

ABSTRACT

UNDERSTANDING RECOVERY IN OLDER ADULTS FOLLOWING CARDIAC SURGERY

By Ann Papendorf

An estimated 80 million American adults suffer from cardiovascular heart disease. In order to treat their heart disease, approximately 699,000 undergo cardiac surgeries annually (American Heart Association [AHA], 2008a). With people living longer, new treatment options, and the elderly at greater risk of developing heart disease, older adults are having cardiac surgeries performed more frequently (Bardakci, Cheema, Topkara, Dang, Martens, Mercado, Forster, Benson, George, Russo, Oz, & Esrig., 2007). Various quantitative studies have demonstrated differences in recovery of older adults (Bardakci et al.; Barnett & Halpin, 2003; Pierson, Norton, Herbert, Pierson, Ramp, Kiebzak, Fedor, & Cook, 2003). Few qualitative studies have been conducted capturing the meaning of recovery. Since the recovery experience of older adults following cardiac surgery is understudied, the purpose of this descriptive qualitative study was to explore the recovery experience of adults. The research question was: What is the recovery experience of older adults following cardiac surgery?

Orem's (2001) self-care deficit theory of nursing was used as the theoretical framework to explore the recovery experience in older adults. A convenience sample of three participants from northeastern Wisconsin was solicited for the study. Participants were obtained from a cardiothoracic surgeon's private practice. Audiotaped interviews were conducted. Data were collected and then analyzed using codes and pattern codes. Interpretation of data identified three meaningful themes: (a) *overcoming challenges*, (b) *getting support*, and (c) *staying positive*. Results can be used by advanced practice nurses in caring for older adult patients to prepare them for surgery and enhance their recovery.

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FOLLOWING CARDIAC SURGERY

by

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CHAPTER I

INTRODUCTION

Cardiovascular heart disease (CHD) affects an estimated 80 million American adults. About 38 million of these adults are over the age of 65 (American Heart Association [AHA], 2008a). One effective form of treatment for CHD is cardiac surgery. In 2005, an estimated 699,000 cardiac surgeries were done in the U.S. Of these, 469,000 of the procedures were coronary artery bypass surgery and 106,000 were valve replacements (AHA, 2008a). The number of cardiac surgeries being performed on older adults has increased over the past years. Various factors have contributed to this change in demographics. Elderly people are at greater risk for developing coronary artery disease. In addition, there are new nonsurgical and surgical techniques, which make cardiac surgery a viable option for people who would not have been candidates in the past (Bardakci, Cheema, Topkara, Dang, Martens, Mercado, Forster, Benson, George, Russo, Oz, & Esrig, 2007).

Several quantitative studies have focused on at the recovery outcomes of older adults following cardiac surgery. Pierson, Norton, Herbert, Pierson, Ramp, Kiebzak, Fedor and Cook (2003) compared the functional capacity of older adults to younger adults following coronary artery bypass grafting (CABG). Although older adults did regain their functional capacity by 12 months following surgery, recovery was at a slower rate than younger adults. Barnett and Halpin (2003) also looked at the functional status of older adults following elective CABG. Bardakci et al. (2007) looked at the morbidity, short-term mortality, and discharge status following CABG in patients 80 and older. While these quantitative studies looked at morbidity, functional outcomes, length of

hospital stays, and discharge outcomes, they failed to capture the meaning of recovery to older adults.

Numerous researchers have examined gender differences following cardiac surgery. Vaccarino, Lin, Kasl, Mattera, Roumanis, Abramson and Krumholz (2003) found that women had a more difficult recovery than men in regards to symptoms, readmissions, and functional status. Schulz, Zimmerman, Barnason, and Nieveen (2005) also explored gender differences during recovery from CABG in their study. Although gender differences exist in recovery from CABG, little information is known about what effects these differences have on individuals recovering from cardiac surgery.

Although there is abundant quantitative analysis of surgical outcomes and recovery from cardiac surgery, only few qualitative studies were found that explored the recovery experiences in cardiac surgical patients. Robinson (2002) explored the experience of older women living alone after heart surgery. Researchers have studied the recovery experience of cardiac surgery from the caregivers' perspectives (Davies, 2000; Ganske, 2006). Tolmie, Lindsay, and Belcher (2006) conducted a qualitative study in Europe looking at the health and well-being of CABG patients 7 years after surgery. Doering, McGuire, and Rouke (2002) examined about what cardiac surgery patients thought health care providers should know to improve recovery. Gardner, Elliott, Gill, Griffin, and Crawford (2005) conducted a study with patients ranging in age from 20 to 85 to explore the experience of cardiothoracic patients 6 months after surgery. Although these qualitative studies have explored recovery experience after cardiac surgery, additional qualitative research is needed looking specifically at the recovery experience from the viewpoint of older men and women after cardiac surgery.

Significance to Nursing

Knowing that recovery differences exist after CABG relative to age and gender, a study exploring the recovery experience of older adults following cardiac surgery is important. Results may help staff nurses and advanced practice nurses (APNs) better care for these individuals. Nurses are increasingly involved in the care of older adults as the number of people over the age of 65 increases. Barnett and Halpin (2003) and Pierson et al. (2003) found that the recovery period for older adults after cardiac surgery is longer. Therefore, they may be more likely to experience complications. These additional needs must be addressed by care providers. Hence, it is important to understand what recovery means to older adults. As CABG and valve surgeries become more common for older adults (Bardakci et al., 2007), nurses need to know the implications of recovery in order to prepare these older adults for discharge and assist them in their recovery.

Problem Statement

A plethora of quantitative studies have been done on various aspects of recovery following cardiac surgery including functional capacity and discharge status. However, these studies have failed to capture the actual meaning of the recovery experience in older adults. A descriptive qualitative study that focuses on the recovery experience of older adults following cardiac surgery may provide a better understanding of the recovery process in this population to help modify care protocols based on their needs.

Purpose Statement

The purpose of the pilot study was to explore and describe the recovery experience in older adults following cardiac surgery in order to gain a better understanding of the meaning of recovery in this population.

Research Question

What is the recovery experience of older adults following cardiac surgery?

Definitions of Terms

Conceptual Definitions

Recovery experience: Recovery experience refers to the lived occurrence (Valle & Halling, 1989) when an individual overcomes or compensates for the effects of an injury or disease, which has caused him/her to inadequately meet his/her therapeutic self-care demands (Orem, 2001).

Older adults: An older adult refers to a male or female individual who has “developed the powers and capabilities to meet their own requirements for continuing care that is regulatory of their own functioning and development [self-care]” (Orem, 2001, p. 23) and is age 65 years and older (AHA, 2008b).

Cardiac surgery: Cardiac surgery refers to any surgical procedure where an incision is made into the thoracic cavity exposing the heart. The heart’s major blood vessels are then bypassed through a heart-lung machine. Most of these procedures are performed for the treatment of coronary artery disease or a heart valve defect (AHA, 2008a; *Encyclopaedia Britannica*, 2007).

Operational Definitions

Recovery experience: The lived occurrence of regaining the ability to perform independent self-care after surgery as self-reported by an individual.

