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THE CORRELATION BETWEEN QUALITY OF LIFE AND SOCIAL SUPPORT ONE YEAR AFTER CORONARY ARTERY BYPASS SURGERY

By

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ABSTRACT

THE CORRELATION BETWEEN SOCIAL SUPPORT AND PERCEIVED QUALITY OF LIFE ONE YEAR AFTER CORONARY ARTERY BYPASS SURGERY

by

Sarah S.Arnold

A descriptive correlational design was used to examine the relationship between the level of social support and the perceived quality of life (QOL) of the patient following coronary artery bypass surgery (CABS) one year after the procedure. A total of 212 surveys were sent to the homes of former patients admitted to a mid-western hospital and 90 were returned. The Personal Resource Questionnaire (PRQ-85) was used to measure social support and the Quality of Life Index-Cardiac Version (QLI) was used to measure QOL.

The hypothesis of the study asserted that there was a positive correlation between the level of social support and QOL in the CABS patient population one year following surgery. Test of the hypothesis with a one-tailed Pearson's r was used to identify the strength of the relationship between the PRQ-85 and the QLI, which was .6148. This figure indicates a strong correlation between social support and QOL.

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CHAPTER I

INTRODUCTION

Coronary artery disease remains the leading cause of morbidity and mortality in the United States (Carroll, 1995). The advancement of medical technologies to improve the effects of coronary artery disease has grown rapidly affecting the choices patients make in procedures and modalities. Recent technological advancement has been made with the use of the coronary stent and the percutaneous transluminal angioplasty. One of the most common surgical procedures preformed to relieve the symptoms of coronary artery disease is the coronary artery bypass surgery (CABS). This technique is designed to improve the myocardial blood flow through revascularization in patients with ischemic heart disease. The improvement of blood flow reduces the symptoms of angina. Most of the tools used in research to measure the successful outcomes of CABS are based on the patient's ability to return to work, the reduction of angina, an improvement in the functional status, and the prolongation of life. The efficacy of surgical procedures are usually assessed from objective and easily measurable criteria such as survival rates, recurrence of symptoms and post-operative complications. Despite the frequency and success of CABS and the extensive literature on physiologic outcomes, there remains considerable speculation. Can it be assumed that the degree of the former patient's well-being is a direct result of the degree of surgical success, or do other factors, social in nature, also play a significant role? What are the mechanisms that influence the behavioral and social sequelae of surgery, particularly outcomes of functional status, mood state, and quality of life (Gilliss, Gortner, Shinn, & Tompkins, 1993)? The principle goal of this study was to assess the role played by a social network in providing emotional support for the former patient and how it effects quality of life.

Improved quality of life (QOL) is probably the most desirable outcome of all health care policies (Farquhar, 1995). Functional status improvement and return to premorbid life styles are other major goals for most patients who undergo CABS. If the social network is demonstrated to play a major role in the QOL of the recovering patient, the implications for assisting those with coronary artery disease should become more clear to those delivering health care.

Little is known about changes in the patient's subjective perceptions of QOL after coronary artery bypass surgery. Because QOL is such a subjective term, a definition has been difficult to agree upon much less the capabilities of measuring such an outcome. Continued research in this area may later affect whether or not the surgery should actually be performed on some patients. Perhaps a more appropriate criterion for the evaluation of a health care intervention such as CABS would be the degree to which the intervention enhances QOL for an individual. QOL as a research variable and medical outcome may provide the patient and health care provider a more appropriate appraisal of alternative treatments for coronary artery disease.

Adjustment after CABS is a multidimensional phenomenon that is not fully explained by medical factors alone. Various social, psychologic, and support factors also may be keys in measuring the outcomes of a successful surgery. One variable thought to have an important effect on the motivation of the patient's cardiovascular health behavior is the individual's social network (Fleury, 1993). In general, social support seems to have positive effects on health and well-being (Courtens, Stevens, Crebolder, & Philipsen, 1996).

Social support can also be seen as a coping resource for the adaption to a stressful event such as CABS. Variability in the level of social support may affect the emotional well-being and perceived quality of life experienced by CABS patients following surgery. Understanding the impact of social support and the patient's perception of quality of life may assist nurses in helping patients make conscious decisions about their lives and set realistic goals for their future healthcare needs.

Other studies have been done to determine the quality of life in the cardiac population but fewer studies have been focused on the impact of social support upon QOL in the CABS patient during and after the rehabilitative period. The purpose of this study was to determine the relationship between social support and the patient's perceived QOL one year after coronary artery bypass surgery.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This literature review is designed to consider social support issues, the complexity of definitions surrounding quality of life, and the recent studies in patients who have undergone coronary artery bypass surgery (CABS) in relation to quality of life (QOL) and social support. If success of nursing intervention of persons with CABS is to be measured, it is important to find measurable and quantifiable terms of success. The definition of QOL spans many disciplines through objective and subjective data. Patients, family, health care delivery personnel, and insurance payors need to know if treatments or interventions by health care personnel impact a positive outcome for the patient and QOL is improved. How does social support affect the outcome of surgery or procedures? Given an increase of average life span, health resources and allocations are rapidly being consumed by the millions of adults with coronary artery disease. A measure of outcome in people with CABS by way of an improved QOL could be a very beneficial tool in choosing whether or not to have CABS. Understanding the effect social support has upon the outcome of QOL may contribute to the decision making process of surgical intervention and ultimate outcome.

Social Support

Social support has a key role in patient care and health care outcomes. A sense of increased self-esteem, feeling cared for, or loved are generally considered to be significant aspects of social support. There is a growing body of literature that suggests social support, particularly emotional support, may be associated with adjustment to serious illness such as CABS (Cobb, 1976; McKay, 1984; House & Kahn, 1985). One variable that influences patients' behavior is the degree of support provided by their own social network.

Kulik and Mahler (1993) studied the independent relationships of emotional support and marital status with post hospital patients following CABS. This was a longitudinal study consisting of 85 male patients. Study follow-ups occurred at 1,4, and 13 month intervals after hospital discharge. The variables included in the study were emotional support, indicators of adjustments, emotional status, perceived QOL, behavioral compliance, ambulation, smoking, cardiac health, angina, and physician office visits for cardiac problems other than routine. The Mental Heath Inventory (Veit & Ware, 1983) was one of the tools used for measurement. The primary positive findings of the study indicated that patients with CABS who had higher levels of emotional support experienced less emotional distress, felt that they had a better overall quality of life, and complied with behavior recommendations (i.e. smoked less, increased exercise) more than patients who have lower levels of support during the13 month period following surgery. Despite associated benefits of higher support for both emotional adjustment and compliance, Kulik and Mahler found no evidence that support influenced cardiac health as indicated by the number of anginal episodes, physician visits, or cardiac problem follow-up. Limitations of this study are found in the reliance of the self-reporting mechanism utilized in the questionnaire given to the patients. Kulick and Mahler suggest continued research is needed to extend the study to randomized interventional research to determine better relationships between emotional support and the adjustment to CABS. With many of the CABS studies, the factors identifying success of the surgery are reliant upon the outcome of behavioral regimes with minimal significance upon the outcome of improved QOL.

A study done by Fleury (1993) was designed to identify and describe the role of social network in influencing individual wellness motivation within the context of the cardiac rehabilitation patient. Social network in this study was defined as a psychological and tangible aid provided by the social network and received by a person. The sample size consisted of 24 patients age 38 to 79 years old. All participants were enrolled in cardiac rehabilitation for 10 weeks. The study design was a naturalistic design for collection of inductively generated data. Interviews were conducted until no new data were obtained through unstructured interviews. The constant comparative method of analytic induction was used in data collection and analysis. The variables for measurement were primarily in two categories, enabling and limiting. These behaviors describe informant perception of the role of social networks in motivating health behavior changes both positively and negatively. The findings of the study provided detailed descriptions of the role of social networks that influence wellness motivation with the cardiac rehabilitation patient. The needs of the patients varied greatly throughout the rehabilitative period. Although many of the points are of interest, the study was limited by its size, demographics, and psychosocial variations. The possibility of informant deception with the study was not addressed.

The relationship of adaptation, perception of illness, and level of functioning to the presence of social support, has been studied by White, Richter, and Fry (1992). They assessed the impact of stressful life events, health status, coping strategies, and perceived social support on the psychological adaptation of woman with diabetes. Although diabetes would be considered a chronic illness, the effects of social support over a long period of time would identify a possible relationship to perceived QOL. A convenience sample was obtained from one-hundred-ninety-three adult women living with a diagnosis of diabetes mellitus for one year or more. The design consisted of a descriptive, correlational, and non-experimental process. The independent variable of physical and psychosocial adaption of diabetes was the diabetic coping strategies. The dependent variable was social support. Stressful life events were measured using the Family Inventory of Life Events (FILE; McCubbin, Patterson, & Wilson, 1983). Coping strategies were measured using the Ways of Coping Questionnaire (Folkman & Lazarus, 1988). Social support was measured by using the Personal Resource Questionnaire Part 2 (Brandt & Weinert, 1981), where higher total scores would indicate a greater level of perceived social support. In the findings, potential stressors, coping strategies, and social support explained 56% of variance in levels of physical and psychological adaption to illness. Psychological adaptation was measured by the Psychological Adjustment to Illness (PAIS-SR, Derogatis, 1986) tool, a multidimensional instrument designed to assess the psychological and social adjustment of medical patients to their illness. Greater health status and more social support was associated with better adaptation to the illness. The results of the study indicate that social support and the use of palliative coping strategies can serve as predictors of adaptation to a chronic illness. This study was very limited in drawing cause and effect relationship between the variables. In the data collection the authors did not identify types or sources of social support. Generalizability is also difficult with the data obtained.

