

Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status After Surgery

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PATIENT PERCEPTIONS OF PATIENT-EMPOWERING NURSE BEHAVIORS, PATIENT
ACTIVATION, AND FUNCTIONAL HEALTH STATUS
AFTER SURGERY

By

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ABSTRACT
PATIENT PERCEPTIONS OF PATIENT-EMPOWERING NURSE BEHAVIORS,
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Teresa A. Jerofke, BSN, MSN, APNP-BC

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Patient empowerment has been advocated as a way to engage patients in self-management of chronic illnesses in emerging patient-centered models for healthcare improvement. The majority of research on patient empowerment has studied empowerment as an outcome in outpatient settings, with little attention to provider processes used to empower patients during a hospitalization. Post-operative patients with life-threatening chronic illnesses face multiple illness-related transitions associated with the recovery from their surgery and taking on the role of managing their life-threatening chronic illnesses upon hospital discharge.

A correlational, longitudinal design framed by Meleis' Transitions Theory and the Individual and Family Self-Management Theory (IFSMT) was used to determine the relationship between patient perceptions of patient-empowering nurse behaviors in an acute care setting and patient activation and functional health status six-weeks post-discharge in patients who recently underwent a surgical procedure for cancer or cardiac disease. In addition, tests of validity and reliability were conducted on a newly constructed instrument, the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS).

One hundred thirteen post-surgical cancer and cardiac patients participated. Patient perceptions of patient-empowering nurse behaviors and baseline patient activation were measured prior to discharge with the PPPNBS and 13-item Patient Activation Measure (PAM 13). Patient activation and functional health status were measured six-weeks following discharge with the PAM 13 and SF-36. Multiple linear regression using a simultaneous equation approach was used to identify significant relationships. Patient perceptions of patient-empowering nurse behaviors were significantly positively associated with post-discharge patient activation, which was significantly positively associated with mental functional health status. Length of stay was the only significant predictor of physical functional health status. The PPPNBS demonstrated acceptable validity and reliability in post-surgical patients with a life-threatening chronic illness.

Implications for nursing practice, nursing research, and nursing education are identified. Patient-empowering nurse behaviors can be used to facilitate engagement in self-management behavior, improve functional health status, and should be examined as a way to improve the cost of chronic illness care through improved patient activation levels. Transitions Theory and the IFSMT provided a useful framework to examine the contribution of nursing care, represented by patient-empowering nurse behaviors, to patient self-management outcomes.

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Teresa A. Jerofke, BSN, MSN, APNP-BC

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	i
LIST OF TABLES	viii
LIST OF FIGURES	x
CHAPTER	
I. INTRODUCTION	1
Problem	2
Study Purpose	6
Rationale for the Study	7
Significance for Patient Care	10
Significance for Nursing	10
Significance for Vulnerable Populations	12
Contribution to Nursing Education	13
Summary	14
II. REVIEW OF THE LITERATURE.....	16
Introduction	16
Theoretical Framework	17
Meleis' Transitions Theory	17
The Individual and Family Self-Management Theory.....	26
Integration of Meleis' Transitions Theory and The..... Individual and Family Self-Management Theory	33
Philosophical Underpinnings.....	39
Review of the Literature.....	42
Patient Empowerment.....	42

Patient-Empowering Nurse Behaviors.....	42
Self-Management.....	45
Patient Activation.....	53
Functional Health Status.....	60
Summary of Relationships Between Concepts.....	69
Development of PPPNBS.....	70
Research Aims and Hypotheses.....	73
Assumptions.....	74
III. RESEARCH DESIGN AND METHODS	76
Introduction.....	76
Research Design.....	77
Subjects and Setting.....	78
Instruments.....	81
PPPNBS.....	81
Pilot Study.....	83
PAM 13.....	90
The MOS 36-Item Short-Form.....	91
Health Survey version 2.0	
Enrollment Form.....	93
Contact Information Form.....	94
Medical Record Review Form.....	94
Procedure.....	95
Provisions for the Protection of Human Rights.....	98
Data Analysis.....	99

IV. RESULTS	109
Description of Sample	109
Sample Characteristics	112
Preliminary Screening of Data.....	120
Hypothesis One.....	123
Hypothesis Two.....	123
Hypothesis Three.....	125
Hypothesis Four.....	126
Hypothesis Five.....	126
Hypothesis Six.....	128
Hypothesis Seven.....	128
Hypothesis Eight.....	129
Hypothesis Nine	129
Additional Analyses.....	132
Gender	132
Type of Illness.....	132
Congenital Cardiac Disease.....	133
Stage of Illness.....	133
Cancer Recurrence.....	134
Presence of Comorbidities.....	134
Home Health.....	135
Readmission Analyses.....	135

V. DISCUSSION	138
Interpretation of Findings.....	138
Hypothesis One	138
Hypothesis Two.....	140
Hypothesis Three	142
Hypothesis Four.....	143
Hypothesis Five	144
Hypothesis Six.....	144
Hypothesis Seven.....	145
Hypothesis Eight	145
Hypothesis Nine.....	145
Additional Analyses.....	145
Theoretical Considerations and Implications for.....	148
Theory Development	
Implications for Vulnerable Populations.....	149
Implications for Nursing Practice.....	150
Implications for Nursing Research.....	150
Implications for Nursing Education.....	151
Strengths and Limitations.....	153
Summary.....	155
Concluding Statement.....	155
REFERENCES.....	157
APPENDICES	
Appendix A: Manuscript I:	192
A Concept Analysis of Empowerment	

From Patient and Provider Perspectives
Within the Context of Cancer Survivorship

Appendix B: Study Forms and Instruments.....	223
PPPNS.....	224
PAM 13.....	225
SF-36 v.2.....	226
Enrollment Form.....	227
Contact Form	230
Medical Record Review Form	231
Nurse Reminder Cards	232
PPPNS Cover Sheet	233
Appendix C: Institutional Review Board.....	234
Appendix D: Manuscript II: Patient	246
Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status After Surgery	

LIST OF TABLES

1. Vertical Relationships Between Meleis' Transitions Theory Concepts, Theoretical Study Concepts, and Empirical Indicators	21
2. Vertical Relationships Between Individual and Family Self-Management Theory Concepts, Theoretical Study Concepts, and Empirical Indicators	30
3. Vertical Relationships Between Meleis' Transitions Theory Concepts, Individual and Family Self-Management Theory Concepts, Theoretical Study Concepts, and Empirical Indicators	36
4. Pilot Patient Demographic Variables	86
5. Pilot Cronbach's Alpha Values	88
6. Pilot PPPNBS Total and Subscale Scores	88
7. Summary of Variables Used as Dependent and Independent Variables	104
8. Description of Variables Used for Sample Description	106
9. Sample Characteristics of Analysis of PPPNBS Reliability	112
10. Sample Characteristics: Hypotheses 2 through 9	114
11. Description of Sample Characteristics used in Analyses by Illness Type	116
12. Sample Characteristics: Primary Diagnoses	117
13. Sample Characteristics: Type of Operation	118
14. Most Common Comorbidities	119
15. PPPNBS Cronbach's Alpha Reliability Estimates and Scale Descriptive Statistics	123
16. Correlations Between PPPNBS Subscales and Pre-Discharge PAM 13	124
17. PPPNBS Scale Descriptive Statistics: Hypotheses 2 through 9	124
18. Correlations Between PPPNBS subscales and Six-Week Post-Discharge PAM 13	126
19. Correlations Between Six-Week Post-Discharge PAM 13, PCS Measure, and MCS Measure	128

20. Description of Dependent Variables by Illness Type	132
21. Logistic Regression Analysis for Unplanned Six-week Readmissions.....	136

LIST OF FIGURES

1. Horizontal Relationships Between Meleis' Transitions Theory Concepts,.....38
Individual and Family Self-Management Theory Concepts, Theoretical
Study Concepts, and Empirical Indicators
2. Multi-level Analysis of Predictors of Patient Perceptions of103
Patient-Empowering Nurse Behaviors, Patient Activation,
and Functional Health Status
3. Explanation of Study Enrollment and Exclusions.....111
4. Revised Simultaneous Equation Analysis Model for Predictors of131
Patient Perceptions of Patient-Empowering Nurse Behaviors,
Patient Activation, and Functional Health Status

CHAPTER ONE

Introduction

The term empowerment has been used by many different disciplines (Jerofke, in review) to refer to the power an individual has toward accomplishing a goal (Kanter, 1993; Laschinger, Gilbert, Smith, & Leslie, 2010; Rappaport, 1984). A patient-empowering process has recently been promoted as a way to strengthen self-management behavior in patients with chronic illnesses (Alegria et al., 2008; Alpay, Paul, & Dumaij, 2011; Anderson & Funnell, 2010; Ho, Berggren, & Dahlborg-Lyckhage, 2010; McCorkle et al., 2011; Nygardh, Malm, Wikby, & Ahlstrom, 2012). The World Health Organization (2009) promotes individual empowerment as a way to decrease the burden of chronic illness by increasing individuals' capacities to take control of their illnesses by providing them access to resources and patient-centered education.

Nurses can increase patients' capacities to take control of their illnesses by engaging in patient-empowering nurse behaviors. Patient-empowering nurse behaviors are those behaviors that: (1) help patients realize they are capable and entitled to participate in their care; (2) provide patients with access to information, support, resources, and opportunities to learn and grow; (3) help facilitate collaboration between patients, providers, family, and friends; and (4) allow patients flexibility and responsibility in decision making (Laschinger et al., 2010). Helping patients realize they can and should participate in their care, providing them with the tools necessary to successfully maintain their health, and facilitating collaboration and flexibility in decision making (Laschinger et al., 2010) will lead to activated patients. Activated patients are

defined as patients who have the knowledge, skills, and confidence necessary to manage their chronic illnesses successfully (Hibbard, Stockard, Mahoney, & Tusler, 2004). Empowering behaviors of nursing home staff (Tu, Wang, & Yeh, 2006) and greater patient activation levels (Hibbard, Mahoney, Stock, & Tusler, 2007) have both been significantly associated with improved quality of life in nursing home patients and patients with chronic illnesses respectively, but no study has been identified that has tested the relationship between all three concepts in an acute care setting or during the transition to home-based self-management.

Problem

One hundred and forty-five million Americans, approximately half of the total United States population, have at least one chronic illness and the prevalence of having multiple chronic illnesses is projected to reach 81 million Americans by 2020 (Robert Wood Johnson Foundation, 2004). Chronic illness not only burdens patients through the disruption of lifestyles secondary to effects of the illness and treatments (Aujoulat, Luminet, & Deccache, 2007; Devins, 2010), but also burdens healthcare systems due to the increased cost associated with higher rates of health service and resource use, including hospital readmissions. Annual spending in the United States on treatment of chronic illnesses is estimated to be 1.65 trillion dollars, an amount nearly identical to the federal deficit (Partnership To Fight Chronic Disease, 2009), and accounts for 84% of total healthcare spending. Many readmissions could be prevented, as they are frequently due to inadequate self-management of a chronic illness (Bodenheimer, 2005; Jencks, Williams, & Coleman, 2009; Warwick, Gallagher, Chenoweth, & Stein-Parbury, 2010). The increasing economic burden, combined with threats of bundled or decreased

payments for readmissions (Harris, 2009; Hines, Yu, & Randall, 2010), creates the need to strengthen patients' self-management of chronic illness by involving patients in their care (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002) as a way to decrease spending on unnecessary hospitalizations and readmissions (Cobden, Niessen, Barr, Rutten, & Redekop, 2010; Goetzel, Ozminkowski, Villagra, & Duffy, 2005).