Older adults: A male or female individual, 70 years or older, who is capable of making his/her own health care decisions.

Cardiac surgery: Cardiac surgery includes CABG, valve surgeries, or a combination surgery including both CABG and valve surgery.

Assumptions

1. Older adults can recover following cardiac surgery.
2. Older adults experience recovery differently than younger individuals.
3. Older adults will respond to questions openly and honestly.

Summary

This chapter included the background of the problem, the significance to nursing, the study purpose, research question, conceptual and operational definitions, and assumptions. With the significant number of cardiac surgeries being performed annually and with an increasing number of individuals over the age of 65, additional information is needed regarding older adults' recovery. This descriptive qualitative pilot study explored the recovery experience of older adults following cardiac surgery. Numerous quantitative studies have looked at surgical outcomes. Qualitative studies have explored caregivers' experiences, patients' and caregivers' perception of their hospital experience, and the experience of recovering living alone. However, the current study was important to nursing as there are few published studies about the actual experience

of recovery of older adults following cardiac surgery. Results from the study can help health care providers better understand the experience of older adults during recovery from cardiac surgery in order to improve the recovery experience.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The purpose of this pilot study was to explore and describe the recovery experience of older adults following cardiac surgery. In this chapter, Orem's (2001) self-care deficit theory of nursing will be discussed as the theoretical framework for this study. Also, a literature review on surgical recovery and cardiac surgery will be presented.

Theoretical Framework

Orem's (2001) self-care deficit theory of nursing identifies what nursing is and what nursing should be as it applies to specific nursing practice situations. The model is composed of three conceptual theories: (a) theory of self-care, (b) theory of self-care deficits, and (c) theory of nursing systems. Although this general theory seems complex, the theory is practical and applicable to various nursing settings, genders, ages, and phenomena (Orem).

Orem's (2001) self-care deficit theory describes why and how individuals care for themselves (self-care), why individuals require nursing care (self-care deficits), and the relationships between the nurse and individuals. In order to understand the self-care deficit theory of nursing, several concepts must be defined and their relationship explained. Self-care is "the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (Orem, p. 43). The theory of self-care identifies self-care requisites as the elements needed to maintain life, health, and well-being. The three types of self-care requisites are universal, developmental,

and health-deviation. Universal self-care requisites are common to all individuals and they are associated with everyday life such as air, food, water, and rest. Developmental self-care requisites are associated with various states of growth and development. Health-deviation self-care requisites are associated with conditions related to illness or injury. Another term important to this theory is therapeutic self-care demand, which refers to "the summation of care measures necessary at specific times or over a duration of time for meeting all of an individual's known self-care requisites" (Orem, p. 523). Self-care deficits develop when the individual becomes unable to fulfill the requirements of self-care. When this occurs, the individual may need to seek nursing care in order to fulfill these self-care requisites.

Orem (2001) identifies seven foci of health care. One of these foci is recovery. During recovery from a disease, injury, or functional disorder, there are various outcomes. One may be complete recovery, where the individual has no residual defects or disabilities from the condition. Another is that the individual will have permanent structural or functional defects from the disease or injury. The last outcome would be that the individual develops a functional disorder that is regulated through continuous therapy.

An individual recovering from cardiac surgery may return to his/her preoperative functional state, but will continue to need regulation of the underlying disease state with continuous therapy. Continuous therapy includes medications, diet, and exercise. Individuals may need nursing intervention to aid in meeting their self-care requisites.

In addition to discussing various foci of health care, Orem (2001) also addressed the basic conditioning factors (Figure 1) which affect an individual's ability to engage in self-care and the amount and kind of self-care required. These factors include age,

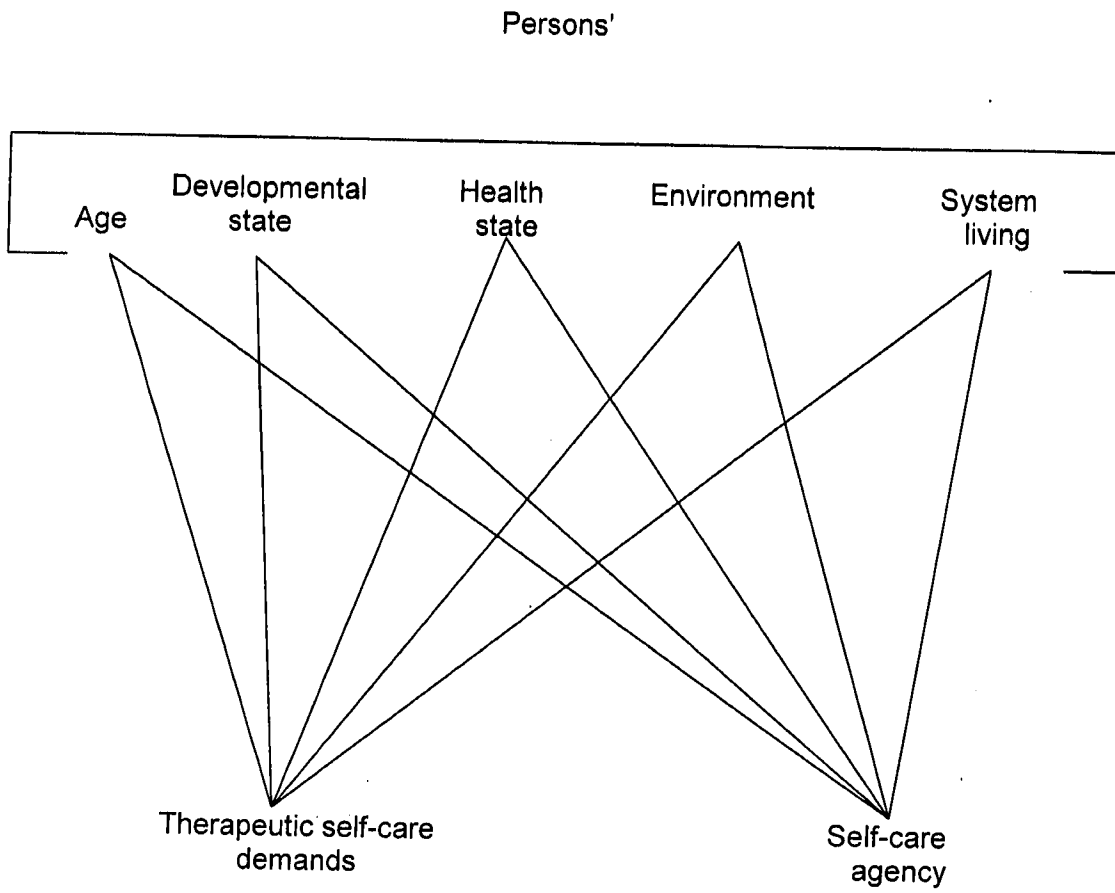


Figure 1. Orem's (2001) basic conditioning factors showing relationships to patient variables.

gender, developmental state, health state, sociocultural orientation, health care systems, family systems, patterns of living, and resource availability and adequacy.

