Inpatient Education: Are Patients Perceived Learning Needs Met Following First MI?

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DEDICATION

I dedicate this work to my loving family.

To my husband, Brock: Thank you for your everlasting love and support. I can’t imagine being in this world without you. Your love sustains me. This work would never have been completed without you by my side.

To my son, Seth: I am the luckiest mother in the world. Just before school was finished you were born into this world and I wasn’t sure how I would ever finish school, but your mother did it. Thanks for being the wonderful son that you are. I love you with all my heart, and always will.

To my parents: Thank you for your love and support. I can’t tell you enough how much you mean to me.
# TABLE OF CONTENTS

Acknowledgements............................................................................................................. ii  
Dedication .......................................................................................................................... iii  
Table of Contents.............................................................................................................. iv  
List of Tables ....................................................................................................................... v  
Chapter I: Introduction........................................................................................................1  
Chapter II: Literature Review ............................................................................................9  
Chapter III: Methods..........................................................................................................29  
Chapter IV: Results..........................................................................................................38  
Chapter V: Discussion .......................................................................................................48  
References..........................................................................................................................62  
Appendix A........................................................................................................................66  
Appendix B........................................................................................................................67  
Appendix C........................................................................................................................71  
Appendix D........................................................................................................................76  
Appendix E........................................................................................................................77  
Appendix F........................................................................................................................78  
Appendix G........................................................................................................................79  
Abstract..............................................................................................................................80
LIST OF TABLES

Table 1  Demographic Characteristics of the Sample..................................................... 39
Table 2  Mean Scores for the CPLNI.............................................................................. 41
Table 3  Mean Scores for the CPLNI Divided by Gender.............................................. 42
Table 4  Ranked Categories of Importance for Men and Women ............................ 43
Table 5  Means and Standard Deviations for the CHD Teaching Evaluation
Form.................................................................................................................. 44
CHAPTER I

Introduction

Cardiovascular disease ranks as America’s number one killer, claiming the lives of over 39% of more than 2.4 million Americans who die each year (American Heart Association, [AHA] 2002). Over 1 million new and recurrent coronary attacks occur each year, and over 12,000 of these individuals are still living (AHA, 2002). Due to the fact that so many individuals are surviving myocardial infarctions (MI) and having to adapt to living with heart disease, patient education has become even more important. Health care professionals have been educating patients on important information such as risk factors for MI, medication regimens, diet changes, lifestyle changes, activity restrictions and smoking cessation. Other areas of educational importance to patients are when they are able to return to work, when they are able to resume sexual activity, and how to manage stress. Over the past 20 years numerous studies have identified that the issues mentioned above are indeed those needs perceived by patients themselves as important to learn (Gerard & Peterson, 1984; Chan, 1990; Czar and Engler, 1987). However, these studies have not examined gender differences in perceived learning needs. It is not understood if these needs are similar for men and women. Because heart disease has historically been viewed as a man’s disease, very little research has been conducted including women. Studies of perceived learning needs have been conducted primarily with Caucasian males. It has been noted that initial symptoms of MI differ among men and women. Men often experience crushing chest pain or pressure where as
women may feel less chest pain and more pain in the left jaw, neck, or arm. (AHA, 2002).

In-patient cardiac teaching programs are second in total numbers of existing programs only to diabetic education (Steele & Ruzicki, 1987). Patient education is an integral component of care for patients diagnosed with MI. The shortened length of stay in hospitals and the increased emphasis on health prevention and promotion makes it crucial to provide effective, precise, cost-conscious education in a timely manner. In-patient education programs must cover the issues which patients themselves identify as important to learn. Although many studies have been conducted in which in-patient programs are studied, including several studies involving patients with coronary artery disease, these studies have not been examined for whether in-patient education effectively meets the learning needs identified by patients (Steele & Ruzicki; Mills, Barnes, Rodell & Terry, 1985; Maeland & Havik, 1987) Programs were designed to educate patients on important issues identified by health care providers.

Purpose of the Study

The purposes of this study are to (1) identify what the perceived learning needs are of patients diagnosed with their first MI, (2) explore learning differences between men and women, (3) examine the effectiveness of the in-patient education program, specifically the Cardiac Rehab In-patient Education Program, at meeting the identified needs, and (4) determine whether gender makes a difference as to whose needs are more effectively met.
Theoretical Framework

The Roy Adaptation model of nursing views each person as “an adaptive system with the cognator and the regulator acting to maintain adaptation in the four adaptive modes: physiologic, self-concept, role function, and interdependence” (Roy, 1984). The cognator and the regulator are internal processes which act to maintain the goals of a person. The regulator involves physiological processes such as “chemical, neurological, and endocrine responses that allow the body to cope with the changing environment” (Roy, 1984). The cognator involves psychological processes “for dealing cognitively and emotionally with the changing environment” (Roy, 1984). The patient’s perception of the situation is attributed to the activity of the regulator and cognator together, and is manifested in the four adaptive modes. It is the goal of nursing to promote adaptation in each of these four modes, thus contributing to one’s health, quality of life, and dying with dignity (Roy, 1984).

A person as an adaptive system encounters a triggering event, which is any contact with the environment (Randell, Poush-Tedrow, & Van Landingham, 1982). The environment is comprised of internal and external stimuli or all conditions, circumstances and influences surrounding and/or affecting the development and behavior of persons or groups (Roy, 1984). A focal stimulus is that which immediately confronts an individual. The nurse aims to increase the person’s adaptive responses to the focal stimulus and to help the patient maintain a high level of adequacy. Adequacy is “the state of balance or equality between the person and the environment” (Randell, et al., 1982). Patients post-
MI require adaptive responses in all four modes to cope with this focal stimulus and maintain a high level of adequacy.

Research Questions

The questions which this study will seek to answer are as follows:

1. What are the perceived learning needs of patients diagnosed with first MI?
2. Are there differences in the learning needs based on gender?
3. Is the Cardiac Rehab In-patient Education Program effective at meeting the identified learning needs?
4. Is the Cardiac Rehab In-patient Education Program more effective at meeting the learning needs of men or women?

Definitions of Variables

Operational Definition of Perceived Learning Needs

Perceived learning needs for this study will be those identified by the subjects. Learning needs will be divided into these eight categories: Symptom management, lifestyle factors, medication information, anatomy and physiology, diet information, physical activity, psychological factors, and miscellaneous information (Gerard & Peterson, 1984).

Conceptual Definition of Perceived Learning Needs

Perceived learning needs are those areas of concern which patients themselves identify as important to learn or to know. Such areas may be considered contextual or residual stimuli, which act upon an adapting person. As defined by Roy (1984), contextual stimuli include all other stimuli that contribute to the behavior caused or
precipitated by the focal stimulus (the MI). Contextual stimuli are influenced by family, friends, and/or work. These stimuli are targeted by questions regarding patients’ perceived learning needs of work issues, sexuality, stress, lifestyle changes and risk factors. Residual stimuli are “factors that may be affecting behavior but whose effects are not validated” (Roy, 1984). Examples of such include one’s beliefs or attitudes. These become apparent through a nurse’s initial assessment of the individual’s learning needs. How one identifies what is important to learn before going home is affected by his or her attitudes and beliefs.

Operational Definition of In-patient Teaching Programs

The in-patient teaching program is an existing cardiac rehabilitation program that has been implemented in an acute care hospital for several years. It is called the Cardiac Rehab In-patient Education Program.

Conceptual Definition of In-patient Teaching Programs

In-patient teaching programs are designed to provide patients with health education specific to their needs. Health education is “an essential component of nursing care. It is directed toward promotion, maintenance and restoration of health and toward adaptation to the residual effects of illness” (Nettina, 1996). Programs may be structured and cover educational needs at specified times during a patient’s hospitalization. However, many hospitals today no longer have individuals specifically designated to provide teaching and thus, less structured programs are being implemented. The role of educator has become one of primary nursing concern.
Providing the patient with an in-patient education program is congruent with the step in the nursing process of intervention. The intervention itself is educating the patient on the areas that he or she identifies as important to learn. The goal for nursing according to the Roy model is “to promote adaptation in the adaptive modes, thus contributing to health, quality of life, and dying with dignity” (Roy, 1984). After identifying contextual stimuli influencing the individual’s behavior the nurse provides education essential to increasing one’s adaptation and maintaining a greater level of adequacy. It is noted that the unique internal transaction among stimuli is the cornerstone for using adaptation theory in nursing practice because “it places the responsibility of coping and adequacy with the adapting person” (Randell, et al., 1982).

Significance to Nursing

The two most frequently implemented in-patient education programs in 1987 were those for diabetic patients and those diagnosed with heart disease (Steele & Ruzicki, 1987). Due to health costs and business-minded administrators in charge of hospitals, the nature of in-patient teaching has changed. Nurses at the bedside are often expected to cover patient’s educational needs prior to discharge from the hospital. Length of stay has shortened significantly so patients who were once hospitalized for several days are now being released within 24 to 48 hours after admission. This shortened amount of time requires teaching to be concise, specific to what the patient himself or herself identifies as important to learn and be taught effectively. Not only does proper education keep costs down long term by decreasing that patient’s chance of being hospitalized again, it is also important for morbidity and mortality rates. Although mortality rates
have declined 21% between 1968 and 1976, and continues to decline, numbers of individuals living with heart disease are at their highest. (Goldman & Cook, 1984).

Assumptions

Certain assumptions were made during the process of this research. “Assumptions are statements taken for granted or considered true, even though they have not been scientifically tested” (Burns & Grove, 2001). The researcher assumed that those diagnosed with an MI want to learn about aspects of their own care. The researcher also assumed that each person will in fact perceive at least one of the eight categories presented as important to learn. It is assumed that health is important to all people and that each subject in the study wishes to accept responsibility for their own health maintenance and promotion.

It also is assumed by this study that in-patient teaching programs are important to have in place to teach people about their risk factors, meds, and other areas of concern. It is inferred that having a program in place or providing some form of in-patient education will increase patients’ knowledge of their heart disease and promote adaptation. By being properly educated one will have less stress and anxiety about their health state and returning to everyday life. Thus, it is assumed that less stress and anxiety are optimal for patients.

Limitations

This study had limitations due to the accessibility of sampling. The convenience sample is another limitation. Being a novice researcher limits the study as well. Other limitations include the short time frame allowed for data collection and the lack of follow
up after patients have completed all questionnaires for this study. The anxiety level of the patient may also hinder his/her ability to complete questionnaires.