Cardiac disease and cancer are two of the most prevalent chronic illnesses in the United States and are also the top two leading causes of death nationwide (Centers for Disease Control and Prevention, 2012b). There are currently 27.1 million Americans living with cardiac disease (Centers for Disease Control and Prevention, 2012a), 12 million Americans living with either a past or present diagnosis of cancer, and another 1.6 million Americans expected to be diagnosed with cancer in 2012 (American Cancer Society, 2012). Given advances in treatments and technology that have contributed to improving survival rates, cancer is now viewed as a chronic illness with the accompanying necessity for patients to manage both the short and long-term effects of cancer treatment (Jerofke, in review; McCorkle et al., 2011). Patients with life-threatening chronic illnesses, such as cardiac disease and cancer, frequently experience feelings of loss of control and powerlessness (Aujoulat et al., 2007b; Curtiss, Haylock, & Hawkins, 2006; Hewitt, Greenfield, & Stovall, 2005; Marbach & Griffie, 2011) secondary to complex treatment regimens, symptoms from the illness and treatments, feelings of anxiety, impact of the illness on family and friends, lack of social support, inability to fulfill roles held prior to the illness, and decreased quality of life (Foster & Fenlon, 2011; McCorkle et al., 2011; Naus, Ishler, Parrott, & Kovacs, 2009; Okamoto, Wright, & Foster, 2011). Feelings of powerlessness are problematic because they may

negatively impact patients' abilities to engage in self-management behaviors and their quality of life. Self-management behaviors are defined as learned behaviors that patients purposefully engage in (Ryan & Sawin, 2009) to control the physical, emotional, and lifestyle-altering effects of their illnesses (Barlow et al., 2002; Corbin & Stauss, 1988; Kralik, Koch, Price, & Howard, 2004; Lorig & Holman, 2003; McCorkle et al., 2011).

Examples of self-managing behaviors in cancer patients include managing symptoms, adhering to a nutrition plan, making decisions about treatments, managing side-effects from treatments, furthering their knowledge about their disease, sustaining their quality of life, planning activities, holding down a job, negotiating support from the community, family or friends, coordinating care between providers, coping with anxiety about disease progression or recurrence, and communicating and staying connected with family and friends (Brockopp, Moe, Schreiber, & Warden, 2010; Chou, Dodd, Abrams, & Padilla, 2007; Foster & Fenlon, 2011; Schulman-Green et al., 2011). Patients with cardiac disease are expected to make daily decisions regarding their diet, medications, adhere to medications which may have unfavorable side effects, monitor for new symptoms, continue to participate in social events, manage stress, and know when to call a provider with a change in clinical condition (Bosworth, Powers, & Oddone, 2010; Clark & Dodge, 1999; Riegel & Dickson, 2008). Inadequate knowledge about self-management behaviors and lack of provider support were cited as barriers to successful self-management in cardiac disease, while active participation, access to support, and access to resources were reported by patients as facilitators of self-management behavior (Mead, Andres, Ramos, Siegel, & Regenstein, 2010). Therefore, providing patients

access to tools and support necessary for the engagement in self-management behaviors is crucial to the success of patients' self-management behaviors.

The burden of chronic illness can be further magnified in patients undergoing surgery. Postsurgical patients have been shown to have many needs during the transition from hospital to home (Hughes, Hodgson, Muller, Robinson, & McCorkle, 2000; Leegaard, Naden, & Fagermoen, 2008) and are often sent home while still experiencing pain. Ineffective self-management of pain can lead to consequences such as disturbed sleep or decreased daily activity (Leegaard et al., 2008), which could impact patients' confidence and ability to self-manage their chronic illnesses. In addition, many patients will be expected to care for their wounds, monitor for complications, manage elimination while maintaining a balance between pain control and stool softeners, and maintain an adequate activity level to prevent complications (Pieper et al., 2006), all while trying to resume pre-surgical roles. Patients often feel overwhelmed during the post-discharge period because they are suddenly expected to take responsibility for the care of their illness, as the nurse is no longer there to assist and support them (Lapum, Angus, Peter, & Watt-Watson, 2011). Lastly, patients may become frustrated when family or friends expect them to return to normal, thinking that the illness is cured following a surgical intervention (Foster & Fenlon, 2011; Olsson, Bergbom, & Bosaeus, 2002), or when they cannot return to their pre-illness activity level (Theobald & McMurray, 2004).

Surgical patients have also reported that teaching was not tailored to their needs, availability of resources and support upon discharge was not assessed, and many questions were left unanswered (McMurray, Johnson, Wallis, Patterson, & Griffiths, 2007). If patients are not adequately prepared to self-manage their chronic illnesses

during hospitalization, unnecessary readmissions or ED visits can occur. Research has indicated that patients undergoing cardiac and abdominal surgery for cancer have high readmission rates, ranging from 14% at 30 days, 30% at 90 days, and 32% at 6 months (Martin et al., 2011; Murphy et al., 2008; Slamowicz, Erbas, Sundararajan, & Dharmage, 2008), many of which are related to poor self-management ability. In addition, many post-surgical cardiac and cancer patients report decreased functional health status during the post-operative recovery period secondary to physical and psychological effects of the surgery and chronic illness (Elliott, Lazarus, & Leeder, 2006; Hodgson & Given, 2004; King, 2000; Myles et al., 2001). Together these findings suggest that patients may not be receiving optimal exposure to patient-empowering nurse behaviors such as providing them with access to the information, support, resources, and opportunities to learn and grow that are necessary to become confident, knowledgeable, and skillful in successfully self-managing their illnesses once discharged.

Study Purpose

The overall purpose of this study was to investigate the association between nurse behaviors that assist patients to prepare for self-management of their chronic illnesses following hospital discharge and patients' self-management of their chronic illnesses. More specifically, the study determined the relationship between patient perceptions of patient-empowering nurse behaviors in an acute care setting, patient activation six-weeks post-discharge, and functional health status six-weeks post-discharge in patients who recently underwent a surgical procedure for a diagnosis of cancer or cardiac disease. Patient activation was used as a proxy measure of self-management, as knowledge, skill and confidence in self-management ability are components of the process of self-

management (Ryan & Sawin, 2009). Functional health status was used in this study as an indicator of a patient's quality of life, as measures of functional health status are often used as indicators of health-related quality of life (Lawrence & Clancy, 2003; Porter & Skibber, 2000; Ware & Gandek, 1998). Tests of validity and reliability were also conducted on a newly constructed instrument, the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS). Findings from this study provide the opportunity to generate a new explanatory theory that can be used as a basis for development of interventions for use in practice.

Rationale For The Study

Recent national health care priorities have emphasized the necessity of patient engagement through the delivery of patient-centered care in healthcare reform as a way to improve quality, affordability, and patient outcomes (Institute of Medicine, 2001; Nursing Alliance for Quality Care, 2011; National Priorities Partnership (NPP), 2008; The Commonwealth Fund Commission on a High Performance Health System, 2009; U.S. Department of Health and Human Services, 2012). Many patient-empowering nurse behaviors incorporate a patient-centered approach: providing patient-specific education (IOM, 2001); respecting patients' values and needs (NPP, 2008); involving patients in care planning through collaborate relationships (Adolfsson, Starrin, Smide, & Wikblad, 2008; Epstein, Fiscella, Lesser, & Stange, 2010; Holmstrom & Roing, 2009); and developing mutual trust within a provider-patient relationship (Epstein et al., 2010; Ho et al., 2010). Additionally, The Chronic Care Model emphasizes the importance of empowering patients to care for their illnesses by utilizing a patient-centered approach that provides patients with the resources and encouragement necessary to facilitate their

active involvement in their care within a collaborative relationship (Improving Chronic Illness Care, 2012). This study will link nursing behaviors to national health care priorities and principles of chronic care management as a way to improve patient outcomes through the delivery of patient-centered, patient-empowering nurse behaviors.

Investigating patient perceptions of the process of empowerment is important because the provider may be directly responsible for how empowering an encounter may be (Cortes, Mulvaney-Day, Fortuna, Reinfeld, & Alegría, 2009) by either encouraging or discouraging patient participation (Anderson & Funnell, 2010). The majority of the instruments in the literature (Herbert, Gagnon, Rennick, & O'Loughlin, 2009) measure outcomes of patient empowerment such as knowledge, experience, self-efficacy, ability to self-manage, self-determination or autonomy, self-capacity building, and purposeful participation (Anderson, Funnell, Fitzgerald, & Marrero, 2000; Bolton & Brookings, 1998; Pagliarello, Di Pietro, Paradisi, Abeni, & Tabolli, 2010; Shearer, Fleury, & Belyea, 2010; Spreitzer, 1995; Sun et al., 2011), rather than patient perceptions of the process of empowerment. Furthermore, the existing instruments used in empowerment research are illness-specific, limiting application to populations with other illnesses (Anderson et al., 2000; Chen & Li, 2009; Herbert et al., 2009). Conceptualizing and measuring empowerment solely as an outcome fails to recognize the contribution of nursing care to the process of patient empowerment, the patient-centeredness of its approach, and the collaboration between the provider and patient that occurs during the process of empowerment.

There are no known published reports of a quantitative measure of patient perceptions of patient-empowering nurse behaviors. The few instruments that measure

patient perceptions of the process of empowerment do not focus on nursing behaviors (Chen et al., 2011; Lewin & Piper, 2007; Tu et al., 2006), but rather on healthcare delivery in general. Faulkner's Patient Empowerment Scale (2001) measures patient empowerment from the patient's perspective; however, the majority of questions focus on actions of the staff rather than focusing on patient involvement in care, making empowerment a unidirectional concept. This research study measured both a collaborative empowering process and empowerment outcomes by examining patient perceptions of patient-empowering nurse behaviors that incorporate a patient-centered approach, and patient outcomes such as patient activation and functional health status. Given the patient-centered approach that is necessary for an empowering process to occur (Jerofke, in review); it is important to measure the presence of patient-empowering nurse behaviors from the patient's perspective. In addition to measuring empowering processes from the patient's perspective, this study measured empowerment outcomes such as: (1) increased knowledge, skills, and confidence for self-management; and (2) health-related quality of life, which are measured as patient activation and functional health status.

This study addressed the above mentioned gaps in knowledge and was the first study to explore the relationship between the patient-empowering behaviors of nurses, patient activation, and functional health status as an indicator of quality of life in two groups of patients that have historically demonstrated impaired self-management ability, decreased functional health status, and decreased quality of life following hospital discharge. This study tested the psychometrics of a newly developed instrument to measure the process of patient empowerment from the patient's perspective as delivered by nursing staff. Ultimately, this study provided the opportunity to demonstrate an

association between nursing therapeutics, conceptualized as patient-empowering nurse behaviors, and patient outcomes.

Significance

Significance for Patient Care

Engaging in empowering behaviors is an important component in patient care, as empowering behaviors have been shown to reduce the cost of hospitalization by reducing length of stay (Melnik & Feinstein, 2009), improve self-managing behaviors by increasing confidence through education, and strengthen decision-making capabilities in individuals with chronic illnesses through the establishment of respectful, collaborative relationships between patients and providers (Bodenheimer, Lorig, Holman, & Grumbach, 2002; Kaplan & Frosch, 2005; Kravitz et al., 2011; Lemmens, Nieboer, & Huijsman, 2008; Munn, 2010; Suter, Suter, & Johnston, 2011; Tsay & Hung, 2004). Patient-empowering nurse behaviors can be used to facilitate the development of activated patients by increasing patients' confidence and self-efficacy toward chronic illness self-management. Higher patient activation measures have been linked to higher functional status, quality of health care, satisfaction of care, quality of life, adherence to self-management behaviors, and fewer physician visits (Donald et al., 2011; Frosch, Rincon, Ochoa, & Mangione, 2010; Hibbard, Mahoney, Stock, & Tusler, 2007; Mosen et al., 2007; Munson, Wallston, Dittus, Speroff, & Roumie, 2009; Skolasky et al., 2011).

Significance for Nursing

Patient empowerment is an important concept to nursing because nurses are responsible for discharge preparation and making sure patients have the skills and

knowledge they need before discharge in order to navigate their way through their transition from hospital to home (Foust, 2007; Nosbusch et al., 2011; Weiss et al., 2007). The nurse-patient relationship has also been defined as being empowering due to the collaborative approach of nursing care (Aujoulat, d'Hoore, & Deccache, 2007a; McWilliam, Ward-Griffin, Sweetland, Sutherland, & O'Halloran, 2001; Virtanen, Leino-Kilpi, & Salanterä, 2007). Unfortunately, very few studies have examined the relationship between empowering behaviors of nurses in an acute care setting and patient outcomes (Anderson et al., 1995; Tu et al., 2006) and none have used an empowerment theoretical framework. This study used an extension of Kanter's (1993) work empowerment theory to determine if behaviors previously found to be empowering to employees (Kanter, 1979, 1993), nurses (Laschinger & Finegan, 2005), and nursing students (Ledwell, Andrusyszyn, & Iwasiw, 2006; Siu, Laschinger, & Vingilis, 2005) are empowering to patients as well in an acute care setting.