Older adults undergoing cardiac surgery face many changes in their abilities to meet their therapeutic self-care requisites throughout their recovery period. These patients develop various self-care deficits caused by age, gender, and health status. The individuals have to regain their physical and emotional health, since surgery has placed limitations on their functional abilities to fulfill their self-cares. Recovery from surgery also adds additional health-deviation self-care requisites. With cardiac surgery comes the addition of new medications and physical tasks required for recovery such as putting on TED stockings. Also, recovering patients need to know the signs and symptoms of complications and when to contact a health care provider.

The theory of nursing systems is evident as the need for nursing action develops. Nursing intervention is necessary as the patient is unable to perform adequate self-care. According to Orem (2001), a nursing system is:

A series or sequence of deliberate practical actions of nurses performed at times in coordination with actions of their patients to know and meet components of their patients' therapeutic self-care demands and to protect and regulate the exercise of development of patients' self-care agency (p. 519).

Orem defines three types of nursing systems: (a) wholly compensatory, (b) partly compensatory, and (c) supportive-educative. Nursing responsibilities change throughout each type of nursing system (Figure 2).

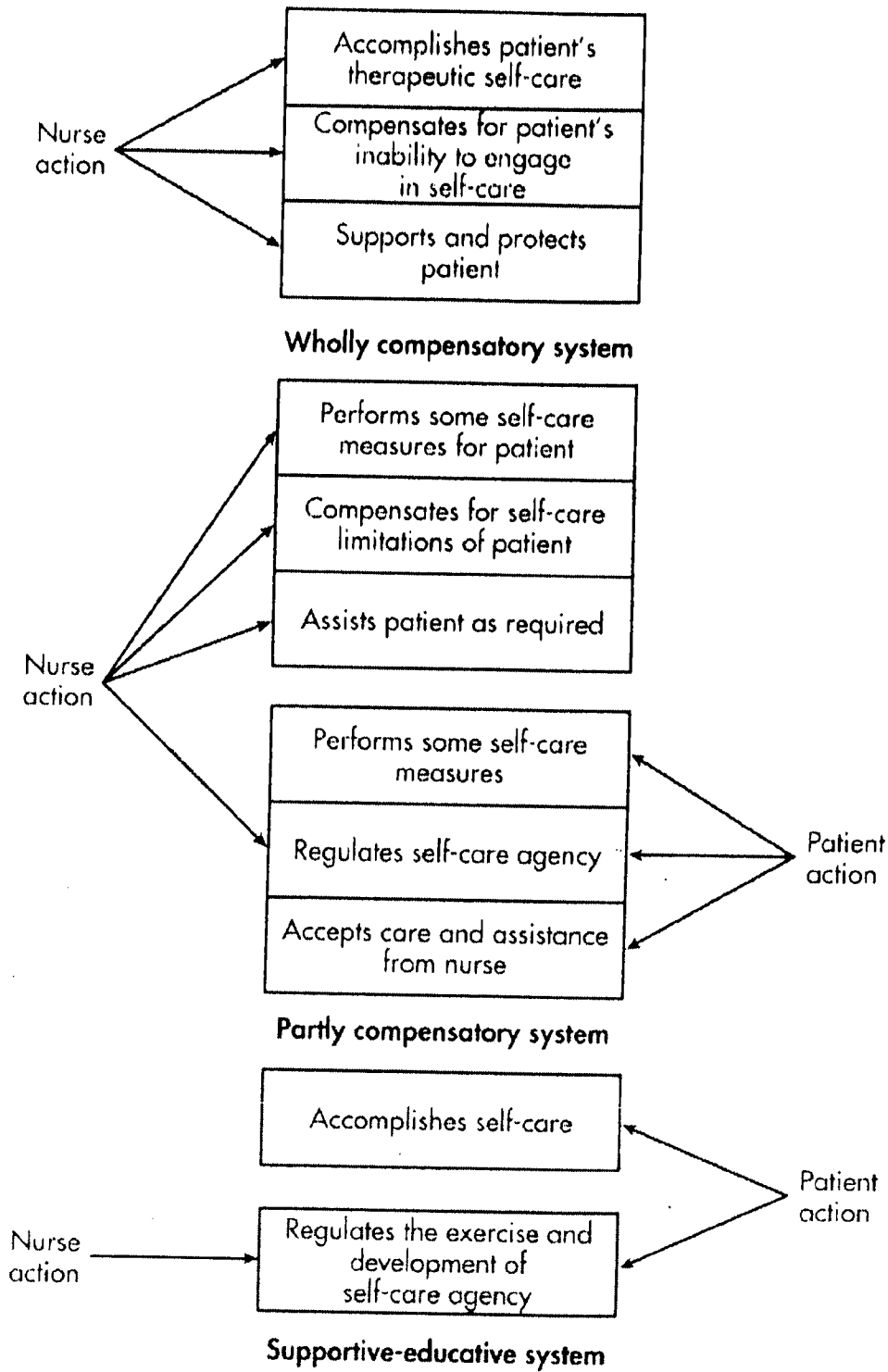


Figure 2. Orem's (2001) basic nursing systems.

Over the course of recovery after cardiac surgery, the nursing system to which the patient fits into needs to be modified. Immediately postoperatively, the patient will require a wholly compensatory system, where the nurse needs to meet all self-care requisites including the universal ones such as air through ventilation. As recovery progresses, the patient is able to resume some self-care activities, but needs some assistance as with a partly compensatory system, where the nurse is meeting some self-care requisites for the patient and the patient is also performing some self-cares. As the patient resumes more activities, the nurse becomes a resource for support and education in the supportive-educative system.

Orem's (2001) self-care deficit theory of nursing is fitting to this study as it explored the recovery of older adults following cardiac surgery. Orem considered recovery a focus of health, and age is a determining factor for therapeutic self-care demand. This study was concerned with older adults' experience of recovery from cardiac surgery as they regained their ability to perform self-care.

Review of Literature

In order to understand the recovery of older adults following cardiac surgery, a review of literature was completed. The review of literature included studies on age and recovery, gender and recovery, and the lived experiences with cardiac surgery.

Age and Recovery

Recovery following cardiac surgery has been shown to be affected by age. Barnett and Halpin (2003) investigated the recovery process of elderly patients following CABG. The study was conducted as part of a retrospective survey of functional status among 565 CABG patients, age 65 and older, at one institution. Using the Medical

Outcomes Trust Short Form-20 Questionnaire, physical and role functioning was assessed at the time of surgery, and at 1 and 2 years following surgery. The overall results of their study indicated that both physical and role function increased from baseline to 1 year in all age groups. From 1 year to 2 years following surgery, there was a small increase in physical functioning and a slight decrease in role functioning. Other results of this same study indicated adults ages 70 to 74 showed the largest increase in role functioning at one year, and adults ages 80 to 84 had an increase in physical and role function at 1 and 2 years. Barnett and Halpin concluded that elderly patients' functional status after CABG increases steadily for the first 2 years and clinicians need to educate patients that recovery may take up to 1 year.