Summary

More and more individuals are living with heart disease today. Education for these individuals has become an integral component of nursing care. Identifying a person’s perceived learning needs prior to implementation of an in-patient teaching program enhances patient outcomes. This is important because patients are hospitalized for much shorter lengths of stay. Many hospitals have eliminated formal education programs due to ineffectiveness and high costs because nursing will implement the program. Individualized teaching programs will provide information to patients that they deem important without increased costs. Nurses will aid their adaptation to living with heart disease as Roy’s Adaptation Theory is applied at the bedside. Patients will be equipped with knowledge of their own health issues in order to choose adaptive responses in everyday life.
CHAPTER II

Literature Review

This chapter contains a broader description of the Roy’s Adaptation Model, the theoretical framework for this research. An extensive literature review will discuss previous studies aimed at identifying patients’ perceived learning needs. Studies conducted prior to this research have used samples of primarily Caucasian males; very few women have been included. Other studies have helped to gain insight into the patient’s perception of heart disease and causes of MI, and to differentiate learning style preferences. Finally, several studies will be mentioned that have examined the teaching effectiveness of in-patient education programs.

Theoretical Framework

The goal of nursing according to the Roy Adaptation model is to “promote adaptation in each of the four adaptive modes, thus contributing to a person’s health, quality of life, and dying with dignity” (Roy, 1984). According to adaptation theory an individual first experiences a triggering event or comes into contact with a focal stimulus. A patient who is diagnosed with an MI understands this event to be the focal stimulus. One must then cope with the repercussions of that stimulus in each of the four adaptive modes: physiologic, self-concept, role function, and interdependence. The schematic in Appendix A illustrates the interaction of these concepts. A nurse initially assesses a patient’s learning needs regarding health after an MI and then provides the education essential for the person to cope in the adaptive modes and choose adaptive responses. By
doing so, the nurse helps the person maintain a high level of adequacy or balance between the self and the environment.

Initially, the nurse assists the patient in the physiologic mode. Adaptation in this mode covers basic needs for oxygenation, nutrition, elimination, activity and rest, skin integrity, protection, fluid and electrolyte imbalances, neurological function, and endocrine function (Roy, 1984). When one experiences an MI, many of these areas are of concern. The first goal is to physically stabilize someone experiencing the infarct.

After the patient has become physically stable, they are ready to cope with this triggering event. In the self-concept mode, one focuses on psychological and spiritual aspects of the individual. After surviving an MI, a patient may be overwhelmed with psychological distress. Many understand the high risk they were under and the chance they could have died. One examines psychic integrity in this mode, which is the basic need of knowing who one is so that one can exist with a sense of unity (Roy, 1984). An individual post-MI may, at first, have difficulty adapting to the new “self;” the self which is now living with heart disease and who faces change in everyday life with such aspects as lifestyle changes and behavior modifications.

Suffering an MI also may require a patient to respond to adaptation in the role function mode. In this mode an individual strives to know who he or she is in relation to others. The goal of the role function mode is social integrity. By receiving in-patient education regarding heart disease, it is the goal that the adapting person chooses adaptive responses. He or she must face the fact of a new permanent role; that of the individual living with heart disease, the “cardiac patient.” Through individualized education, one
can be prepared knowledgeably to make an adaptive response to their new role and remain an active part of society.

Finally, one must adapt in the interdependence mode. Often persons who are experiencing illness or changes in their role function also experience an increased need for love, respect and affirmation. A person’s sense of adequacy is fulfilled through relationships with others. The relationships in this mode are a person’s close relationships with friends and family. After an MI the patient will undoubtedly seek support from those close to him or her. However, a nurse also can meet a patient’s need for affectional adequacy that includes a person’s need for care and attention, affection and affirmation, and understanding. By addressing a patient’s perceived learning needs the nurse fulfills the need for attention. The role of nursing itself involves caring for others which aids one to adapt in the interdependence mode.

A disturbance or disruption in one adaptive mode often affects the other modes as well. One who suffers an MI must face lifestyle and behavior changes that affect all four modes. Through promoting adaptation in the four adaptive modes: physiological, self-concept, role function, and interdependence the nurse helps a patient to maintain adequacy or balance with the environment. By providing in-patient education to the patient post-MI, the nurse focuses on the very goal of nursing: to promote adaptation and improve quality of life.

Literature Review

Over 12,000 individuals are now living in the United States who have had some type of coronary attack, and the numbers continue to grow (AHA, 2002). Life-saving
measures are allowing people to live longer than before. Now that people are living longer they seek information for health promotion and maintenance. Modern health care has sought to provide clients with knowledge regarding their own health issues. Patients living with coronary heart disease (CHD) have concerns related to their health such as lifestyle changes, diet recommendations, smoking cessation and medication information. Individuals who have had their first MI are among those needing education regarding these issues. Health care professionals have been educating MI patients on this important information, as well as issues regarding activities such as exercise, resuming sexual activity, and returning to work. Many studies have been conducted to reveal which of these are the perceived learning needs that most often concern patients diagnosed with a first MI (Gerard & Peterson, 1984; Chan, 1990; Czar & Engler, 1987). Several studies also have been conducted to examine the effectiveness of in-patient programs that are designed to provide such information (Steele & Ruzicki, 1987; Mills, Barnes, Rodell, & Terry, 1985; Maeland & Havik, 1987). The problem is that these programs have been designed by health care professionals to include topics they think are important for patients to learn rather than first assessing the learning needs of the patients and then designing the teaching around the results.

Perceived Learning Needs

Research aimed at exploring the perceived learning needs of patients began in 1984 with a study conducted by Gerard & Peterson. They studied patients diagnosed with MI to assess their perceived learning needs, and to examine the congruency of nurses’
perceptions. Two questionnaires were used to obtain data: The Cardiac Patient Learning Needs Inventory (CPLNI), and the Educator Preference Tool. Each instrument was created by Gerard and Peterson specifically for this study. The CPLNI was used to rank 43 items on a 5-point scale from “not important” to “very important” which were divided into eight specific topic areas. The eight areas of concern were: introduction to the CCU, cardiac anatomy & physiology, risk factors, medication information, dietary information, psychological factors, activity recommendations and a miscellaneous category. The miscellaneous category included things such as when to call the doctor, how to take a pulse, symptoms of angina and congestive heart failure. The CPLNI questionnaire was administered to patients and nurses to compare their perceptions.

The Educator Preference Tool examined cardiac patients’ perceptions of nurses as teachers. The instrument contained the same list of informational items as those on the CPLNI but asked the patient who they believed could teach the material. These instruments also are used in many other research studies, and have guided most of the current understanding of cardiac patients’ perceived learning needs.

This classic study had a sample of 31 patients: 16 in-patient and 15 post-discharge. The results indicate that cardiac patients (and nurses) found all eight categories to be important to learn. Both in-patients and patients discharged from the hospital considered risk factors the most important to learn. All other areas were ranked differently for both groups of patients. Nurses ranked medications the most important, indicating a potential conflict between what patients and nurses consider to be important.

This study was limited due to a biased sample. The sample was not examined for
gender. It is not stated how many men and women were included in the sample. The sample size of 31 patients is too small to render generalizability to the cardiac population. Although Gerard & Peterson investigated the severity of the illness, 11 of the subjects had been hospitalized before for cardiac problems, making the results unreliable for patients with their first MI.

In 1987, Karlik and Yarcheski completed a partial replication study of Gerard and Peterson’s original study of MI patients. The CPLNI and Educator Preference Tool were administered to 30 cardiac patients and a group of 30 nurses and nurse educators. The researchers believed they would identify a possible source of practicing nurses’ beliefs as to what was important by studying nurse educators as well as bedside nurses.

Similar to the Gerard and Peterson (1984) study, the results indicated that all eight categories were considered important to learn by nurses, nurse educators and patients. The results obtained were similar to the original study in that patients rated risk factors most important to learn while nurses and nurse educators rated medications most important. One theme emerged from this partial replication study that was not found originally. Patients both hospitalized and post-discharge rated the categories risk factors, cardiac anatomy and physiology and medications the three most important areas to learn where there was no correlation such as this in Gerard and Peterson’s study. In order to replicate the study Karlik and Yarcheski (1987) chose to obtain a sample size similar to the original study. The patient sample was evenly distributed between in-patient and outpatient but it is noted that 24 patients were male and only 6 were female.

The findings from the original study showed categories ranked differently for
nurses in the CCU and nurses in the PCCU. Karlik and Yarcheski (1987) found that rankings also were different between CCU nurses and nurse educators, indicating a contrast between what educators believe is important to teach and what bedside nurses believe is important.

Two more studies were conducted to assess patients’ perceived learning needs following an MI. Chan’s (1990) study was guided by Lazarus’ Stress Coping Theory that indicates when an individual experiences stress, that individual must initiate coping strategies to reduce demands on the self. Chan (1990) postulates that having an MI is a stressful event after which an individual chooses information seeking a coping strategy. Thus, the study aimed to examine how MI patients viewed the importance of content areas included in their teaching because this enabled them to cope effectively. By guiding the research with this theory, Chan (1990) hoped to reveal whether patients themselves believed they had enough resources to realistically learn information post-MI. With that in mind, Chan (1990) gathered data by administering a modified form of the CPLNI which not only assessed “important to learn” but also “realistic to learn.” The category of CCU information was deleted because patients were no longer hospitalized in intensive care units but were now in step-down units (PCCU). Thirty subjects were given the questionnaire during the hospitalization and again during the early convalescence phase, which is defined by the study as approximately 2 weeks after discharge from the hospital. Eighteen subjects were male and 12 were female. Like the previous studies mentioned, the data were not examined for differences based upon gender.
There were differences found between areas patients viewed as important to learn and what they identified as realistic to learn. The three areas of medications, cardiac anatomy and physiology and risk factors were again viewed by patients as the most important to learn. The hospitalized subjects believed medications were most important to learn but when questioned 2 weeks after discharge they rated risk factors as most important to learn. These three categories were not however, rated the three most realistic to learn. Risk factors were rated most realistic to learn during both time periods but topics such as dietary changes and miscellaneous information were considered more realistic to learn in the hospital than the areas of medication information and anatomy and physiology. Overall mean ratings for realistic to learn (3.15 to 3.59) were significantly lower than important to learn (3.89 to 4.35). The author postulates based on Lazarus’ theory that patients were unable to master the demands placed upon them by the MI and all the important teaching provided, and so found it less realistic to learn information they deemed important. On the basis of the findings, Chan (1990) supports in-patient teaching which covers basic information but recommends out-patient education as a follow-up.

The study by Wingate (1990) uses an unmodified version of the CPLNI as the main instrument for data collection. However, this study is guided by Knowles Theory of Andragogy that the researcher explains is an adult learner theory. The theory states adults must perceive the goals of a learning experience to be their own. Wingate (1990) believes identifying patients’ perceived learning needs is essential in the development of MI educational programs to enhance learning. The sample consists of 22 males and 10 females. Subjects were asked to complete the CPLNI while in the CCU but after the
diagnosis of an MI, in the PCCU 1-2 days prior to discharge, and again 2-4 weeks after discharge. Wingate (1990) found that overall scores were higher for patients hospitalized than at home and proposes this may be due to the fact that individuals’ perceived learning needs are greater in the hospital or because their needs had been met during the hospitalization. Total scores were not reported by Gerard and Peterson (1984) and Karlik and Yarcheski (1987), so a comparison is not possible.

