believe or think, the easiest and most effective method is to ask questions directly of the person. A second advantage of Newton's & Killien's interview instrument is that people who cannot write their responses can participate. A third advantage is the researcher can be sensitive to misunderstandings by the participants and provide further clarification if a participant misinterprets a question (Brink & Wood, 1988). A fourth advantage is that the content areas, which were explicated from the literature, were similar to the learning needs from the perspective of patients and spouses.

A disadvantage of these two interview instruments is participants represent a relatively healthy subsample of those who undergo CABG surgery. Also, those who had emergency CABG surgery or who had other procedures were excluded. Second, pre-tests and post-tests for patient or spouse knowledge before and after instructions were not given therefore it is undetermined whether learning needs were due to
inadequate instruction, whether patients and spouses forgot what they had been told, or whether their needs went beyond the instruction they had received. Third, instructions received by patients after discharge from the hospital were not gathered. Furthermore, these two interviews were developed using participants from only one hospital. Fourth, these 2 interview instruments had different numbers of content areas such as the patient interview instrument had 19 content areas whereas the spousal interview instrument had 12 content areas. According to Killien, as per telephone conversation (October 13, 1992), different numbers of content areas for patients and spouses made data analysis difficult with respect to comparing the learning needs (knowledge requirements) between the two study groups—patients and spouses.

Summary

The literature review substantiated the knowledge requirements of CABG patients during the third month to two years after discharge from the hospital. In fact, the literature review exemplified the physical, psychosocial, and functional outcomes of CABG patients relative to their knowledge requirements during this time period. However, the literature did not comprehensively explore the knowledge requirements of CABG patients during the 3 to 4 week period after discharge from the hospital.

In contrast, the literature review had a limited number of studies relative to knowledge requirements of partners of CABG patients during the third to fourth week period after discharge from the hospital. However, several research studies provided information with respect to knowledge requirements of partners of patients who have
undergone other types of surgery. In spite of that, the focus of these studies was knowledge requirements experienced by partners during the patients’ hospitalization phase.

Consequently, there remains a gap of inquiry into knowledge requirements of CABG patients and their partners at three to four weeks after discharge from the hospital. Therefore, the present study was designed to address knowledge requirements of CABG patients and their partners during this time period.
CHAPTER THREE: METHODOLOGY

Introduction

This chapter describes the research design, sample selection, selection criteria, data collection instruments and demographic collection guides, rationale for analysis of integration of close-ended and open-ended questions, data collection procedure, data analysis, and protection of human rights.

Research Design

A comparative descriptive research design was utilized in this study. The descriptive portion allowed this researcher to describe the knowledge requirements of CABG patients and their partners during the third to fourth week period after discharge from the hospital. The comparative portion allowed this researcher to examine and describe differences between two groups—CABG patients and their partners. In addition, the comparative portion allowed this researcher to analyze and describe difference(s) between CABG patients and their partners expressed desire for information relative to each identified knowledge requirement at the third to fourth week period after discharge from the hospital.

Sample Selection

A convenience sample of 20 primary CABG patients and their partners was selected for this study.
Selection Criteria

Participants were as follows: primary CABG patients and their partners.

Patients were selected based on the following criteria:

1. Patients had undergone CABG surgery for the first time. This excluded patients whose knowledge requirements at the time of discharge must have been influenced by their previous experience of the phenomenon being studied.

2. Patients had no other surgery during their current hospitalization (other surgeries may influence the knowledge requirements of the patients).

3. Patients were discharged to their homes.

4. Patients had no major complications postoperatively during their hospitalization (major complications may influence knowledge requirements of patients).

5. Patients were CABG patients from a 550-bed hospital in the city of Vancouver, B.C., and completed the questionnaire during the third to fourth week period after discharge from the hospital.

6. Patients were able to read and write English because the data was collected by this researcher through a questionnaire written in English.

7. Patients were both female and male. There may be differences between genders in how individuals may perceive their knowledge requirements in response to CABG surgery. However, these differences will add breadth to the data.
8. Patients had partners, defined as spouse or companion who lived with a CABG patient.

Partners of CABG patients were selected based on the following criteria:

1. Partners were able to read and write English.
2. Partners were both female and male who were either married or living common-law.
3. Partners completed the questionnaire during the third to fourth week period after discharge from the hospital.

Data Collection Instruments and Demographic Collection Guides

The researcher used two instruments for data collection: the patient questionnaire (Appendix D) and the partner questionnaire (Appendix E). These two instruments were modified by this researcher based on two interview questionnaire instruments originally developed by Newton and Killien (1988): the patients' interview questionnaire (Appendix A) and the spouses' interview questionnaire (Appendix B). Both of Newton and Killien's instruments consisted of two parts: part one included an open-ended question and part two included identified content areas (as described in Chapter 2).

This researcher utilized the identified content areas, by Newton and Killien (1988), as a framework for developing 40 questions for the two instruments used in the present study. Therefore the data, for the study, was collected through questionnaires and not collected through interviews as in Newton and Killien's study.
With respect to this study, collecting data via questionnaires as opposed to interviews was more practical.

Five modifications of Newton and Killien's (1988) instruments were made by this researcher. In this researcher's instruments, the first modification was accomplished by addressing the same number of content areas (19) by both primary CABG patients and their partners. In Newton and Killien's instruments, different numbers of content areas were addressed by primary CABG patients and their spouses: 18 content areas were addressed by primary CABG patients and 12 content areas were addressed by their spouses. According to Killien, as per telephone conversation (October 13, 1992), addressing the same number of content areas (for both patients and spouses) would be advantageous and helpful as opposed to addressing different numbers of content areas.

The second modification was achieved by including a variable number of items (questions) per content area. For example, the content area of complications had 3 questions whereas the content area of medication had 5 questions.

The third modification was accomplished by adding 4 content areas including sleep and relaxation, elimination, diet, and returning to work. These 4 content areas were reflected in the conceptual framework of this study. Therefore, the researcher thought it necessary as well as valuable and effective to include these particular content areas—sleep and relaxation, elimination, diet, and returning to work (Appendix D and E).

The fourth modification was carried out by combining the 2 content areas of low-sodium cooking and low-cholesterol cooking (Appendix D and E). The content
areas of low-sodium cooking and low-cholesterol cooking were separate content areas in Newton and Killien's instruments (Appendix A and B). Furthermore, the content areas of medications and non-prescription drugs, in this researcher's instruments, were arranged differently than in Newton and Killien's instruments. This was for the practical purpose of grouping similar content areas.

The fifth modification was attained by reversing the order of the actual questions within the questionnaires. This researcher's instruments included quantitative questions in part one and an open-ended question in part two (Appendix D and E), whereas, Newton and Killien's instruments included an open-ended question in part one and quantitative questions in part two (Appendix A and B).

The 5 modifications, as described above, were of a sufficient nature to invalidate the previous test for interrater reliability of the question interview instruments by Newton and Killien (1988). The interrater reliability assessment of Newton and Killien's instruments was briefly discussed in Chapter 2. However, Newton and Killien did not report whether or not a validity assessment was completed on their instruments. Furthermore, a reliability assessment and a validity assessment were not completed on the 2 modified instruments used in the present study.

The two modified instruments used in the present study included two parts: part one included quantitative questions and part two included an open-ended question. Part one asked the question, "Please rate the degree to which information about each of the following questions would be helpful to you now." Now pertains to the third to fourth week period after discharge from the hospital. It is during this
time period that both primary CABG patient and partner participants completed the questionnaires. Primary CABG patient participants were asked this question as it pertained to nineteen categories of knowledge requirements (Appendix D). Likewise, their partner participants were asked the same question as it pertained to nineteen categories of knowledge requirements (Appendix E).

The nineteen categories of knowledge requirements of primary CABG patient participants and their partner participants had a total of 40 questions per questionnaire (Appendix D and E). For each question, both primary CABG patient participants and partner participants were asked if information would be A1 - not needed (already known), A2 - somewhat helpful, A3 - very helpful, and A4 not applicable (to me or my partner) at that time. In addition, each of these 4 responses were given numerical values such as A1 = 1, A2 = 2, A3 = 3, and A4 = 4. The numerical values were used in the data analysis process in order to determine the study results in response to 2 research questions. The 2 research questions included a comparison and correlation between the knowledge requirements of the primary CABG patients and their partners during the third to fourth week period after discharge from the hospital.

Part two of this researcher’s instruments asked the open-ended question, "What other information would be helpful at home during this recovery period?" This researcher changed the wording from the original open-ended question used by Newton & Killien (1988): "What things were you not told about or given adequate information about that would have been helpful to you during this recovery period." This is because the researcher believed it was inappropriate to ask an individual a
negative question. The intent of asking an open-ended question was to allow participants to disclose their foremost concerns that were not included in questions asked in part one.

Two weeks after discharge from the hospital, participants were mailed a reminder letter (Appendix F). This letter was intended to remind participants to complete and return the questionnaires. Furthermore, the reminder letter was intended to thank patients and partners for their time and participation in the study.

There were 2 major advantages of the modified instruments used in the present study. The first advantage was the modification of addressing the same number of content areas (19) in both patient and partner instruments as opposed to addressing different numbers of content areas. This modification was advantageous relative to the data analysis of describing the knowledge requirements of the 2 groups of participants and also comparing and correlating the knowledge requirements between the 2 groups of participants and hence, the study results.

The second advantage was the modification of including the 4 content areas of sleep and relaxation, elimination, diet, and returning to work. By adding these 4 content areas, all 8 fundamental human needs of the conceptual framework were included in the questionnaires. Therefore, this modification allowed for data analysis of all 8 fundamental human needs of the conceptual framework and hence, the study results.

Of the modifications made to the instruments used in the study, there was 1 major disadvantage. This disadvantage was the modification of including a variable number of items (questions) ranging from 1 to 5 per content area in both instruments.
This modification was disadvantageous relative to the data analysis process of describing the knowledge requirements of the 2 groups of participants and also comparing and correlating the knowledge requirements between the 2 groups of participants.

The variable number of 1 to 5 questions per content area may have signified, to the participants, a greater importance of one content area compared to another content area. For example, the content area of stress management had 1 question whereas the content area of medications had 5 questions. In this case, the participants may have been influenced in believing that the content area of medications was more important than the content area of stress management and thus, their responses may not have been accurate. Therefore, the variable number of questions per content area could have affected the accuracy of the study results relative to describing the knowledge requirements of the 2 groups of participants and also comparing and correlating the knowledge requirements of the 2 groups of participants. Thus, possibly the study results could have been inaccurate.

The researcher received written permission from Newton and Killien (1988) to modify the primary CABG patients and their spouses interview questionnaire instruments (Appendix G).

The researcher designed two demographic collection guides to acquire information relative to the participants—CABG patients (Appendix H) and their partners (Appendix I). The demographic information collected through these two guides was used to describe the sample to facilitate understanding of the findings in terms of the potential influence of demographic characteristics on the knowledge
requirements of CABG patients and their partners. In addition, the data collected indicated the patients' and their partners' experience with heart disease and information gathered prior to surgery. This information further facilitated understanding of the findings relative to knowledge requirements of CABG patients and their partners.

The demographic collection guides, designed by the researcher, had 1 major advantage and 2 major disadvantages. The major advantage was relative to the information collected pertaining to the demographic characteristics of the sample including age and gender. Information relative to the age and gender of the participants allowed for data analysis with respect to current Canadian health statistics and hence, representativeness of the sample.

Both of the major disadvantages were relative to information collected pertaining to the health related characteristics of the sample. The first disadvantage was the health related characteristic of lifestyle changes of primary CABG patients prior to surgery. In the present study, the definition of lifestyle changes was too broad and therefore, not specific enough to add breadth to the discussion of the study results. Lifestyle changes was particularly disadvantageous relative to the data analysis process and thus, the discussion of the findings.