It is crucial to link nursing care to patient outcomes, as there is a growing but limited amount of evidence regarding the impact of nursing care processes on patient outcomes (Doran et al., 2006; Doran & Pringle, 2011). The Quality Health Outcomes Model developed by the American Academy of Nursing Expert Panel on Quality Health Care proposes the following patient outcomes to be reflective of quality nursing care: (1) attainment of proper self-care; (2) demonstration of health-promoting behaviors; (3) health-related quality of life; (4) satisfaction; and (5) symptom management (Mitchell, Armstrong, Simpson, Lentz 1989; Mitchell & Lange, 2004). The Nursing Role Effectiveness Model proposes similar nurse-sensitive patient outcomes: (1) patient satisfaction; (2) functional status; (3) self-care; (4) symptoms control; and (5) safety and

nurse sensitive outcomes (Irvine, Sidani, & McGillis Hall, 1998). There is limited but significant evidence (Weiss, Yakusheva, & Bobay, 2011) supporting the impact of the nursing process of care in acute care on post-discharge outcomes. Measuring the relationship of patient perceptions of patient-empowering nurse behaviors to patient activation and functional health status six-weeks post-discharge provided further quantitative evidence supporting the relationship between quality nursing care and post-discharge patient outcomes. This study further provided the opportunity to generate a new explanatory theory that can be used as a basis for development of interventions for use in practice.

Significance for Vulnerable Populations

Patients with chronic illnesses have reported feelings of loss of control over their bodies and are often burdened by the unpredictability of symptoms (Aujoulat et al., 2007b; Strandmark, 2004). More problematic is the loss of identity that patients with chronic illnesses experience causing feelings of powerlessness due to loss of social functioning and roles, a change in self-image due to the effects of the chronic illness, and the limitation of choices in their everyday lives (Aujoulat et al., 2007b; Devins, 2010; Strandmark, 2004). Feelings of powerlessness in chronic illness create vulnerability when patients' feelings of autonomy and self-worth are threatened due to the lack of control that may arise from inadequate self-management (Strandmark, 2004). The degree of powerlessness may be related to the extent of the vulnerability perceived by the individual (Rogers, 1997), availability of resources, perception of the threat or risk, or the person's perceived power to overcome those threats (Spiers, 2000). Patients with chronic illness who have decreased societal and environmental resources available to them, such

as those from a lower socioeconomic status (SES) are at a heightened risk for vulnerability (Flaskerud & Winslow, 1998). Actively involving patients in care, facilitating the collaboration of patients with their friends, family, and providers, and providing patients with the resources, knowledge and skills necessary for self-management through patient-empowering nurse behaviors could decrease feelings of vulnerability in post-surgical patients with life-threatening chronic illnesses.

Contribution to Nursing Education

It is proposed that empowered professionals are more likely to empower others through the use of empowering-behaviors (Kanter, 1979; Laschinger et al., 2010). Encouraging students to use patient-empowering nurse behaviors in practice to improve patient outcomes will create a learning environment that may also empower students by allowing them opportunities to problem-solve and act as autonomous individuals (Siu et al., 2005). Therefore, teaching students to use patient-empowering nurse behaviors during their clinical practicum experiences should not only benefit patients, but also benefit students by improving their knowledge, skills, and beliefs in their ability to provide quality nursing care and collaborate with other members of the healthcare team (Bradbury-Jones, Sambrook, & Irvine, 2007; Siu et al., 2005). In order for students to provide patients access to information, support, resources, and opportunities to learn and grow, students themselves will need to seek out resources, problem solve, and collaborate with other professionals. Students have reported that being encouraged to learn, being given the opportunity to demonstrate responsibility for patient care, and collaborating with the healthcare team contributed to feelings of empowerment, while lack of responsibility decreased confidence and self-efficacy levels (Bradbury-Jones et al., 2007).

This method of active learning engages students, motivates further learning, and provides opportunities for them to use critical thinking and become accountable for the care they provide to patients (Clark & Davis Kenaley, 2011). Lastly, teaching students to use patient-empowering nurse behaviors will encourage patient-centered care and will facilitate nursing behaviors that are consistent with professional standards and national health care priorities.

Summary

In summary, the number of Americans living with a chronic illness continues to rise and two of the most prevalent chronic illnesses, cancer and cardiac disease, are also the top two leading causes of death in the United States. Patients' abilities to self manage their life-threatening cancer or cardiac disease can be impaired following a surgical procedure, leaving patients feeling vulnerable, powerless, and contributing to high readmission rates. Patient-empowering nurse behaviors represent a nursing process that can increase patients' confidence, knowledge, and skills for self-managing behavior and can further contribute to improved mental and physical health status. Patient-empowering nurse behaviors are conceptualized as those behaviors that nurses exhibit that: (1) acknowledge patients' rights and capacities to participate in their care; (2) provide patients with access to information, support, resources, and opportunities to learn and grow; and (3) facilitate collaboration between patients, providers, family, and friends while providing flexibility, opportunities to assume responsibility, and recognition for patients' participation in their care (Jerofke, in review; Laschinger et al., 2010).

Examining the relationship between patient perceptions of patient-empowering nurse behaviors and patient outcomes, such as patient activation and functional health status as

a measure of health-related quality of life, provides the opportunity to link quality nursing care with patient outcomes. Furthermore, patient-empowering nurse behaviors address national health care priorities for providing patient-centered care. Demonstrating the outcomes associated with such behaviors advance knowledge regarding ways to deliver quality nursing care and strengthen methods for nursing education.

CHAPTER TWO

Review of the Literature

Introduction

Chapter two will include descriptions of Meleis' Transitions Theory (Meleis, Sawyer, Im, Messias, & Schumacher, 2000) and the Individual and Family Self-Management Theory (Ryan & Sawin, 2009), the two guiding theoretical frameworks for this research proposal. The conceptual, theoretical, and empirical structure (CTES) of the study will be addressed, including descriptions of both vertical and horizontal relationships between study concepts. Vertical relationships specify how theoretical concepts are represented and operationalized in the study, while horizontal relationships identify the study propositions that are representations of propositions in the guiding theories (Fawcett, 1999). The three levels of the CTES include: (1) the conceptual level concepts from the theory of origin; (2) theoretical study concepts; and (3) empirical indicators (Fawcett, 1999). The conceptual level variables are represented by theoretical study variables that are measured by empirical indicators.

The philosophical underpinnings of the study will also be explained. Lastly, a thorough review of the literature will be provided to summarize the current state of knowledge about the following concepts and the relationships between the concepts: patient empowerment, patient-empowering nurse behaviors, self-management, patient activation, and functional health status. The gaps in the current state of knowledge that this research study will address will also be explicated.

Theoretical Framework

The design for the study was guided by Meleis' Transitions Theory (Meleis et al., 2000) and The Individual and Family Self-Management Theory (Ryan & Sawin, 2009). Meleis' Transitions Theory provided a framework that supported the relationship between nursing therapeutics and patient outcomes during a period of transition, while the Individual and Family Self-Management Theory provided a framework that helped to explain the complexity of self-management of chronic illnesses and provided support for the use of patient-empowering nurse behaviors as a way to facilitate the process of self-management.

Meleis' Transitions Theory

Meleis' Transitions Theory (Meleis et al., 2000; Schumacher & Meleis, 1994) provided one of the guiding frameworks for exploring the concepts and relationships relevant to the specific situation of interest in this study. The vertical relationships between Meleis' Transitions Theory concepts, theoretical study concepts, and empirical indicators are shown in Table 1. A transition is defined as the "passage from one life phase, condition, or status to another" (Chick & Meleis, 1986, p. 239). The patients in this study faced multiple illness-related transitions associated with the recovery from their surgery for a life-threatening chronic illness and taking on the role of managing their health within the context of their life-threatening chronic illness upon hospital discharge.

Many patients report difficulties during the transition from hospital to home following a hospital discharge (Holland, Mistiaen, & Bowles, 2011) and an acute event such as a surgical procedure may make patients more anxious during the transition

(Fredericks, Lapum, & Lo, 2012; Schumacher & Meleis, 1994). Patients often report feelings of vulnerability (Little, Paul, Jordens, & Sayers, 2000), loss of control, loss of autonomy, powerlessness, and decreased confidence, secondary to changes in their bodies or lifestyles and feelings of being different from others (Kralik, 2002; Schulman-Green et al., 2011). Patients may also feel overwhelmed by the need to make several lifestyle changes in response to their chronic illness (Hibbard & Tusler, 2007).

During a time of transition, patients can feel disconnected due to insecurities resulting from an unfamiliar situation or experience (Chick & Meleis, 1986). In addition, patients may have unmet needs because they do not have access to the means necessary to transition to another phase in their life (Chick & Meleis, 1986). Meleis' Transitions Theory provided a framework that demonstrated the contribution of nursing therapeutics to the response of patients undergoing transitions, as nurse-patient interactions often occur during a time of transition. The horizontal relationships between the following four major concepts will be investigated in this study: (1) Nature of Transitions; (2) Transition Conditions; (3) Nursing Therapeutics; and (4) Patterns of Response.

The nature of transitions is defined by the type (developmental, situational, health/illness, or organizational), the pattern (single, multiple, sequential, simultaneous, related, unrelated), and the properties (awareness, engagement, change and difference, transition time span, and critical points and events) of the transition (Meleis et al., 2000). The patients in this study experienced a health/illness transition associated with the recovery from a surgical procedure for the life-threatening chronic illness of either cancer or cardiac disease. The health/illness transition may be impacted by the patient's diagnosis and the unit on which the patient was hospitalized. Patients in this study also

experienced multiple transitions related to their chronic illnesses, surgeries, and hospital discharge. Lastly, transitions are defined by the time span of the transition and critical points and events such as the length of time that has passed since the patient was diagnosed with the chronic illness and how long the patient was admitted to the hospital. Conceptual level concept ‘nature of transitions’ was represented by the study concept ‘illness factors’. Illness factors were measured by the length of time since the patient was initially diagnosed with the chronic illness, the type of chronic illness (cancer or cardiac disease), length of hospital stay, and the nursing unit on which the patient was hospitalized following surgery.

Transition conditions are described as personal or environmental factors that attach meaning to the transition and either facilitate or constrain the transition process (Meleis et al., 2000). Personal or environmental factors may include patient beliefs and values, SES, preparation, and knowledge. Patients’ beliefs and values may differ based on patient age or race (Falk-Rafael, 2001; Meyer et al., 2008). Conceptual level concept ‘transition conditions’ was represented by the study concept ‘patient characteristics’. Patient characteristics were measured by age, race, SES, and pre-discharge patient beliefs/confidence, knowledge, and skills toward self-management of their chronic illness (pre-discharge patient activation measure [PAM]).

Nursing therapeutics is described as the actions performed by nurses to prepare patients for meeting the needs of the transition. This may be accomplished by assessing patients’ readiness to respond to the needs and role changes associated with the transition and then providing the resources and support necessary to further their knowledge and skill development in order to manage the transition successfully (Schumacher & Meleis,

1994). Conceptual level concept “nursing therapeutics” was represented by the study concept “patient-empowering nurse behaviors”. Patient-empowering nurse behaviors were measured from the patient’s perspective using the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS).

Pattern of response is defined by how an individual reacts to the transition. This may include how connected the patient feels with other individuals such as their family, friends, or healthcare providers, the ability to cope with the transition, and mastery of skills, knowledge, and behaviors necessary to manage the transition. Conceptual level concept “pattern of response” was represented by study concept “patient activation” and “functional health status” and was measured by the PAM (Hibbard et al., 2005) and SF-36 (Ware, n.d.) respectfully.