Quality of Life

The use of the term "quality of life" has been a popular subject of study.

To date there is no real consensus about the meaning of the term. There is lack of consensus in the definition of QOL, largely because it is one of the most multidisciplinary terms in current use. Consequently, the definitions are varied and multifaceted.

Farquhar (1995) studied the numerous definitions and assumptions made in defining QOL in a literature review. Although there is no consensus upon a definition for QOL, each author must attempt to define QOL in terms for the reader to have a clearer understanding of the measurement of the concept. Farquhar's study was extensive beginning with Patterson (1975), who described the key QOL dimensions as; health, function, comfort, emotional response, and economics. Clark & Bowlings (1989) state that QOL is not limited to functional ability, level of activity, mental state and longevity but encompasses the concept of privacy, freedom, respect for the individual, freedom of choice, emotional well-being, and maintenance of dignity. Cox et al (1992) did not define QOL but operationalized it in terms of health and functional status measures. Calman (1984) argues that QOL can only be defined in individual terms. When authors are referring only to the dimensions of health and functional status, they must be explicit or use the concept health related QOL.

A longitudinal study involving QOL was done with cancer patients by Courtens, Stevens, Crebolder, and Philipsen (1996). The study was designed to acquire insights into the changes of QOL, social networks, and social support of the cancer patient during the first year after diagnosis. An additional purpose of the study was to gain a better understanding of how social support affects the changes with QOL. The sample size consisted of 51 newly diagnosed patients that were followed one year after hospitalization in a general hospital in the

Netherlands. Most of the patients were married and were of the lower socioeconomic level. The mean age was 61 years. The design was a semi structured interview and a questionnaire. The questionnaires were distributed at three months and one year intervals. QOL was operationalized by measuring sickness and illness aspects of QOL. The Sickness Impact Profile (Bergner, 1980) was used with 136 statements about sickness related to dysfunction. The Rotterdam Support Checklist (de Haes, 1985) was used with 17 physiologic conditions and 10 psychologic conditions. Social network and social support were conceptualized by means of an instrument based on the Norbeck Social Support Questionnaire (Norbeck, 1981). The instrument was developed by Janssen (1988) and deWitte (1991) for previous studies in the research of chronic patients. The findings of the study revealed that emotional support was positively related to QOL. Differences in functional well being varied with the level of health of the patient and the different types of social support. Patients who perceived a decrease in emotional support reported an increase of physical symptoms and a decrease of global well-being. Patients who perceived a decrease of practical support reported a decrease of psychological symptoms and an improvement of global well-being. Besides social support variables, seriousness of the disease, age, and socioeconomic status seem to be important predictors of QOL. The authors agree emotional support may contribute to the QOL of patients. Professional care providers should pay attention to the degree of perceived support of patients and changes in the social environment of patients and the role of significant others. The limitations of the study were in the small number of participants and the variances in the level of illness at the time of diagnosis. If the group were larger the researcher might find the various levels of social support needed as it relates to the various levels of cancer treatments and response to the intervention. The need for social support may vary at different stages of the disease process and also the patient's perceived QOL.

Another study involving cancer patients and the development of a tool to measure QOL was done by Ferrans (1990). The sample consisted of 111 patients with breast cancer listed in a tumor registry in a major hospital. Ferrans' and Powers' Quality of Life Index (QLI) was modified based on an extensive review of oncology literature, which supported content validity. The design was descriptive, correlational, and non-experimental. The independent variable was the female patient with breast cancer and the the dependent variable was the QOL measured by the use of the Ferrans and Powers QLI tool. The four areas of study in the tool consisted of health and functioning, socioeconomic, psychological/spiritual, and family, (alphas = 0.90, 0.84, 0.93, & 0.66 respectively.) A strong correlation between QLI and a measure of satisfaction with life were shown in her findings. Life satisfaction is considered to be a most crucial indicator of subjective QOL. Subjects who had less pain, less depression, and were coping better with stress, had significantly higher mean QOL scores. The positive results obtained from this assessment and the fact that many patients can complete the QLI independently are important variables to consider when health professionals are selecting instruments for research or practice. The QLI could be used in clinical settings to identify problems and evaluate the success of intervention designed to improve QOL. There are limitations with the study in a prolonged test-retest interval which threatens the internal validity of the study because of events occurring between the time of administration of the questionnaire that alter QOL. The study does not consider the stages or treatments of cancer which vary widely for the patients who are completing the questionnaire such as chemotherapy, radiation, treatment refusal or treatment interruption.

Ferrans and Powers (1992) examined the psychometric features of QLI using their own tool, (Ferrans & Powers, 1985a). For their study, QOL was defined as a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her. The sample consisted of 349 patients selected randomly from an adult in-patient hemodialysis unit in the midwest. Factor analysis was performed with the four factors of health and functioning, socioeconomic, psychological/spiritual, and family. The factor analysis was used to explore the underlying dimensions of QLI. As predicted, it was found that those who had higher incomes had a significantly higher QLI score on the social and economic subscales. Support for convergent reliability was provided by a strong correlation (r =.77) between scores from the QLI and an assessment of life satisfaction. Findings were supported by internal consistency reliability of the entire QLI (alpha = .93) and the four subscales (alpha = .87, .82, .90, & .77).

Wingate (1995) created a study to assess the level of QOL and to determine the relationship of selected variables to QOL in a sample of women after myocardial infarction. The study was an ex post facto, one group correlational survey. The sample size was 96 women with a diagnosis of myocardial infarction who did not have cardiac surgery as an intervention. The variables included age, employment status, severity of illness, marital status, socioeconomic level, control over health, and self-esteem. Social support in this study as in others had a strong association with QOL. Social support has been linked with physiologic outcomes, although exact mechanisms remain unknown. Significant variables resulting from regression equations were employment status ($p < 0.01$), social support ($p < 0.01$), and self-esteem ($p = 0.04$). These three variables accounted for 45% of the variance of QOL score in the sample which were higher than expected and similar to those of a healthy population. Those women in the sample who returned to their former employment status and had higher levels of social support and self-esteem had higher levels of QOL. A limitation of the study was the high non response rates during the initial phase. Four hundred seven introductory letters were sent out to eligible women. Of the 107 women who consented to participate, only 96 completed the questionnaire. Generalizability of the findings were limited. QOL was measured once in a cross-sectional sample of women. Different information may have been obtained by serial measurements over time. Medical therapies were not given consideration such as PTCA, medications, cardiac rehabilitation after the MI, and return to hospital. It is, therefore, unknown how these variables affected the patient's perceived QOL. The demographics of Wingate's study were very limited and homogeneous.

The objectives of the study by Bliley and Ferrans (1993) was to explore the impact of percutaneous transluminal angioplasty (PTCA) on perceived (QOL) and health-related (QOL). The design was a one group, pretest-post test. The pretests were collected the evening before the PTCA . The post test data was collected 4-6 weeks after the PTCA. All of the data were collected from the medical records, structural interviews, and mailed questionnaires of 40 patients undergoing PTCA. The perceived QOL was assessed by use of the Ferrans and Powers QLI. Health-related QOL was assessed in terms of cardiac symptoms, tolerance of physical activity, exercise capacity, perceived general health, return to work, and lifestyle changes. The intervention or dependent variable was the elective PTCA. Perceived QOL increased significantly due to increased satisfaction with health and functioning rather than changes in other areas of life. Significant improvements were found in cardiac symptoms. PTCA was found to result in significant improvements in perceived QOL and health-related QOL. The major limitation of this study was its use of a very small sample. Further, no reference was made to the various comorbidities or cardiac risk factors. Return to work as a measurement of outcome can be somewhat misleading unless the study excludes participants with mental disorders or other precipitating factors that keep them from returning to work. Since many of the patients receiving CABS are well into their retirement, the return to work outcome limits the results.

Coronary Artery Bypass Surgery

A study done by Papadantonaki, Stotts, and Paul (1994) was designed to compare QOL, mood state, and physical functioning before and after revascularization in patients who had undergone CABS or PTCA. QOL was defined in the study as satisfaction with aspects of life that are important to the individual. The sample consisted of 44 CABS patients and 32 PTCA patients with a mean age of 58 years who had undergone an elective procedure. The sample was drawn from three different settings over a six month period; university hospital, a veterans hospital, and a private hospital. A quasi-experimental design was used to evaluate QOL, mood state, and physical functioning after revascularization. Four instruments were used for measurement, Quality of Life Index, Cardiac Version III, (QLI-Cardiac III) (Ferrans and Powers, 1992); Profiles of Mood States (POMS) (McNair,1986); a demographic questionnaire; and a physical functioning questionnaire (Faris and Stotts, 1990). The questionnaires were administered prior to revascularization and at three weeks following hospitalization. Patients who had undergone CABS or PTCA were similar in QOL, mood state, and physical functioning before revascularization. QOL did not change from baseline in either group. Mood state and physical functioning improved for both groups after the procedure, but there was a significantly greater improvement in the PTCA group. The limitations for this study were few but significant. The data lacked information about the social support system of the patient and coping mechanisms of patient and family. The questionnaire was sent out too early during the recovery period. The patient having CABS requires a significantly longer recovery period than the patient having undergone a PTCA. CABS and PTCA vary greatly which would have profound effects upon the study results occurring only three weeks post procedure or surgery.