In like manner, the second disadvantage was the health related characteristic of information read about heart disease prior to surgery by primary CABG patients and their partners. Information about heart disease could have been delineated by asking the participants to specify the type of information read relative to heart disease such as, diet, stress management, and activity guidelines. By delineating the specific
types of information read about heart disease may have added to the extensiveness of the discussion of the findings.

**Rationale for Analysis of Integrated Closed-ended and Open-ended Questions**

According to Polit and Hungler (1991), questionnaire integration of closed-ended and open-ended questions is highly recommended to offset the strengths and weaknesses of each. Closed-ended questions are generally more efficient than open-ended questions in the sense that participants are normally able to complete more closed-than open-ended questions in a given amount of time. Furthermore, in questionnaires participants may be less willing to compose a written response than to simply circle the appropriate alternative. In addition, closed-ended questions have an advantage for participants who are unable to express themselves clearly in a written response. However, the major drawback of closed-ended questions lies in the possibility of the researcher overlooking or omitting some potentially important responses. The omission of potential responses can lead to inadequate understanding and/or bias of the issues in the research study. Furthermore, responses to closed-ended questions are sometimes considered too superficial. Therefore, open-ended questions are used to allow for richer and fuller responses. In addition, open-ended questions provide freedom to participants and, hence, offer the possibility of spontaneity, which is unattainable when a set of responses is provided (Polit & Hungler, 1991).

Questionnaires typically use closed-ended questions to minimize participants’ writing burden (Polit & Hungler, 1991). In this research study, both questionnaires
Appendices D and E have predominantly closed-ended questions (40 each) with only one open-ended question each. The open-ended question was as follows: "What other information would be helpful at home during this recovery period?" The intent of asking this open-ended question was to allow participants to disclose their foremost concerns regarding information that would be helpful after CABG surgery. According to Polit and Hungler, an open-ended question does not restrict the participants' answers to preestablished alternatives previously asked in the closed-ended questions.

Data Collection Procedure

Participants were hospitalized on the cardiac surgical ward of a 550-bed hospital in the city of Vancouver, B.C. Patients were admitted and discharged from this ward with a temporary stay in the cardiac surgical post anesthetic recovery room immediately following surgery.

At the time this research study was conducted, all patients received postoperative teaching as part of the unit protocol. Patients were given individualized teaching sessions by their nurse. These teaching sessions included information on incisional care, activity guidelines, and medication schedules. In addition, patients were seen by a dietitian for teaching relative to nutrition and diet. A teaching check list was not available. Furthermore, patients viewed a video, "Going Home After Open Heart Surgery" (Vancouver General Hospital, 1991). Following the video, patients received a booklet which contained information about nutrition, smoking cessation, incisional care, physical activity, sexual activity, and emotional reactions to
surgery. However, there was no formal post-discharge teaching program for these patients.

Discharge teaching for CABG patients was planned to occur one to three days prior to their discharge from the hospital. In addition, teaching was planned to occur during the afternoon hours which seemed to be a convenient time for family members to attend the post-discharge teaching sessions. It is important to note that family members, when available and willing, were included in all of the post-discharge teaching sessions.

Initially, permission was sought from the cardiologists (at the selected hospital) to approach their patients for participation in this study (Appendix J). This researcher's initial contact with CABG patients did not occur until all of the cardiologists signed the physician information-consent letter (Appendix J).

The researcher's contact person was the head nurse of the cardiac surgical ward (at the selected hospital). This head nurse selected prospective participants who fulfilled the aforementioned selection criteria. This was accomplished by using patient charts and nursing kardexes. Following the initial screening, the head nurse approached these prospective participants and asked them if they were willing to talk to the researcher about participating in this study. At this time, the head nurse provided them with the following information about the study:

1) description of the study;

2) purpose of the study;

3) participating in the study entailed completing a questionnaire;

4) length of time needed to complete the questionnaire;
5) when they would be required to complete the questionnaire; and
6) that they would receive a stamped envelope with return address of the researcher.

Following the head nurse's explanation, the researcher introduced herself to prospective patient participants and also prospective partner participants (if available). In addition, the researcher gave an information package to prospective participant(s).

An information package regarding this study was given to both prospective patient participants and prospective partner participants. This information package included the following: patient and partner information letter (Appendix K); patient questionnaire (Appendix D); partner questionnaire (E); patient demographic information (Appendix H); partner demographic information (Appendix I); and stamped envelope with return address of the researcher. The information-package was given to prospective participants in the hospital one to three days prior to the patients' planned discharge.

The introductory letter included the following: title of project; this researcher's name and telephone number; a brief summary of the purposes of the study and what will be entailed; the benefits to be derived from participating in the study; a description of the procedures to be carried out in which the participants are involved; a statement of the subject's right to refuse to participate at any time without jeopardizing further treatment or medical and nursing care; the amount of time required of the participant; the statement that if the questionnaire is completed it will be assumed that consent has been given; and assurance that participant identity will be kept confidential and description of how this will be accomplished.
Questionnaires were completed during the third to fourth week period after discharge from the hospital. The researcher chose this time period because it was unknown in the study by Newton and Killien (1988) when exactly between 1 week and 6 weeks after discharge from the hospital CABG patients' knowledge requirements (referred to as learning needs) increased. According to the results of the study by Newton and Killien at the time of 1 week, none of the categories required additional information by patients; whereas, at the time of 6 weeks, 11 out of 18 categories of learning needs required additional information by patients. Thus, this researcher was interested in identifying what additional information in the categories was required during the third to fourth week period after discharge from the hospital. In contrast, at the time of 1 week, 8 out of 12 categories required additional information by the spouses; whereas, at the time of 6 weeks, 2 categories required additional information by spouses.

Furthermore, the time period of the third to fourth week period after discharge from the hospital has been virtually ignored by other researchers in the field. Anywhere from two months, up to two years seem to be common time periods during which researchers focus on the effects of CABG surgery on the knowledge requirements of patients. In contrast, the critical care phase appears to be the common time period during which researchers focus on the effects of CABG surgery on the knowledge requirements of partners of CABG patients.
Data Analysis

The collected data were analyzed for the content of the responses to each of the forty questions of both questionnaires (total of eighty questions). These questions were directly related to the knowledge requirements which were explicated from the literature as common content (information) areas necessary for primary CABG patients and their partners. These knowledge requirements related to the eight fundamental human needs as presented in the conceptual framework.

Data from the questionnaires were coded, entered into a computer file, and analyzed using the Statistical Package for the Social Science (SPSS) computer program. All key-punching was verified by a statistician hired by the researcher.

To answer the four research questions in part one of the questionnaires in the present study, three phases of data analysis were undertaken. The SPSS program was used for all three phases of the data analysis. The first phase employed descriptive techniques by using the percentages of the responses for each question. The second phase was accomplished by using a matched t-test. Lastly, the third phase applied correlational techniques. A brief description of each of these three phases follows.

In the first phase, descriptive techniques were utilized to address research questions 1 and 2 by calculating the percentages of the responses for each item (question). In addition, descriptive techniques were utilized by the comparing of current Canadian health statistics with respect to demographic characteristics of the sample. Furthermore, descriptive techniques were used by the comparing amongst the participants relative to heart disease and other health related characteristics.
The information collected from the two guides (Appendices H and I) was utilized to compare the demographic characteristics with knowledge requirements of primary CABG patients and their partners. Demographic characteristics, heart disease characteristics and other health related characteristics were analyzed relative to their influence on the knowledge requirements of primary CABG patients and their partners.

The second phase of the analysis addressed research question 3. This was accomplished by performing a matched t-test in order to compare the knowledge requirements of the 2 study groups.

In the third and last phase of part one, research question 4 was addressed through performing correlational analyses between the primary CABG patients and their partners. Rank coefficients were calculated to determine the ranking of the knowledge requirements of the 2 study groups.

To answer the open-ended question in part two of the questionnaires in the present study: "What other information would be helpful at home during this recovery period?", one phase of data analysis was undertaken. A descriptive analysis of the open-ended research question included a description of the 2 emerging themes. This was accomplished by reporting and analyzing the written comments by the participants in response to the open-ended research question.

For this study the level of significance was set at 0.05 on the basis of making a Type I or a Type II error. The level of significance of 0.05 is common in most social science research (Woods and Catanzaro, 1988). In this study, a Type II error was considered more serious than a Type I error. For instance, a Type II error could
indicate that there was no difference between groups when there may have actually been a difference (Woods and Catanzaro).

**Protection of Human Rights**

Prior to data collection the researcher obtained permission to conduct this study from the University of British Columbia Behavioural Sciences Screening Committee, and also from the participating hospital’s research committee.

Prospective participants received an information package which contained the following: patient and partner information letter (Appendix K); patient questionnaire (Appendix D); partner questionnaire (Appendix E); patient demographic information (Appendix H); partner demographic information (Appendix I); and stamped envelope with return address of this researcher. In the introductory letter prospective patient participants and prospective partner participants were informed they were not obligated to participate in this study. Prospective participants were also advised they could withdraw from the study at any time or refuse to answer any questions without any effect on their present or future medical and nursing care. Both questionnaires stated the time period (the third to fourth week period after discharge from the hospital) during which participants were to complete the form. In addition, both questionnaires stated the participant’s right to refuse to participate without jeopardizing further treatment, medical, or nursing care. Following, a reminder letter was mailed to participants two weeks after they were discharged from the hospital (Appendix F). This letter was intended to remind them about completing the
questionnaire during the appropriate time period. Furthermore, the reminder letter was intended to thank patient and partner for participating in the study.

The patient and partner information letter explained to participants that confidentiality would be ensured by using the following methods:

(1) Participants' names would not appear on the questionnaire.

(2) Questionnaires had an identification number for mailing purposes and data analysis only.

(3) No other identifying information would be revealed.

4) The data would be destroyed by this researcher when the study is completed.

Summary

In this chapter, the research methodology was presented including a description of the research design, sample selection, selection criteria, data collection instruments and demographic collection guides, rationale for analysis of integrated close-ended and open-ended questions, collection procedures, data analysis, and protection of human rights. Following in Chapter Four, the findings are presented and discussed.
CHAPTER FOUR: PRESENTATION AND DISCUSSION OF THE FINDINGS

Introduction

This chapter is organized into three sections: characteristics of the sample; findings; and discussion of the findings.

Characteristics of the Sample

Characteristics of the sample are presented in this section. The study sample included a total of 40 participants—20 primary CABG patients and their partners.

Following is an account of the demographic characteristics, heart disease characteristics, and other health related characteristics of the sample.

Demographic Characteristics of the Sample

Demographic data collected from the participants included age, gender, employment status, and educational level. The ages of the primary CABG patients ranged from 42 to 76 (M = 61.8) years. Their partners’ ages ranged from 40 to 76 (M = 58.9) years (Table 1). Of the 20 primary CABG patients, 16 patients were male (80%) and 4 patients were female (20%). By comparison, 16 partners were female (80%) and 4 partners were male (20%).
### Table 1

Ages of Primary Coronary Artery Bypass Graft Patients and Their Partners

<table>
<thead>
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<th>Age</th>
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<th>Partners</th>
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<tr>
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<td>Frequency</td>
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<td>5.0</td>
</tr>
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<td>50-54</td>
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<tr>
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</tr>
<tr>
<td>65-69</td>
<td>3</td>
<td>15.0</td>
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<tr>
<td>70-80</td>
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</tr>
<tr>
<td>Total</td>
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</tr>
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</table>

As part of the selection criteria, all of the primary CABG patients were either married to, and/or living with their partners. Of the 20 primary CABG patients, 8 patients were retired (40%), 2 patients were homemakers (10%), and 10 patients remained employed (50%). Of the 20 partners, 6 partners were retired (30%), 7 partners were homemakers (35%), and 7 partners were employed (35%) (Table 2). The majority of primary CABG patients (80%) and their partners (95%) had attained at least an educational level of grades 10-12 (Table 3).
Table 2

Employment Status of Primary Coronary Artery Bypass Graft Patients and Their Partners

<table>
<thead>
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<th>Employment Status</th>
<th>Primary CABG Patients</th>
<th>Partners</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
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<tr>
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<tr>
<td>Retired</td>
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<tr>
<td>Homemakers</td>
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<tr>
<td>Total</td>
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</table>

Table 3

Educational Level of Primary Coronary Artery Bypass Graft Patients and Their Partners

<table>
<thead>
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<th>Educational Level</th>
<th>Primary CABG Patients</th>
<th>Partners</th>
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<td></td>
<td>Frequency</td>
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<td>Grade 10-12</td>
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<td>College or University</td>
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<tr>
<td>Total</td>
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</tr>
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</table>

Heart Disease Characteristics of the Sample

Heart disease characteristics of the sample included hospitalization for experiencing chest pain and/or a myocardial infarction prior to surgery, date of suggested surgery, and lastly, date of the event of CABG surgery.
Eighteen of the primary CABG patients (90%) indicated that they were hospitalized for experiencing chest pain and/or a myocardial infarction prior to surgery. For the primary CABG patients, the number of months between suggestion of surgery and the event of surgery ranged from less than 1 month to 7 months. However, the majority of these patients (60%) indicated a time period of less than 1 month to 1 month (Table 4).