The categories of risk factors, medications, and cardiac anatomy and physiology were again the three most important areas for patients to learn while in the PCCU and at home, but patients in the CCU rated physical activity in the top three with anatomy and physiology and risk factors. Medication information was not deemed important to patients at this time. The area of risk factors was most important to learn for those in Wingate’s (1990) study, Karlik and Yarcheski’s (1987) study and the foundational study by Gerard and Peterson (1984).

Findings by Czar and Engler’s (1997) study of MI patients and their perceived learning needs are similar to all previous studies in that medications, risk factors and cardiac anatomy and physiology were ranked the most important areas to learn. The sample of 28 subjects was primarily Caucasian and contained only males. This sample size also is too small, and therefore, compromises the generalizability of the data. The data were obtained by using a modified version of the CPLNI entitled “Everything you ever wanted to know about heart disease.” Subjects completed the questionnaire during their hospitalization and again after discharge at the first cardiac rehab clinic visit. Interestingly, this is the first study which designed the individuals’ learning program at
the hospital based on the answers given on the questionnaire, however, a study was not completed to test the effectiveness of the program. Czar and Engler simply identified whether the learning needs were different following discharge and whether a relationship existed among each variable at the two time intervals. No relationship was found. Although the study had limitations, the results support the research of previous studies regarding perceived learning needs.

Another study was conducted to gain insight into the perceived learning needs of MI patients, but studied patients needs together with their spouses or partners, the perceptions of the nurses, and examined the comparison between the two groups. A modified version of the CPLNI that eliminated the category introduction to the CCU was the data collection tool. A column marked “non-applicable” was added to several of the items on the questionnaire given to the spouses and partners (Turton, 1998).

This study is limited by a short time frame used to gather subjects and that 16 of the 18 subjects in the study were male. A time frame of only 6 weeks was used to gather subjects who fit the criteria. All the couples were heterosexual and no data for ethnicity was included. One positive aspect of the sampling is that each subject was diagnosed with first MI and had not been privy to previous education on cardiac content.

Unlike other studies, Turton (1998) found that medication information was rated far less important than other areas by patients and their spouse or partners. The most important areas for patients was again risk factors. However, the patients’ spouses and partners ranked symptom management most important to learn. This category was added particularly for this study by the researcher. Spouses were concerned with symptom
management because they wanted to feel prepared in case their loved one was to suffer another MI.

The final study that examined patients’ perceived learning needs using the CPLNI questionnaire is Ashton’s (1997) study. This study is the only one that specifically aims to explore the differences in learning needs between men and women. Many of the previous studies either neglected to report the percentage of women, studied very few women, or studied only men. Ashton (1997) stresses that research has been conducted to identify the differences in cardiac symptoms experienced by women and how these symptoms differ from those that men experience but research has not been conducted to identify whether women’s learning needs differ from men’s. Some argue that the studies by Gerard and Peterson (1984), and Karlik and Yarcheski (1987), allude to gender differences but data to support this was not reported in either study (Ashton, 1997).

This sample of 121 subjects is adequately sized and included 73 male and 46 female subjects. However, some subjects were noted to have previous admissions to the hospital for cardiac events, meaning not all patients were diagnosed with first MI. Ashton (1997) reports that men rated risk factors most important to learn while women rated meds as most important. However, both categories were ranked the top two by both men and women. The data indicate that men and women reported only slight differences in their perceived learning needs and does not provide a strong enough argument for saying that men and women truly have different learning needs.

The study conducted by Casey, O’Connell, and Pierce (1984) found that when questioned about learning needs 30 MI patients (17 male and 13 female), 12 physicians
and 33 CCU nurses all reported similar beliefs. All three groups rated “knowing signs and symptoms of an MI,” “knowing how to change or modify personal risk factors,” and “knowing about medications” the three most important areas to include in teaching. Although the variables were slightly different than those addressed on the CPLNI, the results support previous research that identified the perceived learning needs of MI patients.

Hanisch (1993) questioned 41 subjects who had been diagnosed with first MI or a Coronary Artery Bypass Graft (CABG) surgery regarding what information they viewed as most important to learn, and also when they believed was the best time to receive the information. This study was limited by the fact that the typical respondent was a 64 year old Caucasian male who was protestant and married with children (Hanisch, 1993). The data collection instrument used contained 41 items ranked by the subject for importance to learn. It was a modified version of a tool originally developed by Burdette in 1988 used to investigate ostomy patients’ learning needs. The informational areas pertaining to ostomy care were replaced with information pertinent to cardiac patients. The four content areas identified as most important for cardiac patients to learn were activity restrictions, what to expect after a cardiac event, medications and signs and symptoms of complications (Hanisch, 1993). Patients reported the best time to receive information regarding 23 of the 30 topics was following the cardiac event but before discharge to home. Post-hospitalization was the preferred time for discussing sexual activity.

Hanisch (1993) used Maslow’s Hierarchy of Needs with Lazarus’s Theory of Coping to guide the research. According to Maslow’s Theory, lower needs need to be
met prior to higher needs. The researcher believes this is why patients prefer to hear about important information following an event, after such higher needs as physiology and safety have been met. Lower needs, such as psychology, then can be addressed. Maslow, (1968) stated that the “unfamiliar” can be viewed as threatening. Patients can experience stress from something they perceive as threatening. In order to cope with the stress, one implements the coping strategy of information-seeking as defined by Lazarus’s theory (1966). Patients can then manage the threat of the MI.

One qualitative study was done which also assessed MI patients’ and their spouses perceived learning needs by questioning them post-discharge to identify what information they recalled being taught (Liddy & Crowley, 1987). Eleven post-MI patients and their spouses were questioned using face-to-face interviews with open-ended questions. All questions pertained to areas covered by the CPLNI. Several themes emerged. Respondents were generally not well-informed about the content areas and recalled being educated in a sporadic manner (Liddy & Crowley, 1987). Most respondents also believed they wanted to be told more things “to do” rather than what “not to do,” and that the physician was the primary educator (Liddy & Crowley). Although the study does convey the message that improved educational methods are needed to benefit patients, the sample is small, non-random, and potentially biased by the researchers which limits generalizability of the findings.

Knowledge, Misconceptions, Perceptions and Preferred Learning Preferences

Bergman and Bertero (2001) conducted a qualitative study to gain insight into CAD patients’ perceptions of living with heart disease, how it affects their lifestyle, and
to identify the patient’s perception of cause of MI. Eight individuals were interviewed about their life situation and the opportunities or obstacles they encountered while attempting to make lifestyle changes. Respondents identified heredity, lifestyle behaviors and the demands placed on themselves by friends, family, employers, and themselves as the primary causes of heart disease (Bergman & Bertero). Respondents were found to be lacking knowledge of ways they could affect their own health in a positive way, which comes from a lack of cardiac education. They believed heredity was impossible to influence calling it a “family characteristic,” and stated this was one of the biggest obstacles they encountered while trying to make lifestyle changes (Bergman & Bertero).

An underlying assumption of many health care practitioners is that a patient’s perception of illness causation will influence adjustment to the illness (King, 2002). Consequently, a qualitative study of 24 men and women hospitalized in Australia with an MI were interviewed to investigate their perceptions of their illness. The sample limits the findings by including only Australian citizens of Anglo-Sax descent. However, the results indicate that respondents had not understood their symptoms prior to having the MI and thus delayed getting help (King, 2002). Seventeen of the participants identified stress as the primary cause of their MI while many others cited exercise, diet, and lifestyle factors (King, 2002). These respondents indeed lacked knowledge regarding heart disease.

Greenwood, Packham, Muir and Madeley’s (1996) study in the United Kingdom found that 66% of 1,283 subjects responded that stress was the primary cause of their MI.
A combined 47% of the sample thought smoking, increased fat in the diet, and obesity were the primary causes of MI. An alarming 10% of the sample could not even provide a cause for their MI (Greenwood et al., 1996). This study suggests that although half of the subjects smoked, of these, three-fourths did not recognize smoking as an important risk factor. Subjects were also less likely to recognize obesity, exercise, and heredity as risk factors for heart disease (Greenwood et al.).

To implement the findings of learning needs as patients perceive them into teaching programs, it must be determined how patients experience living with heart disease, what their ideas are of cause of MI, and finally their preferred learning preferences. Merritt (1991) examined learning style preferences of 125 subjects with CHD. Merritt (1991) explained that although patients expressed certain benefits from in-patient teaching such as, “improvement in level of knowledge, better adherence to treatment regimens, improved self-care, and positive affects on physiological and psychological well-being, patients continue to report lack of knowledge about their own health needs and are anxious about self-care” (Merritt, 1991).

The study was based on Canfield’s model of learning style and the Patient Learning Style Questionnaire (PLSQ) was derived from this model. The tool consists of 72 items which assess patient education. The study is limited by the fact that 75% of the sample is male, and 89% of the subjects are Caucasian. Subjects were both from in-patient and outpatient settings. The findings do indicate that patients prefer structured teaching situations with oral presentations accompanied by pictorial and graphic modalities (Merritt, 1991). Preference for reading material was rated significantly
lower than education that included listening, iconics, and structure (Merritt, 1991). Participants also reported that they preferred to have a friendly relationship with the instructor but a friendly relationship with peers was less preferred. While group education may be an efficient method of teaching, the results of this study indicate it may not be as effective in meeting the needs of CAD patients and supports the need for individualized education (Merritt, 1991).

In-Patient Education Programs

As previously stated, in-patient education programs for patients with heart disease are second in total numbers only to programs involving diabetic patients (Steele & Ruzicki, 1987). The effectiveness of these programs has thus become an important issue. Some patients are coming to outpatient clinics following their hospitalization for cardiac events with “a frightening ignorance as to their prescribed physical and dietary restrictions, medication use, anticipated return to work and so forth - despite the fact that they frequently had received verbal instructions in these areas during hospitalization” (Rahe, Scalzi, & Shine 1975). The study conducted by Rahe et al. (1975) evaluated the effectiveness of a planned in-hospital teaching program. The program included areas of concern such as those indicated on the CPLNI. The results are difficult to generalize to the cardiac population because the convenience sample contains only 24 subjects, of which 19 are male. Subjects reported they had the most knowledge in areas of care received in the CCU and psychological factors. During the hospitalization, which was up to 2 weeks, patients were too preoccupied with issues surrounding survival from the MI and crises related to the illness to retain material provided during educational sessions.
As
a result, subjects only reported gaining interest in the subject of returning home (Rahe et al., 1975).

Studies examining the effectiveness of in-patient education have, in contrast to the Rahe study, found that subjects reported higher levels of knowledge in areas such as heart disease after receiving at least some form of education while hospitalized for a cardiac event (Mills, Barnes, Rodell, & Terry, 1985; Steele & Ruzicki, 1987). General intelligence, as tested by IQ scores and problem-solving ability had no significant effect on learning (Mills et al.). Patients were found to be more compliant at 4 weeks post-discharge with recommended health changes if in-patient education had been provided (Mills et al. Interestingly, patients reported in another study that 6 weeks after discharge they were not compliant with discharge instructions (Steele & Ruzicki). Patients found it most difficult to comply with dietary changes and smoking cessation (Steele & Ruzicki).