Table 1

Vertical Relationships Between Meleis' Transitions Theory¹ Concepts, Theoretical Study Concepts, and Empirical Indicators

Meleis' Transitions Theory Concepts	Nature of Transitions	Transition Conditions	Nursing Therapeutics	Patterns of Response
Transitions Theory Definitions (Meleis et al., 2000; Schumacher & Meleis, 1994)	The character of the events that are triggering the transitions defined by type (health/illness), pattern (multiple), and properties (time span and critical points and events)	The personal and environmental factors that attach meaning to a transition and either facilitate or constrain it	Actions performed by nurses to prepare patients for meeting the needs of the transition by way of education, skill development, identifying needs and role changes, and providing resources to meet those needs and role changes	How an individual reacts to the transition Feeling connected and interacting with others, while developing confidence and skills needed to manage the illness
Theoretical Study Concept	Illness Factors	Patient Characteristics	Patient-Empowering Nurse Behaviors a. Initiation b. Access to Information c. Access to Support d. Access to Resources e. Access to Opportunities to Learn and Grow f. Informal Power g. Formal Power	Patient Activation - having the knowledge, skills, beliefs, and behaviors necessary to manage a chronic illness (Hibbard et al., 2004); a precursor to engagement in self-management behaviors Functional Health Status – an individual's ability to participate in daily activities in

				order to meet basic physiologic needs, fulfill roles inside and outside of the home, and manage his/her health; an indicator of quality of life (Cooley, 1998; Wang, 2004)
Empirical Indicators	<ul style="list-style-type: none"> a. Length of time since initial diagnosis b. Type of Illness (Cancer vs. cardiac disease) c. Length of Stay d. Hospital Unit 	<ul style="list-style-type: none"> a. Age b. Race c. SES d. Pre-discharge PAM 13 	Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS)	<p>Patient Activation Measure (PAM 13) (Hibbard et al., 2005)</p> <p>SF-36 v.2 (Ware, n.d.)</p> <ul style="list-style-type: none"> - Mental Component Summary (MCS) measure - Physical Component Summary (PCS) measure

† (Meleis et al., 2000; Schumacher & Meleis, 1994)

The following descriptions of the horizontal relationships between Meleis' Transitions Theory concepts, theoretical study concepts, and empirical indicators are found in Figure 1. This figure presents a model integrating Meleis' Transitions Theory and the Individual and Family Self-Management Theory at the conceptual level (see section on page 33 for a discussion of integration of the theories and Figure 1).

The nature of transitions can impact transition conditions, nursing therapeutics, and patterns of response. The type, pattern, and properties of the transition can influence whether the patient's transition is facilitated or inhibited through transition conditions, what type of nursing therapeutics are implemented to meet the patient's needs, and the pattern of response the patient exhibits in reaction to the transition (Meleis et al., 2000). The nature of transitions, represented by illness factors such as the length of time since initial diagnosis with the chronic illness, the type of illness, the length of stay, and the unit on which the patient was hospitalized, can influence patient characteristics, such as their pre-discharge activation level, because illness factors can impact the meaning, preparation, and knowledge patients have towards the transition (Meleis et al., 2000). Illness factors can also impact a patient's perceptions of patient-empowering nurse behaviors. For example, patients who have longer lengths of stay may have more exposure to patient-empowering nurse behaviors and more time to prepare for their discharge than patients who have a shorter hospital stay. Therefore, patients with a longer length of stay may have more positive perceptions of patient-empowering nurse behaviors than patients who have a shorter length of stay. Patients who have known about their chronic illness for longer periods of time may have had time to process the diagnosis and may be ready to participate more in their care (Kralik et al., 2004) than

patients who are newly diagnosed and may also demonstrate more positive perceptions of patient-empowering nurse behaviors than those patients who are newly diagnosed with a life-threatening chronic illness.

The nature of transitions, represented by illness factors, can also impact patterns of response. For example, patients with longer lengths of stay and those who have known about their chronic illness for a longer period of time may have had more opportunities to accumulate the knowledge, skills, and confidence necessary for engagement in self-management behaviors; however, patients with longer lengths of stay may have had more complicated surgeries with prolonged recovery periods that could limit their engagement in self-management behaviors. Patients who have had their chronic illnesses for a longer duration have been shown to demonstrate more self-managing behaviors than those who have had their chronic illnesses for a shorter duration of time (Suwanno, Petpichetchian, Riegel, & Issaramalai, 2009). Greater levels of knowledge, skill, and confidence toward self-management behaviors are associated with higher patient activation levels (Hibbard et al., 2004) and higher quality of life in patients with chronic illness (Riazi, Thompson, & Hobart, 2004; Weng, Dai, Huang, & Chiang, 2010; Yoo, Kim, Jang, & You, 2011).

Transition conditions impact both nursing therapeutics and patterns of response. The personal and environmental factors that act as either facilitators or inhibitors to a patient's transition will determine the degree and type of nursing therapeutics provided to the patient and a patient's pattern of response. In this study, transition conditions, represented by patient characteristics such as age, race, SES, and pre-discharge PAM, may impact patient perceptions of patient-empowering nurse behaviors

(Deber, Kraetschmer, Urowitz, & Sharpe, 2007; Kralik, 2002; Neame, Hammond, & Deighton, 2005), patient activation (Heller, Elliott, Haviland, Klein, & Kanouse, 2009; Hibbard et al., 2005; Skolasky et al., 2011a; Skolasky, Mackenzie, Riley, & Wegener, 2009), and quality of life (Bayliss, Steiner, Fernald, Crane, & Main, 2003; Hughes, Hannon, Harris, & Patrick, 2010; Jeon, Essue, Jan, Wells, & Whitworth, 2009).

Lastly, nursing therapeutics, or the actions performed by nurses to prepare patients for meeting the needs of the transition, should theoretically influence how the patient reacts to the transition, or the pattern of response. Nurses must perform a wide variety of actions in order to prepare patients to meet transition needs and associated role changes. Nurses are responsible for preparing patients for the transition from hospital to home and do so by assessing and planning for discharge needs, arranging for post-discharge support and resources, and educating patients to strengthen their knowledge and skills mastery necessary to perform their new roles for chronic illness self-management (Holland & Harris, 2007; Meleis, 1975; Mistiaen, Francke, & Poot, 2007). Nurses must also be sensitive to and encourage patients to voice their beliefs and values regarding their illness and health when caring for them, as patients' beliefs and values can facilitate or inhibit the transition process (Meleis et al., 2000). Nursing therapeutics, represented by patient-empowering nurse behaviors, can improve patterns of response, represented by patient activation (Bodenheimer et al., 2002; Kravitz et al., 2011; Munn, 2010; Suter et al., 2011) and functional health status (Hibbard et al., 2007; Tu et al., 2006). Nurses can help prepare patients to meet the needs of the transition and role changes by performing patient-empowering nurse behaviors.

The Individual and Family Self-Management Theory

As patients transition into a life involving chronic illness, the transition can either become a stressful time because of feelings of powerlessness, loss of autonomy, and disruptions in daily life, or can become a time to reevaluate their lives and take control by incorporating self-management knowledge and skills (Schulman-Green et al., 2011; Strandmark, 2004). The Individual and Family Self-Management Theory (Ryan & Sawin, 2009) recognizes the complexity of the process of self-management and provides a framework to demonstrate how contextual risk and protective factors and the components of the process of self-management contribute to patient outcomes such as self-management behaviors, health status, and quality of life. Consistent with the Individual and Family Self-Management Theory, self-management in this research study was defined as a complex phenomenon consisting of three dimensions: context, process, and outcomes (Ryan & Sawin, 2009). The vertical relationships between The Individual and Family Self-Management Theory concepts, theoretical study concepts, and empirical indicators are demonstrated in Table 2 and the horizontal relationships are demonstrated in Figure 1, found after the section on the integrated conceptual level.

Contextual factors in the Individual and Family Self-Management Theory are the risk and protective factors that impact both the process and outcomes of self-management and are based on prior self-management and health status research. The following contributing factors to the process of self-management were identified: (1) duration of illness; (2) complexity of the required care; (3) access to care; (4) the disease itself; (5) knowledge, skills, and self-confidence; (6) age; (7) SES; and (8) race (Ryan, 1999; Ryan, 2009; Sawin, Bellin, Roux, Buran, & Brei, 2009; Schilling, Knafl, & Grey, 2002; Simons

& Blount, 2007). Contextual factors in the Individual and Family Self-Management Theory therefore included: (1) condition specific factors such as the disease or treatment complexity; (2) physical and social environment factors such as access to care, sociodemographics, or culture; and (3) individual factors such developmental stage and capability. Condition specific factors included those that were related to the complexity of the chronic illness and the treatment plan, while physical and social environmental factors and individual factors were related to the patient.

Conceptual level concept “condition specific factors” was represented by theory concept “illness factors”. Theory concept “illness factors” was measured by length of time since initial diagnosis, type of illness (cancer or cardiac disease), length of stay, and unit patient was hospitalized on. The unit that the patient was hospitalized on was included in conceptual level concept “condition specific factors” because the patient’s illness determines which unit the patient goes to following the surgical procedure. Conceptual level concepts “physical and social factors” and “individual factors” were represented by theory concept “patient characteristics” and were measured by age, race, SES, and pre-discharge PAM 13. All of the contextual factors may impact both the process of self-management and outcomes of self-management.

The process dimension of self-management includes a patient’s: (1) knowledge and beliefs; (2) self-regulation skills and abilities; and (3) social facilitation. The elements of the process dimension of the Individual and Family Self-Management Theory are based on theories of health behavior change, self-regulation, social support, and self-management of chronic illness (Ryan & Sawin, 2009). The process dimension proposes that individuals’ participation in self-management is impacted by their: (1)

knowledge, underlying beliefs, and confidence about their health and self-management behaviors; (2) skill level and ability to perform the self-management behaviors; and (3) support that they have to perform and maintain the behaviors over time and the degree of collaboration present among the individual, family, and providers (Ryan & Sawin, 2009).

In this study, nursing therapeutics, in the form of patient-empowering nurse behaviors, was used as a means to help facilitate the process of patient engagement in self-management. While patients participated in the collaborative process of empowerment, the actual patient engagement in the process of self-management was not directly measured. Therefore, the conceptual level concept “process of self-management” was represented by theory concept “patient-empowering nurse behaviors”. More specifically, the conceptual level concept “knowledge and beliefs” was represented by the following subscales of theory concept “patient-empowering nurse behaviors”: (1) initiation; (2) access to information; and (3) access to resources. The conceptual level concept “self-regulation skills and abilities” was represented by the subscale of access to opportunities to learn and grow of theory concept “patient perceptions of patient-empowering nurse behaviors”. Lastly, the conceptual level concept “social facilitation” was represented by the following subscales of theory concept “patient perceptions of patient-empowering nurse behaviors”: (1) informal power and (2) formal power. The facilitation of the process of self-management directly impacts the outcome dimension of self-management behavior in the Individual and Family Self-Management Theory.

The outcome dimension of the Individual and Family Self Management Theory reflects both proximal and distal outcomes of self-management. A proximal outcome of self-management is the actual engagement in self-management behaviors, while distal

outcomes of self-management include quality of life or well-being (Ryan & Sawin, 2009). Conceptual level concept “self-management behaviors” was represented by theory concept “patient activation” and was measured by the PAM. While patient activation is not a direct measure of self-management behavior, it was used in this study as a proxy measure, as confidence, knowledge, and skill in self-management ability are necessary for the process of self-management to occur. Conceptual level concepts “health status” and “quality of life” were represented by theory concept “functional health status” and were measured by the SF-36.