**Table 4**

<table>
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<tr>
<th>Months</th>
<th>Primary CABG Patients</th>
<th>Percent</th>
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<tr>
<td>Less than 1 to 1 month</td>
<td>12</td>
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<td>4 - 8</td>
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<td>9 - 11</td>
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<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
</tr>
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</table>

Health Related Characteristics of the Sample

Health related characteristics of the sample included the following: information read by the primary CABG patients and their partners prior to surgery; lifestyle changes by primary CABG patients prior to surgery; and support of primary CABG
patients' lifestyle changes by their partners prior to surgery. In this study, lifestyle changes were personally defined by the participants.

Thirteen (65%) of the CABG patients indicated that they had read information about heart disease and also changed their lifestyle prior to surgery. Of the remaining 7 primary CABG patients, 6 (30%) stated that they had read information about heart disease but did not make any lifestyle changes prior to surgery; 1 (5%) had not read information about heart disease and did not make any lifestyle changes prior to surgery.

Fourteen partners (70%) expressed that they had read information about heart disease and supported the primary CABG patients' lifestyle changes prior to surgery. Of the remaining 6 partners, 4 (20%) did not read information about heart disease but supported lifestyle changes prior to surgery; 1 (5%) read information about heart disease and also supported the patient's lifestyle changes prior to surgery; and 1 (5%) read information about heart disease but did not support the patient's lifestyle changes before surgery.

Findings

The findings of part one of the study are presented in three phases of the data analysis: descriptive, comparison, and correlational. In the first phase, the results of descriptive analyses are presented. This phase included the findings of research questions 1 and 2. These findings are described in percentages in the form of a frequency table (Table 5). Next, in the second phase the results of comparison analyses are illustrated. Results of a matched t-test are arranged in tabular form
(Table 6). The findings of research question 3 are illustrated in the second phase. Lastly, in the third phase the results of correlational analyses are organized in tabular form (Table 7). Rank coefficients for each item (question) are illustrated in Table 7. The findings of research question 4 are addressed in the third phase.

The findings of part two of the study are outlined in one phase of a descriptive data analysis. The findings of an open-ended research question were described with respect to 2 emerging themes.

Part One: Descriptive Analyses

Research question 1: What are the knowledge requirement(s) of primary coronary artery bypass graft patients during the third to fourth week period after discharge from the hospital?

A summary of the primary CABG patients’ responses to each item (question) in the questionnaire is presented in Table 5. Percentages were calculated relative to the responses for each item from the primary CABG patients. For each item, the primary CABG patients were asked if information would be A1 - not needed (already known), A2 - somewhat helpful, A3 - very helpful, A4 - not applicable (to me) during the third to fourth week period after discharge from the hospital.

The outcome of the descriptive analysis established a description of knowledge requirements of the primary CABG patients during the third to fourth week period after discharge from the hospital. A detailed description of the results of this data analysis will be articulated in the discussion of the findings.
Table 5

Percentages of Response of Each Item (Question) Relative to the Knowledge 
Requirements of Primary Coronary Artery Bypass Graft Patients and (Their Partners)

<table>
<thead>
<tr>
<th>Items</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>Items</th>
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</table>
Research question 2: What are the knowledge requirement(s) of partners of primary coronary artery bypass graft patients during the third to fourth week period after discharge from the hospital?

A summary of the partners' responses to each item (question) in the questionnaire is presented in Table 5. Percentages were calculated with respect to the responses of each item from the partners. For each item, partners were asked if information would be A1 - not needed (already known), A2 - somewhat helpful, A3 - very helpful, and A4 not applicable (to my partner) during the third to fourth week period after discharge from the hospital.

The outcome of the data analysis established a description of knowledge requirements of the partners during the third to fourth week period after discharge from the hospital. A detailed description of knowledge requirements will be delineated in the discussion of the findings.

Comparison Analyses

Research question 3: How do the knowledge requirement(s) of primary coronary artery bypass graft patients compare with their partners during the third to fourth week period after discharge from the hospital?

The results of a matched t-test of the knowledge requirements for primary CABG patients and their partners are illustrated in Table 6. A matched t-test was calculated with respect to the responses of 40 items (questions) from the primary CABG patients and their partners. The responses to 40 questions asked of the primary CABG patients were compared to the responses to 40 questions asked of
their partners. Therefore, a matched t-test provided an overall comparison of the knowledge requirements between the primary CABG patients and their partners.

For statistical data analysis purposes, the 4 possible responses to the 40 items of A1 - not needed (already known), A2 - somewhat helpful, A3 - very helpful, and A4 - not applicable were given numerical values. The numerical values of A1 = 1, A2 = 2, A3 = 3, and A4 = 4 were used in a matched t-test in order to compare the knowledge requirements between the primary CABG patients and their partners. The details and implications of this finding will be examined in the discussion of the findings.

Table 6

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
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<tbody>
<tr>
<td>Patient</td>
<td>20</td>
<td>91.50</td>
<td>20.55</td>
<td>-1.14</td>
<td>19</td>
<td>.27</td>
</tr>
<tr>
<td>Partner</td>
<td>20</td>
<td>94.60</td>
<td>21.98</td>
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</tbody>
</table>

Correlational Analyses

Research question 4: Is there a difference in ranking of knowledge requirement(s) between primary coronary artery bypass graft patients and their partners during the third to fourth week period after discharge from the hospital?
The results of correlational analysis of the knowledge requirements for primary CABG patients and their partners are illustrated in Table 7. Rank coefficients were calculated with respect to the responses of each item (question) as answered by the primary CABG patients and their partners.

For statistical data analysis purposes, the 4 possible responses to the 40 items of A1, A2, A3, and A4 were given numerical values such as, A1 = 1, A2 = 2, A3 = 3, and A4 = 4. These numerical values were used in calculating the rank coefficient for each item. These coefficients are used in the ranking of the knowledge requirements between the primary CABG patients and their partners.

Table 7

<table>
<thead>
<tr>
<th>Item</th>
<th>rank</th>
<th>Item</th>
<th>rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.47*</td>
<td>21</td>
<td>0.63**</td>
</tr>
<tr>
<td>2</td>
<td>0.44*</td>
<td>22</td>
<td>0.37</td>
</tr>
<tr>
<td>3</td>
<td>0.67**</td>
<td>23</td>
<td>0.49*</td>
</tr>
<tr>
<td>4</td>
<td>0.78**</td>
<td>24</td>
<td>0.46*</td>
</tr>
<tr>
<td>5</td>
<td>0.64**</td>
<td>25</td>
<td>0.78**</td>
</tr>
<tr>
<td>6</td>
<td>0.77**</td>
<td>26</td>
<td>0.70**</td>
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<tr>
<td>7</td>
<td>0.37</td>
<td>27</td>
<td>0.46*</td>
</tr>
<tr>
<td>8</td>
<td>0.75**</td>
<td>28</td>
<td>0.34</td>
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<tr>
<td>9</td>
<td>0.55*</td>
<td>29</td>
<td>0.30</td>
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<tr>
<td>10</td>
<td>0.50*</td>
<td>30</td>
<td>0.70**</td>
</tr>
<tr>
<td>11</td>
<td>0.56*</td>
<td>31</td>
<td>0.55*</td>
</tr>
<tr>
<td>12</td>
<td>0.54*</td>
<td>32</td>
<td>0.45*</td>
</tr>
<tr>
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<td>0.27</td>
<td>33</td>
<td>0.56*</td>
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<tr>
<td>14</td>
<td>0.65**</td>
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<tr>
<td>15</td>
<td>0.56*</td>
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<td>16</td>
<td>0.51*</td>
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<td>0.35</td>
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<tr>
<td>17</td>
<td>0.90**</td>
<td>37</td>
<td>0.62**</td>
</tr>
<tr>
<td>18</td>
<td>0.12</td>
<td>38</td>
<td>0.25</td>
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<tr>
<td>19</td>
<td>0.23</td>
<td>39</td>
<td>0.42</td>
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<tr>
<td>20</td>
<td>0.62**</td>
<td>40</td>
<td>0.16</td>
</tr>
</tbody>
</table>

* p<0.05   ** p<0.01
Part Two: Descriptive Analyses

Open-Ended Question: What other information would be helpful at home during this recovery period?

A total of 11 participants responded to the open-ended question; 5 participants were primary CABG patients and 6 participants were their partners.

Two contrasting themes emerged in response to the open-ended question. One theme expressed that an adequate amount of information had been given during hospitalization relative to knowledge requirements during the third to fourth week period after discharge. A second theme implied a demand for further information to be given during hospitalization relative to knowledge requirements during the third to fourth week period after discharge from the hospital. A detailed description of the results of this analyses will be articulated in the discussion of the findings.

Discussion of the Findings

The discussion of the findings will take place under seven major headings: representativeness of the sample; demographic characteristics of the sample; describing knowledge requirements of primary CABG patients and their partners; comparing knowledge requirements of primary CABG patients and their partners; correlating knowledge requirements of primary CABG patients and their partners; conceptual framework of the study; and disclosing the foremost concerns of primary coronary artery bypass patients and their partners. The discussion of the findings will be done relative to current Canadian health statistics, other research studies, and methodological problems inherent in the present study.
Representativeness of the Sample

In this study there were two factors that may have influenced the representativeness of the sample. Firstly, the gender and age of the study primary CABG patients compared favourably with the current Canadian health statistics of gender and age of Canadians who have undergone CABG surgery. From 1990 to 1991, Canadian health statistics indicate that the largest percentage of CABG surgeries (75%) were performed on males (Ministry of Supply and Services, 1993). Of the CABG surgeries performed in Canada between 1990 to 1991, 72% of the procedures were patients 55 years of age and older. In the present study, the majority of CABG patients were males (80%) and the majority of CABG patients were 55 years of age and older (75%).

The second factor that may have influenced the representativeness of the sample is that the sample was taken from one of two major centers that perform CABG surgery on adults in British Columbia. The study sample resided in different areas of British Columbia. Therefore, the study sample was drawn from various places in British Columbia.

In light of age, gender, and place of sampling, the study sample appears to be relatively representative of the population of primary CABG patients and their partners in British Columbia, and possibly Canada. However, the representativeness of the sample may have been hindered by three factors.

The first factor that may have hindered the representativeness of the sample is relative to the small sample size and the convenience method of sampling. The small sample size of 40 participants and the convenience sampling method may have
resulted in a sample that was not representative of the population of primary CABG patients and their partners in British Columbia.

The second factor that may have hindered the representativeness of the sample is that only those individuals who were proficient in the English language were approached to enter the study. Therefore, the knowledge requirements of those who do not speak English were not well represented.

The third factor is the self-report data collection process. Due to the personal nature of the research topic such as sexual activity, stress management, and elimination it is possible that participants may have been reluctant to share personal data.