The study by Steele and Ruzicki (1987) did not control for educational level, years having CHD, severity of illness at time of this admission, age, and previous exposure to cardiac education which compromises the generalizability of these findings.

The effects of a specialized in-patient education program for patients with CHD were examined in another study (Maeland & Havik, 1987). Although the statistical data supports only a modest gain in knowledge, patients did report better understanding of issues related to resumption of physical activity, showed less delay in resuming previous activity levels, and reported improved emotional adjustment upon returning home (Maeland & Havik). The small increase may be due to limited personalized education, and all subjects did not receive the same amount of education. All subjects were to see
three sound-slide presentations each lasting 40 minutes but only 77% of the total subjects viewed all three presentations (Maeland & Havik).

An experimental study of patients hospitalized with MI tested the effectiveness of an in-patient program to increase a patient’s knowledge after a cardiac event (Raleigh & Odtohan, 1987). Nine participants in an experimental group received a program folder of information along with personalized education regarding their medications. Nine participants in a control group did not receive the program folder, but did receive medication instruction (Raleigh & Odtohan). Subjects completed a questionnaire prior to the teaching, after the teaching but before discharge, and again 2 months after discharge. Results indicate that those who received the educational program reported less stress and higher knowledge level 2 months after discharge than those who did not receive the program (Raleigh & Odtohan).

Only one study questioned patients and their spouses together to assess how satisfied they were with education received in the hospital (Thompson, Webster, & Meddis, 1990). Self-ratings of satisfaction regarding general health, life in general, care and information received in the hospital were studied over a 6 month period with 60 male first MI patients and their wives. Patients and wives reported significantly more satisfaction in all areas over the 6 month period if they had received the educational program along with routine care (Thompson, et al., 1990).

A qualitative study of 6 patients who had been hospitalized with an MI and provided an in-patient teaching program suggests that patients valued the structure of a teaching experience and found it helpful in managing their lives when they returned
home (Yamada & Holmes, 1998). One participant stated that a nurse is not someone who provides education, but all other participants “were left with the impression that nurses were good sources of information” (Yamada & Holmes). Overall the participants believed the teaching program to be beneficial to their recovery process (Yamada & Holmes). The program contained visual components such as a booklet to read, a heart model to visualize, and a video to watch, which were incorporated into teaching with verbal instruction. All participants found the visual aids helpful in facilitating their understanding (Yamada, & Holmes).

Summary

Research has been conducted to identify which learning needs are most important to patients following an MI. The three categories of medications, risk factors, and cardiac anatomy and physiology were identified as the three most important areas to learn, as perceived by patients. However, only one study (Ashton, 1997) sought to differentiate between the needs of men and women, and even so, the results only indicate a slight difference. These identified learning needs are thus difficult to generalize to women who have suffered an MI.

Numerous studies have been conducted to examine the effectiveness of in-patient teaching programs for MI patients. It has been noted that such programs have been designed by health care providers to cover material they identify as important. Research has neglected to assess patients’ perceived learning needs first, implement programs based on these needs, and then test the effectiveness of such programs. Further research
is warranted which focuses on women’s needs who have experienced an MI and how effective current education programs are at meeting these needs.
CHAPTER III

Method

There are previous studies in which subjects have identified their perceived learning needs regarding cardiovascular disease but none have been designed to study whether men and women differ in their learning needs. This study aims to add to the body of knowledge regarding learning needs of patients with first MI and to determine if women identify different needs than men. The first purpose of this study was to determine what the perceived learning needs are of patients who are diagnosed with their first MI. A second purpose of this study was to determine differences in learning needs between men and women. The third purpose of this study was to examine the effectiveness of the in-patient education program at meeting the perceived learning needs. The final purpose of the study was to determine if the in-patient education program was more effective at meeting the learning needs of men or of women. This chapter will cover the methodology of the study. Sample characteristics and how the sample was gathered will be discussed. The measurement tools used to gather data will be detailed. The data collection process will be detailed, and the appropriate statistical analyses will be determined.

Design

This research utilized a descriptive-comparative design to determine the perceived learning needs of men and women following a first MI, and a pre-test/post-test design to determine the effectiveness of in-patient education. Patients diagnosed with their first MI
during the current hospitalization were asked to participate in the study. A convenience sample was obtained. The registered nurse on the unit first identified subjects who met inclusion criteria. Those subjects were asked by the researcher to complete a demographic sheet, a CPLNI form and a CHD Teaching Evaluation Form while hospitalized. The subjects also were given the CHD Teaching Evaluation Form to complete 14 days after they were discharged from the hospital. Data collection occurred over a period of less than 6 months.

Sampling

The nurses caring for patients on the CCU unit were responsible for identifying patients who were diagnosed with a first MI and who met all other inclusion criteria. The researcher had a poster presentation in the nurses’ lounge on the unit detailing the study and how to reach the researcher when a subject was identified who would meet the researcher, and possibly participate in the study. Permission was granted by the patient to allow the researcher to approach them for participation in the study. The inclusion criteria included (1) diagnosis of first MI during the present hospitalization, (2) had not already received the Cardiac Rehab In-patient Education Program (3) able to read and write the English language, and (4) willingness to participate in the study. Those who were unable to read and write English were excluded due to the researcher’s inability to translate the measurement tools into other languages. Other exclusions included those of diminished capacity or those mentally incompetent or unable to understand the questions on the tools, because each subject was asked to complete all forms by his/herself. Subjects also were excluded if they had received care from the researcher. This was done to limit bias
and coercion in the study. Patients whose first MI was diagnosed during a previous hospitalization also were excluded.

Many patients in this CCU unit underwent cardiac catheterization with stent placement or angioplasty. These subjects were not excluded because they received the Cardiac Rehab In-Patient Education Program just as did the other subjects. However, those individuals taken to open-heart surgery were excluded because the education received by these patients is different from the Cardiac Rehab In-patient Education Program.

Study Materials

Demographic information was gathered including age in years, race, gender, socioeconomic status and educational level. The other tools used were the CPLNI (Gerard & Peterson, 1984), and the CHD Teaching Evaluation Form (Rahe, Scalzi & Shine, 1975).

The CPLNI adapted by Gerard and Peterson (1984) was used to collect data regarding the patients’ learning needs. This questionnaire consists of 43 items which patients are asked to rate on a scale from 1 to 5 from “not important” to “very important.” Information in the questionnaire is grouped into eight categories: Symptom management, anatomy and physiology, psychological concerns, lifestyle factors, medication information, dietary information, physical activity, and miscellaneous information. To ensure content validity, this tool was reviewed by four nurses who were teaching graduate level cardiovascular nursing. Gerard and Peterson also asked an unknown
number of experts to review the information included on the tool. Revisions were made to include changing the wording of questions for easier readability. Following statistical
analysis, the reliability coefficient for the tool was established as .70. Each category also showed reliability of .68 or greater. A copy of the CPLNI is found in Appendix B.

The other tool used to gather information is the CHD Teaching Evaluation Form (Rahe, Scalzi & Shine, 1975). This tool includes 49 items in two question formats: multiple choice and true or false. A copy of this form is included in Appendix C. The answer key for this form is located in Appendix D. The tool was not examined for reliability and validity for the initial study in 1975. This tool was reviewed by experts in the field of cardiovascular nursing to establish content validity for this study. A reliability coefficient was determined for this tool by the researcher.

The CHD Teaching Evaluation Form was originally designed to evaluate the degree of knowledge MI patients had regarding their cardiac disease. The form was administered as a baseline estimate of this knowledge prior to receiving in-hospital education. The questions also are designed to identify possible misconceptions in the content areas. The same form was distributed to patients following education as an evaluation of the effectiveness of that teaching. In the original study patients were hospitalized an average 10 to 14 days. Patients today are hospitalized an average 2 to 4 days, depending upon the severity of the MI and the existence of any comorbidities. For the present study the tool was readministered 14 days after discharge.

Data Collection

After subjects were initially approached by the nurse caring for them on the unit, they were met by the researcher to complete informed consent. Subjects were informed of the purpose of the study, potential risks or benefits, the right to confidentiality and the
right to withdrawal from the study. A printed consent form was distributed to all subjects. A printed and verbal explanation of the study was provided at this time. The researcher answered questions regarding the study. The subject was given 15 minutes to review the material and decide if they would like to participate in the study. The researcher stepped out of the room. When the researcher returned to the room, the questionnaires and forms were distributed to the subject. Each subject received one demographic sheet, one printed script for the reminder phone call, one phone number sheet, one copy of the CPLNI, and two copies of the CHD Teaching Evaluation Form. Printed instructions detailed how to complete the forms. The researcher also verbalized instructions. The subject had 30 minutes to complete all of the forms except the second copy of the CHD Teaching Evaluation Form, which was completed 14 days after discharge.

To ensure the rights to privacy and confidentiality the study did not obtain personal identifiers such as name or home address. Phone number sheets were kept secure in a locked box in the locked office of the researcher. These sheets have the contact phone number, the date of current hospitalization and the subject’s identifiable code. Forms were coded numerically for each subject so that all forms completed by one subject had the same identifiable code. Each form given to subjects to complete in the hospital was identified by the code number and the letter “A.” Forms to be completed after discharge form the hospital were marked with the code number and the letter “B.”

After the demographic sheet, phone number sheet, CPLNI, and the first copy of the CHD Teaching Evaluation Form were completed, the researcher explained that the second copy of the CHD Teaching Evaluation Form was to be completed 14 days after
discharge from the hospital. This form was given to subjects in an addressed, stamped envelope to return to the researcher. Patients were again reminded that a phone call would be placed to the phone number provided to request the second CHD Teaching Evaluation Form be returned. Subjects then finished their stay in the hospital, receiving the Cardiac Rehab In-patient Education Program and had questions answered in regard to their diagnosis. The nurse in charge of the subject’s care provided these answers.

Controlling for validity of questionnaires can be difficult. In order to control validity in this study, consistency with how the tools were administered was an important issue. The researcher completed the initial distribution of the demographic sheet, the CPLNI, and the CHD Teaching Evaluation Form while the subject was hospitalized. Each subject was asked to complete the form by him/herself and to do so prior to receiving the Cardiac Rehab Information Book, which was handed to all patients in the Cardiac Rehab In-patient Education Program. The researcher collected these forms from the subjects. To control validity of answers on form “B,” subjects were asked again on a cover letter accompanying the form to answer all questions themselves.