The Coronary Artery Surgery Study (CASS, 1983) is important to mention because of its significance as a very extensive, five year study supported by the National Heart Lung and Blood Institute. Its purpose was to examine the observed effect of medical and surgical therapy on descriptors of QOL in cardiac patients. The study was designed to evaluate the comparative effects of medical and surgical therapy on QOL of patients with stable ischemic heart disease. Included in the study were 780 patients with anatomically proved coronary artery disease, chosen randomly and assigned to medical or surgical therapy in the CASS. The patients were systematically followed for a mean of 5.5 years. The standardized follow-up questionnaire included areas of: chest pain status, heart failure, activity limitation, employment status, recreational status, drug therapy, hospitalization, and smoking. The study showed that CABS improves the QOL as manifested by relief of chest pain, improvement in both subjective and objective measurements of functional status, and a diminished requirement for drug therapy. However, no significant effect on employment or recreational status was observed.

King, Porter, Norsen, and Reis (1992) conducted a study of CABS patients to find measurable terms to discern the effect of QOL on post operative CABS patients. The study sample consisted of 155 patients admitted to one university hospital for CABS. The age range in the study spanned 18 years to 84 years. The patients were scheduled for nonemergent surgery, oriented to person and time, able to communicate in English, and had no history of psychiatric episode. The independent variable was CABS and the dependent variable was the QOL after CABS. Terms of measurement used to measure QOL were: life satisfaction, affective mood state, functional disruption, angina severity index, perception of consequence, return to work, and rehospitalization. The majority of the subjects believed surgery was worthwhile because it increased the functional status and may have saved the patient's life. The mean scores for satisfaction with life were on the high end of the scale and did not change over time. Positive mood scales were significantly higher and negative mood scales were low. The comorbidities of the patients undergoing CABS were not identified which may affect the outcome of the surgery and the perceived QOL. The data were restricted to one hospital from the east coast. The authors admit further study is needed to increase understanding of how psychological variables such as focus of attention and negative affect influence recovery. The findings emphasize the need for using a multidimensional approach to studying QOL.

Many of the conclusions found in the literature review concur that there are relationships between types of social support and QOL. Measurement of social support varies according to chose instruments and definitions. This, too, is true of QOL. Despite the unresolved definitional issues, the difficulties of measurement, and the lack of theory related to how support functions, there is general agreement that social support is a significant element in the protection of health, the recovery from illness or procedure, and the general well being of individuals (Weinert & Brandt, 1987). The literature does agree that both social support and QOL must be well defined in future studies and each plays a very significant role in heath care.

Quality of life continues to be a prominent area of study. Further information regarding the effects of social support and its role in the patient's QOL may give care givers, health care delivery personnel, and the patients better insight into added means for a successful surgical outcome.

Conceptual Framework

The conceptual framework chosen as a basis of this study was taken in part from nursing theorist, Imogene King (1981). King believes that her framework differs from other conceptual schema in that it is concerned not with fragmenting human beings and the environment, but with human transactions in different kinds of environments as cited in Sieloff et al (1998). An awareness of the complex dynamics of human behavior in nursing situations prompted King's formulation of a conceptual framework that represents personal, interpersonal and social systems as the domain of nursing.

Individuals exist within a personal system. Individuals are open systems and energy exchange takes place within and extends to human beings as cited in Sieloff et al (1998). Each human being perceives the world as a total person making transactions with individuals and things in the environment. Adjustments to life and health are influenced by an individual's interaction with the environment (King, p. 141).

King's (1981) interpersonal systems, or groups, are composed of human interaction, communication, transaction, role, and stress. Interpersonal systems, or groups, are formed when two or more individuals interact, forming dyads (two people) or triads (three people). As the number of individuals increases, the complexity of the interactions increases. Families, when acting as small group would also be considered an important component of the interpersonal systems. Communication is the informational component of human interactions (King, p. 80).

The social system or society extends beyond the person. King (p. 115) defines the social system as an organized boundary system of social roles, behaviors, and practices developed to maintain values and the mechanisms to regulate practices and rules. Social system refers to organization, authority, power, status, and decision making.

The focus in this study of social support and quality of life in the patient with CABS, primarily deals with King's theory of interpersonal system and more specifically the process of transaction. Transaction is the process of interaction in which human beings communicate with the environment to achieve goals that are valued (King, 1981, p. 82). It is a process of purposeful human interactions in which two or more individuals communicate informally from their own unique perceptions and experiences to mutually set goals, explore means to achieve goals, and agree to the means to be used to achieve the goals. Humans are essentially goal directed. Transaction is an observable behavior among human beings who are interacting with their environment. An overall assumption of King's theory is that nursing focuses on human beings interacting with their environment in order to arrive at a state of health for individuals, which is the ability to function in social roles. Social support in this study, then, was considered an integral part of transaction between human beings.

Implications for This Study

This study focused on the effects of social support, transaction upon the outcome of the patient following CABS and the ultimate effect upon QOL. Given King's (1981), view of health as a dynamic state in the life cycle, illness is an interference in the life cycle. Health implies continuous adjustments to the internal and external environment through one's optimum use of personal and social resources to achieve maximum potential for daily living. Further measurement and study of social support allows the researcher to identify correlations between the amount of social support as a predictor to the amount of perceived QOL in the patient who has undergone CABS.

Hypothesis

This was the study of patients with CABS one year post surgery and the relationship of perceived social support upon the perceived QOL. The hypothesis was; there is a direct positive correlation between the patient's level of social support and QOL following CABS.

Definitions

Social support is a relationship between two or more people that provides a source of positive emotion. Social support is the process of interpersonal transactions that include expressions of positive effects of one person toward another, the affirmation of another person's behaviors, perceptions, or expressed views, and the giving of symbolic or material aid to one another (Kahn, 1979, p. 85). The terms to be used in the tool for the measurement of social support are intimacy, social integration, nurturance, worth, and assistance.

Transaction is a process of purposeful human interaction in which two or more individuals communicate information from their own unique perceptual experience to achieve their goals (King, 1981, p. 82).

Quality of Life is a multidimensional construct, a person's sense of well being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her. Quality of life is determined by judgment and evaluation of life's conditions (Ferrans & Powers, 1992, p. 47).

Perception is each person's representation of reality. It is an awareness of persons, objects, and events (King, 1981, p. 146).

CHAPTER 3

METHODOLOGY

Study Design

A descriptive correlation design was used to examine the relationship between the level of social support and the perceived quality of life (QOL) of patients with coronary artery bypass surgery (CABS) one year after the procedure. This study will describe the relationship between social support and quality of life. Data were obtained by the demographic questionnaire (Appendix A) and the self-reporting questionnaire combining the Personal Resource Questionnaire (PRQ-85) Part Two and Quality of Life Index Cardiac Version (QLI-CVIII) (Appendix B & C) collected by the primary investigator only. A self-report questionnaire was mailed to each participant's home within two months before or after their one year anniversary of the CABS. Each questionnaire was given a code number for the purposes of follow up with a post card. One week after the initial questionnaire was mailed out a reminder post card was mailed to those patients that had not yet returned the questionnaire. Return of the survey indicated the participant's permission to participate in the study.

Sample and Setting

Patients were selected from a 400 bed midwestern hospital. The medical center performs approximately 800 open-heart surgeries per year. Following approval by the Research and Review Committee of Grand Valley State University, permission was sought from the medical center by way of the research committee comprised of advanced practice nurses. The committee evaluated the proposal and research methods to assure confidentiality and appropriateness for the institution. Following committee approval, a request was made to the hospital Information Services Department to generate a list of CABS patients categorized by Diagnostic Related Groups (DRG). DRGs are a system of generating charges based upon procedures in the hospital setting. DRG 106 is the CABS with cardiac catheterization procedure and DRG 107 is the CABS without cardiac catheterization. This study chose DRG 106 and DRG 107 patients from the months of May, June, July, and August of 1997. Subjects were male or female over the age of 21 years old. Acceptable subjects were required to be able to read English. A summary of subject demographics will be included in Chapter 4.

Instruments

Three instruments were used for this study and completed by the subjects; (a) a demographic data record (Appendix A); (b) the Personal Resource Questionnaire (PRQ-85, Part Two) to measure perceived social support (Brandt & Weinert, 1981; Appendix B); (c) the Quality of Life Index - Cardiac Version III questionnaire, to measure the participants perceived quality of life (Ferrans & Powers, 1984; Appendix C). Permission to use the PRQ - 85 Part Two and the Quality of Life Index - Cardiac III was obtained from the respective authors (Appendix D & E).

The Demographic Profile includes marital status, educational level, occupation, comorbidities, spirituality, and ethnic association. The Personal Resource Questionnaire Part Two was developed by Brandt and Weinert in 1981 and was modified in 1985. It is a 25 item instrument measuring perceived social support within the five dimensions of (a) provision of attachment/intimacy, (b) social integration, (c) opportunity for nurturant behavior, (d) reassurance of worth as an individual and role accomplishments, and (e) availability of informational, emotional, and material help. There are five items per dimension. Subjects rated each item on a 7-point scale ranging from strongly agree to strongly disagree, resulting in a total score that indicated their level of perceived social support.