Demographic, Heart Disease, and Health Related Characteristics of the Sample

The primary CABG patients in this study and their partners were similar to one another relative to the demographic characteristics of age, educational level, and employment status. Although Canadian health statistics could be found relative to age, no Canadian health statistics could be found relative to educational level and employment status. Therefore, it cannot be determined whether or not the study sample was representative of the population of primary CABG patients and their partners relative to education and employment.

Forty percent of the primary CABG patients described their employment status as retired; likewise, 35% of their partners described their employment status as retired. This seems reasonable considering the mean age of the primary CABG patients was 61.9 years and the mean age of their partners was 58.9 years. Yet, 50% of the primary CABG patients were employed during the third to fourth week period
after discharge from the hospital. In like manner, 35% of their partners were employed during the third to fourth week period after the primary CABG patient were discharged from the hospital. However, due to the lack of information obtained regarding the primary CABG patients’ plans for regaining active employment after the surgical event, it is difficult to determine the similarity of the two groups with respect to employment status.

The majority of primary CABG patients were hospitalized for experiencing chest pain and/or a myocardial infarction prior to surgery. Furthermore, the majority of primary CABG patients (60%) were similar to others in the sample with respect to the time period between when surgery was first suggested by their doctor to the actual date of surgery (less than 1 month to 1 month).

The majority of primary CABG patients and their partners read information about heart disease prior to surgery. Likewise, the majority of primary CABG patients made lifestyle changes prior to surgery and the majority of their partners supported the patients’ lifestyle changes. Given the broad definition of lifestyle changes used in this study, a direct relationship cannot be explicitly substantiated between information read about heart disease prior to surgery and lifestyle changes prior to surgery. However, it can be inferred that an optimism for the future was demonstrated by primary CABG patients making lifestyle changes and their partners supporting these changes.

Describing Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners

Addressed in this section are research questions #1 and #2:
What are the knowledge requirement(s) of primary CABG patients during the third to fourth week period after discharge from the hospital?

What are the knowledge requirement(s) of partners of primary CABG patients during the third to fourth week period after discharge from the hospital?

With respect to research questions #1 and #2, percentages of the responses of 40 questions were calculated (Table 5). The 4 possible responses to each question included A1 - not needed (already known), A2 - somewhat helpful, A3 - very helpful, and A4 - not applicable. The 40 questions were categorized into 19 content areas for primary CABG patients and their partners as presented in Table 8.

The researcher made an arbitrary decision in identifying content areas with percentages of greater than 60% as knowledge requirements of primary CABG patients and their partners. The percentage of greater than 60% was specifically related to the total percentages of the responses—A2 - somewhat helpful and A3 - very helpful. For example, of the primary CABG patients, the percentages of the responses (A2 - somewhat helpful and A3 - very helpful) to the questions pertaining to the content area of pain was 25.0% (A2 - somewhat helpful) and 43.3% (A3 - very helpful). The total of these two percentages—25.5% and 43.3%—is 68.3% which is greater than 60.0% and thus identified, by this researcher, as a knowledge requirement of primary CABG patients (Table 8).

For the primary CABG patients, percentages of 60% or greater were reported in the following 6 content areas: specifics of surgery, complications, activities, non-
Table 8

Percentages of Content Areas Identified as Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners

<table>
<thead>
<tr>
<th>Content Areas of Present Sample</th>
<th>Somewhat Helpful</th>
<th>Very Helpful</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Patient</td>
<td>Partner</td>
</tr>
<tr>
<td>Surgery Specifics</td>
<td>20.0</td>
<td>17.5</td>
</tr>
<tr>
<td>Complications</td>
<td>11.6</td>
<td>7.5</td>
</tr>
<tr>
<td>Pain</td>
<td>25.0</td>
<td>8.3</td>
</tr>
<tr>
<td>Activities</td>
<td>11.6</td>
<td>8.3</td>
</tr>
<tr>
<td>Medications</td>
<td>9.0</td>
<td>9.0</td>
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<tr>
<td>Drugs</td>
<td>15.0</td>
<td>17.5</td>
</tr>
<tr>
<td>Sleep/Relaxation</td>
<td>22.5</td>
<td>17.5</td>
</tr>
<tr>
<td>Elimination</td>
<td>15.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Sexual Activity</td>
<td>10.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Stress Management</td>
<td>20.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Returning to Work</td>
<td>13.3</td>
<td>10.0</td>
</tr>
<tr>
<td>Emotional Reactions</td>
<td>25.0</td>
<td>18.3</td>
</tr>
<tr>
<td>Cooking</td>
<td>7.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Diet</td>
<td>20.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>25.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Incisional Care</td>
<td>22.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Smoking</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Heart Function</td>
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<td>5.0</td>
</tr>
<tr>
<td>Resuscitation</td>
<td>15.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

third to fourth week period after discharge from the hospital. For the partners, percentages of greater than 60% were reported in the following 6 content areas:
specifics of surgery, complications, activities, non-prescription drugs, pain management, and sleep and relaxation. Therefore, these 6 content areas described the
knowledge requirements of the partners during the third to fourth week period after discharge from the hospital.

One study in the literature described knowledge requirements in a sample that was similar to the primary CABG patients and their partners studied here. In the study of CABG surgery patients and their spouses by Newton and Killien (1988), learning needs (or knowledge requirements) were identified during hospitalization and at 1, 6, 12, 24 weeks after discharge from the hospital. Furthermore, Newton and Killien utilized a questionnaire interview instrument with 18 content areas identified for primary CABG patients and another questionnaire interview instrument with 12 content areas identified for their spouses. In contrast, this study utilized two questionnaires with the same 19 content areas identified for both primary CABG patients and their partners. Therefore, a direct comparison of the content areas is impossible due to different research designs and data collection instruments. However, a positive or negative comparison of the content areas is possible between primary CABG patients and their partners with respect to Newton and Killien’s study and the present study.

In the study by Newton and Killien (1988) it was unknown when the learning needs (or knowledge requirements) of primary CABG patients increased during the first to sixth week period after discharge from the hospital. However, the present study identified the knowledge requirements of the primary CABG patients during the third to fourth week period after discharge from the hospital. In the former study the learning needs of primary CABG patients were reported as "few" at 1 week after discharge compared to "highest" at 6 weeks after discharge from the hospital. In
contrast, the learning needs of spouses were identified as "highest" at 1 week after discharge from the hospital.

Indeed, in the study by Newton and Killien (1988) the primary CABG patients identified 3 of the same content areas at 6 weeks after discharge as the primary CABG patients in the present study identified at 3 to 4 weeks after discharge from the hospital. These 3 content areas were pain management, complications, and incisional care. Furthermore, in the former study the spouses identified 2 of the same content areas at 1 week after discharge as the partners in the present study identified at 3 to 4 weeks after discharge from the hospital. These 2 content areas were complications and activity guidelines. The learning needs (knowledge requirements) of Newton & Killien identified at 1 week and 6 weeks after discharge for primary CABG patients and their spouses compared positively with the knowledge requirements (learning needs) of the present study identified at 3 to 4 weeks after discharge for primary CABG patients and their partners. This supports the notion that knowledge requirements are similar for both primary CABG patients and their partners after discharge.

Sikorski (1985) interviewed the wives of CABG patients during the second or third week after their husbands' were discharged from the hospital. Based upon the results of Sikorski, it was anticipated that the partners in this study would identify knowledge requirements pertaining to specifics of surgery, complications, activity, pain, diet, weight loss, and low-salt and low-cholesterol cooking. Although the study by Sikorski and the present study cannot directly compare results, both studies identified similar knowledge requirements. The knowledge requirements identified in
both studies were specifics of surgery, complications, pain management, and activity guidelines.

In this study, both groups of participants identified activity guidelines as a knowledge requirement. This supports the trend noted in earlier research studies (Newton & Killien, 1988; Sczekalla Meyer & Latz, 1979; Sikorski, 1985), where activity guidelines were consistently identified as a knowledge requirement by both primary CABG patients and their partners. In fact, according to Newton & Killien (1988), the request by patients for activity and exercise guidelines has provided an impetus for the development of cardiac rehabilitation programs.

Gortner et al., (1985) reported that 39% of patients expected an increased exercise tolerance and activity level as a benefit of undergoing CABG surgery. However, during home interviews, approximately 6 months after CABG surgery, only 24% of the patients reported an increased exercise tolerance or activity level. This leads one to believe that some patients may require teaching and additional support to help them in achieving an increased exercise tolerance or activity level. Teaching and supporting is an ongoing process which surpasses the limitations of discharge teaching during hospitalization.

In this study, both primary CABG patients and their partners did not identify low-salt and low-cholesterol cooking and diet as knowledge requirements. In contrast, earlier research studies of primary CABG patients and their partners identified low-salt and low-cholesterol cooking and diet as knowledge requirements (Sczekalla Meyer & Latz, 1979; Sikorski, 1985; Tack & Gilliss, 1990). This change in identified knowledge requirements can be speculated to reflect the increase over the
last five years in the marketing of low-salt and low-cholesterol cooking and diet planning. Furthermore, one is inclined to consider that individuals who have been diagnosed (or not diagnosed) with CVD are consciously cooking and planning their diets focusing on low-salt and low-cholesterol foods. This could help explain the low response rate relative to questions pertaining to low-salt and low-cholesterol cooking and diet by primary CABG patients and their partners.

Comparing Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners

This section addresses research question #3, as follows:

(#3) How do the knowledge requirement(s) of primary CABG patients compare with their partners during the third to fourth week period after discharge from the hospital?

In response to research question #3, there was no statistically significant difference (p = .27) with respect to comparing knowledge requirements between the primary CABG patients and their partners (Table 6). The total scores for knowledge requirements for primary CABG patients ranged from 46 to 123 (M = 91.50, SD = 20.55). The total scores of knowledge requirements for their partners ranged from 46 to 125 (M = 94.60, SD = 21.98).

Questionnaires for both the primary CABG patient and their partners had 40 questions with 4 possible responses. These 4 possible responses included A1 - not needed, A2 - somewhat helpful, A3 - very helpful, A4 - not applicable. In addition, each of these 4 responses were given numerical values such as, A1 = 1, A2 = 2,
A3 = 3, and A4 = 4. For example, a response of A1 - not needed, rated a numerical value of 1 (Appendix D and E).

The numerical values, as noted above, were used in a matched t-test to determine whether or not there was a statistical significant difference between the knowledge requirements of primary CABG patients and their partners. In this study, there was no statistically significant difference between the knowledge requirements of primary CABG patients and their partners during the third to fourth week period after discharge from the hospital.

As a point of interest, primary CABG patients and their partners identified five of the same content areas as knowledge requirements including specifics of surgery, complications, activities, non-prescription drugs, and pain management.

The results of a matched t-test demonstrated that there were no statistically significant difference between the knowledge requirements of primary CABG patients and their partners (Table 6). Thus, it can be inferred that the knowledge requirements were similar for both groups of participants. However, these results may be slightly inaccurate due to a methodological problem inherent in the study.

A methodological problem inherent in the study concerns the variable number of 1 to 5 items (questions) per content area. In other words, the 19 content areas have a variable number of items (questions) ranging from 1 to 5. For example, the content area related to "specifics of surgery" had 2 items whereas the content area for "complications" had 3 items. This may have signified to the participants a greater importance for "complications" compared to "specifics of surgery", because of the
greater number of items (questions) asked in the former content area. This methodological problem could have affected the overall study results.

According to Newton and Killien (1988), the results of their longitudinal study identified similar learning needs of primary CABG patients and their spouses. However, they pointed out that at specific times (1, 6, 12, and 24 weeks after discharge from the hospital) some learning needs were different between the primary CABG patients and their spouses. For example, they articulated that learning needs arose at an earlier time during recovery for spouses than they did for patients. Spouses identified their "highest" learning needs at 1 week after discharge from the hospital for 8 content areas including complications, activities, cardiopulmonary resuscitation, stress management, pain management, medications, and low-sodium and low-cholesterol cooking. Whereas, primary CABG patients identified their "highest" learning needs at 6 weeks after discharge from the hospital for 11 content areas. These 11 content areas included the following: emotional reactions to surgery, signs and symptoms, how to manage them and who to call, complications, medications, sexual activity, stress management, how the heart functions, incisional care, pain management, and low-sodium and low-cholesterol cooking.