In an attempt to control external validity, the researcher attempted to control the environment, the equivalence of subjects, the treatment, and the measurement. To control environment the subject was given the initial forms and questionnaires during hospitalization. It is difficult to account for extraneous variables in the hospital. Therefore, the subject was asked to complete the forms by him/herself and it was assumed all answers were given honestly.
There is a great threat to external validity of this study due to the lack of control of a treatment. Experimental and rigid control of treatment is not possible. It was impossible to withhold the education from any of the subjects. Another threat is that several nurses provided the education to the subjects. Each nurse may have differing educational experience and/or techniques. Therefore, the outcomes were investigated as this treatment occurs in the natural setting, that of the current hospitalization.

To control for external validity of measurement, statistics were conducted to measure reliability of the measurement tools. Each subject received the same measurement tools and same instructions for completing all forms. Only one researcher collected the data.

The author has addressed several assumptions of this study in Chapter I. Such assumptions are that subjects participating in the study wish to accept responsibility for their own health. It also was assumed that subjects would find at least one of the eight categories on the CPLNI important to learn. The researcher assumed that subjects would complete questionnaires honestly and answered each question him/herself. It also was assumed that patients diagnosed with a first MI need education regarding their health, that they want to learn the information provided, and that in-patient education is beneficial to patients. The researcher assumes that educated patients will undergo less stress and anxiety upon return home and that reduced anxiety and stress are optimal for well-being.

The study was limited by the use of convenience sampling. The research may be limited by extraneous variables that may alter data. Such an extraneous variable is the
subject’s previous knowledge of cardiovascular disease. Furthermore, the study may be limited by difficulty in clearly defining the studied variables in context of Roy’s Adaptation Theory.

Data Analysis

The demographic sheet was used to gather descriptive data about the sample characteristics. Statistical analyses were conducted to answer each of the research questions.

Research Question #1: What are the perceived learning needs of patients diagnosed with their first MI?

Mean scores were calculated for each of the eight categories on the CPLNI to determine which categories were ranked by subjects as most important to learn.

Research Question #2: Are there differences in the learning needs based on gender?

Data were divided by gender to determine if men and women differ in their perceived learning needs. An independent two-tailed $t$-test was conducted. The assumptions are all met: The independent variable (gender) is categorical and contains two mutually exclusive groups; the distribution of the dependent variable is normal, and the requirement of homogeneity of variance is met.

Research Question #3: Is the Cardiac Rehab In-patient Education Program effective at meeting the patients’ learning needs?

Scores on the first CHD Teaching Evaluation Form were compared with the scores on the second CHD Teaching Evaluation Form. First form answers were identified
as pre-test scores and the answers on the second form were called post-test scores. The mean scores were calculated for each of the six sections on the CHD Teaching Evaluation Form. The two-tailed paired t-test compared the pre-test values with the post-test values. Pre-test values are from Form A, administered during the hospitalization. The post-test values are from Form B, administered after the subject was discharged from the hospital. The assumptions as previously described also were met for the paired t-test.

Research Question #4: *Is the Cardiac Rehab In-patient Education Program more effective at meeting the learning needs of men or women?*

A one-way repeated measures ANOVA was conducted to determine whether the in-patient education was more effective at meeting the learning needs of men or women. For men and women separately, scores on the pre-test (CHD Teaching Evaluation Form A) were compared to the scores on the post-test (CHD Teaching Evaluation Form B) to determine if there were any differences.

**Summary**

This study seeks to expand the body of knowledge concerning care of patients diagnosed with heart disease, particularly after the first MI. Patients completed questionnaires that identify their perceived learning needs regarding the diagnosis of heart disease. Follow-up questionnaires determined whether the in-patient education was effective at meeting those identified needs. The results also were studied to determine if there was a difference between the needs of men and women so that patients can be better educated and aid in their adaptation to life with heart disease.
CHAPTER IV

Results

The first purpose of this study was to identify what the perceived learning needs are of patients diagnosed with their first MI. A second purpose was to explore learning differences between men and women. The final two purposes were to examine the effectiveness of the in-patient education program at meeting those needs, and to determine if the needs of men or women were more efficiently met by the in-patient education program. This chapter contains a description of the sample and the perceived learning needs as ranked in order of importance by the subjects in the study. The statistical analyses are presented as each relates to the research questions. The chapter concludes with a summary.

Sample

The sample for this study was a convenience sample of 23 patients hospitalized with the diagnosis of his/her first MI. The nurse in charge of care identified each subject as having a first MI that day. Each subject was approached by the researcher for informed consent for participation. All subjects were given written and verbal educational material included in the Cardiac Rehab In-patient Education Book. This book was distributed after questionnaires were completed for the study. Approximately 30 patients were identified as potential subjects, with 23 consenting to participate. Each subject completed a demographics sheet, a Cardiac Patients Learning Needs Inventory (CPLNI), and a copy of the CHD Teaching Evaluation Form prior to receiving education. A second copy of the CHD Teaching Evaluation Form was given to subjects at this time to take home,
complete 2 weeks after discharge from the hospital, and return to the researcher. Sixteen questionnaires were returned (a 70% return rate), but only 14 forms were completed.

Demographic characteristics of the sample are presented in Table 1.

Table 1
Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th># of Subjects</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>African-American</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Martial Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>Divorced</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Age in Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>41-50</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>51-60</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>61-70</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>71-80</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;High School</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Finished High School</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>Assoc. or 2 yr Degree</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>Master’s or Graduate</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Post-Master or Post-grad</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Socioeconomic Level</td>
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<td></td>
</tr>
<tr>
<td>&lt;$10,000/yr</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>$11-$20,000/yr</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>$21-$30,000/yr</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>$31-$40,000/yr</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>$41-$50,000/yr</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>$51-$60,000/yr</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>$61-$70,000/yr</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>&gt;$70,000/yr</td>
<td>7</td>
<td>30.4</td>
</tr>
</tbody>
</table>
There were 18 (78.3%) male subjects and 5 (21.7%) female subjects in the sample. The average age of subjects was 41-50 years (39.1%). Subject ages ranged from 31 to 80 years. A total of 19 (82.6%) subjects were Caucasian and 18 (78.3%) subjects were married. Just over half of the sample (52.2%) or 12 subjects had finished high school as their highest level of education, and the annual income of subjects was greatly varied between <$10,000 yearly (8.7%) to > $70,000 yearly (30.4%).

Findings

Research Question #1: What are the perceived learning needs of patients diagnosed with their first MI?

Subjects were given the CPLNI form to identify what areas of concern were most important to learn after diagnosis of first MI. Mean scores were calculated for each of the eight categories on the form. The categories include: anatomy and physiology, psychological factors, lifestyle factors, medication information, dietary information, physical activity, symptom management, and miscellaneous. Of the eight categories, subjects ranked the category of physical activity most important to learn, followed by dietary information and anatomy and physiology. The means for each category are listed in Table 2.
Table 2
Mean Scores for the CPLNI

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy/Physiology</td>
<td>23</td>
<td>23.4348</td>
<td>2.1495</td>
</tr>
<tr>
<td>Psychological</td>
<td>23</td>
<td>17.2609</td>
<td>2.8319</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>23</td>
<td>13.1739</td>
<td>1.9691</td>
</tr>
<tr>
<td>Medication</td>
<td>23</td>
<td>22.9565</td>
<td>2.5312</td>
</tr>
<tr>
<td>Dietary</td>
<td>23</td>
<td>26.6522</td>
<td>3.8801</td>
</tr>
<tr>
<td>Activity</td>
<td>23</td>
<td>27.5217</td>
<td>2.7114</td>
</tr>
<tr>
<td>Symptoms</td>
<td>23</td>
<td>23.2609</td>
<td>3.1654</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>22</td>
<td>13.1364</td>
<td>2.1223</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Five of the eight categories demonstrate relative importance to subjects with mean scores above 22.9. These five categories include physical activity, dietary information, anatomy and physiology, symptom management and medication information. Psychological factors has a mean of only 17.2, while lifestyle factors and the miscellaneous information were least important to learn, with means of 13.1.

*Research Question #2: Are there differences in the learning needs based on gender?*

One of the purposes of this study was to determine if men and women were found to have significantly different learning needs. Mean scores for the CPLNI were divided by gender, and are found in Table 3.
Table 3
Mean Scores for the CPLNI Divided by Gender

<table>
<thead>
<tr>
<th>gender</th>
<th>ANAT</th>
<th>PSYCH</th>
<th>LIFE</th>
<th>MED</th>
<th>DIET</th>
<th>ACT</th>
<th>SYMPT</th>
<th>MISC</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>Mean</td>
<td>22.60</td>
<td>16.60</td>
<td>12.00</td>
<td>23.60</td>
<td>27.20</td>
<td>26.20</td>
<td>23.60</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>1.8166</td>
<td>2.5100</td>
<td>2.3452</td>
<td>2.1909</td>
<td>2.5884</td>
<td>3.6332</td>
<td>2.0736</td>
</tr>
<tr>
<td>male</td>
<td>Mean</td>
<td>23.66</td>
<td>17.44</td>
<td>13.50</td>
<td>22.77</td>
<td>26.50</td>
<td>27.89</td>
<td>23.17</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>2.2229</td>
<td>2.9550</td>
<td>1.7905</td>
<td>2.6470</td>
<td>4.2183</td>
<td>2.3933</td>
<td>3.4513</td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>23.44</td>
<td>17.26</td>
<td>13.17</td>
<td>22.96</td>
<td>26.65</td>
<td>27.52</td>
<td>23.26</td>
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<tr>
<td></td>
<td>N</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>2.1495</td>
<td>2.8319</td>
<td>1.9691</td>
<td>2.5312</td>
<td>3.8801</td>
<td>2.7114</td>
<td>3.1654</td>
</tr>
</tbody>
</table>

The mean scores for the categories anatomy and physiology, psychological factors, lifestyle factors and physical activity were slightly higher for men. The mean scores for medication information, dietary information, symptom management and the miscellaneous information were slightly higher for females. Interestingly, the ranked order of importance is different between men and women. Men rate physical activity most important to learn, while women believe dietary information is the most important area to learn. The top five categories are the same for men and women, just ranked in differing order. Table 4 illustrates these differences.
Table 4
Categories Ranked in Order of Importance by Men and Women

<table>
<thead>
<tr>
<th>Females:</th>
<th>Males:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dietary information (M= 27.2)</td>
<td>1. Physical activity (M= 27.8)</td>
</tr>
<tr>
<td>2. Physical activity (M= 26.2)</td>
<td>2. Dietary information (M= 26.5)</td>
</tr>
<tr>
<td>3. Symptom management (M= 23.6)</td>
<td>3. Anatomy and physiology (M= 23.6)</td>
</tr>
<tr>
<td>4. Medication information (M= 23.6)</td>
<td>4. Symptom management (M= 23.1)</td>
</tr>
<tr>
<td>5. Anatomy and physiology (M= 22.6)</td>
<td>5. Medication information (M= 22.7)</td>
</tr>
<tr>
<td>6. Psychological factors (M= 16.6)</td>
<td>6. Psychological factors (M= 17.4)</td>
</tr>
<tr>
<td>7. Miscellaneous (M= 13.2)</td>
<td>7. Lifestyle factors (M= 13.5)</td>
</tr>
<tr>
<td>8. Lifestyle factors (M= 12.0)</td>
<td>8. Miscellaneous (M= 13.1)</td>
</tr>
</tbody>
</table>

An independent samples \( t \)-test was conducted for each category on the CPLNI to determine whether the differences in learning needs between men and women were statistically significant. The values reported for this test are those where equal variances are not assumed because the sample sizes are quite different between men and women. Although there were differences in ranked importance of the categories when comparing means, there was no statistically significant difference in any of the categories. The effect size (d value) for each of the categories ranged from a small effect size for the symptom management category (d = 0.17) to a moderate effect size for the lifestyle factors category (d= 0.67.) These values were for categories before being divided by gender. See Appendix E for a table of the \( t \)-test results.