Table 2

Vertical Relationships Between Individual and Family Self-Management Theory¹ Concepts, Theoretical Study Concepts, and Empirical Indicators

Individual and Family Self-Management Theory Concepts	Context: Risk & Protective Factors			Process of Self-Management*			Outcomes
	Condition Specific	Physical & Social Environment	Individual	Knowledge & Beliefs	Self-Regulation Skills & Abilities	Social Facilitation	Proximal
Individual and Family Self-Management Theory Definitions (Ryan & Sawin, 2009)	Factors relating to the complexity of the illness and treatment that impact the amount, type, and nature of self-management behaviors	Factors relating to the individual's culture or social capital that impact the engagement in self-management behavior	Factors relating to an individual's developmental stage or capability to engage in self-management behavior	The information and beliefs an individual has regarding the self-management behavior	The process used to change health behavior including the skills and abilities necessary to engage in self-management behavior	The support individuals have to perform and maintain the behaviors over time and the degree of collaboration present among the individual, family, and providers	The actual engagement in self-management behaviors and the resulting health status and quality of life
Theoretical Study	Illness Factors	Patient characteristics		Patient-Empowering Nurse Behaviors			Patient Activation - having the

Concepts			<p>a. Initiation b. Access to Information c. Access to Resources</p>	<p>a. Access to Opportunities to learn and grow</p>	<p>a. Access to Support b. Informal Power c. Formal Power</p>	<p>knowledge, skills, beliefs, and behaviors necessary to manage a chronic illness (Hibbard et al., 2004); a precursor to engagement in self-management behaviors</p> <p>Functional Health Status – an individual’s ability to participate in daily activities in order to meet basic physiologic needs, fulfill roles inside and outside of the home, and manage his/her health (Cooley, 1998; Wang, 2004)</p> <p>Quality of life – individuals’ physical and mental health perceptions of their lives</p>
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						incorporating health risks and conditions, functional status, social support, and SES (Centers for Disease Control and Prevention, 2011)
Empirical Indicators	<ul style="list-style-type: none"> a. Length of time since initial diagnosis b. Type of Illness (Cancer vs. cardiac disease) c. Length of Stay d. Hospital Unit 	<ul style="list-style-type: none"> a. Race b. SES 	<ul style="list-style-type: none"> a. Age b. Pre-discharge PAM 13 	Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS)	<ul style="list-style-type: none"> Patient Activation Measure (PAM 13) (Hibbard et al., 2005) SF-36 v.2 (Ware, n.d.) <ul style="list-style-type: none"> - MCS - PCS 	

† (Ryan & Sawin, 2009)

*The actual process of self-management is not measured in this study, rather the facilitation of the process of self-management through nursing therapeutics (patient-empowering nurse behaviors) that target the components of the process is measured from the patient's perspective.

Integration of Meleis' Transitions Theory and the Individual and Family Self-Management Theory.

Meleis' Transitions Theory and the Individual and Family Self-Management Theory are two competing explanatory theories that offer two separate perspectives that in some cases contribute the same situation specific concepts and in other cases offer different concepts. Both theories contributed factors that can inhibit or facilitate not only the transitional experiences patients face following surgery and to chronic illness but also the engagement of those patients in the process of self-management through exposure to patient-empowering nurse behaviors. The integration of these two conceptual frameworks was necessary in the development of this research because neither framework alone adequately addressed the relationship of patient-empowering nurse behaviors and patient self-management. Transitions Theory demonstrated the importance of nursing therapeutics in promoting positive responses during transitions, while the Individual and Family Self-Management Theory identified patient process components toward which nursing therapeutic actions could be directed to achieve self-management behavioral outcomes, but did not directly incorporate nursing processes. Integrating Transitions Theory with The Individual and Family Self-Management Theory allowed for the demonstration of how nursing therapeutics can be used to facilitate patient engagement in the process of self-management by targeting the various components that define the process of self-management in the Individual and Family Self-Management Theory. The Individual and Family Self-Management Theory also contributed specific self-management outcomes that could be measured to determine a patient's pattern of

response to a transition and outcomes of self-management through a patient's self-reported health status and quality of life.

Self-management of chronic illness, including health promoting activities has been widely defined as a process that takes place within collaborative relationships between providers and patients (Koch, Jenkin, & Kralik, 2004; Nagelkerk, Reick, & Meengs, 2006). Providers are strongly encouraged to help facilitate the process of self-management for patients (Clark et al., 1991; Coleman, Austin, Brach, & Wagner, 2009; World Health Organization, 2003) through a trusting therapeutic relationship in which patients and providers are comfortable communicating about: (1) treatment options; (2) disease processes; (3) patient strengths and weaknesses for self-management; (4) support systems; and (5) barriers and facilitators of daily life to the process of self-management (Glasgow et al., 2002; Nagelkerk et al., 2006; Thorne, Nyhlin, & Paterson, 2000; World Health Organization, 2003). The integrated conceptual level used in this study provided the means to measure the collaborative, facilitated process of self-management that patients are exposed to during a time of transition. The combined CTES diagram demonstrating the vertical relationships between concepts is found in Table 3.

The horizontal relationships of the integrated conceptual level are illustrated in Figure 1. The box around "Process of Self-Management" is dotted because the process of self-management was not directly measured in this study, but rather the facilitation of patient engagement in the process of self-management was measured through patient perceptions of patient-empowering nurse behaviors. While theoretically contextual factors, the nature of the transitions, and transition characteristics should impact the

process of self-management, those relationships were not directly measured in the study and were represented with dotted arrows. It was assumed that patients who experienced more numerous patient-empowering nurse behaviors would be more actively engaged in the process of self-management in the six weeks following hospital discharge, and would have more favorable outcomes as measured by patient activation and functional health status. Therefore another dotted arrow was drawn between the process of self-management and pattern of response/proximal outcomes.

Table 3

Vertical Relationships Between Meleis' Transitions Theory¹ Concepts, Individual and Family Self-Management Theory² Concepts, Theoretical Study Concepts, and Empirical Indicators

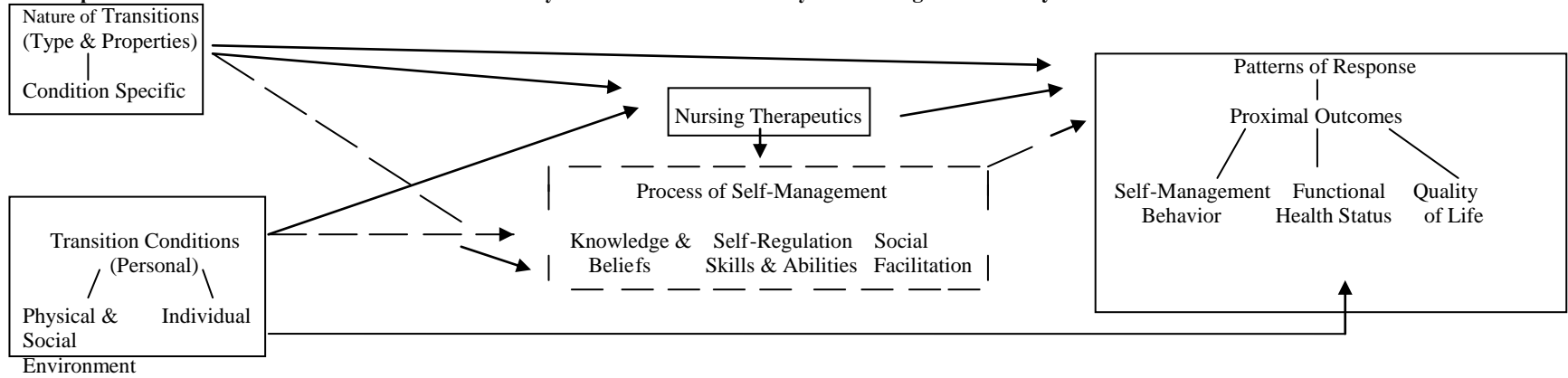
Meleis' Transitions Theory Concept	Nature of the Transition (Type & Properties)	Transition Conditions (Personal)		Nursing Therapeutics *			Patterns of Response
Individual and Family Self-Management Theory Concept	Context Risk & Protective Factors			Process of Self-Management			Proximal Outcomes
	Condition Specific	Physical & Social Environment	Individual & Family	Knowledge & Beliefs	Self-Regulation Skills & Abilities	Social Facilitation	
Theoretical Study Concept	Illness Factors	Patient characteristics		Patient-Empowering Nurse Behaviors			Activation - having the knowledge, skills, beliefs, and behaviors necessary to manage a chronic illness (Hibbard et al., 2004); a precursor to engagement in self-management behavior Functional Health Status - an individual's ability to participate in daily activities in order to meet basic physiologic needs, fulfill roles inside and outside of the home, and manage his/her
				a. Initiation b. Access to Information c. Access to Resources	a. Access to Opportunities to learn and grow	a. Access to Support b. Informal Power c. Formal Power	

						health (Cooley, 1998; Wang, 2004)
Empirical Indicator	<ul style="list-style-type: none"> a. Length of time since initial diagnosis b. Type of Illness (Cancer vs. cardiac disease) c. Length of Stay d. Hospital Unit 	<ul style="list-style-type: none"> a. Race b. SES 	<ul style="list-style-type: none"> a. Age b. Pre-discharge PAM 13 	Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS)		Patient Activation Measure (PAM 13) (Hibbard et al., 2005) SF-36 v.2(Ware, n.d.) <ul style="list-style-type: none"> - MCS - PCS

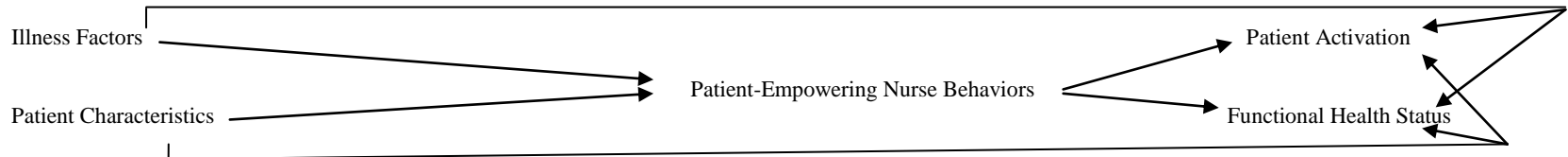
1 (Meleis et al., 2000; Schumacher & Meleis, 1994) 2 (Ryan & Sawin, 2009)

*Nursing Therapeutics are represented in this study as a way to facilitate the engagement of patients in the process of self-management. The actual process of self-management is not measured

Conceptual Level: Combined Meleis' Transitions Theory and Individual and Family Self-Management Theory



Theoretical Level: Study Theoretical Model



Empirical Level: Relationship of Study Variables

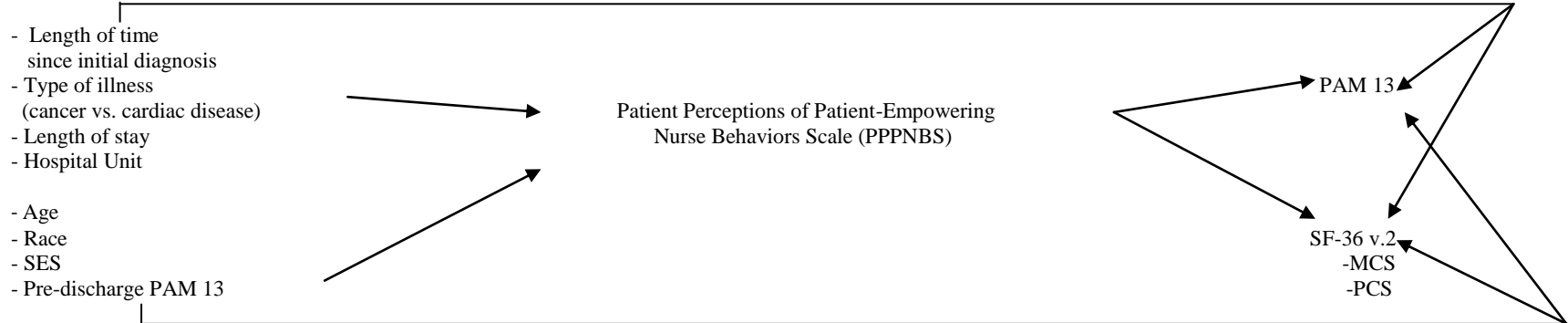


Figure 1. Horizontal Relationships Between Meleis' Transitions Theory Concepts, Individual and Family Self-Management Theory Concepts, Theoretical Study Concepts and Empirical Indicators

*Nursing Therapeutics are represented in this study as a way to facilitate the engagement of patients in the process of self-management. The actual process of self-management was not measured.