Correlating Knowledge Requirements of Primary Coronary Artery Bypass Graft Patients and Their Partners

In this section, research question #4 is addressed:

(#4) Is there a difference in the ranking of knowledge requirements between primary CABG patients and their partners during the third to fourth week period after discharge from the hospital?
In response to research question #4, some of the responses (knowledge requirements) of the primary CABG patients did not correlate with their partners during the third to fourth week period after discharge from the hospital. Some of the responses to the items (questions) between the 2 study groups were statistically significantly different. Hence, the primary CABG patients and their partners had statistically significantly different responses to some of the 40 items (questions) as illustrated in Table 7.

The rank coefficients ranged between 0.01 to +0.90. However, the majority of the responses (pertaining to knowledge requirements) between the primary CABG patients and their partners ranked +0.44 or higher. A rank coefficient of +0.44 or higher demonstrates a statistically significant difference in terms of the responses between the 2 study groups (p<0.01, p<0.05).

Twenty-seven responses pertaining to knowledge requirements of primary CABG patients and their partners were statistically significantly different. Of these 27 responses, the knowledge requirements were reflected in 15 content areas including the following: specifics of surgery, complications, pain management, activities, medications, non-prescription drugs, sleep and relaxation, elimination, sexual activity, stress management, returning to work, understanding emotional reactions to surgery, low salt and low cholesterol cooking, diet, and incisional care.

Discussion of Findings in Relation to the Conceptual Framework of the Study

According to the conceptual framework used in this study, knowledge requirements are influenced by the abilities of individuals in their potential capacity for satisfaction of the eight fundamental human needs. New abilities must be learned
by individuals who have experienced CABG surgery in order to satisfy the eight fundamental human needs. Likewise, partners of CABG patients must learn new abilities in order to help patients satisfy eight fundamental human needs. In response to the event of CABG surgery, primary CABG partners and their partners must learn new abilities in order to satisfy eight fundamental human needs.

Consistent with the conceptual framework, the knowledge requirements are influenced by new abilities that primary CABG patients and their partners must learn in order to satisfy the eight fundamental human needs. For primary CABG patients and their partners, the experience of rehabilitation from CABG surgery is unfamiliar. Therefore, they may have to learn new abilities relative to the rehabilitation process in order to satisfy the eight fundamental human needs and thus, sustain life. In this study, knowledge requirements of primary CABG patients and their partners were described, compared, and correlated relative to the third to fourth week period after discharge from the hospital.

The knowledge requirements expressed by patients included specifics of surgery, complications, activities, non-prescription drugs, pain management, and incisional care. With respect to describing the knowledge requirements of primary CABG patients, the three fundamental human needs expressed were acknowledgement, activity, and safety. In keeping with the definitions of the fundamental human needs, acknowledgement included specifics of surgery, activity included activity guidelines, and safety included complications, non-prescription drugs, pain management, and incisional care.
The knowledge requirements expressed by the partners included specifics of surgery, complications, activities, non-prescription drugs, pain management, and sleep and relaxation. With respect to describing the knowledge requirements of the partners, the four fundamental human needs expressed were acknowledgement, activity, safety, and sleep and relaxation. In accordance with the definitions of the fundamental human needs, acknowledgement included specifics of surgery, activities included activity guidelines, safety included complications, pain management, and non-prescription drugs, and sleep and relaxation included sleep/relaxation.

With respect to comparing the knowledge requirements between the primary CABG patients and their partners, the results of comparison analyses reported no statistically significant difference between these 2 study groups. Given this lack of a statistically significant difference between the knowledge requirements of primary CABG patient and their partners, it appears that the abilities of individuals may be similar to each other in their capacity for satisfaction of the fundamental human needs. Furthermore, it appears that the abilities of individuals in their potential capacity for satisfaction of the fundamental human needs are influenced at the same time for both primary CABG patients and their partners. Indeed, it appears that during the third to fourth week period after discharge, both primary CABG patients and their partners generally have similar capacities for satisfying the fundamental human needs.

In contrast, with respect to ranking the knowledge requirements between the primary CABG patients and their partners, the the results of correlational analyses demonstrated statistically significant differences between some of the responses
pertaining to knowledge requirements of the 2 study groups. It appears that specifically, several of the responses (pertaining to knowledge requirements) between the primary CABG patients and their partners are statistically significantly different.

In summary, it appears that the responses (pertaining to knowledge requirements) are not statistically significant different between the 2 study groups but some specific responses (pertaining to knowledge requirements) are statistically significantly different between the 2 study groups. Although difficult to explain relative to the conceptual framework, it appears that the abilities of individuals may have some similarities as well as some differences relative to the satisfaction of the fundamental human needs. Therefore, the primary CABG patients and their partners may have some similar knowledge requirements however, they also may have some different knowledge requirements.

Disclosing the Foremost Concerns of Primary Coronary Artery Bypass Patients and Their Partners

Addressed in this section is the open-ended question:

(1) **What other information would be helpful at home during this recovery period?**

A total of 11 participants responded to the open-ended question: 5 participants were primary CABG patients and 6 participants were partners. Although these numbers represent a small percentage of participants (27.5%) who answered the open-ended question, two contrasting themes emerged.

One theme emerged expressing that an adequate amount of information had been given during hospitalization relative to the knowledge requirements during the
third to fourth week period after discharge. In this case, one patient commented, "The information received at the hospital was sufficient". In another case, a partner stated, "Due to my constant endeavour to further my knowledge I had asked the doctors and nurses caring for my wife nearly all of these questions so I was able to cope very well".

In contrast, a second theme surfaced which implied a demand for further information after discharge from the hospital. For example, one patient expressed, "There could have been a lot more information sent home as how to care for the incisions." Another patient suggested, "The name of a contact person who could have answered questions/concerns about nausea, sleeplessness, infection in my legs, emotions, etc". Similarly, a partner suggested, "I think it would have been helpful to have had someone who had been through the same thing to speak to about the recovery period". In addition, one partner claimed, "After receiving so much support and education in heart matters and T.L.C. prior to surgery, we felt totally alone and abandoned after discharge from hospital"; likewise, another partner stated, "We received so little information for post hospital recovery".

Of the 4 patient-partner pairs, 1 pair expressed opposite desires relative to knowledge requirements. In this case, the patient expressed that an adequate amount of knowledge requirements had been given during hospitalization with respect to the third to fourth week period after discharge. However, the partner expressed just the opposite, whereby more information would have been helpful after discharge.

Although it is impossible to ascertain exactly why such two opposite themes emerged, in response to the open-ended question, it seems likely that the lack of a
structured discharge teaching program could have contributed to the contrasting comments expressed by the participants. In this situation, because the discharge teaching program was dependent on the patients' primary nurse, it appears that the actual discharge teaching program may fluctuate relative to content and extent of content depending on the particular primary nurse. Therefore, it seems practical and reasonable to plan and implement a structured discharge teaching program for primary CABG patients and their partners. In addition, the latter theme supports the necessity of further educational and rehabilitative programs for primary CABG patients and their partners after discharge from the hospital.

Summary

This chapter began with a description of the sample which included the demographic, heart disease, and other health related characteristics of the primary CABG patients and their partners. Four tables helped to illustrate the reported data.

The findings for part one of the questionnaires were organized in three phases of data analysis-descriptive, comparison, and correlational. The results of the descriptive analyses were presented with respect to research questions 1 and 2. Following, the results of comparison analyses were presented relative to research question 3. Then, the results of correlational analyses were described relative to research question 4. Three tables helped to illustrate the reported data.

The findings for part two of the study were organized in one phase of descriptive data analysis. The results of the descriptive analyses presented with respect to an open-ended research question.
Discussion of the findings included the following topics: representativeness of the sample; demographic characteristics of the sample; describing, comparing, and correlating knowledge requirements of the primary CABG patients and their partners; the conceptual framework of the study; and the foremost concerns of primary CABG patients and their partners. These topics were discussed with respect to current Canadian health statistics, other research studies, and methodological problems inherent in the present study.

There were no significant age differences amongst or between the 2 study groups. In addition, the majority of primary CABG patients were male and consequently, the majority of partners were females. Furthermore, there were no significant differences between the educational level and employment status of the participants.

The majority of primary CABG patients had experienced chest pain and/or a myocardial infarction prior to surgery. Similarly, there were no significant differences with respect to the health related characteristics of both primary CABG patients and their partners.

The majority of the patients and their partners had read information about heart disease prior to surgery and the primary CABG patients had made lifestyle changes while their partners supported these lifestyle changes prior to surgery.

The primary CABG patients reported knowledge requirements in the 6 content areas as follows: specifics of surgery, complications, activities, prescription drugs, pain management, and incisional care. The partners reported knowledge
requirements in the 6 content areas as follows: specifics of surgery, complications, activities, non-prescription drugs, pain management, and sleep and relaxation.

According to comparison analyses of the knowledge requirement between the primary CABG patients and their partner, there was no statistically significant difference. In contrast, according to correlational analyses of the knowledge requirements between the primary CABG patients and their partners, there were statistically significant differences relative to specific responses pertaining to the knowledge requirements.

The study results suggested similarities, as well as differences of knowledge requirements between the 2 study groups. Furthermore, this trend was demonstrated in earlier research. Following in Chapter Five, the study is summarized, conclusions presented, and nursing implications and recommendations suggested.
CHAPTER FIVE:
SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This study was designed to describe the knowledge requirements of primary CABG patients and their partners during the third to fourth week period after discharge from the hospital. In addition, a comparison of knowledge requirements between primary CABG patients and their partners was examined. Furthermore, correlations of knowledge requirements between primary CABG patients and their partners were ranked. In this chapter, a summary of the study will be presented, conclusions will be delineated, and lastly, the findings will be discussed with respect to implications and recommendations for nursing practice and research.

Summary of the Study

The review of the literature suggested a necessity for further exploration of the knowledge requirements of primary CABG patients and their partners during the third to fourth week period after discharge from the hospital. The majority of studies explicated in the literature with respect to knowledge requirements of primary CABG patients focused on the 2 month to 3 year period after discharge. Knowledge requirements of primary CABG patients during the third to fourth week period after discharge have been virtually ignored by nurse researchers. Therefore, it seemed important for nurse researchers to focus on the more immediate time periods after discharge from the hospital. The literature reported that primary CABG patients want
information relative to their knowledge requirements after discharge from the hospital (Newton & Killien, 1988; Nicklin, 1986; Sczekalla Meyer & Lantz, 1979; Tack & Gilliss, 1990).

The majority of studies relative to knowledge requirements of the partners have taken place in the critical care phase immediately after CABG surgery (Norheim, 1989; Rodgers Ward et al., 1990; Rukholm et al., 1992). However, since the middle 1980's, there has been an increase of research information relative to the knowledge requirements of partners during the rehabilitation phase of CABG patients (Newton & Killien, 1988; Nicklin, 1986; Tack & Gilliss, 1990). This implies recognition of the importance of including partners in the educational process of the rehabilitation phase of CABG patients. However, there is still more to investigate about knowledge requirements of partners during the rehabilitation phase of CABG patients.

This researcher developed a conceptual framework in order to examine the knowledge requirements of primary CABG patients and their partners. This study was designed to examine the knowledge requirements of primary CABG patients and their partners in relation to eight fundamental human needs described in the conceptual framework. In order to satisfy eight fundamental human needs and thus sustain life, the nurse teaches new abilities to primary CABG patients and their partners.