Research Question #3: Is the Cardiac Rehab In-patient Education Program effective at meeting the patients’ learning needs?
To determine if the in-patient education received by the subjects was meeting their perceived learning needs, subjects were asked to complete the CHD Teaching Evaluation form prior to receiving in-patient education and again 14 days after they were discharged from the hospital. Mean scores were calculated for each of the six sections on the CHD Teaching Evaluation Form A (completed in the hospital). Mean scores were computed for the six sections on the CHD Teaching Evaluation Form B (completed 2 weeks after discharge from hospital). Scores on Form A were compared with scores on Form B. Mean scores were higher for the categories nature of the disease and physical activity after subjects received in-patient education. Table 5 illustrates these data.

Table 5
Means and Standard Deviations for the CHD Teaching Evaluation Form

<table>
<thead>
<tr>
<th>Section</th>
<th>Means A</th>
<th>SD</th>
<th>Means B</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nature of Disease</td>
<td>2.25</td>
<td>1.05</td>
<td>2.83</td>
<td>1.03</td>
</tr>
<tr>
<td>2. Emergency Treatment</td>
<td>2.28</td>
<td>0.468</td>
<td>2.07</td>
<td>0.267</td>
</tr>
<tr>
<td>3. Physical Activity</td>
<td>6.93</td>
<td>0.997</td>
<td>7.64</td>
<td>0.497</td>
</tr>
<tr>
<td>4. Diet and Smoking</td>
<td>9.53</td>
<td>0.967</td>
<td>9.46</td>
<td>0.877</td>
</tr>
<tr>
<td>5. Psychological Factors</td>
<td>8.08</td>
<td>2.74</td>
<td>8.08</td>
<td>2.68</td>
</tr>
<tr>
<td>6. Return Work and Home</td>
<td>3.00</td>
<td>3.48</td>
<td>2.46</td>
<td>1.19</td>
</tr>
</tbody>
</table>

A paired samples t-test was conducted to evaluate whether the subjects knowledge of cardiac issues increased after being hospitalized with their first MI, indicating their learning needs were met. Each of the six categories was evaluated separately. The results indicated that for the sections nature of the disease, emergency treatment, diet and smoking, psychological factors, and return to home and work there
was no significant difference between scores on the pre-test and scores on the post-test. Pre-test scores were the answers on the CHD Teaching Evaluation Form A. Post-test scores were the answers given on the CHD Teaching Evaluation Form B. For the section physical activity, for men and women combined, the mean score on the pre-test (M = 6.93, SD = 0.9972) was significantly lower than the mean score on the post-test (M = 7.64, SD = 0.4972), t (13) = -2.219, p = 0.045, indicating a possibly significant difference. A larger sample size may have yielded significant results. Appendix F, illustrates the results of the paired samples t-tests for each of the six categories on the CHD Teaching Evaluation forms A and B.

There was a trend toward significance on the category emergency treatment, t (13) = 1.883; p = 0.82. The result is not significant at this level because of small sample size. One limitation to this study may have been the level at which questions were written. Two subjects who returned the CHD Teaching Evaluation Form submitted it without answers commenting that the questionnaire had been written for nurses and not for patients. This may be a reason the findings were not significant for any of the areas of concern.

Research Question #4: Is the Cardiac Rehab In-patient Education Program better at meeting the learning needs of men or women?

The final purpose of this study was to determine if the Cardiac Rehab In-patient Education Program best met men’s or women’s learning needs. A one-way repeated measures ANOVA was conducted with the dependent variable being a comparison between the total scores on the pre-test and total scores on the post-test for each section
of the CHD Teaching Evaluation Form. The independent variable was gender. The means and standard deviations for the scores on the pre-test and post-test are illustrated in Appendix G. The results of the ANOVA computed for each section on the CHD Teaching Evaluation Form A and on Form B showed no significant difference between men’s and women’s learning needs.

Summary

This chapter included a discussion of the demographic characteristics of the sample. A convenience sample of 23 first-time MI subjects was obtained. Each subject was questioned during hospitalization, and also asked to complete a questionnaire 14 days after discharged from the hospital. Only 16 subjects returned the final questionnaire (70% return rate). The findings related to each research question were discussed.

The first research question identified the perceived learning needs of patients following the first MI. The category ranked most important to learn was physical activity. The three most important areas to learn were physical activity, dietary information, and anatomy and physiology. The least important categories were lifestyle factors and the miscellaneous category.

The second research question asked if there were differences between the perceived learning needs of men and the perceived learning needs of women. Men and women did rank the categories on the CPLNI in different order of importance. The most important area of concern for men was physical activity. The most important area of concern for women was dietary information. Both men and women agreed that physical
activity, dietary information, medication information, anatomy and physiology, and symptom management were the five most important areas of concern, just in differing order of importance. Although areas of concern were ranked differently between men and women, no significant difference was found in their learning needs.

The third research question examined whether the in-patient education program: the Cardiac Rehab In-patient Education book was effective at meeting the learning needs of subjects in this study. Total scores on the CHD Teaching Evaluation Form A were compared to the scores on Form B for each specific section. The section regarding physical activity was the only section found to have a significant difference in scores, thus indicating the learning needs were met for this topic of concern. A trend toward significance on the nature of the disease category indicates that with a larger sample size subjects may have indicated their needs were met for this topic of concern.

The fourth research question asked whether the In-patient Education Program was more effective at meeting learning needs for men or women. No significant differences were found.
CHAPTER V

Discussion

The purposes of this study were to identify the perceived learning needs of patients diagnosed with a first MI, determine whether men and women differed in their perceived learning needs, to examine the effectiveness of the in-patient education program at meeting the perceived learning needs and finally to determine if men or women’s needs were better met by the in-patient education. This chapter begins with an examination of each research question and the results obtained. The findings are compared and contrasted with the studies in the literature review. The conclusions based on the findings will be detailed. Limitations of the study will be identified. The implications for nursing theory, practice and education will be discussed. Recommendations for further research will be stated, followed by a brief summary of the chapter contents.

Findings

Research Question #1: What are the perceived learning needs of patients diagnosed with their first MI?

Each subject completed a Cardiac Patients Learning Needs Inventory (CPLNI) form to indicate his/her perceived learning needs following diagnosis of first MI. There were eight areas of concern on the form including anatomy and physiology, psychological factors, lifestyle factors, medication information, dietary information, physical activity, symptom management, and miscellaneous. The CPLNI was used to
rank 43 items on a 5-point scale from “not important” to “very important,” which were divided into eight specific areas of concern. Subjects ranked the category physical activity (M= 27.52) as most important to learn. The top three areas of concern were physical activity (M= 27.52), dietary information (M= 26.65), and anatomy and physiology (M= 23.43). The results of this study support the literature that found anatomy and physiology to be an important area of concern (Karlik & Yarcheski, 1987; Wingate, 1990; Czar & Engler, 1997.) Not much data about the anatomy of the heart or the pathophysiology of an MI is found in the media. Television commercials, Internet resources and information pamphlets for patients contain little information about the structure of the heart and what happens to the heart during the heart attack. This has not changed in 15 to 20 years since the initial studies were conducted with patients with first MI. A heart attack also occurs in the same way now as it did in the past. Patients know that to truly understand their disease they must start with understanding the process of the MI and what damage has been done to the heart muscle. A good understanding of this process also is essential to the understanding of how the prescribed medications will work.

Many of the studies reviewed found that medication information and risk factors were the most important areas of concern, along with anatomy and physiology (Gerard & Peterson, 1984; Karlik & Yarcheski, 1987; Chan, 1990; Wingate, 1990.) This study fails to support these findings in the literature because subjects did not rank risk factors (lifestyle factors in this study) and medication information as two of the top three areas of concern. Subjects in this study indicated that the most important areas to learn, along
with anatomy and physiology, were dietary information and physical activity. This difference may be due to the increase in today’s information in the media regarding medications and risk factors for heart disease. Commercials are often seen on television, in magazines and on Internet websites that inform the public about the risk factors for heart disease. Another reason for this difference is that society places more emphasis today on diet management and increasing physical activity because of the increasing prevalence of obesity. Patients want to become more involved in their health care and may do this through knowledge of a heart healthy diet and an exercise regimen.

Incidentally, as reported in the findings for research question #2, men ranked physical activity as the most important area of concern. Physical activity also may have been ranked as the most important topic overall in this study because of the large numbers of men in the sample.

This study supports the findings of a study conducted in 1998 by Turton where subjects identified medication information as far less important to learn than other areas of concern. In contrast to the Turton (1998) study, subjects in this study reported risk factors (lifestyle factors) far less important to learn. This again is due to the increasing knowledge of heart disease in the general public.

This study is supported by only one previous study where subjects indicated physical activity was the most important topic of concern (Hanisch, 1993). This is the only research to support physical activity as most important to learn. However, subjects in the Hanisch study were not only first MI patients but also those awaiting CABG surgery. Physical limitations could have been ranked as most important to learn because
of the increasing limitations after bypass surgery. The number of subjects awaiting CABG in this study may have skewed the data and rendered it less supportive for patients with first MI.

The findings of perceived learning needs in this study are generally not supported by the literature. Subjects in this study placed more emphasis on learning dietary information, physical activity recommendations, and anatomy and physiology of the heart. Subjects in previous studies agreed that physical anatomy and physiology was an important topic to learn but believed risk factors (lifestyle factors) and medication information to be more important to learn than diet information and physical activity recommendations. The conflict in the findings is related to previous studies having been conducted 15 to 20 years ago, when less was publicly known about heart disease. Patients today are subjected to more advertisements about heart disease, and thus find that learning about physical activity recommendations and diet information is a much higher priority.

Another reason that physical activity and diet information were ranked so important to learn is that patients who do not understand the cause of the MI may seek education in different areas than those who understand what caused the MI. A study by King (2002) indicated that more than half of the subjects in that study reported poor diet, lack of exercise and lifestyle factors were the cause of the MI. Perhaps patients in this study believed these same factors to be the cause of their MI, and thus felt they needed to learn more about these areas of concern. It is not truly understood in the present study what subjects identify as the cause for their MI.
Research Question #2: Are there differences in the learning needs based on gender?