Pierson et al. (2003) studied how age affected recovery of functional capacity following CABG. One hundred ninety-eight patients, ages 44 to 86, participated in the study. Participants completed the Veterans Specific Activity Questionnaire (VSAQ) at the time of surgery and at 3 months and 12 months following elective CABG surgery. Data were also collected on clinical symptoms, comorbidities, and complications following surgery. Data were analyzed using statistical tests such as Chi square and ANOVA. Results showed a prolonged recovery of functional capacity in older adults. Overall, Pierson et al. concluded that although adults age 65 and older have a slower recovery, they can recover to "presymptomatic functional capacity" by 1 year after surgery (p. 1373).

Bardakci et al. (2007) considered age as a factor affecting discharge following CABG. Using the New York State Department of Health's registry of adults undergoing cardiac surgery from 1998 to 2002, 88,154 adults were divided into four age categories and their clinical outcomes were evaluated. Quantitative information was collected on

demographics, clinically significant information, operative details, postoperative complications, length of stay, in-hospital mortality and discharge status. The results of the study indicated that patients 80 years and older were more likely to undergo urgent or emergent surgery. This age group had a higher incidence of postoperative strokes, bleeding requiring re-operation, sepsis, renal failure requiring dialysis, and respiratory failure as compared to the other groups. Their hospital stays were longer, and they were less likely to be discharged home. Bardakci et al. suggested that morbidity and mortality or post-hospital disposition outcomes following cardiac surgery alone is not enough to imply the success of surgery.

The aforementioned studies evaluated the recovery of functional status as well as surgical outcomes of older adults. Results indicated that elderly patients experienced additional complications following CABG. However, they do not address the recovery implications and experiences for a patient undergoing cardiac surgery.

Gender and Recovery

In addition to age, various researchers have explored the differences in surgical outcomes in relation to gender. Vaccarino et al. (2003) studied gender differences in recovery following CABG surgery on 804 male and 309 female participants. Using a descriptive study, the researchers evaluated the differences among the subjects through the Medical Outcome Trust Short Form-36 (SF-36), the Geriatric Depression Scale (GDS), Enhancing Recovery in Coronary Heart Disease (ENRICHD), and Social Support Inventory (SSI). Baseline data were collected at the time of discharge and at 6 to 8 weeks after surgery. Results indicated that females who underwent surgery were older, less educated, more likely to live alone, and have lower social support. Women also experienced unstable angina and congestive heart failure more often at the baseline.

Statistical adjustments were made for baseline differences in post-surgical follow-up data analysis. The results of the post-surgical follow-up data indicated that women were more likely to be readmitted to the hospital, experience physical symptoms and side effects, have a decrease in physical functioning, and experience more depressive symptoms. In conclusion, Vaccarino et al. recommended that efforts should be made to learn why these gender differences occur and use the information to develop interventions that could enhance recovery for women after CABG surgery.

Schulz et al. (2005) conducted a descriptive study with repeated measures to assess gender differences following CABG. Their sample consisted of 46 men and 19 women. The researchers used the Cardiac Symptoms Survey (CSS) and three subscales of the SF-36 to measure symptoms and outcomes at 2, 4, and 6 weeks postoperatively. There was no significant age difference between men and women, but women were more likely to be widowed. Women reported fatigue and shortness of breath more frequently postoperatively, which interfered with physical functioning. In conclusion, Schulz et al. recommended that continued research is needed to address fatigue and shortness of breath in women following CABG surgery in order to enhance recovery.

Lived Experiences and Recovery

Few studies have qualitatively evaluated the recovery experiences of individuals undergoing cardiac surgery. Tolmie et al. (2005) used a descriptive qualitative approach to study the long-term effects of health and well-being following CABG. Sixty-two one-time interviews were conducted with participants ranging in age from 42 to 81. The majority of the participants were male (93.1%). Interviews were performed 7 years after CABG surgery. Themes that arose were recovery and rehabilitation, how they are doing

after 7 years, maintaining a positive approach, and health behavior changes. The researchers concluded that participants experienced a longer and a more challenging recovery than what they expected. The researcher recommended that there is need to acknowledge that long-term effects of CABG surgery in order to accurately inform patients and families of the challenges they may face in the extended recovery period.

In another qualitative study, Gardner et al. (2005) investigated the recovery experience of patients following cardiothoracic surgery. Using a phenomenological approach, eight patients were interviewed 6 months following cardiac surgery. Four males and four females participated in the study. The participants' ages ranged from 29 to 85 years. At 6 months post-surgery, the participants reported varying degrees of pain and physical limitations. Some made reference to experiencing fear, apprehension, or mood disturbances at some time in their recovery. Participants also described being sick and then reaching a turning point where they started to feel better. Seven themes were developed from the interviews: (a) impression of ICU, (b) comfort/discomfort, (c) being sick/getting better, (d) companionship/isolation, (e) hope/hopelessness, (f) acceptance/apprehension, and (g) life changes. These themes captured the complexity and individuality of the recovery experience following cardiac surgery. In recognizing the complexity and individuality of recovery, Gardner et al. suggested additional follow up for depression, continued physical impairments, and mental dysfunction. They recommended future research focus on comparison of routine versus delayed recovery and exploration of the identified isolation and companionship theme.

Robinson (2002) did a qualitative study focusing on the recovery experience following cardiac surgery. In this study, the researcher interviewed 12 females who lived alone and underwent cardiac surgery at least 6 months prior to the interview.

Participants' ages ranged from 57 to 77. Four themes: (a) survival relief, (b) going on, (c) living in a contracted world, and (d) regained independence. The survival relief was described by participants in terms of overcoming one's risk of death and being thankful they were alive. After coming to terms with surviving, the theme going on emerged as participants found ways to move forward with their lives despite cardiac disease. The theme living in a contracted world was described by the women as being cautious when doing activities they used to take for granted. The last theme was gaining independence, where the women reported their ability to live alone, accomplishing activities of daily living independently, and enjoying personal freedom. Robinson recommended future research investigating perceived vulnerability after cardiac events.

The results from these qualitative studies have given insight into the recovery following cardiac surgery. Most of the studies explored recovery experiences of individuals of various ages, and did not focus on just one age group. Additional information is needed to better understand the recovery experience of older adults following cardiac surgery.

Summary

In this chapter, the theoretical framework and review of literature was presented. Orem's (2001) self-care deficit theory of nursing was used as a theoretical framework for exploring the recovery experience of older adults following cardiac surgery. Orem addressed recovery as a focus of health care and presented age as a factor needed in considering the amount of nursing intervention needed to resume self-care. In the review of literature, studies on age and gender as factors affecting recovery were reviewed along with pertinent qualitative research done in the area of recovery

experiences following cardiac surgery. Recovery following cardiac surgery is a complex and individual experience. Additional information can enhance the current knowledge and help health care providers improve the care of older adults following cardiac surgery.

CHAPTER III

METHODOLOGY

The purpose of this pilot study was to explore and describe the recovery experience in older adults following cardiac surgery. In this chapter, the research design, population, sample, setting, data collection instruments, data collection procedures, and data analysis methods will be discussed. Trustworthiness in qualitative research and ethical issues will also be addressed.

Research Design

A descriptive qualitative research design was used for this study in order capture the meaning of recovery after cardiac surgery through the eyes of older adults. The descriptive qualitative design was appropriate to gain a comprehensive summary of the phenomenon in everyday language (Speziale & Carpenter, 2007). Using a descriptive qualitative design, the experience of recovery following cardiothoracic surgery was explored, analyzed, and described.