This descriptive comparative study was conducted in a major teaching hospital in western Canada that specializes in cardiovascular surgeries. Data were collected from a convenience sample of 40 participants—20 primary CABG patients and their partners. The participants completed a questionnaire and a demographic information
form during the third to fourth week after discharge from the hospital and returned them to the researcher. The data were analyzed using descriptive analyses, comparison analyses, and correlational analyses.

Mean ages of the primary CABG patients and their partners were 61.8 years and 58.9 years respectively. The majority of primary CABG patients were male (80%) whereas the majority of partners were female (80%). The largest percentage of primary CABG patients (80%) and their partners (95%) had attained at least an educational level of grades 10-12. Fifty percent of primary CABG patients and thirty-five percent of their partners were employed.

The majority of primary CABG patients (90%) reported that they were hospitalized for experiencing chest pain and/or a myocardial infarction prior to surgery. The majority of primary CABG patients (70%) indicated a time period of one month or less from when surgery was suggested and the actual event of surgery occurred.

The largest percentage of primary CABG patients (65%) reported that they read information about heart disease and also changed their lifestyles prior to surgery. Likewise, the largest percentage of their partners (70%) revealed that they read information about heart disease and in addition, supported the primary CABG patients’ lifestyle changes.

Primary CABG patients and their partners identified knowledge requirements in the following 5 content areas: specifics of surgery, complications, activities, pain management, and non-prescription drugs.
According to the comparison analyses, there was no statistically significant difference between knowledge requirements of primary CABG patients and their partners during the third to fourth week period after discharge from the hospital ($t = 1.14, p = .27$). This implies that both the primary CABG patients and their partners overall expressed similar responses pertaining to the knowledge requirements during the third to fourth week period after discharge.

In contrast, correlational analyses demonstrated that there were statistically significant differences with respect to some of the responses pertaining to the knowledge requirements between the primary CABG patients and their partners. Lack of a statistically significant difference of knowledge requirements between primary CABG patients and their partners suggested that both study groups generally had similar knowledge requirements. Furthermore, it can be suggested that similar knowledge requirements necessitates the inclusion of patients' family members such as their partners in the rehabilitation phase of primary CABG patients.

The results of the present study supported other findings concerning knowledge requirements as reported by partners of primary CABG patients after discharge from the hospital. This trend was illustrated in earlier research studies (Newton & Killien, 1988; Sikorski, 1985). It can be suggested that this trend indicated that partners must be included with primary CABG patients in the educational and rehabilitation phase after discharge from the hospital.

The knowledge requirements experienced by the primary CABG patients and their partners in this study were similar to those found in earlier research which addressed the learning needs (knowledge requirements) experienced by CABG
patients who were 6 weeks after discharge and experienced by the spouses who were 1 week after discharge (Newton & Killien, 1988). Although due to the longitudinal research design, one distinct difference was noted in the results of the earlier research study compared to the present study (Newton & Killien, 1988): the results suggested that learning needs (knowledge requirements) may be influenced by different time periods after discharge from the hospital. Furthermore, the lack of a statistically significant difference in the knowledge requirements of primary CABG patients and their partners further supported the notion of including partners in the educational and rehabilitation phase.

**Conclusions**

The results of this study cannot be generalized to the population of primary CABG patients and their partners due to the small sample size, convenience method of sampling, the fact only English speaking participants were included, and several methodological problems inherent in the study. However, the results of this study suggested similarities and differences between the 2 study groups, as well as trends replicated with respect to earlier research studies.

Overall, primary CABG patients and their partners reported similar responses pertaining to their knowledge requirements during the third to fourth week period after discharge from the hospital. In contrast, some of the responses pertaining to knowledge requirements of the primary CABG patients and their partners were statistically significantly different.
The results of the study indicated a high percentage of responses from both the primary CABG patients and their partners relative to reading information about heart disease and also, the patients making lifestyle changes prior to surgery while their partners supported these lifestyle changes. Although a direct relationship cannot be inferred from these particular study results, it can be suggested that CABG surgery is associated with an increase in optimism for the future held by primary CABG patients and their partners during the third to fourth week period after discharge from the hospital.

Finally, the fundamental human needs of the primary CABG patients and their partners appear to be affected by the experience of CABG surgery. Specifically, the difficulty in meeting the fundamental human needs of acknowledgement, activity, and safety were expressed by the primary CABG patients. In addition, the fundamental human needs of acknowledgement, activity, safety, and sleep and relaxation were expressed by the partners. Therefore, similar fundamental human needs were expressed by both study groups.

Implications and Recommendations for Nursing Practice

The findings of this study suggested four major implications for nursing practice. The first implication relates to the role of nursing in planning and implementing educational and rehabilitative programs for primary CABG patients and their partners after the event of surgery. Traditionally, educational and rehabilitative programs are provided for primary CABG patients and their partners prior to discharge from the hospital.
The findings of this study suggested that the event of CABG surgery had an impact on patients and their partners after discharge from the hospital. For example, the findings identified knowledge requirements of patients and their partners during the third to fourth week period after discharge relative to the event of CABG surgery. For primary CABG patients, responses pertaining to knowledge requirements included the following 6 content areas: specifics of surgery, complications, activities, non-prescription drugs, pain management, and incisional care. For the partners, responses pertaining to knowledge requirements included the following 6 content areas: specifics of surgery, complications, activities, non-prescription drugs, pain management, and sleep and relaxation.

It can be suggested that the identification of knowledge requirements of both primary CABG patients and their partners supports the idea of educational and rehabilitative programs to be assessed, planned, implemented, and evaluated on an outpatient basis or in conjunction with a community cardiac rehabilitation program.

Educational and rehabilitative programs could focus on the knowledge requirements of primary CABG patients and their partners. Overall, the results of the present study reported that primary CABG patients and their partners had similar responses pertaining to knowledge requirements during the third to fourth week period after discharge. However, the results also reported that primary CABG patients and their partners had some statistically significantly different responses pertaining to knowledge requirements. Therefore, both similarities and differences pertaining to knowledge requirements of both study groups should be approached.
It would be ideal to have some separate educational and rehabilitative sessions for primary CABG patients and their partners, as well as some sessions for both patients and partners. However, this may not be practical with respect to the logistics of the patients and partners attending sessions separately and together and also from an economical perspective. Therefore, it seems practical and useful to include both similar and different knowledge requirements in educational and rehabilitative programs for primary CABG patients and their partners. Educational and rehabilitative programs with relevant and specific information for primary CABG patients and their partners would be assistive, supportive, and facilitative towards patients and their partners during the rehabilitative phase. Furthermore, these programs would provide a safe and conducive environment for individuals to raise their questions and concerns.

The second implication pertains to the results of the study being used by nurses to help in the process of assessing, planning, implementing, and evaluating educational and rehabilitation programs for primary CABG patients and their partners after discharge from the hospital. Nurses could use the study results in constructing educational and rehabilitative programs for primary CABG patients and their partners.

In preparing patients and their partners for the transition from hospital to home, nurses working in acute care settings could provide specific information about what can possibly be expected after discharge from the hospital. Therefore, patients and their partners would have a standard against which to compare their own rehabilitative experience. This may provide support and guidance for primary CABG patients and their partners in becoming more active participants in their own care.
Information about what to expect enhances the patients' ability to appropriately seek advice about their knowledge requirements as well as the ability to recognize and report unexpected symptoms (Johnson, 1984; Johnson, Rice, Fuller, & Endress, 1978).

The third implication for nursing practice could be directed towards increasing the level of recognition and understanding of the nature of a chronic disease such as CVD and the subsequent implications for lifestyle changes. The results of the present study demonstrated an optimism for the future as expressed by lifestyle changes made by primary CABG patients and the support of these lifestyle changes by their partners. This optimism for the future could be further facilitated and supported with educational and rehabilitative programs with respect to an increased understanding of the nature of the chronicity of CVD. In addition, these programs may include information relative to clarifying the misconceptions, myths, and "heresay" about the implications of CVD and CABG surgery. Educational and rehabilitative programs may help patients and their partners to cope and deal with the chronic nature of CVD and subsequently, the implications relative to lifestyle changes.

The fourth implication for nursing practice is the development and implementation of long term educational and rehabilitative programs for primary CABG patients and their partners. Long term educational and rehabilitative programs, beyond the first year after discharge from the hospital, would provide ongoing assessment and intervention by facilitating and supporting patients and their partners in the broadening of their understanding of the chronic nature of CVD and their specific knowledge requirements. In addition, these long term programs would provide a safe and conducive environment within which questions and concerns of
patients and partners can be expressed and dealt with. However, most importantly, long term educational and rehabilitative programs would support the notion that a chronic disease such as CVD is a life-long condition and hence, lifestyle changes with respect to heart disease should be permanent and not simply for short periods of time.

In providing primary CABG patients and their partners with long term educational and rehabilitation programs, nurses in the community could be developing and implementing these programs. Therefore, this would accommodate patients and their partners with ongoing facilitation and support relative to furthering their education and rehabilitation experiences.

Nurses in acute care settings could initiate the educational and rehabilitational programs for primary CABG patients and their partners. Following this, nurses in the community could provide ongoing educational and rehabilitational programs for primary CABG patients and their partners.

The results of the present study demonstrated that primary CABG patients and their partners have questions and concerns following discharge. Nurses are responsible and accountable for facilitating and supporting patients and their partners in the process of learning and adjusting their knowledge requirements in accordance with the experience of undergoing CABG surgery and the reality of the chronic nature of CVD. Nurses can play a critical role in the education and rehabilitation of primary CABG patients and their partners after discharge.

In summary, the findings of this study emphasizes the importance of providing educational and rehabilitative programs for primary CABG patients and their partners
after discharge from the hospital. Nurses must recognize that there are similarities and differences of knowledge requirements between primary CABG patients and their partners. In fulfilling the nursing roles of teacher, supporter, and facilitator, nurses must be cognizant of current and relevant information with respect to the knowledge requirements of both primary CABG patients and their partners, as well as the implications of the chronic nature of CVD.

**Implications and Recommendations for Nursing Research**

Given the methodological problems inherent in this study such as small sample size, convenience method of sampling, and variable number of items per content area in the questionnaire, this study should be replicated. In addition, due to the lack of valid and reliable instruments, future research studies must lead to the development and testing of instruments that can effectively measure, and allow for comparison of, the knowledge requirements of primary CABG patients and their partners after discharge from the hospital.

A longitudinal time series design would provide an extensive assessment, characterizing the knowledge requirements of primary CABG patients and their partners after discharge from the hospital. A baseline assessment of knowledge requirements prior to CABG surgery could be followed by further assessments at different time periods during the rehabilitative phase after CABG surgery. This would provide helpful and practical information about the impact of the rehabilitation phase after CABG surgery over an extended period of time. Furthermore, a longitudinal time series design could be utilized for analyzing changes in the fluctuations of
knowledge requirements and also, for providing a framework for predicting further changes in knowledge requirements of primary CABG patients and their partners.

Specific areas for further investigation are suggested as follows: (1) comparison of the knowledge requirements of different groups of participants, such as patients and nurses, and females as patients compared to males as patients; (2) determination of the most effective method or combination of methods for educational and rehabilitative programs for primary CABG patients and their partners; (3) development of a questionnaire could be devised to differentiate between the eight fundamental human needs and if a specific knowledge requirement was met or not met and by whom (such as, nurse, physiotherapist, physician, dietician); and (4) determination of whether or not primary CABG patients and their partners received information at home prior to admission and if so, did they find this information helpful relative to coping with the experience of CABG surgery.

At this time, it is important to address the importance of qualitative research methods in exploring the knowledge requirements of primary CABG patients and their partners. Qualitative research methods could disclose important and useful themes about the recovery experience from CABG surgery of primary CABG patients and their partners that perhaps have not been disclosed by quantitative research methods.

The present study revealed that many of the responses between the 2 study groups were different. In other words, in terms of their responses, the primary CABG patients and their partners had some statistically significant different responses to the items (questions) asked in the questionnaire. This supports the idea of future research
studies examining more precisely the knowledge requirements of primary CABG patients and their partners.