Men and women were found to rank the categories on the CPLNI differently in order of importance to learn, but no statistical significance was found between these differences. Men and women did agree that the five most important areas of concern were dietary information, physical activity, symptom management, medication information, and anatomy and physiology. Men, however, indicated physical activity was most important to learn, while women indicated dietary information was of most importance to learn. Based on these findings the in-patient education would not need to be tailored specifically based on gender. In-patient education would need to include all five areas of concern.

Ashton (1997) conducted the only previous study of MI patients to explore gender differences in perceived learning needs. The top two areas of concern for both men and women were medication information and risk factors. Risk factors was most important to men, while medication information was most important to women. In contrast, men in this study ranked physical activity as most important and women ranked dietary information as most important. This finding may be related to the overall more physical nature of men. Men may correlate physical strength and ability with healthiness and well-being. Society emphasizes weight control for women and this may be a contributing factor to the findings of this study that women want to know mostly about diet information. Women are often food shoppers and preparers in the home, and may find
diet recommendations and restrictions more important to learn than men find important.

Research Question #3: Is the Cardiac Rehab In-patient Education Program effective at meeting the patients’ learning needs?

To determine if the in-patient education program was effective at meeting the learning needs of patients with first MI, subjects completed a CHD Teaching Evaluation Form in the hospital and again 14 days after discharge from the hospital. No significant difference was found between scores on the CHD form completed in the hospital (Form A) and the CHD form completed after discharge (Form B), for five of the six categories. The five categories include nature of the disease, emergency treatment, diet and smoking, psychological factors, and return to home and work. The only significant difference in scores was on the category physical activity (M= 0.7143, SD= 1.20). This indicates that scores improved on the second CHD form for questions regarding physical activity, and thus, subjects’ learning needs were met during the in-patient education. Subjects’ learning needs were not met for the other five areas of concern. A trend toward significance for the nature of the disease category indicates the possibility that learning needs may have been met for this topic had the sample been larger in size.

Subjects’ learning needs were met in this study for the topic of physical activity recommendations. This finding supports the literature that promotes in-patient education as a way to increase patients’ knowledge of their disease. This study also supports the literature that promotes specialized in-patient education because learning needs were met that had been identified by the subjects as most important to learn.
This study is supported by the previous research conducted by Merritt (1991), Maeland and Havik (1987), Raleigh and Odtohan (1987), Mills, Barnes, Rodell, & Terry, (1985) and Steele and Ruzicki (1987), in which in-patient education is promoted, because subjects reported at least a modest increase in knowledge after receiving the in-patient education. Subjects in this study indicate an increase in knowledge in the area of physical activity after receiving the Cardiac Rehab In-patient Education Program. Subjects’ learning needs may have been met for this area of concern because it had been previously identified by the subjects themselves as important to learn. More attention would have been given to the topic that they identified themselves as important to learn. The learning needs of subjects in this study may have been met for other topics of concern if the sample size had been larger.

Research Question #4: Is the Cardiac Rehab In-patient Education Program better meeting the perceived learning needs of men or women?

Scores on the CHD Teaching Evaluation Form A and scores on Form B also were divided by gender to see if men or women had their learning needs better met by the in-patient education program. One-way ANOVA analysis was completed for each of the six sections on the CHD Teaching Evaluation From. No significance was found. The results indicate that neither gender benefited more, nor had their learning needs been better met by the in-patient education. This implies that the education was designed to meet the needs of all subjects.

There have not been any studies conducted to determine if in-patient education programs were more effective for men or women. It has been reported that in-patient
education is beneficial to subjects’ recovery process and in helping them manage their lives upon returning home (Yamada & Holmes, 1998). Patients also have reported higher self-ratings of satisfaction regarding general health and life in general after receiving in-patient education (Thompson, Webster, & Meddis, 1990). These previous studies supported the investigation of gender differences in learning needs in this study.

Conclusions

This study indicates that men and women are able to identify their perceived learning needs. This study also indicates that men and women will identify different priorities of perceived learning needs but agree that the areas of physical activity, medication information, dietary information, anatomy and physiology, and symptom management are all important areas of concern after an MI. Women reported dietary information as the most important topic. Men reported physical activity as the most important topic. There is not a significant difference between the identified learning needs of men and women.

This study indicates that in-patient education was effective at meeting subjects’ perceived learning needs pertaining only to the topic physical activity. The in-patient education was not as effective at meeting the learning needs of other topics.

Finally, the study indicates there is no difference in the in-patient education program at meeting learning needs between men and women.

Limitations

A limitation of this study is the characteristics of the sample. The convenience sample was too small (23 total subjects). Most subjects were men (18 total subjects),
Caucasian (19 total subjects), and married (18 total subjects.) There were not enough women in the study to draw adequate conclusions of differences between men and women. Also, the study was conducted in a short time frame limiting the number of available subjects.

Another limitation is the effect of extraneous variables. Patients may have had previous knowledge of areas covered on the CHD Teaching Evaluation Form if a spouse or other loved one had previously been diagnosed with heart disease or an MI. Subjects with occupations in the health care industry were not excluded from the study. These subjects would have previous knowledge of topics covered on the CHD Teaching Evaluation Form.

Questions on the CHD Teaching Evaluation Form may have been written at too difficult a level for subjects to understand. The two subjects who returned the CHD Form B and did not provide answers wrote on the form that the questions were for nurses and not for patients. When answering the forms at home, subjects may have received help from others, changing the outcome of the study. Finally, the study was limited by the return rate on the second copy of the CHD Teaching Evaluation Form. Although 70% seems to be an adequate return rate, it is a limitation of this study because the sample size is so small.

Implications

Nursing Theory

The basis behind Roy’s Adaptation Theory (1984) is adapting in what is called the four adaptive modes: physiologic, self-concept, role function, and interdependence.
Adaptation occurs after a triggering event, in this case the MI, and a person must cope with the changes brought about by the event. Ability to cope is essential to a person’s ability to adapt when confronted with the triggering event.

Subjects were asked to identify their perceived learning needs in this study after the diagnosis of an MI. In order to adapt, the patient must cope in the self-concept mode. One examines psychic integrity in this mode, which is the basic need of knowing who one is so that one can exist with a sense of unity (Roy, 1984). This knowing one’s self is essential to the ability to identify the perceived learning needs. Subjects in this study adapted to the diagnosis of heart disease by identifying the perceived learning needs.

Suffering an MI also requires a patient to adapt in the role function mode. It is a function of this mode to know how one relates to others. Social integrity is key. It is the goal that the patient chooses adaptive responses. The key to choosing adaptive responses is education. This study supports adaptation in this role by providing in-patient education to meet the perceived learning needs of patients and equip them with knowledge of their new “self,” and knowledge of the adaptive health and behavior changes. Subjects indicated an increase in knowledge regarding physical activity recommendations in this study that aids in the process of making behavior changes and choosing adaptive responses.

Through the provided in-patient education, the nurses can help a patient adapt in the interdependence mode and physiologic mode. The patient is provided knowledge of the physiologic changes that occur with an MI. The interdependence mode focuses on receiving respect, affirmation, affection and understanding. The nurse can meet these
needs of the patient through the act of caring and the art of nursing.

This study supports the role of adaptation theory in nursing practice. The nurse helps a patient who has suffered their first MI to maintain adequacy and a balance with the environment by providing in-patient education. Providing such education enables the patient to cope with this event in the four adaptive modes. Also, by providing the in-patient education to meet the learning needs, the nurse focuses on the goal of nursing, according to Roy (1984), which is to promote adaptation and improve quality of life.

Nursing Practice

Identifying the perceived learning needs of patients diagnosed with first MI is important to nursing practice. By having a greater understanding of the patient’s perceptions and needs for learning, the nurse can structure the in-patient education to that individual. More individualized patient teaching will yield better understanding by the patient and provide the patient more confidence before returning home. The specific in-patient education program evaluated in this study: The Cardiac Rehab Information Book must be implemented in the daily care of patients diagnosed with their first MI.

Nursing Education

The results of this study indicate that some of the patients’ perceived learning needs are possibly being met by the in-patient education in this program. This indicates a need for nursing education to be structured and to be tailored to an individual’s learning needs. The results support identifying each individual’s learning needs prior to implementing an in-patient education program. The trend toward significant findings on the CHD Teaching Evaluation form in the areas of physical activity and emergency
treatment indicates a need to be more focused in these areas in the Cardiac Rehab Inpatient Education Book. Also, nurses should be more attentive to patients’ needs in these areas when providing education.

The results of this study can be used in nursing school curriculum to promote individualized in-patient education. Instructors can teach nursing students that effectively identifying a hospitalized person’s learning needs can ultimately enhance that patient’s learning. Enhanced patient learning means better outcomes for adaptive behavior and more effective coping after a new diagnosis of heart disease.

Nursing Administration

Implications for nursing administration involve supporting the Cardiac Rehab In-patient Education Program and the nurses involved in the education process. Nursing administrators should support the implementation of this program in areas where patients are diagnosed with a first MI.

Recommendations for Further Research

Further research needs to be done to ascertain whether there are more significant differences between the perceived learning needs of men and women. Further studies should be conducted with a larger number of subjects and a more equal distribution of men and women. Also, studies should include a broader range of sample demographics including race and marital status. Additional research could be done with altered editions of the CPLNI and CHD Teaching Evaluation Form. Questions could be written at a lower reading level so that patients would feel the questions were important to them and not to the nurses.
Future studies of perceived learning needs could also examine the needs of patients in different populations; for example, those diagnosed with heart disease, such as coronary artery blockage, but not an MI. These individuals may need more individualized education as well. Other subjects to include would be those preparing for heart surgery and those with cardiac arrhythmia or congestive heart failure. The perceived learning needs in all these patient populations could be researched further. Additionally, further studies could have patients complete the CPLNI again after discharged from the hospital to identify if their perceived learning needs change after returning home.

In-patient education programs need to be further examined to evaluate the effectiveness of these programs at meeting the needs of patients. Often the programs are designed by nursing administration or other hospital staff and may not be effective at meeting individual patient needs for learning. Written material may not be written at an educational level that is easily understood by patients. Education programs could be studied in other nursing areas with patients other than those diagnosed with first MI.

Summary

This study indicated that patients identified areas of concern as important for them to learn after being diagnosed with their first MI. Men and women ranked areas of concern in differing order of importance, but generally agreed on the most important areas needing to be covered during in-patient education. The Cardiac Rehab Information Book given to patients in this program showed to be effective at meeting patients’ learning needs regarding physical activity after an MI, but failed to show significant
improvement in understanding of other areas of concern. Men and women were not identified as having significantly different learning needs that would affect the education being provided. Thus, in-patient education needs to be individualized to each patient regardless of gender. The results of the study support the role of Roy Adaptation Theory in the recovery process and understanding of the nature of the disease after diagnosis of an MI. Several limitations of the study imply the need for future research to better examine the differences in learning needs and to evaluate the effectiveness of in-patient education at meeting these needs.
REFERENCES


APPENDIX A

ADAPTATION SCHEMATIC
**Cardiac Patients’ Learning Needs Inventory**

Please rate the importance of receiving information on each of the following items during your hospitalization by placing an X in the appropriate column.