Population, Sample and Setting

The target population for this study was elderly patients who underwent cardiac surgery in northeastern Wisconsin. The accessible population was elderly patients who underwent cardiac surgery and were receiving care from a cardiothoracic surgeon in northeastern Wisconsin. The sampling design was convenience sampling. This method allowed selection of the participants based on their knowledge of the experience. A convenience sample of three individuals from the cardiothoracic surgeon's clinic was

used. The criteria for sample selection included adults who: (a) had undergone cardiothoracic surgery 3 to 6 months prior to the start of the study; (b) were at least 70 years old; (c) were able to read, write, and speak English; (d) were able to tolerate an interview lasting about 60 minutes; and (e) agreed to participate in the audiorecorded interview.

The private clinic from which the participants were selected is owned and operated by one cardiothoracic surgeon. The surgeon performs approximately 200 cardiac surgeries annually.

Data Collection Instruments

Two instruments were used for data collection. The first instrument was a demographic questionnaire, which was used to obtain information about the age, marital status, type of surgery, amount of time since surgery, and length of hospital stay (Appendix A). The second instrument was an interview guide that was used during the interviews to assure that all content areas were addressed with each participant (Appendix B).

Data Collection Procedures

Prior to data collection, approval by the University of Wisconsin Oshkosh Institutional Review Board (IRB) for the Protection of Human Participants was obtained (Appendix C). Written consent to use patient from the private clinic was obtained from the cardiothoracic surgeon who agreed to assist.

The participants for this study were recruited from the cardiothoracic surgery clinic. The patients at this clinic return for routine follow up at 1 week, 1 month, and 3

months post-surgery. At one of the later follow up visits, the surgeon's office nurse handed out a recruitment letter (Appendix D) inviting individuals to participate in the study. On this letter, individuals were asked to give their phone number for the researcher to contact them if they were interested in participating in the study.

The researcher contacted those individuals who agreed and re-explained the details of the study. If the person agreed to the interview, an appointment convenient for the participant and interviewer was made. Interviews were conducted at the participants' homes. This setting made it convenient, comfortable, and less of a burden for the participants to take part in the study. This decision also helped the researcher by allowing the interviewer to see the participants in their natural setting where they have been recovering.

At the initial meetings between the researcher and the participants, the researcher again explained the study, answered any questions about the study, and provided informed consent. Risks and benefits of participation were discussed as well as the right to withdraw from the study at any time without penalty. Voluntary written consent (Appendix E) to participate and consent to audiotape the interview were obtained prior to starting the interview. All interviews were audiotaped and transcribed verbatim.

Data Analysis

Demographic information was analyzed using descriptive statistics including means and ranges. A demographic profile of the sample was obtained.

Coding and pattern coding as described by Miles and Huberman (1994) was used as the method of qualitative data analysis. A list of codes was developed from the

interview guide. Transcripts were read and codes were marked in the left margin. Remarks were made in the right margin. During the data analysis process, significant statements were extracted and written out on notecards. These statements were filed according to codes and later sorted into categories and themes.

Pattern codes are explanatory codes that identify emergent themes. This is a type of clustering. Patterning coding has four important functions for the qualitative analyst:

1. Reducing large amounts of data into smaller analytic units.
2. Promoting analysis during data collection in order for the researcher to focus future fieldwork.
3. Assisting the researcher in developing a cognitive map or schema for understanding.
4. Providing a foundation for cross-case analysis by identifying common themes.

Trustworthiness

In a qualitative research project, trustworthiness of data analysis is established through four criteria. These criteria are credibility, dependability, confirmability, and transferability (Speziale & Carpenter, 2007).

Credibility refers to certainty of truth in the data and the interpretation of the data (Polit & Beck, 2004). Credibility was established first by the researcher developing a rapport with the participants in the introduction to the study, maintaining interest throughout the interview, and allowing the participants adequate time to share their experiences.

The second criterion, dependability, refers to the constancy of the data over time and other conditions. Dependability was established through an inquiry audit from an experienced qualitative researcher who oversaw the study. Confirmability, which is closely related to dependability, refers to the objectivity of the data. Confirmability was also established with the researcher leaving an audit trail, so others can follow the events that led to the data analysis decisions.

Finally, transferability refers to what extent the data can be transferred to other settings and groups. Due to the design and sample, transferability in a qualitative study may be difficult. Through rich description of the setting and the context, the researcher can allow for judgments about the contextual similarities for other settings and groups (Polit & Beck, 2004).

Limitations

The following limitations were identified for this study,

1. The sample size from one geographic location and setting limited the transferability of the findings to other areas/populations.
2. The participants who chose to be included in the study may have provided a different experience than patients choosing not to participate.

Summary

A descriptive qualitative approach was used to explore the meaning of recovery in older adults following cardiothoracic surgery. This method was appropriate to capture the essence of the experience of recovery. In this chapter, the research design, population, sample, setting, data collection instruments and procedures were presented.

Also, considerations for protection of human participants and enhancement of trustworthiness were presented.

CHAPTER IV

FINDINGS AND DISCUSSION

Introduction

The purpose of this pilot study was to explore and describe the recovery experience in older adults following cardiac surgery. This chapter will provide a demographic summary of the sample and discuss the findings of the pilot study.

Sample Description

Three participants were found by convenience sampling. All were males and were 75 to 82 years old. Two of the participants underwent CABG with a valve replacement and one participant underwent CABG only. All the participants' procedures were performed on-pump with a heart-lung machine. The participants had been recovering for an average of 97 days at the time of the interviews. The participants were all married and resided with their wives. Their length of hospital stay ranged from 5 to 25 days. Two participants returned immediately home following their hospital stay, and the other participant went to a nursing home for rehabilitation for 5 days.

Interview Process

Each interview was conducted face to face following written informed consent. The interviews took place in the participants' homes. All of the participants' wives were present for the interviews. Two interviews were conducted seated at a table in the dining area of their homes. The other interview was completed in the participant's living room.

with the researcher and participant sitting across the room from each other. Two of the participants were immediately comfortable with being audiotaped and the third expressed some mild anxiety related to being audiotaped. The participant was reassured of study confidentiality and anonymity. With the reassurances, all three participants consented to participating and being audiotaped. The interviews were uninterrupted and lasted 30 to 60 minutes. All of the participants were happy to share their experience of recovery.

Results

Data were collected using an interview guide. The participants were asked questions about their recovery experience, their challenges with recovery, their support throughout the recovery process, and how they are doing now. The interviews were audiotaped and transcribed verbatim by a professional transcriptionist. The transcripts were then analyzed using Miles and Huberman's (1994) coding and pattern coding. The researcher reviewed all the transcripts marking codes in the left margin. Remarks were made in the right margin. During the data analysis process, significant statements were extracted and written out on notecards. These statements were filed according to codes and later sorted into themes and categories. The themes were supported by direct quotes from the participants' interviews and related to the literature.