In this study, the similarities between knowledge requirements of primary CABG patients and their partners in this study may be due to the following attributes: (1) same time period (three to four weeks) after discharge from the hospital during which questionnaires were completed; (2) same time period (one month or less) when surgery was suggested and the actual event of surgery occurred; and (3) majority of primary CABG patients engaged in lifestyle changes and their partners supported these lifestyle changes. However, there were also statistically significant differences with respect to knowledge requirements between primary CABG patients and their partners. Future research studies should include the gathering of more specific information about the participants' knowledge base relative to CVD, their general health characteristics, and illness and treatment status. This information may help to identify what variables are possibly responsible for the similarities and differences of knowledge requirements between primary CABG patients and their partners.

This study reported statistically significant differences for some of the responses relative to knowledge requirements between the primary CABG patients and their partners. This may have been related to the instruments used to measure knowledge requirements, as well as, the quantitative research design. The use of qualitative research methods may be critical for establishing the degree and nature of knowledge requirements of primary CABG patients and their partners.
Summary

Chapter Five included a summary of the study, conclusions, and implications and recommendations for nursing practice, education, and research.

The summary included an overview of the research study including the following: literature review, conceptual framework, methodology, data analyses, data results, and trends replicated in association with earlier research studies.

The conclusion section reported the results of the research study included the discussion of the similarities and differences of the primary CABG patients and their partners. The emphases of the discussion included firstly, that the experience of undergoing CABG surgery had an effect on primary CABG patients as well as their partners: secondly, that an increase in optimism for the future was demonstrated by primary CABG patients and their partners.

There were four major implications and recommendations suggested for nursing practice. First, primary CABG patients and their partners require educational and rehabilitative programs after discharge from the hospital. Second, the results of this study could be used to guide the assessing, planning, implementing, and evaluating of educational and rehabilitative programs after the event of CABG surgery. Thirdly, educational and rehabilitative programs may support and facilitate an understanding of the nature of the chronicity of CVD and also help to clarify the misconceptions, myths, and "heresay" about the implications of CVD and CABG surgery. Lastly, are long term educational and rehabilitative programs for primary CABG patients and their partners. The most worthwhile point of long term programs
would be to facilitate a comprehensive understanding of the chronicity of CVD as a life-long condition and hence, support of permanent lifestyle changes.

There were 3 major implications and recommendations suggested for nursing research. First, replication of the study, preferably using a longitudinal time series design. Basically, this design would provide practical and useful information about the impact of the rehabilitative phase after CABG surgery over an extended period time. Secondly, several suggestions for further research studies such as comparing the knowledge requirements of different groups of participants and also, determining the most effective methods for teaching primary CABG patients and their partners. Lastly, application of qualitative research methodology in order to further explore the knowledge requirements of primary CABG patients and their partners during the rehabilitation phase. Indeed, important information and useful themes could be disclosed in the application of qualitative methodology.
REFERENCES


APPENDIX A: NEWTON AND KILLIEN'S OUTPATIENT INTERVIEW

ID: ______/_____/______
Date: ______/_____/______

OUTPATIENT INTERVIEW

Date Interview __________________________
     day    mo.    year

Interview Time: (1) Clinic (2) 6 weeks (3) 3 mo. (4) 6 mo. Time: ______

1. Have you participated in any type of cardiac rehabilitation program since discharge from the hospital? (1)
   1. CAPRI
   2. Phase 2
   3. Phase 3
   4. Own walking
   5. MD walking

2a. Do you exercise at least 20 minutes at least 3 times per on a weekly basis to the point of perspiration? (2a)
   1 = yes, active
   2 = no, sedentary

2b. Type of exercise: ____________________________ (2b)

2c. Frequency of exercise (times/week): ____________ (2c)

2d. Duration of exercise (in minutes): ______________ (2d)

3. What medications are you currently taking? (list)

If list is different from discharge medications, ask:

4. At the time of your discharge from the hospital, you were also taking these medications (list from hospital data). Are you still taking each of them?
   1 = yes
   2 = no
   3 = don't know
5. Before surgery you shared some benefits you hoped to gain as a result of this surgery. I’d like you to rate the degree to which these have been achieved by rating each on a scale of zero to 10, with 0 being not achieved at all, and 10 representing total realization of the benefit. You may use decimal points.

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Overall achieved benefits

6. (Ask at first clinic visit only) What things were you not told about or given adequate instruction about that would have been helpful during this first week at home?

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7. (Ask at 6 weeks, 3 months and 6 months) What things were you not told about or given adequate instruction about that would have been helpful to you during this recovery period?

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8. Prior to hospital discharge were you told to do any of the following: Who told you to do this?

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<th>YES</th>
<th>No</th>
<th>Don’t Know</th>
<th>NA</th>
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<tr>
<td>a. Quit smoking</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
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<tr>
<td>b. Exercise regularly</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>c. Decrease sodium in your diet</td>
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<td>3</td>
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<td>d. Decrease fat / cholesterol in diet</td>
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<td>e. Lose weight</td>
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(8a) /_/
(8b) /_/
(8c) /_/
(8d) /_/
(8e) /_

9. Prior to hospital discharge, were you given any specific instructions about how to do any of the following?

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<th>YES</th>
<th>NO</th>
<th>Don’t Recall</th>
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<tr>
<td>a. Activity guidelines</td>
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<td>b. Dietary guidelines</td>
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<td>c. Your medications</td>
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<td>3</td>
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<td>d. Caring for your incisions</td>
<td>1</td>
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<td>e. Returning to work</td>
<td>1</td>
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<td>f. Sexual activity</td>
<td>1</td>
<td>2</td>
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<tr>
<td>g. Exercise guidelines</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>h. Losing weight</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
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</tbody>
</table>

(9a) /_
(9b) /_
(9c) /_
(9d) /_
(9e) /_
(9f) /_
(9g) /_
(9h) /_

Code for "who" for question 8 and 9:
1 = nurse
2 = physician
3 = pharmacist
4 = dietician
5 = family
6 = friend
7 = other
8 = don’t remember
10. Please rate the degree to which additional information about each of the following items would be helpful to you now.

<table>
<thead>
<tr>
<th>Item</th>
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<th>very helpful</th>
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<td>a. Activity progression guidelines</td>
<td>1</td>
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<tr>
<td>b. Pain management</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>c. Potential complications</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>d. Weight loss</td>
<td>1</td>
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<td>8</td>
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<tr>
<td>e. Low sodium cooking</td>
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<td>3</td>
<td>8</td>
</tr>
<tr>
<td>f. Low cholesterol cooking</td>
<td>1</td>
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<tr>
<td>g. Specifics of your surgery</td>
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<td>8</td>
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<tr>
<td>h. Signs/symptoms - how to interpret and who to report them to</td>
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<tr>
<td>i. How to stop smoking</td>
<td>1</td>
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<td>3</td>
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<tr>
<td>j. Your medications</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>k. Drugs to take</td>
<td>1</td>
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<td>3</td>
<td>8</td>
</tr>
<tr>
<td>l. Drugs not to take</td>
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<td>8</td>
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<td>m. Incision care</td>
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<tr>
<td>o. Sexual activity and your heart</td>
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<td>8</td>
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<tr>
<td>p. Stress management</td>
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<td>8</td>
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<tr>
<td>q. CPR training</td>
<td>1</td>
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<td>8</td>
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<tr>
<td>r. Understanding the emotional reactions to surgery</td>
<td>1</td>
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<td>8</td>
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</tbody>
</table>
APPENDIX B: NEWTON AND KILLIEN'S OUTPATIENT SPOUSE INTERVIEW

ID: __________
Date: __________

OUTPATIENT SPOUSE INTERVIEW

1. Interview Time: (1) Clinic (2) 6 weeks (3) 3 mo. (4) 6 mo. (1) ___

2. Ask at first clinic visit only:
What things were you not told about or given adequate instruction about that would have been helpful during this first week at home?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

3. Ask at 6 wk, 12 wk, 6 mo.:
What things were you not told about or given adequate instruction about that would have been helpful to you during this recovery period?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

4. Ask at all data points:
In what way has _______ having had surgery changed your life?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
5. Please rate the degree to which additional information about each of the following items would be helpful to you **now**.

<table>
<thead>
<tr>
<th>Item</th>
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<th>very helpful</th>
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</tr>
<tr>
<td>k. Medications</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>l. Incision care</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Newton and Killien's List of Identified Content Areas:
Patient and Spouse Learning Needs*

1. Chest care and symptoms
2. Activity and movement
3. Leg care and symptoms
4. Medications
5. Emotional reactions, cognition, and sleep
6. Prevention, diet and cardiopulmonary resuscitation
7. Spousal support

* Patient and spouse responses to the open-ended question, "What things were you not told about or given adequate information about that would have been helpful to you during this recovery period?"
APPENDIX D: PATIENT QUESTIONNAIRE

PATIENT QUESTIONNAIRE

Knowledge Requirements of Coronary Artery Bypass Graft Patients & Their Partners During the Third to Fourth Week Period After Discharge from the Hospital

You are under no obligation to participate in this study. If you decide to participate, you may refuse to answer any questions contained in the questionnaires. If you decide not to participate, your future treatment, medical care, and nursing care will not be affected.

Part One

Please rate how helpful the answers to each of the following questions would be to you now. Write the number on the line provided in the right hand column.

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<th>very helpful</th>
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</tr>
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<tbody>
<tr>
<td>1. Is my heart working normally?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 (1)</td>
</tr>
<tr>
<td>2. How will I know when I have recovered from surgery?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPLICATIONS</th>
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<th>somewhat helpful</th>
<th>very helpful</th>
<th>not applicable to me</th>
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<tr>
<td>3. What are some possible complications?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 (3)</td>
</tr>
<tr>
<td>4. Who should I phone if complications occur?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 (4)</td>
</tr>
<tr>
<td>5. How do I prevent complications?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 (5)</td>
</tr>
<tr>
<td></td>
<td>not needed (already known)</td>
<td>somewhat helpful</td>
<td>very helpful</td>
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<tr>
<td><strong>PAIN</strong></td>
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<td>6. Is it normal to feel pain around my chest incision area?</td>
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<td>4</td>
</tr>
<tr>
<td>7. Is it normal to feel pain around my leg(s) incision area?</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. How can I manage pain?</td>
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<td>4</td>
</tr>
<tr>
<td><strong>ACTIVITIES</strong></td>
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<tr>
<td>9. What types of activities can I do?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>10. What types of activities can I not do?</td>
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<td>4</td>
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<tr>
<td>11. When will it be safe to resume normal activities?</td>
<td>1</td>
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<tr>
<td><strong>MEDICATIONS</strong></td>
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<tr>
<td>12. What are my medications for?</td>
<td>1</td>
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<td>4</td>
</tr>
<tr>
<td>13. Are all my medications necessary?</td>
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<tr>
<td>14. What are the possible reactions to my medications?</td>
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<tr>
<td>15. What should I do if I react to my medications?</td>
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<tr>
<td>16. For how long do I take my medications?</td>
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<td>3</td>
<td>4</td>
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<tr>
<td>NON-PRESCRIPTION DRUGS</td>
<td>17. Are there any non-prescription drugs I can take?</td>
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<td>3</td>
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<tr>
<td>18. Are there any non-prescription drugs I cannot take?</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SLEEP AND RELAXATION</td>
<td>19. Is it normal that I feel tired during the day?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>20. Should I be resting during the day?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ELIMINATION</td>
<td>21. How can I prevent constipation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SEXUAL ACTIVITY</td>
<td>22. When can I resume a normal sex life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>23. What positions will cause the least risk of danger to my heart?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>STRESS MANAGEMENT</td>
<td>24. Where can I get information to help manage stress?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>RETURNING TO WORK</td>
<td>25. When can I go back to work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26. How do I know if my job is too stressful?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. How do I deal with not being able to return to work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
UNDERSTANDING THE EMOTIONAL REACTIONS TO SURGERY