Philosophical Underpinnings

When conducting research it is important to consider how knowledge and beliefs are generated. Nursing research is based on many different research paradigms, or patterns of beliefs that help guide the generation of new knowledge (Guba & Lincoln, 1994; Weaver & Olson, 2006). Within a paradigm are guiding principles to help define the following issues in research: what is the nature of the “knowable” or reality (the ontological question)?; what is the relationship between the researcher and the “knowable”, (the epistemological question)?; and how should the researcher uncover the “knowable” (the methodological question)? (Guba, 1990). The knowledge generated in this study was placed within the framework of existing nursing theories to describe and explain the relationship between concepts and predict outcomes that are important to the science of nursing (Carper, 1978).

Early positivism proposed that objective and subjective realities are one and the same and that the researcher should be free of values when conducting scientific research (Racher & Robinson, 2003). Nursing as a science is interested in the lived experiences of human beings and therefore nursing research cannot be entirely value-free. Human behavior is a complex phenomenon that cannot be explained by an absolute truth and must be placed within the context within which it is taking place (Im & Chee, 2003). Post-positivism is a paradigm that arose in response to the rigidity of positivism because it was felt that discovering the absolute truth through an objective researcher is not a realistic probability in modern science given the complexity of the human condition (Guba, 1990; Racher & Robinson, 2003). While positivism and post-positivism are both based on the belief of an absolute reality (the realist perspective), post-positivism holds

that the reality must be critically examined by the researcher so that the reality can be better understood (Weaver & Olson, 2006). The ontology of post-positivism is considered “critical realism” (Cook & Campbell, 1979; Guba & Lincoln, 1994) because the human mind cannot process the absolute reality without critically examining it.

The epistemology behind post-positivism is that of modified dualism. The researcher cannot entirely be detached from the reality, and while objectivity on the part of the researcher is valued, interpretation is required to comprehend the knowable (Guba & Lincoln, 1994). Therefore, inquiry using a post-positivist paradigm is not value-free (Guba & Lincoln, 1994; Racher & Robinson, 2003). The researcher should state assumptions underlying the research as a way to overcome or divulge any subjectivity that may have impacted the conduct of the research and the interpretation of the reality evident in research findings (Guba, 1990). Generated knowledge should be compared with pre-existing knowledge to determine if agreement is present, suggesting that the knowledge is most likely a true (Guba & Lincoln, 1994) and objective (Weaver & Olson, 2006) representation of reality. Knowledge is always subject to falsification, but so long as it is not currently falsified, it is considered to probably be truthful because the human mind cannot entirely comprehend the true reality (Guba & Lincoln, 1994). This means that multiple truths are possible, so long as they are not falsified through hypothesis testing.

The methods used in a post-positivist paradigm include quasi-experimental, correlational, and descriptive research designs. Because the human mind and senses cannot entirely comprehend and explain reality, it is important to determine the validity and reliability of the generated knowledge. Various instruments were used to obtain data

representing concepts that were not readily observed in patients because they were subjective in nature. While patient-empowering nurse behaviors could be observed, the patient's subjective perspective of those behaviors was critical to the study because those perceptions may later influence the patient's own behaviors, expressed as activation level and functional health status. Examining the relationship between the concepts of patient-empowering nurse behaviors, patient activation, and functional health status aid in the development of an explanatory, situation-specific theory of empowerment in the chronic illness trajectory. An explanatory theory explains why and to what degree one variable is related to another variable (Fawcett, 1999).

This nonexperimental, correlational, prospective, longitudinal research study was guided by a post-positivist paradigm. Post-positivism supports the use of subjective patient data in the development of nursing theory, whereas positivism would deny the existence of subjective patient data if it is not observable (Schumaker & Gortner, 1992). The researcher examined patient perceptions of patient-empowering nurse behaviors within an acute care context and the relationship between patient perceptions, patient activation, and functional health status. The researcher acknowledged that patient perceptions of patient-empowering nurse behaviors will be influenced by the patient's prior knowledge, experience, and background and therefore patient perceptions represent patients' truth at the time of data collection (Schumaker & Gortner, 1992). Patient perceptions in this study were relevant to the context that they are being examined in, that of an acute care setting in patients who recently underwent surgery and are going through a period of transition. Perceptions will represent the truth for patients at the time they are completing the instrument. Furthermore, because patient perceptions could not strictly be

observed, this study used an instrument to measure patient perceptions. The use of an instrument to measure patient perceptions made the patient's perceptions limited to the behaviors that the instrument was measuring, which were derived from Kanter's (1993) work empowerment theory, and therefore not value-neutral (Schumaker & Gortner, 1992).

Review of the Literature

This review of the literature focuses on the major concepts to be investigated in the study, including what is known about the relationships between these concepts. Gaps in knowledge are also identified.

Patient Empowerment

A conceptual and dimensional analysis of patient empowerment is presented in the manuscript "A Concept Analysis of Empowerment from Patient and Provider Perspectives Within the Context of Cancer Survivorship" found in Appendix A.

Patient-Empowering Nurse Behaviors

Patient-empowering nurse behaviors are those behaviors that: (1) help patients realize they are capable and entitled to participate in their care; (2) provide patients with access to information, support, resources, and opportunities to learn and grow; (3) and contribute to the development of informal and formal power systems (Laschinger et al., 2010). An informal power system consists of numerous alliances between individuals at various levels within and outside the healthcare organization, while a formal power system allows individuals flexibility and responsibility in decision-making.

Patient-empowering nurse behaviors provide a way to actively involve patients in their care and treatment planning and build upon prior knowledge and skills to strengthen confidence for self-management, all while respecting their autonomy and beliefs (Laschinger et al., 2010; Nygardh, Malm, Wikby, & Ahlstrom, 2011). Providing nursing care through patient-empowering nurse behaviors encompasses a patient-centered approach to care (Institute of Medicine, 2001; National Priorities Partnership (NPP), 2008) and helps facilitate collaboration between providers, family, and patients, a crucial component to transition from hospital to home (Popejoy, Moylan, & Galambos, 2009). Patients with chronic illnesses including diabetes, arthritis, cardiac disease, hypertension, and depression who reported higher perceptions of patient-centered decision making, ability of the provider to convey a compassionate and respectful communication style, and ability of the provider to elicit their concerns in their care had higher patient activation scores than those who did not perceive high levels of the various patient-centered health care delivery methods (Wong, Peterson, & Black, 2011).

Patient-empowering behaviors in general have also been shown to improve engagement in self-management behaviors such as adhering to a diet, managing symptoms, and exercising in patients with chronic illnesses, subsequently improving health outcomes (Donald et al., 2011; Frosch et al., 2010; Hibbard et al., 2007; Mosen et al., 2007, Munn, 2010). For example, a health promotion intervention delivered by nurses to older adults with various chronic illnesses that sought to improve the self esteem, active decision-making, and participation in care was shown to be empowering to the patients (McWilliam et al., 1997). The 13 patients who received the intervention emphasized the importance of the therapeutic relationship between the nurse and

themselves to the process of health promotion and reported that the intervention helped them create meaning from their illness, become more conscious of their health, and become more confident and knowledgeable about their disease and treatment plan.

Empowering behaviors have also been shown to be the most important predictor of improved quality of life in nursing home patients in Taiwan (Tu et al., 2006) and have been associated with increased confidence in self-management and problem-solving ability in individuals with chronic illnesses such as cancer, diabetes, heart failure, obesity, and high blood pressure (Kravitz et al., 2011; Munn, 2010; Suter et al., 2011).

Investigating patient perceptions of patient-empowering nurse behaviors will provide a foundation for recommendations for strengthening nurse-patient interactions to improve patient outcomes.

Various patient characteristics or illness factors may influence patient perceptions of patient-empowering nurse behaviors. Minority groups such as African Americans, Asians, and Hispanics are significantly more likely than Caucasian patients to report low levels of trust in providers, which may impact their perceptions of patient-empowering nurse behaviors (Halbert, Armstrong, Gandy, & Shaker, 2006; Hall, Dugan, Zheng, & Mishra, 2001; Stepanikova, Mollborn, Cook, Thom, & Kramer, 2006). Younger patients may prefer to have a more active role in their care and decision-making, while older patients may prefer a more passive role (Deber et al., 2007; Neame et al., 2005).

Therefore, younger patients may expect more from the nursing staff than older patients and have poorer perceptions of patient-empowering nurse behaviors than older patients.

The amount of time that has passed since the initial diagnosis of the chronic illness may impact a patient's ability to participate in care or to even perceive or receive empowering

behaviors. When first diagnosed with an illness, some individuals experience disarray or turmoil, but over time may successfully incorporate their chronic illness into their lives (Kralik, 2002). Lastly, length of stay may affect patient perceptions of patient-empowering nurse behaviors, as theoretically, the longer the patient stays on the unit, the more interaction the patient has with the nursing staff.

As described in chapter one, there is not currently a quantitative measure of patient-empowering nurse behaviors from the patient's perspective (Herbert et al., 2009). The absence of a quantitative measure is problematic because empowerment is conceptualized differently from provider and patient perspectives, and the majority of published research about the process of empowerment explores providers' perspectives (Jerofke, in review). This study tested a new instrument, the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS) that was developed to measure patient perceptions of patient-empowering nurse behaviors. The specific patient-empowering nurse behaviors measured in this study include: (1) the initiation of patients to actively participate in care by the acknowledgement that patients have the right and are capable of participating in their care; (2) providing access to information; (3) providing access to support; (4) providing access to resources; (5) providing access to opportunities to learn and grow; (6) the development of informal power systems; and (7) the development of formal power systems. Examples of these behaviors are included in Chapter Three where the PPPNBS is discussed in further detail.

Self-management

Patients living with a chronic illness must make decisions on a daily basis regarding the management of their chronic illness that may impact many dimensions of

their lives (Bodenheimer et al., 2002; Hibbard, 2003; Thorne, Paterson, & Russell, 2003). Chronic illnesses may cause fatigue, pain, depression, financial problems secondary to missed work and health expenses, family or social role strain, and feelings of vulnerability (Jerant, von Friederichs-Fitzwater, & Moore, 2005). Once patients recognize that their illness is chronic and has become part of their lives, they often realize that they must take responsibility for their health because no one else will (Schulman-Green et al., 2011; Thorne et al., 2003). A life-threatening illness such as cancer or cardiac disease may motivate patients to engage more actively in their care as a means to survive (Rotegard, Moore, Fagermoen, & Ruland, 2010). The degree of responsibility, decision-making, and behaviors individuals utilize to manage their chronic illness will impact the experience of symptoms and subsequent lifestyle disruptions caused by those symptoms. Therefore, self-management ultimately influences patients' quality of life, their long-term health, and disease regression versus progression (De Ridder, Geenen, Kuijer, & van Middendrop, 2008).

Self-management is a concept that is often used interchangeably in the literature with related, although separate, concepts such as symptom management, self-care, or self-efficacy, when referring to the behaviors individuals use to maintain or re-establish their present state of health or well-being, manage a chronic illness, prevent exacerbations of a current illness, and prevent the development of additional illnesses (Moser & Watkins, 2008; Richard & Shea, 2011; Riegel, Dickson, Goldberg, & Deatrck, 2007). To resolve the lack of conceptual clarity, some argue that the concept of self-management is an inclusive concept that encompasses aspects of symptom management, self-care, and self-efficacy (Alpay et al., 2011; Disler, Gallagher, & Davidson, 2012;

Lorig & Holman, 2003; Schulman-Green et al., 2011). Self-management has been defined as the behaviors individuals use in response to the effects of chronic illness in order to maintain and manage psychological, physical, and social functioning (Barlow et al., 2002; Bodenheimer et al., 2002; Bourbeau, 2008; Corbin & Stauss, 1988; Kralik et al., 2004; Lorig, Mazonson, & Holman, 1993). Symptom management has been defined as an individual's recognition and perception of symptom experience, evaluation of the symptom using knowledge of the chronic illness process, and the response to or management of the symptom (Larson et al, 1999; Richard & Shea, 2011). While the above definitions of self-management and symptom management explain what self-management behaviors are used for and some examples of symptom management behaviors, they leave out the contextual and process factors shown to influence self-management behaviors (Ryan & Sawin, 2009).