Three main themes emerged: (a) *overcoming challenges*, (b) *getting support*, and (c) *staying positive*. Additional subcategories arose from the first two of the themes. From the theme of *overcoming challenges*, subcategories included: (a) physical complications, (b) difficulties with medications, (c) and missing out on fun. In the theme

of *getting support*, the following subcategories arose: (a) family, (b) neighbors, and (c) cardiac rehab. The theme, *staying positive* did not have any subcategories.

Overcoming Challenges

With the first theme of *overcoming challenges*, the participants described the physical challenges of recovery. They alluded to physical complications they experienced, challenges of taking the required medications, and challenges of not being able to do things they did prior to surgery.

Physical Complications

All the participants discussed physical challenges of recovery. Some of the complications were related to their heart rhythm, difficulties breathing, and lack of energy.

Two participants discussed difficulties with their heart rhythm after surgery. One needed to be on medication to regulate his rhythm. He stated, "My heart was out of rhythm for some time there. Oh, does that make a rotten feeling." The other had a pacemaker inserted to control his heart rhythm. He explained:

Every time I had an EKG, which was quite often, it would come up junctional and so since the upper and lower chamber of the heart wasn't beating the way it was supposed to in connection with each other, it was causing it to fight each other and so the doctors decided I would have to have a pacer put in.

All of the participants discussed difficulties with breathing at some point in their recovery. One stated, "I wasn't feeling good anymore. All of sudden I started feeling worse and I started breathing hard and everything and I felt weak." Another participant stated he was short of breath and there was pain under his ribs. The participant stated, "They said that sharp pain that I had underneath my ribs, it was fluid ... fluid and that was

a rough night when I had the pain there." The other participant, who expressed more difficulties with breathing stated:

I'm going tomorrow to get the fluid withdrawn from my lung for the second time. I've had it drawn from each lung one time; tomorrow I've go back for the second time on the right lung because their retaining fluid again...And you see this here fluid on the lungs makes it hard to breathe, you know. I was to walk a little ways I'd almost have to sit down and get some air...made it continually hard to breath and that's coming on a little bit now with this here side again.

Two participants discuss difficulties with not having energy. When asked about how they felt physically, one participant stated, "I don't know how to say it but yeah, no energy, you know. You just move around and you're alive, but you don't have no get-up-and-go. I don't know the term here and it's taken a long while." The other participant responded to the question of what kind of symptoms he was having when he needed to have his pacemaker put in, "I guess loss of energy."

Difficulties with Medications

In addition to physical complications, the participants also discussed their difficulties with the postoperative regimen requiring them to take several medications. One participant commented, "I take a lot of drugs." Another participant said, "We still got a lot of them...several medications." Two of the participants described difficulties with medications. Some of the difficulties related to regulating their coumadin dosing and other medications' side effects.

Two participants expressed their need for frequent lab work to regulate their coumadin dosing. One participant stated, "I seem to have a hard time, I would guess,

regulating my coumadin, my blood thinner. I go, gosh, twice a week, sometimes more, for blood draws so they can check this out." The other patient commented:

That coumadin...my protime is all off kilter. It's all off whack. It's too low all the time and they have to take my protime every other day it seems like and trying to get my protime up...But they claim as soon as I get off these antibiotics and I may just go all goofy again with this protime.

In addition to problems regulating their coumadin, other medications can cause side effects that are difficult to handle. One participant commented on the side effect of one of his medications.

The side effect of Ameridian [amiodarone] is well the first I heard is to keep your heart in rhythm, that's what they use it for. But the side effect from that my daughter tells me because she's nurse and knows about these things supposedly is it makes it kind of hard to sleep.

Missing out on Fun

Besides difficulties with medications, participants discussed having to give up activities that they did before surgery while recovering. "Just the loss of being able to do all the things I used to do," commented a participant. Another participant stated, "I gave up deer hunting for last season of course. That's expected of course. I give up fishing here now." The other participant said, "I had a lot of hobbies and I've got a workshop up there in the garage where I would do a lot of hobby work and keep myself busy which, of course, is way up north now and I'm sitting here."

This theme, *overcoming challenges*, described challenges participants faced throughout their recovery process. These challenges included physical complications, difficulties with medications, and missing out on activities they did before surgery.

Getting Support

Participants discussed their difficulties overcoming challenges associated with recovery. They also discussed what helped them through their recovery process.

Within the theme of *getting support*, participants described who has been helping them through their recovery. The participants received help from their families, neighbors, and personnel in cardiac rehab. The subcategories for getting support are family, neighbors, and cardiac rehab.

Family

All the participants attributed their recovery to their family members. Wives, children and extended family provided support for the participants by helping with activities of daily living, staying with them immediately after surgery, and being available to drive them to appointments and other places.

Two participants described their support from their wives. One participant stated, "My wife's... been my mainstay," and "My wife keeps me going." Another participant described how his wife needed to help him walk and get out bed when he first came home from the hospital.

All the participants described how their children have helped them with their recovery. The participants mentioned that family members drive them to appointments. Two participants described how their daughters take off work to drive them to their appointment. One participant had his daughter stay with him for 5 weeks after returning from the hospital. In addition to children, one participant also mentioned support from a brother who had also helped out with driving.

Neighbors

In addition to family members, two participants mentioned the support and help of neighbors. One participant stated, "Our neighbor here has been doing a real good job taking us around and transporting us from one place to another." The other participant commented, "Neighbors plow the driveway and the snow." He also stated, "They [the neighbors] bring the paper into the house and mail into the house if I can't go."

Cardiac Rehabilitation

All the participants had completed a cardiac rehabilitation program. They all attributed cardiac rehab as a support to their physical recovery. One participant even described his relationship with two rehab nurses:

I'll tell you them were the two...I never saw two girls like that. I'm telling you.

They were like your kids, you know, your daughters—so friendly and they ask you if you can go further on your exercise machine and so forth. They never pushed you and they just worked out wonderful.

The second theme, *getting support*, described the support that helped the participants during their recovery process. They received support from family, neighbors, and cardiac rehab.

Staying Positive

Participants attributed their recovery to the support of family, neighbors, and cardiac rehab, but they also discussed their own determination. Under the theme of *staying positive*, the participants described their emotional recovery. One participant admitted to feeling depressed throughout the recovery process, while the other two participants denied any feelings of depression. The participants described the need to stay positive and optimistic. One participant commented, "You mean depression thing?"

No, no. I stayed enthusiastic, whatever, so I never had this." He also described being in cardiac rehab with other younger patients who could work faster and harder. He stated:

There was about eight of us and they're probably 65... so they can do good.

They get in there and I'm struggling... I'll get there but I'm struggling. So I think man, just what's the matter with me? I said, "Well, so I'll get there sometime. It will just take more time." This is what it will take, 'course.

Another participant stated, "You've got your mind set you're going to accept that you're going to get better, you know. That's another thing. So everything turned out good." Even the participant who admitted to depression stated, "There's times when I still get the feeling of depression, but my wife keeps me going." Another participant admitted to feeling down at times, but stated, "Yeah sometimes you feel that way, but you dasn't give up...keep fighting all the way through." Whether or not the participants admitted to feeling depressed throughout their recovery process, they all discussed the need to stay positive and keep a mind set that they would get better.