Reliability and validity for the instruments have been established in both acute and chronic populations (Brandt & Weinert, 1981; Weinert & Brandt, 1987). Internal consistency using Cronbach's alpha has been demonstrated to range from 0.87 to 0.93. Test-retest reliability with the PRQ - 85 over a four to six week period was reported to be 0.72.

Ferrans' and Powers' of the Quality of Life, Index Cardiac Version III (QLI-CVIII) was used to measure QOL in this study. This instrument is a 36 item scale that rates satisfaction and importance. Subjects respond on a 6-point Likert - type scale, with one corresponding to very dissatisfied/unimportant and six corresponding to very satisfied/important. The QLI-CVIII consists of four domains or subscales: health and functioning, socioeconomic, psychologic/spiritual, and family.

Internal consistency reliability for the QLI (total scale) has been supported by Cronbach's alpha ranging from 0.86 to 0.98 across 12 studies. Cronbach's alphas for the four subscales have been published in six studies, which have provided support for internal consistency of the subscales. Alphas ranged from 0.70 to 0.92 for the health and functioning subscales, from 0.77 to 0.89 for the social and economic subscales, and from 0.83 to 0.93 for the psychological/spiritual subscale. For the family subscale, alphas were acceptably high in five studies, ranging from 0.66 to 0.83.

Both instruments may be affected by personal or situational variables influencing the response. There may be an alteration in the patient's response to the questionnaire because of the awareness of their participation, attempting to answer the questions as they think they should rather than the answer they truly feel or believe.

Internal validity also could be affected by a number of variables. External events may occur in the media surrounding CABS affecting the outcomes with drugs, media, or perception. The patient could lose their only source of social support to death, divorce, or disagreement. The patient may also experience a recent change in finances, independence, relationships, or attitudes toward health care affecting his/her perception of QOL. The patients may develop additional health problems since the CABS affecting the physical as well as psychological outlook. Lastly, the patient may have had unrealistic expectations regarding the outcome of CABS.

Benefits and Risks to Subjects

The risk to the subjects were minimal which was stated in the introductory letter (Appendix F). Confidentiality for all of the subjects was maintained throughout the entire research process. The questionnaires were coded with a number to identify the questionnaires that were completed. Those that were not completed were sent a reminder post card one week after the questionnaires were distributed to increase the amount of data obtained. When the questionnaires were returned and the data collection was completed all addresses and names were destroyed. Confidentiality was also addressed in the introductory letter. The mailing consisted of four parts; a letter of introduction and explanation, the Demographic Profile, the 25 question PRQ-85 and the 36 question QLI-CVIII.

CHAPTER 4

RESULTS/DATA ANALYSIS

The purpose of this study was to identify the relationship between the perceived social support and quality of life (QOL) in the patient following coronary artery bypass surgery (CABS) one year after the intervention. Data analysis was accomplished using the Statistical Package for Social Sciences (SSPS/Windows) software. The level of significance was identified as $p < .05$.

Hypothesis

The hypothesis for this study was that, there is a positive correlation between social support and perceived quality of life one year after CABS. The correlation between social support and QOL was measured by using the one-tailed Pearson's r.

A total of 212 surveys were mailed to former patient's homes; 90 were returned to the researcher, a return rate of 42.5%. Not all of the surveys were included in the study. Four of the surveys were returned one month after the data were run, two of the surveys were incomplete, and four subjects were reported to have expired during the year following their CABS surgery. Their cause of death was not specified. See Table 1 for demographic data.

Characteristics of Subjects

By a large margin, the majority of the subjects were male (74.4%). The age range of subjects was 39 to 89, with a mean age of 66.253 (SD =10.073). Most of the subjects were reported as married and living with a spouse or significant other. The educational level of subjects varied; 10.2% of them had

Table 1

Demographic Characteristics

Attributes	Number of Subjects	Percentage of Subjects
Gender		
Male	59	74.7%
Female	20	25.3%
Marital Status		
Single	6	7.6%
Married	62	78.5%
Divorced	6	7.6%
Widowed	5	6.3%
Living Arrangements		
Alone	10	12.8%
Spouse/Sig.other	66	84.6%
Relative	1	1.3%
Friend	1	1.3%
Education		
Eighth Grade or less	7	8.9%
Junior High School	1	1.3%
High School	45	57.0%
Trade/Technical School	6	7.6%
College	16	20.3%
Graduate School	4	5.1%
Employment		
Retired	50	63.3%
Disabled	14	17.7%
Employed Part-time	2	2.5%
Employed Full time	13	16.5%
Ethnicity		
Caucasian	69	93.2%
African American	2	2.7%
Asian/Pacific Island	1	1.4%
Other	2	2.7%

received less than a high school education, 57% graduated from high school only, and 33% had been educated beyond high school graduation. The majority of the subjects (63.3%) were retired with the remainder either disabled, employed part-time, or employed full-time. The ethnic background of participants was primarily Caucasian (93.2%).

Pre-existing comorbidities for the subjects were divided into four categories (see Table 2). Almost half of the subjects surveyed answered yes for hypertension (44.3%), 24.1% for diabetes, 13.9% for angina and 16.5% for congestive heart failure. The t-test was done for independent samples of gender and comorbidity, none of which were statistically significant.

Table 2

Demographics - Comorbidities

	YES	NO
Diabetes	24.1%	75.9%
Hypertension	44.3%	55.7%
Angina	13.9%	86.1%
Congestive Heart Failure	16.5%	83.5%

Total scores of the Personal Resource Questionnaire (PRQ-85, Part Two) by Brandt and Weinert (1981) were used as the measure of perceived social support. There are 25 statements listed on the PRQ-85 and the respondent was instructed to answer them on a Likert Scale of 1 through 7, with 1 as "strongly disagree" to 7 as "strongly agree" (Table 3).

Scores on the PRQ-85 ranged from 25 to 175 with a mean score of 136.597. The standard deviation was 5.082. The five dimensions identified for the study are social integration, intimacy, assistance, nurturance and self-worth. Five of the twenty five PRQ-85 questions are categorized into each of these five dimensions. Table 4 lists the total scores and the mean scores of this study in

Table 3

Summary of Respondent's Mean Scores for Individual PRQ - 85 part II

	Statement	Dimension	Mean Score
s.	There is someone who loves and cares about me.	Intimacy	6.500
a.	There is someone I feel close to who makes me feel secure.	Intimacy	6.063
e.	I have enough contact with the person who makes me feel special.	Intimacy	6.050
y.	If I got sick, there is someone to give me advice about caring for myself.	Assistance	5.988
w.	I have a sense of being needed by another person.	Nurturance	5.886
q.	I enjoy doing little "extra" things that make another person's life more pleasant.	Nurturance	5.848
v.	If I need advice there is someone who would assist me to work out a plan for dealing with the situation.	Assistance	5.671
r.	I know others appreciate me as a person.	Self-Worth	5.650
t.	I have people to share social events and fun activities with.	Social Integration	5.615
i.	There are people who are available if I needed help over an extended period of time.	Assistance	5.613
o.	When I am upset there is someone I can be with who lets me be myself.	Intimacy	5.532
m.	My family lets me know I am important for keeping the family running.	Self-Worth	5.462
n.	I have relatives or friends that will help me out even if I can't pay them back.	Assistance	5.450
k.	Among my group of friends we do favors for each other.	Social Integration	5.288
u.	I am responsible for helping provide for another person's needs.	Nurturance	5.241
f.	I spend time with others who have the same interests that I do.	Social Integration	5.165
h.	Others let me know that they enjoy working with me (job, committees, projects).	Self-Worth	5.013
c.	People let me know I do well at my work (job, homemaking).	Self-Worth	4.987
b.	I belong to a group in which I feel important.	Social Integration	4.950
l.	I have the opportunity to encourage others to develop their interests and skills.	Nurturance	4.641
g.	There is little opportunity in my life to be giving and caring to another person.	Nurturance	2.975
x.	People think that I'm not as good a friend as I should be.	Social Integration	2.900
d.	I can't count on my relatives and friends to help me with problems.	Assistance	2.875
p.	I feel no one has the same problems as I.	Self-Worth	2.608
j.	There is no one to talk to about how I am feeling.	Intimacy	2.583

numerical order of importance to the subjects.

Social support measured by these dimensions shows an emphasis in the areas of "self-worth" and "intimacy". Less importance was identified in the areas of "assistance", "nurturance", and "social integration". "Self-worth" was the most important dimension and "social integration" the least. All of the dimensions were at least moderately important to most of the participants.

The overall internal consistency for the PRQ - 85 score was .9160, a very comparable figure to that of the tool authored by Brandt and Weinert (1981). The overall performance figure for the Brandt and Weinert tool was .91. The standard in a reliability score of at least 0.70 is considered acceptable, whereas an established instrument should measures 0.80 or better (Nunnally 1978). Therefore, the overall internal consistency of the PRQ - 85 is acceptable for a comparative study (See Table 5).