NI = Not important
SI = Slightly important
MI = Moderately important
I = Important
VI = Very important
NA = Not applicable

<table>
<thead>
<tr>
<th>I need to know:</th>
<th>NI</th>
<th>SI</th>
<th>MI</th>
<th>I</th>
<th>VI</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a). Anatomy &amp; Physiology</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.) Why did I have chest pain</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.) What the heart looks like and how it works, including the blood supply to the heart muscle</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.) What causes a heart attack to occur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.) What happens when a person has a heart attack</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>5.) How long the damaged heart muscle takes to heal</td>
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<td></td>
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</tr>
<tr>
<td>(b) Psychological factors</td>
<td></td>
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<tr>
<td>1.) What is the usual psychological response following a heart attack</td>
<td></td>
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<tr>
<td>2.) About the importance of talking to someone about my fears, feelings, and thoughts</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3.) What effect stress has on my heart</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
4.) What I can do to reduce stress in my life

(c) Lifestyle factors
1.) What the term “lifestyle factor” means

2.) Which lifestyle factors may have contributed to my having suffered a heart attack

3.) What I can do to reduce the chances of my having another heart attack

(d) Medication information
1.) The general rules about taking medications

2.) Why I am taking each of the medications I am on

3.) When I should take each of the medications that I am on

4.) What the potential side effects are of each of the medications I am on

5.) What I should do if I have a problem with the taking of my medications

(e) Dietary information
1.) General rules about healthy eating

2.) How certain items in my diet may affect my heart

3.) What cholesterol is and what it means

<table>
<thead>
<tr>
<th>NI</th>
<th>SI</th>
<th>MI</th>
<th>I</th>
<th>VI</th>
<th>NA</th>
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<tbody>
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</table>

pg. 2 of 4
4.) What foods may lead to raised cholesterol

<table>
<thead>
<tr>
<th>NI</th>
<th>SI</th>
<th>MI</th>
<th>I</th>
<th>VI</th>
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5.) What changes I will need to make to my diet, if any

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(f) Physical activity

1.) The general guidelines about physical activity after a heart attack

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2.) When I can resume driving

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3.) What physical restrictions I may have, if any

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4.) How to know when I can increase my level of activities

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5.) When I can resume sexual activity

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6.) When I can return to work

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(g) Symptom management

1.) The different causes and types of chest pain

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2.) What to do if I get chest pain

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3.) What are the signs and symptoms of a heart attack

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4.) When to call the doctor or the ambulance

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5.) When I am most likely to suffer chest pain

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6.) When and how to use nitroglycerin

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(h) **Miscellaneous**

1. What support services are available when I am discharged home

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2. What support is available for my family

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3. What tests and investigations I will have in the future with regard to my heart

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4. Any additional information you would like

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APPENDIX C

________ Code number                                                                      ________ MCO IRB #

________ SVMMC IRB #

CHD Teaching Evaluation Form

A. Nature of your disease

*Circle the small letters for all statements you feel to be true:*

1. The damage in a heart attack is due to:
   a. Too much fat in the blood
   b. Too little blood to the heart
   c. Too little blood into the heart chambers
   d. No heart damage; only damage is a clot in the blood vessel

2. The pain involved in a heart attack is from:
   a. Heart irritability
   b. Too little oxygen to the heart muscle
   c. Too little blood in the heart chambers
   d. Damaged heart muscle

3. The damage to the heart muscle from a heart attack is:
   a. Similar to a deep cut
   b. Similar to a muscle spring
   c. Similar to a bruise

4. The healing of the heart following a heart attack is:
   a. Never complete, leaving a “soft spot”
   b. Totally complete, leaving no trace of damage
   c. Leaves a scar

5. The chances of a new heart attack:
   a. Decrease markedly over your first few days in the hospital
   b. Can be influenced by things you learn to do here in the hospital
   c. Are always increased if you continue to feel chest pain
   d. Are reduced by a calm, quiet atmosphere
B. Emergency treatment

*Circle all statements to be true:*

1. The heart monitor attached to you in the CCU is used to:
   a. Keep outside electrical currents away
   b. To detect any changes in heart action
   c. To help your heart recover

2. The reason for nasal oxygen in the CCU is:
   a. To reduce chest pain
   b. To keep you from smoking
   c. To reduce the work of your lungs
   d. To give your heart more oxygen

3. Repeated blood tests are to:
   a. Measure the fat in your blood
   b. Measure enzymes in your blood – reflecting heart muscle damage
   c. To assess the effects of medication

4. You are transferred from the ICU:
   a. Because your condition improves
   b. When someone else needs your bed
   c. According to a set schedule

C. Physical Activity

*Mark “T” for true; “F” for false.*

1. T___F___ After a heart attack one should stay at bedrest for two to three weeks.

2. T___F___ After a heart attack a patient will very likely not return to his previous level of physical activity.

3. T___F___ After a heart attack one’s sex life has to be greatly reduced (in future years).

4. T___F___ If one gradually increases his physical activity over the six months or so following a heart attack, he can obtain and may even surpass his previous degree of physical fitness.

5. T___F___ Probably too much physical activity causes heart attacks.

6. T___F___ After the amount of rest one gets in the hospital following a heart attack, one really feels “rarin’ to go” his first few days at home.

7. T___F___ It is important for the healing process of the heart to gradually increase physical activity.
8. T___F___ One can begin a physical fitness program right here in the hospital

D. Diet and Smoking

*True of False:*

1. T___F___ It was my last meal that led to my heart attack.
2. T___ F___ Even an occasional cocktail is bad for your heart.
3. T___F___ Too much animal fat in your diet contributes to high blood cholesterol.
4. T___F___ High blood cholesterol signals a proneness to heart attack.
5. T___F___ As a rule, salt is bad for your heart.
6. T___F___ Patients who develop heart attacks tend to be overweight.
7. T___F___ Losing weight is relatively easy.
8. T___F___ I won’t be able to eat rich foods again.
9. T___F___ Food prepared without salt is flavorless.
10. T___F___ If you have been a long-time smoker, quitting now won’t be of much help.
11. T___F___ Smoking has definite psychological side effects
12. T___F___ Smoking tends to keep your body weight down.

E. Psychological Factors

*True or False*

In general, persons who develop a heart attack:

1. T___F___ Work several hours “overtime” and/or take their work home with them.
2. T___F___ Frequently look back upon their accomplishments with a high degree of personal satisfaction.
3. T___F___ Tend to have jobs at the “top of the ladder”.
4. T___F___ Don’t take time to relax.
5. T___F___ Are hard-driving, competitive persons.
6. T___ F___ Take on high degrees of responsibility.

7. T___ F___ Have well-defined goals in life.

8. T___ F___ Take their work, and life in general, very intensely.

9. T___ F___ Not infrequently hold more than one job.

10. T___ F___ Are flexible people who can easily delegate work and learn new routines.

11. T___ F___ Tend to rush themselves and fight time deadlines.

12. T___ F___ Are persons who have made their “own way” in life.

13. T___ F___ May have family problems.

F. Return to home and work
Circle all the small letters for all statements you feel to be true.

1. The first 2 or 3 days after hospital discharge are:
   a. Difficult for all family members
   b. Surprisingly joyous and trouble-free.

2. Children at home (if any) will:
   a. Be on their best behavior over the first few weeks.
   b. See you in a different way when you are at home and not going to work.
   c. Along with your spouse, tend to be overprotective of you.

3. Your spouse:
   a. Should always be in the house with you during your first 2 or 3 months at home.
   b. Should understand your illness and what you’re supposed to do to avoid a future heart attack.
   c. Had to cope with many stresses during your hospitalization.

4. About medications:
   a. You should not become dependent on them as a “crutch”.
   b. It may help to carry nitroglycerin tablets in your pocket.
   c. Once you leave the hospital, the medications you are given are apt to be changed in the future by your doctor.
5. About physical activity:
   a. You must rest for the first month or more before starting walks outdoors, etc.
   b. You can begin a graduated physical activity program within the first few days after you arrive home.
   c. The walking you normally do at work can suffice for future physical exercise requirements.

6. If chest pain should re-occur after hospital discharge, you should:
   a. Call your doctor immediately.
   b. Immediately return to the hospital.
   c. Try a nitroglycerin tablet under your tongue.

7. When you are ready to return to work:
   a. If you don’t change to a different kind of work, it will be very difficult to alter any previous work stresses.
   b. Most employers don’t understand about heart attacks and won’t allow persons to gradually readjust to their work.
APPENDIX D

Scoring for the CHD Teaching Evaluation Form
T = True  F = False

Section A.
1. a-F, b-T, c-F, d-F.
2. a-F, b-T, c-F, d-F.
3. a-F, b-F, c-T.
4. a-F, b-F, c-T.
5. a-T, b-T, c-F, d-T

Section B.
1. a-F, b-T, c-F.
2. a-T, b-F, c-F, d-T.
3. a-T, b-T, c-T.
4. a-T, b-F, c-F.

Section C

Section D.

Section E.

Section F
1. a-F, b-T.
2. a-T, b-T, c-T.
3. a-F, b-T, c-T.
4. a-F, b-T, c-F.
5. a-F, b-T, c-F.
6. a-F, b-F, c-T.
7. a-F, b-F.
Independent Samples T-tests for the CPLNI

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<th></th>
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<th>t-test for Equality of Means</th>
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<td>F</td>
<td>Sig.</td>
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Paired samples T- tests for categories on the CHD Teaching Evaluation Form

### Paired Samples Test

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<td>Std. Error</td>
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<td>Upper</td>
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APPENDIX G

Does One Gender Better Meet Their Learning Needs with the In-patient Education Program?

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ABSTRACT

This comparative-descriptive study was conducted to identify the perceived learning needs of patients following their first myocardial infarction (MI) and to examine the teaching effectiveness of the Cardiac Rehab In-patient Education Program at meeting these needs. Gender differences in learning needs and whether men’s or women’s needs were more effectively met by the education were also explored. Roy’s Adaptation theory was used as a framework for the study. A sample of 23 MI subjects completed a CPLNI questionnaire in the hospital to identify their learning needs. Subjects also completed a CHD Teaching Evaluation form in the hospital and 2 weeks after discharge to determine teaching effectiveness at meeting the identified learning needs. Three areas of concern were ranked as important to learn by subjects including Physical activity recommendations, Dietary information and Anatomy and Physiology. Women ranked Dietary information most important to learn, however, men ranked physical activity. There was no significant difference in learning needs based on gender. The in-patient education program was effective at meeting the learning needs regarding physical activity. The in-patient education did not meet one gender’s learning needs more effectively than the other’s. In-patient education should be implemented after patients’ perceived learning needs are identified to provide them substantial information before returning home with the diagnosis of heart disease.