Self-care has been defined as a patient's knowledge of specific care processes of a chronic illness including medication administration, symptom recognition, treatment adherence, and recognition of when to seek help (Doran et al., 2002). Riegel et al.'s (2004) definition of self-care in heart failure patients is the most consistent with self-management as it is defined as the decision making process a patient uses when selecting which behaviors to use to maintain their health by limiting the physiologic effects of the chronic illness and treating physiologic effects when experienced. Riegel et al. (2009) further elaborate that self-care is made up of two processes: (1) self-care maintenance; and (1) self-care management. Self-care maintenance is defined as following a treatment plan, engaging in health promotion behaviors, and monitoring for symptom development. Self-care management is defined as the patient's ability to detect a change in health

status, evaluate that change, make the decision to take action, perform a behavior, and evaluate the response to the behavior. Riegel et al. (2009) acknowledge that self-care management is influenced by contextual factors such as comorbidities, psychological distress, age and developmental level, impaired cognition, literacy, and problems with care collaboration and access to care. While not included in the definition of self-care management; skill development, behavior change, facilitation of social support, and care coordination are identified as factors that can be strengthened through self-care interventions.

Orem (2001) defines self-care as both self-care behavior and self-care agency. Self-care behavior is defined as the actions individuals carry out through their own capacity to maintain or promote their health and can be used to describe those behaviors used by individuals with chronic illness. Self-care agency is defined by an individual's: (1) knowledge of the illness and decision-making skills; (2) physical ability for self-care behavior; (3) attitude, beliefs, motivation, and perceived competence in self-care behavior; and (4) skill-level for self-care behavior. Both Riegel et al. (2009) and Orem (2001) define self-care as behaviors individuals perform in order to maintain a certain level of functioning through health promotion, health maintenance, and symptom management behaviors.

Self-efficacy is the concept used to define an individual's confidence in performing a certain behavior (Bandura, 1977) and takes into account how confident the individual is about overcoming obstacles to successfully perform the behavior. Self-efficacy has frequently been linked to self-management behavior in the literature based on the assumption that patients with higher confidence levels for behavior performance

are more likely to engage in that behavior and overcome barriers or fears of failure when confronted with increased illness demand (Warwick et al., 2010). Self-efficacy of self-management behaviors has also been positively correlated to problem-solving ability (Weng et al., 2010) and successful performance of self-management behaviors (Curtin et al., 2008; Gaines, Talbot, & Metter, 2002; Hoffman et al., 2009; McDonald-Miszczak, Wister, & Gutman, 2001; Schnell-Hoehn, Naimark, & Tate, 2009; Warwick et al., 2010; Weng et al., 2010). Higher self-efficacy levels for heart failure self-care management behaviors have not only been shown to influence self-care management behaviors such as adherence to medications and dietary recommendations, but were also significantly associated with fewer hospital admissions (Schnell-Hoehn et al., 2009). Lastly, self-efficacy has been shown to be negatively correlated to the extent of intrusiveness of a chronic illness on individuals' daily lives (Gentry, Belza, & Simpson, 2009), as the manifestation of symptoms may decrease patients' confidence in their ability to self-manage their symptoms.

Self-management has also been used to describe interventions and outcomes (Ryan & Sawin, 2009). Self-management programs or interventions historically have targeted patient skill development, behavior change, problem solving, group support, and knowledge building (Barlow et al., 2002; Bodenheimer, 2003; Lorig et al., 2010; Lorig & Holman, 2003). Outcomes of self-management behaviors include knowledge, medication adherence, clinical status, social functioning, quality of life, use of healthcare resources, and cost (Atienza et al., 2004; Barlow et al., 2002; Boren, Wakefield, Gunlock, & Wakefield, 2009; Du & Yuan, 2010; Giordano et al., 2009; Jovicic, Holroyd-Leduc, & Straus, 2006; Smeulders et al., 2010). Self-management programs have also been

significantly associated with improved patient engagement in care in patients with chronic illnesses such as lung disease, cardiac disease, cerebrovascular disease, arthritis, and diabetes (Lorig et al., 2010; Lorig et al., 2001). In addition, self-management programs have improved patients' and caregivers' abilities to monitor and manage the effects of surgery for a cancer diagnosis (McCorkle et al., 2000), ultimately leading to improved survival time.

Using the concepts of self-management, self-care, self-efficacy, symptom management interchangeably to describe a process, an intervention, or an outcome has led to numerous definitions for self-management. The absence of a clear definition of self-management makes it difficult to generate knowledge about the concept, measure the concept, or demonstrate the impact of targeted interventions to strengthen self-management and improve health outcomes (Ryan & Sawin, 2009). All of the above definitions of similar concepts fail to account for the complex sociopolitical, developmental, illness, and social support factors along with the individual's knowledge, beliefs, and capacities and capabilities that may contribute to an individual's self-management behaviors (Barnason, Zimmerman, & Young, 2012; Kendall, Ehrlich, Sunderland, Muenchberger, & Rushton, 2011).

Self-management is a complex phenomenon consisting of three dimensions: context, process, and outcomes (Ryan & Sawin, 2009). The behaviors individuals use when managing their chronic illness will be influenced by contextual factors such as: the complexity of the illness or the treatment; the environment, both physical and social, in which their chronic illness is manifested; and factors specific to the individual or the family such as how capable the individual is or the individual's or family's perspectives

on the illness and management expectations. Self-management behaviors are also influenced by: (1) the individual's knowledge and beliefs, such as their self-efficacy for self-management behaviors; (2) self-regulation skills and abilities; and (3) social facilitation, such as support and collaboration offered by those close to the individual.

Self-management behaviors may vary in individuals due to many demographic or illness-related factors. Older patients have been found to have lower levels of self-care ability when compared with younger patients (Evans & Wickstrom, 1999), thought to be related to decreased levels of self-efficacy due to inaccurate judgment of self-care ability (Easom, 2003). Self-care behaviors have been significantly positively correlated with self-efficacy level in older patients (Carroll, 1995). Older patients therefore may require more education, appraisal of strengths, encouragement, and support than younger patients in order to target their self-efficacy or confidence levels for self-management of illness (Easom, 2003) and improve their perceptions of their self-care abilities. Patients who have had their chronic illnesses for a longer period of time have been found to have stronger self-management abilities than those who are newly diagnosed (Cameron, Worrall-Carter, Page, & Stewart, 2010; Carlson, Riegel, & Moser, 2001; Francque-Frontiero, Riegel, Bennett, Sheposh, & Carlson, 2002; Suwanno et al., 2009), demonstrating the value of knowledge, skill, and confidence in self-management behavior. Individuals from a lower SES have been shown to have lower levels of self-management, likely related to lower education levels and decreased accessibility to resources (Hughes et al., 2010; Jeon et al., 2009). Individuals from a lower SES may have lower financial resources to purchase necessary treatments, may need to choose some treatments over others to as a way to decrease cost, and experience difficulty

arranging for transportation to access necessary resources and healthcare systems (Bayliss et al., 2003; Hughes et al., 2010; Jeon et al., 2009).

Illness-related barriers to self-management include physical symptoms resulting from chronic illness such as fatigue, shortness of breath, pain and psychological symptoms such as anxiety and depression. These symptoms interfere with individuals' abilities to self-manage their chronic illnesses (Disler et al., 2012; Hoffman et al., 2009; Schulman-Green et al., 2011). A cyclical relationship results, as self-management is used to help control symptoms of chronic illness but becomes difficult to accomplish once symptoms manifest. The presence of co-morbidities may also act as a barrier to self-management behaviors (Peyrot et al., 2005; Riegel et al., 2009; Suwanno et al., 2009) secondary to feelings of depression, the cumulative effect of multiple symptoms from multiple illnesses, financial burden of multiple illnesses, the effects of one illness or treatment on another illness or treatment, and lack of social support (Bayliss, Ellis, & Steiner, 2007; Bayliss et al., 2003; Jerant et al., 2005). Other reported barriers to self management include lack of knowledge, side effects of treatments, lack of provider support, psychological distress, and busy lifestyles (Dixon, Hibbard, & Tusler, 2009; Mead et al., 2010).

It has been suggested that a respectful, trusting partnership between healthcare providers and patients leads to improved self-management behaviors (Curtin et al., 2008; Thomas-Hawkins & Zazworsky, 2005). Nurses can facilitate a respectful, trusting partnership with patients by providing patient-empowering nurse behaviors (Jerofke, in review). Encouraging patients to be active participants in their care and to share their concerns or beliefs with the nursing staff will allow for the illumination of contextual

factors that may influence the self-management behaviors of patients. Patient-empowering nurse behaviors can be used as a means to facilitate the process of self-management in patients with chronic illness through the knowledge, beliefs, confidence, skills, and support that result from these nurse behaviors (Kravitz et al., 2011; Laschinger et al., 2010; Munn, 2010; National Priorities Partnership (NPP), 2008; Suter et al., 2011; Tsay & Hung, 2004). This study will examine the link between nursing care and engagement in self-management behaviors in patients who recently underwent a surgical procedure for a life-threatening chronic illness such as cancer or cardiac disease by measuring patients' perceptions of patient-empowering nurse behaviors while hospitalized and their activation levels six-weeks following hospital discharge.

Patient Activation

Patient activation is defined by patients' abilities to actively participate or engage in their health care (Heller et al., 2009; Lubetkin, Lu, & Gold, 2010). Patients' beliefs, knowledge, skills, and confidence in self-managing their health all contribute to their degree of activation (Hibbard et al., 2004). Patients who are activated hold the belief that they have the right and capacity to play an active role in their health and chronic illness management (Dixon et al., 2009). Activated patients are knowledgeable about their individual conditions, available treatments including medications, and ways to prevent or treat exacerbations and possess confidence in their self-care ability, ability to communicate with providers, ability to problem-solve, ability to continue self-management behaviors under stress, and ability to recognize when they need to seek help (Dixon et al., 2009). Patient activation is a precursor to the engagement in self-management behaviors, as the components of patient activation (beliefs, knowledge,

skills, and confidence) are factors that influence the process of self-management behavior (Ryan & Sawin, 2009).

Research has demonstrated a hierarchy to the necessary components of patient activation: patient beliefs, knowledge, skills, and confidence in self-management of chronic illness (Hibbard et al., 2004). Therefore, patient activation has been conceptualized as having four stages that correspond with various levels of engagement in self-management behaviors. The first stage of patient activation is determined by the patient's belief about the importance of their role in self-managing their health. Patients in stage one may feel overwhelmed by their chronic illness and are not prepared to play an active role in their care (Hibbard, Greene, & Tusler, 2009). Once patients believe they are capable and entitled to care for their health, they move on to the second stage which is determined by their knowledge about and confidence in their self-management ability. Patients in stage two may still not have the necessary knowledge and confidence needed to play an active role in their healthcare (Hibbard et al., 2009). The third stage is defined by the actual action of taking an active role in self-management behavior (Hibbard et al., 2004); however, patients may lack the knowledge and confidence necessary to perform self-management behaviors during times of stress (Hibbard et al., 2009). Lastly, the fourth stage occurs when the patient can continue to self-manage their health during times of stress and can successfully self-manage their health to avoid health problems from interfering with their life (Hibbard et al., 2004).

Dixon et al. (2009) interviewed patients with at least one chronic illness from all four stages of patient activation to see how they defined self-management. Patients classified as stage one on the patient activation measure tended to think self-management

meant adherence and did not actively engage in treatment planning and decision making. Behaviors associated with stage one included attending scheduled healthcare visits and taking medications as directed (Dixon et al., 2009; Hibbard & Tusler, 2007). Patients in stage two and above reported that knowledge acquisition was imperative to successful self-management. They also reported self-management to be a way to help them carry on their lives as usual by controlling the effects of their chronic illnesses and frequently mentioned experiencing a sense of control. Patients that fell in stage three or four of the patient activation measure acknowledged their active role in self-management and explained that even though they respected the expert knowledge of their providers, it was ultimately their responsibility to take care of themselves. They often referred to their relationship with providers as a partnership, whereas patients in stage one had more a paternalistic relationship with their providers. Patients in lower stages of activation tended to blame themselves and put themselves down if they weren't self-managing their disease well whereas patients in higher stages tended to blame their environment or their providers for lack of support.