The second part of the questionnaire was the Ferrans and Powers Quality of Life Index-Cardiac III (QLI III). The first 36 questions are designed to measure satisfaction on a Likert scale of 1 to 6 with 1 as "very dissatisfied" and 6 as "very satisfied" (See Table 6). The last 36 questions are the same questions but the scale varies to measure level of importance; 1 for "very unimportant" and 6 for "very important" (See Table 7).

In both categories of "satisfaction" and "importance," the ratings are low in the areas of sex life and stress. In the category of "importance," ratings were high in the areas of family, health, children, and spouse/significant other relationships. In the category of "satisfaction," ratings were high in the areas of children, relationship with spouse/significant other, home and neighbors. One of the higher ratings in the satisfaction category was given to "faith in God," a category not rated as high in "importance," however. Question #23 regarding

Table 4

Total Study PRQ Scores by Dimension of Social Support

Dimension	Total Score	Mean Score
Self-Worth	28.707	5.741
Intimacy	26.728	5.346
Assistance	25.597	5.119
Nurturance	24.573	4.915
Social Integration	23.918	4.784

1 as "Strongly Disagree and 7 as "Strongly Agree"

Note. Overall mean score of 136.596 and SD 22.040

Table 5

Reliability Analysis Using Cronbach's Alpha for Social Support PRQ - 85

Dimension	Alpha
Self-Worth	.8008
Social Integration	.7907
Intimacy	.6850
Assistance	.6003
Nurturance	.5163

Note. The overall reliability scale for social support was .9160.

Table 6

Summary of Respondent's Mean Scores for Quality of Life Index Cardiac Version III:
Satisfaction Scores of Mean Scores

Question		Satisfaction Mean Scores
12.	Your relationship with your spouse/significant other?	5.662
30.	Your personal faith in God?	5.597
20.	Your neighborhood?	5.372
10.	Your children?	5.351
19.	Your home?	5.329
2.	The health care you are receiving?	5.241
21.	Your standard of living?	5.278
14.	Your friends?	5.150
15.	The emotional support you get from others?	5.139
16.	Your ability to meet family responsibilities?	5.051
32.	Your happiness in general?	5.026
11.	Your family's happiness?	4.961
33.	Your life in general?	4.974
35.	Yourself in general?	4.974
24.	Your education?	4.945
9.	Your family's health?	4.921
25.	Your financial independence?	4.833
34.	Your personal appearance?	4.808
3.	The amount of chest pain that you have?	4.796
7.	The amount of control you have over your life?	4.747
26.	Your leisure time activities?	4.741
29.	Your peace of mind?	4.718
31.	Your achievement of personal goals?	4.714
17.	Your usefulness to others?	4.633
6.	Your physical independence?	4.613
8.	Your potential to live a long time?	4.605
28.	Your potential for a happy old age?	4.571
4.	Your ability to breathe without shortness of breath?	4.525
27.	Your ability to travel on vacation?	4.461
36.	The changes in your life that you have had	4.461
22.	Your job? (If employed)	4.310
1.	Your health?	4.050
23.	Not having a job? (If unemployed)	4.037
5.	The amount of energy you have for everyday activities?	3.850
18.	The amount of stress or worries in your life?	3.795
13.	Your sex life?	3.771

Table 7

Summary of Respondent's Mean Scores for Quality of Life Index Cardiac Version III:
Importance Scores of Mean Scores

Question		Importance Mean Scores
10.	Your children?	5.803
12.	Your relationship with your spouse/significant other?	5.778
11.	Your family's happiness?	5.769
7.	The amount of control you have over your life?	5.734
3.	The amount of chest pain that you have?	5.731
9.	Your family's health?	5.722
4.	Your ability of breath without shortness of breath?	5.692
2.	The care you are receiving?	5.658
5.	The amount of energy you have for everyday activities?	5.650
6.	Your physical independence?	5.646
19.	Your home?	5.646
25.	Your financial independence?	5.641
16.	Your ability to meet family responsibilities?	5.632
29.	Your peace of mind?	5.627
30.	Your personal faith in God?	5.584
1.	Your health?	5.570
21.	Your standard of living?	5.570
33.	Your life in general?	5.532
28.	Your potential for a happy old age?	5.520
14.	Your friends?	5.506
32.	Your general happiness?	5.468
34.	Your personal appearance?	5.462
17.	Your usefulness to others?	5.455
35.	Yourself in general?	5.416
8.	Your potential to live a long time?	5.405
15.	The emotional support you get from others?	5.346
26.	Your leisure time activities?	5.237
20.	Your neighborhood?	5.218
31.	Your achievement of personal goals?	5.200
24.	Your education?	5.119
36.	The changes in your life that you have had to make because of your heart problem?	5.092
27.	Your ability to travel on vacation?	5.054
22.	Your job?	4.933
13.	Your sex life?	4.889
18.	The amount of stress and worries in your life?	4.744
23.	Not having a job? (If unemployed)	4.033

"not having a job (unemployed)" scored low in both satisfaction and importance, due, perhaps, to the mean age (66.3) of subjects.

The Ferrans and Powers QLI Cardiac III tool was tested for reliability using Cronbach's Alpha. Table 8 shows the alpha scores from this study and the range of scores from 12 other QLI studies (Anderson & Ferrans, 1997; Bliley & Ferrans, 1993; Cowan, Young-Graham, & Cochrane, 1992; Ferrans, 1990; Ferrans & Powers, 1992; Ferrans & Powers 1992; Hughes, 1992; Kim & Rew, 1994; King, 1996; Papadantonaki, Stotts, & Paul, 1994; Stuifbergen, 1995). The overall QLI score for this study was .8374, the internal consistency of the tool taken form the 12 other studies was 0.86 to 0.98. Polit and Hungler (1998) states that Cronbach's' alpha reliability coefficient (> .7) are sufficient to make group comparisons (See Table 8).

Table 8

Reliability Analysis Using Cronbach's Alpha for Quality of Life

QOL Dimension	Alpha	Range of Other QLI Studies
Socioeconomic	.9328	.77 - .89
Psychological/Spiritual	.9147	.83 - .93
Health/Functioning	.9130	.70 - .92
Family	.8166	.66 - .83

Note. The overall reliability scale for QLI in this study was .8374

Table 9

Correlation Coefficients in One-Tailed Significance Using Pearson's r Between the Dimensions of Social Support and Quality of Life

Social Support Dimensions	Quality of Life Dimensions	Correlation	Strength of Relationship
Self-Worth	Socioeconomic	.6453	Strong
Social Integration	Psychological/Spiritual	.6359	Strong
Social Integration	Socioeconomic	.6286	Strong
Self-Worth	Psychological/Spiritual	.5855	Moderate
Intimacy	Socioeconomic	.5666	Moderate
Assistance	Psychological/Spiritual	.5056	Moderate
Self-Worth	Family	.4950	Moderate
Assistance	Socioeconomic	.4942	Moderate
Self-Worth	Health	.4907	Moderate
Social Integration	Health	.4794	Moderate
Intimacy	Psychological/Spiritual	.4767	Moderate
Social Integration	Family	.4222	Moderate
Nurturance	Health	.3946	Weak
Assistance	Health	.3874	Weak
Nurturance	Socioeconomic	.3305	Weak
Intimacy	Family	.3239	Weak
Assistance	Family	.3201	Weak
Intimacy	Health	.3069	Weak
Nurturance	Psychological/Spiritual	.2716	Weak
Nurturance	Family	.2430	Weak

Table 9 illustrates the correlation coefficients using Pearson's r between the dimensions of social support and quality of life. Included in the table is the numeric strength of the relationship between the dimensions of the areas of social support and quality of life. Polit and Hungler (1995) state the accepted ranges of strength of the Pearson's r relationship as .1 to .3 weak, .4 to.6 moderate, and greater than .6 indicates a strong relationship. All of these data indicate a possible relationship in all dimensions.

Positive statistical significance is seen throughout all of the dimensions. Relationships between nurturance are the weakest in this study. The relationships of greatest strength involved dimensions of "self-worth", "socioeconomic", "social integration", and "psychological/spiritual".

T-tests were run to determine any relationship between social support and the comorbidities. No relationships were found. There was no statistical difference shown between the social support scores and gender using t-tests. Levine's test for equality of variances was $f = .531$, $p = .469$. T-test for equality of the means revealed $t =.31$, $df =.69$, and $p =.76$. Overall QOL score and gender showed no difference. T-tests for independent samples for marital groups, gender, and education all were statistically insignificant.

Test of the hypothesis with a one-tailed Pearson's r correlation identified the relationship between social support (PRQ-85) and quality of life (QLI) was .6148, representing a strong correlation. The hypothesis that there is a positive correlation between social support and QOL one year following CABS is supported.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Discussion Related to Hypothesis

The findings of this study did support the hypothesis. There is a positive correlation between social support and the patient's perceived quality of life (QOL) one year after CABS. Not only is there a positive correlation but, a strong one as well. The results of the study support the need for the nurse to carefully assess the patient, significant other and/or family for levels of social support to prepare for surgery, intervention, and discharge. Understanding the patient's perceived QOL and the social support system available for the patient may help the practitioner determine the length of the recovery period and follow up care required for each patient.