Discussion

Cardiac surgery has become a common treatment modality from cardiovascular disease in older adults. Recovery from cardiac surgery has been measured in quantitative studies using outcome such as morbidity, mortality, postoperative complications, and functional capacity (Bardakci et al., 2007; Pierson et al., 2003). These measures do not necessarily capture the feelings and meanings of recovery that individuals experience following cardiac surgery.

Considering the three major themes identified in this pilot study, the recovery of older adults following cardiac surgery is a slow and progressive process. The

participants overcame challenges throughout the recovery process with the help of family, friends, and cardiac rehab. They remained positive and kept their mind set that they were going to get better.

Gardner et al. (2005) concluded that recovery from cardiac surgery is a complex and individual experience. This is consistent with the results of the study. Although respondents identified common areas in their recovery process, they each had an individual story to tell. As in the cases of participants who had problems with their heart rhythm after cardiac surgery, one needed a pacemaker and the other needed medication. One participant needed to go to a nursing home after being discharged from the hospital; the other two needed the assistance of family at home immediately after being discharged. These differences show that recovery following cardiac surgery is an individual experience, yet they all needed assistance in some manner.

The theme of *overcoming challenges* supported that older adults experience complications and obstacles throughout their recovery process. This is similar to the findings of Pierson et al. (2003) who showed a prolonged recovery of functional capacity in older adults and Bardakci et al. (2007), who showed older adults are more likely to experience complications postoperatively.

When compared to other qualitative studies on recovery experience after cardiac surgery, the theme of *staying positive* was similar to Tolmie et al. (2006), which included the theme of maintaining a positive approach. Respondents from both studies made comments of keeping a mind set that they would get better.

Orem (2001) identified recovery as one of the seven foci of health care. Recovery can end with one of three outcomes. One outcome is that the individuals make a complete recovery. The next possible outcome is that the individual will have

permanent structural or functional defects from the disease or injury. Or lastly, the individual can develop a functional disorder that requires regulation through continuous therapy. Recovery following cardiac surgery requires continuous therapy with a postoperative regimen of taking medications to maintain heart function. Orem also described that age was a factor affecting the individual's ability to engage in self-care. Thus, age can affect the recovery process. This pilot study's results, while consistent with Pierson et al. (2003) and Bardakci et al. (2007) found that older adults may have additional self-care deficits, as patients have longer recovery periods and are more likely to experience complications.

Following cardiac surgery, older adults may face many challenges. They can overcome these challenges with support of family, friends, and health care personnel by staying positive. Overall, recovery is a slow and progress process.

Summary

This chapter contained the descriptions of the sample, the interview process, the results and a discussion of the results. The results of this qualitative, descriptive pilot study revealed three major themes consistent with the recovery experience of older adults following cardiac surgery. The themes were: (a) *overcoming challenges*, (b) *getting support*, and (c) *staying positive*.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this descriptive qualitative pilot study was to explore and describe the recovery experience in older adults following cardiac surgery. In this chapter, the three main themes: (a) *overcoming challenges*, (b) *getting support*, and (c) *staying positive*, are discussed. Implications for nursing and recommendations for further research are outlined.

Results Summary

As the number of adults with cardiovascular disease and the number of elderly people increase, the number of older adults undergoing cardiac surgery for the treatment of their cardiovascular disease will increase (AHA, 2008a). Although older adults recover from cardiac surgery, they tend to have prolonged recovery and more likely to experience complications. In order to understand the recovery of older adults following cardiac surgery, a descriptive qualitative pilot study was done to answer the research question: What is the recovery experience of older adults following cardiac surgery? Orem's (2001) self-care deficit theory of nursing was used as the theoretical framework for the study.

Three participants who underwent cardiac surgery within the last 3 months participated in the study. Interviews were conducted using an interview guide to assure that all content areas were covered with each participant. The responses to the questions were analyzed using Miles and Huberman's (1994) coding and pattern coding.

Three themes about the recovery experience emerged: (a) *overcoming challenges*, (b) *getting support*, and (c) *staying positive*.

Three subcategories were identified as part of the first theme, *overcoming challenges*. The subcategories were: physical complications, difficulties with medication, and missing out on fun. These categories were supported by participants' statements about challenges they experienced during their recovery process. The participants described physical complications they experienced, which included problems with their heart rhythm, difficulties breathing, and lack of energy. Second, the participants discussed side effects or other difficulties such as troubles sleeping when taking new medications since surgery. Finally, participants discussed recreational activities they were forced to give up during their recovery process.

Three subcategories emerged from the second theme, *getting support*. The subcategories included: family, neighbors, and cardiac rehab. These categories were supported by the participants' statements about what and who helped them in their recovery following cardiac surgery. The participants discussed how their various family members and neighbors aided them in their recovery by driving them to appointments, staying with them after surgery, and plowing their snow. They also described support they received at cardiac rehab with the encouragement of staff to succeed in their exercises.

Finally, the theme of *staying positive* emerged. This theme was supported by participants' statements about keeping a mind set that they were going to get better and needing to be enthusiastic in order to progress in their recovery.

Conclusions

The following conclusions were reached based on the results of this pilot study. First, patients should have a support system in place prior to surgery. This support system is important to the recovery process for older adults undergoing cardiac surgery. This support system can include family, friends, and cardiac rehab. Next, a positive attitude during recovery is an essential component to overcome complications encountered during recovery. It is important for older adults to understand complications can and do arise following surgery. They should be forewarned that these are common and they should not be discouraged if they arise. Shortness of breath and lack of energy are common problems faced by older adults following cardiac surgery that may require further medical intervention or possible rehospitalization. Also, medications required during the postoperative period following cardiac surgery require frequent monitoring for side effects and adverse reactions. Many postoperative regimens include being on coumadin short term or long term. This medication requires frequent lab work to monitor for bleeding. Last, the recovery following cardiac surgery is a slow and progressive process. Older adults should be instructed that recovery may take several months or longer to return to their preoperative status.

Implications for Practice

Advanced practice nurses and other nurses can utilize the information from this pilot study to help older patients prepare for cardiac surgery and to enhance their recovery. Nurses can use the concepts to better prepare and educate patient about the recovery experience following cardiac surgery. Advanced practice nurses can use the

information to better understand their patients' experiences when managing other health problems following surgery.

In preparing the patient to surgery, nurses can better educate patients about common experiences of other older adults after surgery such as shortness of breath, lack of energy, and possibility of other complications such as heart rhythm problems and the need for rehospitalization. Nurses can evaluate patients' support systems prior to surgery and work to enhance their support system. Having a support system in place prior to surgery allows easier access to this system after surgery. Nurses may provide pre-surgical education to both the patient and persons who will be involved in the recovery process so that all understand what to expect after cardiac surgery.

Advanced practice nurse are involved with the health care management of older adults. Understanding what older adults experience following cardiac surgery can help the APN in managing their other health care problems. The APNs need to understand patients' medications and complications as these may interfere with other health concerns. Medications such as amiodarone and coumadin can interact with each other and other medications, thus requiring close follow-up.