Is it normal after the operation that:

28. I feel anxious during the night? 1 2 3 4 (28)__
29. I often feel irritable? 1 2 3 4 (29)__
30. I have difficulty concentrating? 1 2 3 4 (30)__

LOW SALT AND LOW CHOLESTEROL COOKING

31. Where can I get information on how to cook with less salt and still enjoy my meal? 1 2 3 4 (31)__
32. What are the best cooking methods to lower cholesterol content in food? 1 2 3 4 (32)__

YOUR DIET

33. Where can I get information on how to eat a balanced diet? 1 2 3 4 (33)__
34. Does drinking alcohol affect my heart? 1 2 3 4 (34)__

WEIGHT LOSS

35. Where can I get information on how to lose weight? 1 2 3 4 (35)__
<table>
<thead>
<tr>
<th>Question</th>
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<tr>
<td>INCISIONAL CARE</td>
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<tr>
<td>36. Should I have some information about caring for my chest incision?</td>
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<td>2</td>
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<td>4                    (36)</td>
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<tr>
<td>37. Should I have some information about caring for my leg incision(s)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4                    (37)</td>
</tr>
<tr>
<td>HOW TO STOP SMOKING</td>
<td></td>
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<tr>
<td>38. Where can I get information to help me quit smoking?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4                    (38)</td>
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<tr>
<td>HOW YOUR HEART FUNCTIONS</td>
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</tr>
<tr>
<td>39. How does my heart work?</td>
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<td>2</td>
<td>3</td>
<td>4                    (39)</td>
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<td>MOUTH-TO-MOUTH RESUSCITATION</td>
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<tr>
<td>40. Where can I get information on mouth-to-mouth resuscitation?</td>
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<td>2</td>
<td>3</td>
<td>4                    (40)</td>
</tr>
</tbody>
</table>
Part Two

What other information would be helpful at home during this recovery period?
PARTNER QUESTIONNAIRE

Knowledge Requirements of Coronary Artery Bypass Graft Patients & Their Partners During the Third to Fourth Week Period After Discharge from the Hospital

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Please rate *how helpful* the answers to each of the following questions would be to you *now*. Write the *number* on the line provided in the right hand column.

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<td>1</td>
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<tr>
<td>Question</td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>22. When can my partner resume a normal sex life?</td>
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</tr>
<tr>
<td>23. What positions will cause the least risk of danger to my partner’s heart?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>STRESS MANAGEMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Where can I get information to help my partner manage stress?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>MY PARTNER RETURNING TO WORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. When can my partner go back to work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
26. How do I know if my partner's job is too stressful?  1 2 3 4  (26)  
27. How do I deal with my partner not being able to return to work?  1 2 3 4  (27)  

UNDERSTANDING MY PARTNER'S EMOTIONAL REACTIONS TO SURGERY  
28. Is it normal for my partner to feel anxious during the night?  1 2 3 4  (28)  
29. Is it normal for my partner to often feel irritable?  1 2 3 4  (29)  
30. Is it normal that my partner has difficulty concentrating?  1 2 3 4  (30)  

LOW SALT AND LOW CHOLESTEROL COOKING  
31. Where can I get information on how to cook with less salt and still enjoy my meal?  1 2 3 4  (31)  
32. What are the best cooking methods to lower cholesterol content in food?  1 2 3 4  (32)  

MY PARTNER'S DIET  
33. Where can I get information on how to eat a balanced diet?  1 2 3 4  (33)  
34. Does drinking alcohol affect my partner's heart?  1 2 3 4  (34)
WEIGHT LOSS
35. Where can I get information on how help my partner lose weight?

INCISIONAL CARE
36. Should I have some information about caring for my partner’s chest incision?
37. Should I have some information about caring for my partner’s leg incision(s)?

HOW TO STOP SMOKING
38. Where can I get information to help my partner quit smoking?

HOW YOUR HEART FUNCTIONS
39. How does the heart work?

MOUTH-TO-MOUTH RESCUSCITATION
40. Where can I get information on mouth-to-mouth resuscitation?
Part Two

What other information would be helpful at home during this recovery period?
APPENDIX F: REMINDER LETTER

Dear Participants:

RE: Knowledge Requirements of Coronary Artery Bypass Graft Patients & Their Partners During the Third to Fourth Week Period After Discharge from the Hospital

When you were in the hospital I gave you an information package regarding my study on knowledge requirements after coronary bypass graft surgery.

If you are interested in participating in this study, this letter is to remind you to complete and return the study materials at your earliest convenience. If you have any questions regarding the research study, please feel free to telephone me collect any time at xxx-xxxx.

Jessie Nyberg, St. Paul’s Hospital, is also available to receive any questions or concerns regarding the questionnaire and can be reached at xxx-xxxx.

If you have already returned the completed questionnaires, thank you. I would like to express my appreciation for your time and for participating in the study.

Sincerely,

Debbie Tippett, R.N., B.S.N.
APPENDIX H: PATIENT DEMOGRAPHIC INFORMATION

Patient Questionnaire

DEMOGRAPHIC INFORMATION

1. What is your present age in years? _______ years

2. Gender (please circle appropriate)
   1 Female
   2 Male

3. What is your occupation? ________________________________________________

4. What is the highest level of education that you have completed?
   (please circle appropriate number)
   1 Elementary School
   2 Grade 7-9
   3 Grade 10-12
   4 Community College
   5 University

5. When did your doctor first suggest surgery?

   _______ month
   _______ year

6. Were you admitted to the hospital for chest pain and/or a heart attack previous to your surgery? (please circle appropriate number)
   1 Yes
   2 No

7. Did you read information about heart disease prior to your surgery?
   (please circle appropriate number)
   1 Yes
   2 No

8. Did you change any part of your lifestyle prior to surgery?
   (please circle appropriate number)
   1 Yes
   2 No

9. When did you have open heart surgery? ___ day ______ month
Partner Questionnaire

DEMOGRAPHIC INFORMATION

1. What is your present age in years? ______ years

2. Gender (please circle appropriate)
   1 Female
   2 Male

3. What is your occupation? __________________________________________

4. What is the highest level of education that you have completed?
   (please circle appropriate number)
   1 Elementary School
   2 Grade 7-9
   3 Grade 10-12
   4 Community College
   5 University

5. Did you read information about heart disease prior to your partner’s surgery?
   (please circle appropriate number)
   1 Yes
   2 No

8. Did you support change of your partner’s lifestyle prior to surgery?
   (please circle appropriate number)
   1 Yes
   2 No
Dear Dr.

RE: Knowledge Requirements of Coronary Artery Bypass Graft Patients and Their Partners During the Third to Fourth Week Period after Discharge from the Hospital

I am a registered nurse in the Master of Science in Nursing program at the University of British Columbia. I am conducting a research study for my thesis that will identify knowledge requirements of coronary artery bypass graft (CABG) patients and their partners during the third to fourth week period after discharge from the hospital. In addition, my thesis will compare the knowledge requirements of patients and their partners.

With the trend toward discharging patients from the hospital early in their recovery, the necessity for postoperative teaching that addresses the knowledge requirements of CABG patients and their partners is essential.

In this study, "patient" is defined as an individual who has undergone coronary artery bypass graft(s) for the first time. "Partner" is defined as a spouse or companion with whom the patient presently lives.

I would like to take a convenience sample of your patients who have undergone CABG surgery and their partners. Patients will be selected based on the following criteria: (1) read and write English; (2) undergone CABG surgery for the first time; (3) not undergone any other surgical procedure during this hospitalization; (4) discharged to their homes; (5) have no other major illnesses; (6) have no major complications during their hospitalization; (7) have a partner willing to participate in the study; (8) CABG patients from a 550-bed hospital, in the city of Vancouver, B.C.; (9) willing to complete the questionnaire at the appropriate time; and (10) either female or male.

Partners' of CABG patients will be selected based on the following criteria: (1) able to read and write English; (2) either female or male; (3) either married or living common-law with the patient; (4) willing to complete the questionnaire at the appropriate time.

I would like to include twenty CABG patients and their partners. These participants will be obtained from the open heart surgical ward at St. Paul's Hospital. The head nurse of this ward will make the initial contact with the prospective patients regarding whether or not they would like to participate in the study. Following, I will introduce myself and give the potential participants an information package regarding my study.
This information package will include an introductory letter which describes the purpose and conditions of the study, a questionnaire for the patient, a questionnaire for their partner, and a stamped envelope with return address of the researcher.

If you have any questions regarding this study I can be reached at xxx-xxxx. The contact person at St. Paul’s Hospital is Jessie Nyberg who can be reached at xxx-xxxx (local xxx).

Sincerely,

Debbie Tippett, R.N., B.S.N.

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CONSENT FORM

I, the undersigned, under the nature of this study and consent to the questionnaire being given to my CABG patients.

Signature: __________________________ Date: __________________________
Dear Participants:

RE: Knowledge Requirements of Coronary Artery Bypass Graft Patients and their Partners During the Third to Fourth Week Period after Discharge from the Hospital

My name is Debbie Tippett, and I am a registered nurse in the Master of Science in Nursing program at the University of British Columbia. I am conducting a research study for my thesis that will identify the knowledge requirements of coronary artery bypass graft patients and their partners following surgery. In addition, my thesis will compare the knowledge requirements of patients and their partners.

People who have undergone coronary artery bypass graft surgery and their partners can provide valuable information that is needed to complete the study. Therefore, I would greatly appreciate your participation in the study—a study which may aid the recovery of future coronary artery bypass graft patients and their partners. Participation in the study consists of the completion of the enclosed questionnaires during the third to fourth week period after discharge from the hospital, and returning the completed questionnaires in the enclosed postage-paid envelope.

There are two questionnaires enclosed, the questionnaire titled "PATIENT QUESTIONNAIRE" is specifically for the person who had surgery and the questionnaire titled "PARTNER QUESTIONNAIRE" is specifically for the partner. It is important for accurate study results that each questionnaire is completed by the appropriate person. The questionnaires are designed to collect information on knowledge requirements during the third to fourth week period after discharge from the hospital.

Completion of each questionnaire will take approximately thirty minutes. I would appreciate receiving the completed questionnaires as soon as you have completed them, however please send them when you are able. Completion and return of the questionnaires will imply that you have given your consent to participate in the study.

The purpose of this study is to collect information that will allow health care professionals to better understand the challenges encountered by coronary artery bypass graft patients and their partners as they strive to recover from surgery. The study will consist of one completed questionnaire by the patient and one completed questionnaire by the partner during the third to fourth week period after discharge from the hospital.

Study materials have an identification number for mailing purposes and data analysis only. Mailing information has been obtained through the office of your cardiologist.
in Vancouver. All information that you provide will be confidential, and access to the study materials will be limited to myself and my thesis committee. Your name and any identifying information will not be used or revealed in the final report or any published material resulting from this study.

This study will not provide a direct benefit to you however the findings will assist health care professionals to gain a better understanding of the knowledge requirements of coronary artery bypass graft patients and their partners during the third to fourth week period after discharge from the hospital. You are under no obligation to participate in this study. If you decide to participate, you may refuse to answer any questions contained in the questionnaires. If you decide not to participate, your future medical and nursing care will not be affected. The nurses and physicians of the open heart team at St. Paul’s hospital will have no knowledge as to whether you participate or not.

All individuals who are being asked to participate in the study will receive a reminder letter in approximately two weeks. If you have any questions, please feel free to telephone me collect any time at xxx-xxxx.

Jessie Nyberg, St. Paul’s Hospital, is also available to receive any questions or concerns regarding the questionnaire and can be reached at xxx-xxxx.

This research study will be conducted under the guidance of a thesis committee. My committee consists of two faculty members of the University of British Columbia School of Nursing: Ms. Carol Jillings, R.N., Ph.D and Ms. Janet Gormick, R.N., M.N., chairperson of thesis committee.

Sincerely,

Debbie Tippett, R.N., B.S.N.
Encl.