Discussion of Findings and Conclusions

Similarities to the hypothesis were found in the literature review, but none could be considered a replication of this study. Many of the other studies dealt with a primary focus on social support (Fleury, 1993; Fry, 1992; Kulik & Mahler, 1993; White & Richter, 1992) or QOL (Bliley & Ferrans, 1993; Courtens et al.,1996; Farquhar, 1995; Ferrans, 1990; Ferrans & Powers, 1992; Wingate, 1995) with similar outcomes. Many research sources have dealt with QOL and social support but none were found that hypothesized the positive correlation of social support and QOL in the patient with CABS as in this study. Many CABS studies were limited to measuring outcomes by way of functional activities

(CASS, 1983; King, Porter, Norsen, & Reis, 1997; Papadandonaki, Stotts, & Paul, 1994). The previous studies reported in the literature did not utilize the combination of the PRQ - 85 and the QLI - III.

Kulik and Mahler (1993) studied the independent relationships of emotional support and marital status with post hospital patients following CABS. Their findings indicated that patients with CABS who were hospitalized and had emotional support experienced less emotional stress, felt they had a better overall QOL, and complied with behavior recommendations such as smoking less and increasing exercise. Despite these benefits, Kuhlik and Mahler found no evidence that social support influenced cardiac health as indicated by the number of anginal episodes, physician visits or cardiac problem follow up. Their study showed positive outcomes in the measurement of behavioral changes related to social support. Because the behavior changes benefited the patient their perceived QOL was also positively effected. The results of this study further substantiate the importantce of social support in the psychosocial need of the patient but can not quantify the perceived QOL component.

Fleury's (1993) study was designed to identify the effects of the social network upon a patient's individual wellness motivation and their compliance with cardiac rehabilitation. The findings of the study provided detailed descriptions of the role of social networks that influence wellness motivation and the variance of needs for the patient throughout the rehabilitative process. The findings of the Fleury study contained limited similarities to this study, but did substantiate the importance of the social network in the recovery process. QOL was not measured or suggested as a variable.

In the study by White, Richter, and Fry (1992), greater health status and more social support was associated with better adaptation to illness . QOL was not measured, but the PRQ-85 was used to measure social support. The conclusion of the study does indicate the importance of social support in the adaptation to illness. Social support is an indicator for the use of palliative coping strategies that can serve as predictors of adaption to chronic illness. The emotional response to the sometimes long periods of recovery from CABS may be comparable to a chronic illness. Understanding the patient's level of social support may be a predictor as to the adaptation response of the CABS patient following a lengthy recovery.

Courtens, Stevens, Crebolder, and Philipson (1996) designed a study to acquire insight into the changes of the QOL, social network, and social support of cancer patients during the first year of diagnosis. They studied the effects of social support upon perceived change in the patient's QOL. The findings of their study also revealed that support was positively related to perceived QOL in the cancer patient as was concluded in this study.

Social support in Wingate's (1995) study had a strong association with QOL in the population of women who experienced myocardial infarction. The women in the sample who returned to their former employment status and had high levels of social support and self esteem, had higher levels of perceived QOL. The findings of the Wingate study were similar to this study. There were postive correlations between social support and QOL in a different and more defined population.

Implication for Conceptual Framework

Imogene King's (1981) concepts of interpersonal systems or groups are human interaction, communication, transaction, role and stress. The focus of this study of social support and QOL in the patient with CABS primarily deals with King's theory of interpersonal systems and, more specifically, the process of transaction. Transaction is the process of interaction in which human beings communicate with their environment to achieve goals that are valued. Social support for the patient having CABS, and the role of the significant other, comprise a series of transactions. For the purpose of this study, the patient's perceived QOL and surgical outcome was the patient's "valued goal" referred to by King (1981). Transaction and interpersonal relationships play a key role in the patient's perceived QOL.

Implications for Nursing

Social support has a profound effect upon QOL. QOL is multidimensional and is considered to overlap in the functional as well as psychological level of health. Practitioners must assess the social support of all patients. Observing the interaction of the patient and the significant other may lend insight into the needs of the patients after discharge. Patients should be made aware of the importance of social support in their recovery from illness and/or surgery. How the patient is supported, who is in the social network, and the significance of their social role will impact the patient's perceived QOL and recovery period. Using the measurement of social support to be a predictive factor in the patient's perceived QOL can be very helpful in the care giver's ability to assist in the discharge process of the CABS patient. The nurse must understand the importance of the spouse, significant other, close friend, or family member relationships with the patient. The importance of the social support system should be included in the initial development of an assessment tool and also in the preparation of hospital discharge planning.

The results of this study suggests that, if a patient has very little social support, the perceived QOL may also be limited. The practitioner may need to find creative ways to assist the patient who has limited social support. Perhaps the nurse could assist the patient by involving a church congregation, visiting nurses, support groups, estranged family members, or more frequent office visits to follow the patient more closely. CABS units may plan to make additional follow-up phone calls to the patient who has returned home. These innovations may lend additional support to the patient. The elderly patient who does not have a substantial support system may need further recuperation in an environment such as an intermediate care facility to get past the initial recovery phase, lending more support as well as additional medical attention.

The results of this study indicating the positive relationship between QOL and social support and the review of literature support recommendations for nursing practice that begin with the adoption of a philosophy of patient and family-centered care. Nurses can create a climate in which significant others and families believe that their role as nurturers is very important for the patient.

Carr (1997) suggests several ways the nurse can facilitate more focus on the family as a means to provide social support:

1. Share unbiased and complete information with the family about their relative's care in an ongoing manner.
2. Implement policies and programs that are comprehensive.
3. Provide emotional support to meet the needs of families.
4. Recognize family strengths and uniquenesses and respect different coping methods.
5. Encourage and facilitate family-to-family interactions and support.
6. Ensure that the design of the hospital system is flexible, accessible, and responsive to family needs (p. 85).

It is appropriate for nurses to ask patients and family members their preference regarding involvement in the patient care. Nurses can negotiate aspects of care in which the family wishes to participate. Education is key for the patient and the family. A family's level of knowledge allows them to understand that they have a significant role in the recovery of the patient. Helping patients to make conscious decisions about their lives and to set realistic goals for the future will be essential for a successful medical intervention or surgery. Time spent with the patient in determining their perception of QOL could be very informative. Ask the patient, for example, what is important in their lives. What do they expect to be able to do after the CABS? What do they believe will happen if they choose not to have the surgery? How will a surgery or intervention improve their QOL? What kind of support system is available to the patient?

Thorough preoperative assessment and planning is necessary. Time taken prior to surgery could focus on more realistic outcomes and goals for the patient and family members. Assessment of the patient's needs prior to surgery could prepare the care giver to deliver more personalized and direct care to each patient. With the current length of hospital stay decreasing rapidly, it is imperative to plan preoperatively for the patient's discharge needs which includes the patient's social support system.

Limitations of the Study

Although the size of the study was adequate with 90 participants, larger numbers may give us more information. The sample for the study was quite homogeneous with respect to race and marital status; 93.2% were Caucasian and 78.5% were married. Cultural considerations for the study were limited to the high percentage of Caucasians. Is it possible that the high percentage of patients that were married had an effect upon the high correlation of social support and QOL? Repeating this study in a different part of the country, or in a larger city, may reveal a less homogeneous demographic group and deliver somewhat different findings. The study does not consider the financial background of the patient and the possible effects that finances could have upon the perceived QOL of the patient and family.

Suggestion for Further Research

Much of the research regarding cardiovascular disease, interventional cardiology, and cardiac surgery have used the level of the functional status of the patient to determine the success of the intervention. The CASS study states, it is generally accepted in the treatment of patients with ischemic heart disease, that QOL is improved when there is improved functional status with the alleviation of cardiac related symptoms and a return to employment and recreational activity after the intervention (CASS, 1983, p. 951). The research in this study suggests that there are additional aspects in the measurement of positive outcomes beyond functional activities.

Continued study in the measurement of social support and its impact upon QOL is needed to create a better understanding of the patient's expectations and outcomes. There is a growing need to study types of social support, changes in the social environment of patients, and the role of significant others. Knowing how social support impacts the recovery period of a medical or surgical episode would be of significant interest. Predictors in social support, and the impact they have upon the patient's received QOL, may give the care giver an idea as to how the patient might progress after an intervention or surgery. Length of hospital stay may be decreased, or return to the hospital may be avoided, having a tremendous financial impact upon the procedures and the ability to deliver quality care. Continued research is necessary to further scrutinize present methods of medicine, have a better understanding of the patient, and to find improved ways to deliver superior, fiscally responsible, and patient-focused care.

Appendices

Appendix A

Demographic Profile

Demographic Profile

Code #_____

Please answer the following questions by checking the appropriate response so that we can describe in a general way the people who participate in this study.

How old are you? ______________

Gender:

1. Male _____ 2. Female _____

Marital Status:

1. Single _____ 2. Married _____
3. Separated _____ 4. Divorced _____ 5. Widowed _____

Living Arrangements:

1. Alone _____ 2. Spouse/committed partner _____
3. Relative _____ 4. Friend _____

Level of Education:

1. 8th grade or less _____ 2. Junior High _____
3. High School _____ 4. Trade or Technical School _____
5. College ______ 6. Graduate School ______

Employment Status:

1. Retired _____ 2. Disabled _____
3. Employed Part-time _____ 4. Employed Full-time _____

Ethnic Group:

1. Caucasian _____ 2. African American _____
3. Hispanic _____ 4. Asian/PI _____ 5. Other _____

Other Health Problems:

1. Diabetes ____ 2. High Blood Pressure _____ 3. Chest Pain _____
4. Congestive Heart Failure _____ 5. Other _____

If you had any complications following your surgery please explain:

If there is anything you wish to share about your surgery please use the back of this form.