Recommendation for Future Research

As an increasing number of older adults undergo cardiac surgery, additional information on their experience during recovery is needed. Future research is necessary to further explore the recovery experience. Given the small sample size and single geographic location of the participants for this pilot study, it is necessary to replicate this study with a large sample. Also, this sample contained only men; additional information is needed on the recovery experience of women following cardiac surgery.

All of the participants underwent on-pump cardiac surgeries. Off-pump cardiac surgical patients may have a different experience than those who have on-pump surgery. Further exploration is needed in the area of cardiac rehab, how do these programs affect recovery and how do patients who choose not to participate in cardiac rehab recover.

Additional research with patients undergoing cardiac surgery is needed. The results can enhance the recovery of experience of patients and help health care providers understand patients' educational needs before and after surgery.

Limitations

The major limitations of this pilot study were the small sample size, the single geographical location of the setting, and possible gender bias. These limitations may have led to a misrepresentation of the recovery experience of older adults following cardiac surgery. Also, the participants' wives were present throughout the interviews, which may have caused misrepresentation of the participants' recovery experience. These limitations should be considered in future research.

Summary

This chapter presented a summary of the results, conclusions, implications for nursing, recommendations for future research, and limitations. As the number of older adults undergoing cardiac surgery increases, the challenges they face may become more common. With a support system and a positive attitude they can have a successful recovery. By understanding their experiences, nurses can better prepare

these individuals for recovery following cardiac surgery. Additional research is needed to further explore the recovery experience of older adults after cardiac surgery.

APPENDIX A
Demographic Questionnaire

Demographic Questionnaire

Age _____

Gender _____

Marital Status _____

Do you live with anyone? _____

If yes, with whom? _____

Type of Surgery _____

Date of Surgery _____

How long was your stay in the hospital? _____

Did you return to your home immediately following hospital discharge? _____

If no, what care did you need? _____

How long did you need that care? _____

APPENDIX B
Interview Guide

Interview Guide

1. Tell me about your recovery from heart surgery.
 - a. Physical recovery?
 - b. Emotional recovery?
2. Tell me what challenges you had during your recovery.
 - a. Surgical complications.
 - b. Activity restrictions.
 - c. Post-operative regimen.
3. What has helped you in your recovery?
 - a. Family support.
 - b. Community support.
4. Tell me about your life now.
 - a. Independence.
 - b. Activity.
 - c. Social interaction.
 - d. ADLs.
5. Is there anything else about your recovery that you would like to share?

APPENDIX C
UW Oshkosh IRB Approval Letter



November 7, 2007

Ms. Ann Papendorf
1659 W. Rachel Lane
Appleton, WI 54913

Dear Ms. Papendorf:

On behalf of the UW Oshkosh Institutional Review Board for Protection of Human Participants (IRB), I am pleased to inform you that your application has been approved for the following research: Understanding Recovery in Older Adults Following Cardiac Surgery.

Your research has been categorized as NON-EXEMPT, which means it is subject to compliance with federal regulations and University policy regarding the use of human participants as described in the IRB application material. Your protocol is approved for a period of 12 months from the date of this letter. A new application must be submitted to continue this research beyond the period of approval. In addition, you must retain all records relating to this research for at least three years after the project's completion..

Please note that it is the principal investigator's responsibility to promptly report to the IRB Committee any changes in the research project, whether these changes occur prior to undertaking, or during the research. In addition, if harm or discomfort to anyone becomes apparent during the research, the principal investigator must contact the IRB Committee Chairperson. Harm or discomfort includes, but is not limited to, adverse reactions to psychology experiments, biologics, radioisotopes, labeled drugs, or to medical or other devices used. Please contact me if you have any questions (PH# 920/424-7172 or e-mail:rauscher@uwosh.edu).

Sincerely,

Dr. Frances Rauscher
IRB Chair

cc: Sharon Chappy
1252

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APPENDIX D
Recruitment Letter

Recruitment Letter

I, Ann Papendorf, a student at the University of Wisconsin, Oshkosh in the College of Nursing Graduate Program, am conducting a study on the recovery experience of older adults following heart surgery. I would appreciate your participation in the study as it will assist me as a health care provider to understand your experience of recovery.

Participating in the study would involve an interview that will last about one hour. I will be asking about your recovery from heart surgery. I will also ask some general questions about your age, type of surgery, hospital stay, and support after surgery.

I do not anticipate that the study will present any medical or social risks to you, other than the inconvenience of your time required for the interview and questionnaire. Participation in the study may not benefit you directly, but will help health care providers learn how to improve care for patients like you.

The information I gather through the interview and questionnaire will be recorded in anonymous fashion. I will not release any information about you to your doctors or to anyone else in a way that could identify you.

If you would be interested in participating in the study, please sign the bottom portion of this paper. Please also include your phone number. Providing your name and phone number allows your physician to give me your name and allows me to contact you at home. When I contact you, I will explain the details of the study once again and you can decide if you want to participate. If you have any questions, please call me at the number listed here:

Ann Papendorf
1659 W. Rachel Lane
Appleton, WI 54913
(920) 882-8245
papena33@uwosh.edu

I have read and understand that filling out this paper does not automatically include me in the study. I authorize Dr. Ferrante to give my name and phone number to Ann Papendorf, Graduate Nursing Student, University of Wisconsin, Oshkosh.

Name _____ Phone Number _____

Signature _____

APPENDIX E
Informed Consent

Consent for Participation in a Research Project

I, Ann Papendorf, a student at the University of Wisconsin, Oshkosh in the College of Nursing Graduate Program, am conducting a study on the recovery experience of older adults following cardiac surgery. I would appreciate your participation in the study as it will assist me as a health care provider to understand the experience of recovery following cardiac surgery in order to improve the care provided to patients undergoing cardiothoracic surgery.

As part of the study, I will be talking with you at your home or a location designated by you to conduct the interview. Interviews will last approximately one to two hours. I will also ask a few questions about your age, marital status, surgery, and hospital stay. All of the information that you share with me will remain confidential.

I do not anticipate that the study will present any medical or social risks to you, other than the inconvenience of your time required for the interview and questionnaire. Participation in the study may not benefit you directly.

The information I gather through the interview and questionnaire will be recorded in anonymous form. I will not release any information about you to your doctors or to anyone else in a way that could identify you.

If you would like to withdraw from the study at any time you may do so without any penalty. The information collected from you up to that point would be destroyed if you so desire.

Once the study is completed, I would be glad to share the results with you. In the meantime, if you have any questions please contact me.

Ann Papendorf
1659 W. Rachel Lane
Appleton, WI 54913
Phone # 920-882-8245
Email: papena33@uwosh.edu

If you have any complaints about your treatment as a participant in this study please call or write:

Chair, Institutional Review Board
For Protection of Human Participants
C/o Grants Office
UW Oshkosh
Oshkosh, WI 54901
(920) 424-1415

Although the chairperson may ask for your name, all complaints are kept in confidence.

Authorization:

I have received an explanation of the study and agree to participate. I understand my participation in the study is strictly voluntary.

Name: _____ Date: _____

Authorization to be audio-taped

I give permission for the researcher to audiotape our discussion. Audiotapes will be destroyed upon completion of the study.

Name: _____ Date: _____

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