Appendix B

Personal Resource Questionnaire (PRQ - 85) Part Two

Q-11. Below are some statements with which some people agree and others disagree. Please read each statement and CIRCLE the response most appropriate for you. There is no <u>right</u> or <u>wrong</u> answer.

1 = STRONGLY DISAGREE
2 = DISAGREE
3 = SOMEWHAT DISAGREE
4 = NEUTRAL
5 = SOMEWHAT AGREE
6 = AGREE
7 = STRONGLY AGREE

STATEMENTS							
a. There is someone I feel close to who makes me feel secure	1	2	3	4	5	6	7
b. I belong to a group in which I feel important	1	2	3	4	5	6	7
c. People let me know that I do well at my work (job, homemaking)	1	2	3	4	5	6	7
d. I can't count on my relatives and friends to help me with problems	1	2	3	4	5	6	7
e. I have enough contact with the person who makes me feel special	1	2	3	4	5	6	7
f. I spend time with others who have the same interests that I do	1	2	3	4	5	6	7
g. There is little opportunity in my life to be giving and caring to another person	1	2	3	4	5	6	7
h. Others let me know that they enjoy working with me (job, committees, projects)	1	2	3	4	5	6	7
i. There are people who are available if I needed help over an extended period of time	1	2	3	4	5	6	7
j. There is no one to talk to about how I am feeling	1	2	3	4	5	6	7
k. Among my group of friends we do favors for each other	1	2	3	4	5	6	7

Appendix C

Quality of Life Index - Cardiac Version (QLI -CVIII)

1 = STRONGLY DISAGREE
2 = DISAGREE
3 = SOMEWHAT DISAGREE
4 = NEUTRAL
5 = SOMEWHAT AGREE
6 = AGREE
7 = STRONGLY AGREE

STATEMENTS							
l. I have the opportunity to encourage others to develop their interests and skills	1	2	3	4	5	6	7
m. My family lets me know that I am important for keeping the family running	1	2	3	4	5	6	7
n. I have relatives or friends that will help me out even if I can't pay them back	1	2	3	4	5	6	7
o. When I am upset there is someone I can be with who lets me be myself	1	2	3	4	5	6	7
p. I feel no one has the same problems as I	1	2	3	4	5	6	7
q. I enjoy doing little "extra" things that make another person's life more pleasant	1	2	3	4	5	6	7
r. I know that others appreciate me as a person	1	2	3	4	5	6	7
s. There is someone who loves and cares about me	1	2	3	4	5	6	7
t. I have people to share social events and fun activities with	1	2	3	4	5	6	7
u. I am responsible for helping provide for another person's needs	1	2	3	4	5	6	7
v. If I need advice there is someone who would assist me to work out a plan for dealing with the situation	1	2	3	4	5	6	7
w. I have a sense of being needed by another person	1	2	3	4	5	6	7
x. People think that I'm not as good a friend as I should be	1	2	3	4	5	6	7
y. If I got sick, there is someone to give me advice about caring for myself	1	2	3	4	5	6	7

Ferrans and Powers
QUALITY OF LIFE INDEX
CARDIAC VERSION - III

Part I. For each of the following, please choose the answer that best describes how satisfied you are with that area of your life. Please mark your answer by circling the number. There are no right or wrong answers.

HOW SATISFIED ARE YOU WITH:	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied
1. Your health?	1	2	3	4	5	6
2. The health care you are receiving?	1	2	3	4	5	6
3. The amount of chest pain (angina) that you have?	1	2	3	4	5	6
4. Your ability to breathe without shortness of breath?	1	2	3	4	5	6
5. The amount of energy you have for everyday activities?	1	2	3	4	5	6
6. Your physical independence?	1	2	3	4	5	6
7. The amount of control you have over your life?	1	2	3	4	5	6
8. Your potential to live a long time?	1	2	3	4	5	6
9. Your family's health?	1	2	3	4	5	6
10.Your children?	1	2	3	4	5	6
11. Your family's happiness?	1	2	3	4	5	6
12. Your relationship with your spouse/significant other?	1	2	3	4	5	6
13. Your sex life?	1	2	3	4	5	6
14. Your friends?	1	2	3	4	5	6
15. The emotional support you get from others?	1	2	3	4	5	6
16. Your ability to meet family responsibilities?	1	2	3	4	5	6
17. Your usefulness to others?	1	2	3	4	5	6

(Please Go To Next Page)

HOW SATISFIED ARE YOU WITH:	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied
18. The amount of stress or worries in your life?	1	2	3	4	5	6
19. Your home?	1	2	3	4	5	6
20. Your neighborhood?	1	2	3	4	5	6
21. Your standard of living?	1	2	3	4	5	6
22. Your job? (If employed)	1	2	3	4	5	6
23. Not having a job? (If unemployed)	1	2	3	4	5	6
24. Your education?	1	2	3	4	5	6
25. Your financial independence?	1	2	3	4	5	6
26. Your leisure time activities?	1	2	3	4	5	6
27. Your ability to travel on vacations?	1	2	3	4	5	6
28. Your potential for a happy old age/retirement?	1	2	3	4	5	6
29. Your peace of mind?	1	2	3	4	5	6
30. Your personal faith in God?	1	2	3	4	5	6
31. Your achievment of personal goals?	1	2	3	4	5	6
32. Your happiness in general?	1	2	3	4	5	6
33. Your life in general?	1	2	3	4	5	6
34. Your personal appearance?	1	2	3	4	5	6
35. Yourself in general?	1	2	3	4	5	6
36. The changes in your life that you have had to make because of your heart problem (for example, changes in diet, physical activity and/or smoking?)	1	2	3	4	5	6

(Please Go To Next Page)

Part II. For each of the following, please choose the answer that best describes how important that area of life is to you. Please mark your answer by circling the number. There are no right or wrong answers.

HOW IMPORTANT TO YOU IS:	Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
1. Your health?	1	2	3	4	5	6
2. Health care?	1	2	3	4	5	6
3. Being completely free of chest pain (angina)?	1	2	3	4	5	6
4. Being able to breathe without shortness of breath?	1	2	3	4	5	6
5. Having enough energy for everyday activities?	1	2	3	4	5	6
6. Your physical independence?	1	2	3	4	5	6
7. Having control over your life?	1	2	3	4	5	6
8. Living a long time?	1	2	3	4	5	6
9. Your family's health?	1	2	3	4	5	6
10. Your children?	1	2	3	4	5	6
11. Your family's happiness?	1	2	3	4	5	6
12. Your relationship with your spouse/significant other?	1	2	3	4	5	6
13. Your sex life?	1	2	3	4	5	6
14. Your friends?	1	2	3	4	5	6
15. The emotional support you get from others?	1	2	3	4	5	6
16. Meeting family responsibilities?	1	2	3	4	5	6
17. Being useful to others?	1	2	3	4	5	6
18. Having a reasonable amount of stress or worries?	1	2	3	4	5	6
19. Your home?	1	2	3	4	5	6

(Please Go To Next Page)

HOW IMPORTANT TO YOU IS:	Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
20. Your neighborhood?	1	2	3	4	5	6
21. A good standard of living?	1	2	3	4	5	6
22. Your job? (If employed)	1	2	3	4	5	6
23. To have a job? (If unemployed)	1	2	3	4	5	6
24. Your education?	1	2	3	4	5	6
25. Your financial independence?	1	2	3	4	5	6
26. Leisure time activities?	1	2	3	4	5	6
27. The ability to travel on vacations?	1	2	3	4	5	6
28. Having a happy old age/retirement?	1	2	3	4	5	6
29. Peace of mind?	1	2	3	4	5	6
30. Your personal faith in God?	1	2	3	4	5	6
31. Achieving your personal goals?	1	2	3	4	5	6
32. Your happiness in general?	1	2	3	4	5	6
33. Being satisfied with life?	1	2	3	4	5	6
34. Your personal appearance?	1	2	3	4	5	6
35. Yourself?	1	2	3	4	5	6
36. The changes in your life that you have had to make because of your heart problem (for example, changes in diet, physical activity and/or smoking?)	1	2	3	4	5	6

Appendix D

Permission Letter (PRQ - 85)

MONTANA STATE UNIVERSITY
BOZEMAN

College of Nursing

Main Campus
Sherrick Hall
P.O. Box 173560
Bozeman, MT 59717-3560
Phone (406) 994-3783
Fax (406) 994-6020

Billings Campus
Campus Box 574
MSU • Billings
Billings, MT 59101
Phone (406) 657-2912
Fax (406) 657-1715

Great Falls Campus
2800 11th Ave. South
Suite 4
Great Falls, MT 59405
Phone (406) 455-5610
Fax (406) 454-2526

Missoula Campus
32 Campus Drive
Missoula, MT 59812-8238
Phone (406) 243-6515
Fax (406) 243-5745

PERMISSION TO USE THE PERSONAL RESOURCE QUESTIONNAIRE

PERMISSION TO USE THE PRQ85

IS GRANTED TO: Sarah Arnold, MSNc, RN

THE PRQ85 IS A TWO PART INSTRUMENT. EITHER PART -1 OR PART -2 OR BOTH PARTS MAY BE ADMINISTERED. HOWEVER, THE TOOL MAY NOT BE MODIFIED WITHOUT CONSULTATION WITH THE AUTHORS.

[redacted]

Clarann Weinert, SC,PhD,RN,FAAN

DATE: April 6 1998

Appendix E

Permission Letter (QLI - CVIII)

UIC The University of Illinois
at Chicago

Department of Medical-Surgical Nursing (M/C 802)
College of Nursing
845 South Damen Avenue, 7th Floor
Chicago, Illinois 60612-7350
(312) 996-7900

April 9,1998

Sarah Arnold, M.S.N.c., R.N.
5300 Bronson Blvd.
Portage, MI 49024

Dear Ms. Arnold:

Thank you for your interest in the Ferrans and Powers Quality of Life Index (QLI). I have enclosed the cardiac version of the QLI and the computer program for calculating scores. I also have included a list of the weighted items that are used for each of four subscales: health and functioning, social and economic, psychological/spiritual, and family, as well as the computer commands used to calculate the subscale scores. The same steps are used to calculate the subscale scores and overall scores.

At the present time there is no charge for use of the QLI. You have my permission to use the QLI for your study, which includes my permission to make as many copies as you need. In return, I ask that you send me a photocopy of all publications of your findings using the QLI. I then will add your publication(s) to the list that I send out to persons who request permission to use the QLI.

If I can be of further assistance, please do not hesitate to contact me. I wish you much success with your research.

Sincerely,

[redacted]

Carol Estwing Ferrans, PhD, RN, FAAN
Associate Professor

Chicago Peoria Quad-Cities Urbana-Champaign

Appendix F

Letter to Project Participants

Date

Dear Participant,

Research in the field of nursing is becoming increasingly important both for the solution of clinical problems and for the establishment of nursing as a discipline. You are being asked to participate in a research study regarding the impact of your personal relationships upon the outcome of open-heart surgery. Your participation would involve a questionnaire lasting approximately 25 minutes to complete. A self-addressed envelope has been enclosed to return the questionnaire for data collection.

As a participant you will be asked to give permission to the researcher to use the data retrieved in your questionnaire. Every effort will be made to protect your confidentiality. The questionnaire has an identification number for mailing purposes only. This is so we may check your name off the mailing list when your questionnaire is returned. Your name will never be connected to the findings and the data will only be presented as a group. Participation in the study is voluntary and will not affect your care. Return of the questionnaire indicates your consent to participate in the study. **DO NOT** put your name on the questionnaire.

The results of this study will assist nurses in understanding the effects of social support upon the post surgical cardiac patient. The direct personal benefits to you are limited.

This study is being conducted by Sarah S. Arnold. She is a graduate student at Grand Valley State University. If you have any questions, she can be reached at the following number where you may leave a message (616) 226-7474.

If you have any questions or concerns about the study you may call, Robert Hendersen, Chairman of the Research Committee at Grand Valley State University (616) 895-2195.

Thank you for your time in completing this questionnaire.

Sincerely,

Sarah S. Arnold

List of References

List of References

Bergner, M., & Gobson, B. S. (1980). The sickness impact profile; The relevance of social science for medicine. Reidel.

Bliley, A. V., & Ferrans, C. E. (1993). Psychologic aspects of cardiovascular care: Quality of life after coronary angioplasty. Heart & Lung 19 (1), 49-54.

Brandt, P., & Weinert, C. (1981). The PRQ: A social support measure. Nursing Research, 30, 277-280.

Calman, K. C. (1984). Quality of life in cancer patients - An hypothesis. Journal of Medical Ethics, 10, 1551-1555.

Carr, J. M. (1997). The family's experience of vigilance: Challenges for nursing. Holistic Nurse Practitioner, 11, 82-88.

Carroll, D. L (1995). The importance of self-efficacy expectations in the elderly patients recovery from coronary artery bypass surgery. Heart & Lung, 24 50-59.

CASS Principal Investigators and their Associates (1983). Coronary Artery Surgery Study (CASS): Quality of life of patients randomly assigned to treatment groups. Circulation, 68, 951-960.

Clark, P., & Bowling, A. (1989). Observational study of quality of life in NHS nursing homes and a long-stay ward for the elderly. Aging and Society, 9, 123-148.

Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38, 300-314.

Courtens, A. M., Stevens, F. C. J., Crebolder, H. f. J. M., & Philipsen, H. (1996). Longitudinal study on quality of life and social support in cancer patients. Cancer Nursing,19 (3), 162-169.

Cox, D. R., Fitzpatrick, R., Fletcher, A. E., Gore, S. M., Speifelhalter, D. J., & Jones, D. R. (1992). Quality of life assessment: Can we keep it simple? Journal of theRoyal Statistical Society, 155 (3), 353-393.

Derogatis, L. R. (1986). Psychological adjustment to illness scale (PAIS). Journal of Psychosomatic Research, 30, 77-91.

Faris, J., & Stotts, N. (1990). The effect of percutaneous transluminal coronary angioplasty on quality of life. Progressive Cardiovascular Nursing, 5, 132-140.

Farquhar, M. (1995). Definitions for quality of life: A taxonomy. Journal of Advanced Nursing, 22, 502-508.

Ferrans, C. E., & Powers, M. J. (1985). Quality of life index: Development and psychometric properties. Advanced Nursing Science, 8 (1), 15-24.

Ferrans, C.E. (1990). Development of a quality of life index for patients with cancer. Oncology Nurse Forum, 17 (3), 14-19.

Ferrans, C. E., & Powers, M. J. (1992). Psychometric assessment of the quality of life index. Research in Nursing & Health, 15, 29-38.

Fleury, J. (1993). An exploration of the role of social networks in cardiovascular risk education. Heart & Lung, 22, 134-144.

Folkman, S., & Lazarus, R. S. (1988). Manual for the ways of coping questionnaire. Palo Altc: Consulting Psychologists Press.

Gillis, C. L., Gortner, S. R., Hauck, W. W., Shinn, J. A., Sparacino, P. A., & Tompkins, C. (1993). A randomized clinical trial of nursing care for recovery from cardiac surgery. Heart & Lung, 22 (2), 125-133.

Haes de, J. C. J. M., & Knippenberg, F. (1985). The quality of life of cancer patients. A review of the literature. Social Science Medicine, 20, 809-817.

Janssen, T. (1988). Zong om mantelsorg (Care for caregivers). TVZ, 6, 169-174.

Kahn, R. L. (1979). Aging and social support. In Aging from birth to death: Interdisciplinary persepectives. In M. W. Riley (Ed.), American Association for the Advancement of Science, Selected Symposium No. 30 (pp. 77-91). Boulder: Westview Press.

King, I. M. (1981). A theory for nursing. Albany: Delmar.

King, K. B., Porter, L. A., Norsen, L. H., & Reis, H. T. (1992). Patient perceptions of quality of life after coronary artery surgery: Was it worth it? Research in Nursing and Health, 15, 327-334.

Kulik, J. A., & Mahler, H. I. (1993). Emotional support as a moderator of adjustment and compliance after coronary artery bypass surgery: A longitudinal study. Journal of Behavioral Medicine, 16 (1), 45-63.

McCubbin, H. I., Patterson, J. M., & Wilson, L. R. (1983). Family inventory of life events and changes. Madison and University of Wisconsin - Madison, Family, Stress, and Health Project.

McNair, D. M., Lorr, M., & Droppleman, L. F. (1971). Manual for the profile of mood states. San Diego: Educational and Industrial Testing Service.

Norbeck, J. S. (1981). Social support: A model for clinical research and application. Advances in Nursing Science, 3, 43-59.

Nunnally, J. (1978). Psychometric theory. New York: McGraw-Hill.

Papadantonaki, A., & Paul, P. M. (1994). Comparison of quality of life before and after coronary artery bypass surgery and percutaneous transluminal angioplasty. Heart & Lung, 23 (1), 45-52.

Patterson, W. B. (1975). The quality of survival in response to treatment. Journal of American Medical Association, 3, 43-59.

Polit, D., & Hungler, B. (1995). Nursing research: Principals and methods (5th ed.). Philadelphia: J. B. Lippincott.

Sieloff, C. L., Ackermann, M. L., Brink, S. A., Clanton, J. A., Jones, C. G., Tomey, A.M., Moody, A. L., Perlich, G. L., Price, D. L., Prusinski, B. B., (1998). Imogene King Systems Framework and Theory of Goal Attainment. In A.Tomey & M. Allgood (4th ed.), Nursing Theorist and Their Work (pp. 300-311). St. Louis: Mosby.

Weinert, C. (1987). A social support measure: PRQ 85. Nursing Research, 36, 273-277.

White, N. E., Richter, J. M., & Fry, C. (1992). Coping, social support, and adaptation to chronic illness. Western Journal of Nursing Research, 14 (2), 211-224.

Veit, C. T., & Ware, J. E. (1983). The structure of psychological distress and well-being in the general population. Journal of Consulting Clinical Psychology, 51, 730-742.

Witte de, L. P. (1991). After the rehabilitation center. A study into the course of functioning after discharge from rehabilitation (Thesis). Maastricht: Rijksuniversiterit Limburg.

Wingate, S. (1995). Quality of life for women after myocardial infarction. Heart & Lung, 24 (6), 467-473.