The performance of disease-specific self-management behaviors in patients with asthma/COPD, diabetes, cardiac disease, and high cholesterol were shown to correlate with activation scores and stages of activation (Hibbard & Tusler, 2007). Behaviors that required more skill or knowledge such as knowing how to handle a problem, knowing target cholesterol levels, engaging in regular exercise, and counting carbohydrates were performed more often in patients whose activation scores were shown to fall in patient activation stage three or four (Hibbard & Tusler, 2007). However, patients with activation scores in stage three or four of patient activation did not universally perform all

recommended self-management behaviors for their specific disease, suggesting even patients with high levels of patient activation could use more empowering interventions. Prior research has shown the majority of patients have patient activation scores that fall within stage two or three (Mosen et al., 2007; Remmers et al., 2009; Skolasky et al., 2011a). The hierarchy of patient activation shows why it is important to empower patients through patient-empowering nurse behaviors in order to strengthen patients' beliefs, knowledge, skills, and confidence in self-managing their health so that they can actively self-manage their health, even through times of stress.

Patient activation scores can be improved through the use of tailored self-management interventions. Tailoring self-management interventions to activation levels, based on individuals' activation scores, provide a means to include patients in chronic illness care planning and develop a self-management plan of behaviors that patients should be capable and prepared to engage in (Hibbard, 2009). Hibbard, Greene, and Tusler (2009) demonstrated improved patient activation levels, decreased healthcare utilization (fewer ED visits and hospital admissions), and improved clinical indicators (diastolic blood pressure and LDL cholesterol level) in diabetic patients who received an intervention tailored to their baseline activation level. Patients with chronic illnesses including asthma, hypertension, and diabetes who participated in a web-based intervention focused on education and problem-solving tailored to their illness and comprehension level also showed significantly improved activation scores at the completion of the intervention (Solomon, Wagner, & Goes, 2012).

Improvements in activation level over time secondary to participation in interventions focused on strengthening patients' confidence, knowledge, and skill level in

chronic illness self-management are also significantly associated with higher levels of engagement in various patient self-management behaviors including exercise, asking physicians about or reading about medication side effects, knowing recommended weight, medication compliance, and having a plan to self-manage the chronic illness (Hibbard et al., 2007). Similarly, Skolasky et al. (2011a) found that higher patient activation levels were significantly positively associated with physical activity, medication adherence, and physical and mental health in individuals with multiple chronic illnesses; however, was not associated with the number of chronic illnesses. Higher levels of patient activation were also predictive of fewer future hospitalizations and hemoglobin A1C levels in diabetic patients two years following the administration of the patient activation measure (Remmers et al., 2009). Greene and Hibbard (2012) demonstrated that patients with higher activation levels who completed the PAM 13 at a primary care office visit were less likely to have been hospitalized or to have presented to the emergency department in the previous 12 months than those who had lower activation levels.

Higher activation scores have also been significantly associated with the use of self-management services such as written education materials, audio recordings, websites, classes or support groups. Additionally, higher activation scores were significantly associated with higher rates of engagement in self-management behaviors such as consuming recommended daily allowances of various foods, exercising regularly, performing tasks necessary to manage chronic illnesses, completing recommended screening tests, and engaging in a stress management behaviors (Greene & Hibbard, 2012; Mosen et al., 2007). Mosen et al. (2007) found that patients with the highest

activation levels, categorized in stage four, were nearly three times more likely to report adherence to medication regimens, more than ten times more likely to report high care satisfaction levels, and around five times more likely to report higher perceptions of quality of life than those whose patient activation scores were categorized in stage one. Higher patient activation levels were also associated with a higher quality of life and higher competency scores for self-management in individuals with inflammatory bowel disease (Munson, Wallston, Dittus, Speroff, & Roumie, 2009).

Patient activation has been shown to be impacted by patient characteristics such as SES, age, and race (Alegria et al., 2008; Heller et al., 2009; Lachman & Weaver, 1998; Lubetkin et al., 2010; Rask et al., 2009; Ross & Mirowsky, 2002). Patients with a lower SES have a lower sense of control (Lachman & Weaver, 1998) and lower measures of patient activation (Hibbard et al., 2005), due in part to more frequent perceived constraints or obstacles interfering with goal achievement (Lachman & Weaver, 1998) and lower levels of education (Lubetkin et al., 2010; Ross & Mirowsky, 2002). As with self-efficacy, older patients have also exhibited lower levels of activation than younger patients (Hibbard et al., 2005; Skolasky et al., 2011a). Older patients tend to have lower self-efficacy levels due to inaccurate perceptions of their capabilities and strengths. Lubetkin et al. (2010) however demonstrated no effect for age in patient activation levels in 527 minority patients attending an inner-city health center.

Lastly, Caucasian patients have higher activation levels than African American patients and racial and ethnic disparities could be decreased by focusing on increasing activation in minority patients (Heller et al., 2009; Hibbard et al., 2008; Street, Gordon, Ward, Krupat, & Kravitz, 2005). Blustein, Valentine, Mead, and Regenstein (2008)

demonstrated that African American and Hispanic patients had significantly lower levels of confidence in self-management behaviors for cardiac disease than Caucasian patients; however, when controlling for SES the relationship was no longer significant. Rask et al. (2009) surveyed 251 predominantly African American female diabetic patients, of whom less than 30% had more than a high school education and 75% had no insurance, and found 62.2% of them to fall under stage four of the patient activation measure. This larger distribution of patients in stage four conflicts with prior studies which showed the majority of patients to be in stage two or three (Hibbard et al., 2005; Mosen et al., 2007) and also is inconsistent with research suggesting that those with lower SES and of minority race tend to have lower activation levels. Rask et al.'s (2009) study was the first and only study though that focused on an indigent population and future research is needed to further clarify the relationship between SES, race, and activation level.

In summary, patient activation is a precursor to engagement in self-management behaviors because it measures a patient's beliefs, knowledge, skills, and confidence for engagement in self-management behavior (Hibbard et al., 2004). Activation levels have been shown to improve in patients with chronic illnesses such as diabetes, coronary artery disease, and heart failure with the use of tailored self-management interventions (Hibbard et al., 2009; Shively et al., 2012; Solomon et al., 2012). Increased activation levels have been linked to patient outcomes such as higher functional health status, quality of health care, satisfaction of care, quality of life, engagement in self-management behaviors, and fewer physician visits (Donald et al., 2011; Frosch et al., 2010; Hibbard et al., 2007; Mosen et al., 2007; Munson, Wallston, Dittus, Speroff, & Roumie, 2009; Skolasky et al., 2011a; Skolasky, Mackenzie, Wegener, & Riley, 2011), providing evidence of a

relationship between patient activation, engagement in self-management behavior, and functional health status. While patient activation has not been studied in postsurgical cancer or cardiac patients, higher levels of activation were shown to be associated with improved recovery in patients undergoing spine surgery, specifically lower levels of pain and disability were found and were partially attributed to increased adherence with prescribed physical therapy (Skolasky et al., 2011b). Exploring the relationship between patient perceptions of patient-empowering nurse behaviors and patient activation level is important, as it may provide evidence supporting the use of patient-empowering nurse behaviors as a way to strengthen a post-surgical patient's self-management behavior through patient activation, a precursor to engagement in self-management behavior.

Functional Health Status

Functional status is defined as the degree that an individual can participate in the daily activities required to meet basic physical needs and perform and fulfill various roles at home and in the community, while maintaining health and a sense of psychological well-being (Cooley, 1998; Wang, 2004). Functional status, often used interchangeably with the concept health status, is influenced by the presence of a chronic illness (Fawcett, Tulman, & Samarel, 1995; Wang, 2004) because of the various disruptions in daily life that symptoms, lifestyle modifications, or treatments may impose. Because functional status is measured as it relates to chronic illness in this study, functional status will be referred to as functional health status.

The adjustment to a chronic illness is a lifelong process, as illnesses often evolve over time, treatments change, symptoms may progress, and alternating periods of remission and relapse or exacerbation may occur (Sidell, 1997) and it is therefore

important to measure functional health status. Chronic illness not only burdens patients with physical manifestations, but also can cause psychological distress. Chronic illness causes a high demand for coping resources and support measures due to the impact it has on an individual's daily life, the worry of death due to the illness, and the disruptions caused by treatment measures necessary to manage or prevent symptoms (Bisschop, Kriegsman, Beekman, & Deeg, 2000). Coping efficacy, defined as the belief that one can deal with the demands, such as those of an illness, and the emotions that come along with those demands, has been found to be positively correlated with self-management behavior (Hart & Grindel, 2010).

Health-related quality of life is a concept that is highly correlated with functional health status, as an individual's health-related quality of life is determined by physical functioning along with psychological well-being, ability to fulfill roles, health conditions, and social support (Centers for Disease Control and Prevention, 2011; Ferrans & Powers, 1992; Lawton, 1991). Health-related quality of life is frequently measured using the Short-Form Health Survey (SF-36) (Centers for Disease Control and Prevention, 2011; Lawrence & Clancy, 2003; Porter & Skibber, 2000), which is a measure of functional health status through two main components: the mental component summary (MCS), a measure of mental health status including the subscales of vitality, social functioning, role-emotional, and mental health; and the physical component summary (PCS), a measure of physical health status including the subscales of physical functioning, role-physical, bodily pain, and general health (Schlenk et al., 1998; Ware, n.d.; Ware & Gandek, 1998). Shmueli (1998) compared the functional health status scores using the SF-36 with the quality of life scores using the health-related quality of life (HRQoL)

scale in a random sample of Jewish Israelis 45-75 years old. The SF-36 subscales of general health, vitality, and physical functioning, in their respective order, were found to be the most significant predictors of health-related quality of life scores.

Functional health status, used as a measure of health-related quality of life, is a useful outcome measure to evaluate an individual's physical and psychological adjustment to chronic illness (Stanton, Collins, & Sworowski, 2001; Stanton, Revenson, & Tennen, 2007). Measuring functional health status allows researchers to detect disabilities in individuals with chronic illness (Knight, 2000), as it defines the degree of functioning in an individual. Functional health status has also been identified as a nurse-sensitive outcome (Doran, 2011; Van den Heede, Clarke, Sermeus, Vleugels, & Aiken, 2007), and therefore it would be reasonable to measure functional health status as a nurse-sensitive outcome of patient-empowering nurse behaviors.

Patients diagnosed with cancer may experience changes to both their physical and psychological health statuses. Reeve et al. (2009) matched 1432 patients aged 65 or older who were diagnosed with cancer between the years 1998 and 2003 with 7160 controls who did not to see if baseline scores on the SF-36 changed over a period of two years secondary to the diagnosis. Patients diagnosed with most types of cancer were found to have significantly greater levels of physical health status decline after two years than controls, while those with lung, colorectal, and prostate cancer had greater declines in mental health status than the controls. Chou et al. (2007) found low levels of role-physical, role-emotional, general health, and vitality on the SF-36 in 25 Chinese-speaking cancer patients receiving chemotherapy. The same patients reported experiencing, on average, 14 symptoms weekly and performed approximately 2 self-care behaviors per

symptom with minimal effectiveness. Lastly, Saegrov (2005) surveyed the quality of life of 86 Norwegian cancer patients using the SF-36. The majority of the patients were diagnosed 2 years prior to the study and half were considered cured, as they had completed treatment and had no signs of recurrence. The lowest subscales in all surveyed patients were role-physical and vitality, while patients who were not considered cured had significantly lower scores on the subscales of role-physical, bodily pain, general health, and social functioning (Saegrov, 2005). These studies demonstrate the physical and psychological burden of a diagnosis of cancer in patients who have not been exposed to the added stress and transition of undergoing a surgical procedure.

Patients undergoing surgery for a cancer diagnosis have also demonstrated lower functional health status levels and a lower quality of life. Even before surgery, patients waiting to proceed with a surgical procedure for a diagnosis of cancer have demonstrated lower levels of physical and mental functional health status on all subscales of the SF-36, except bodily pain, when compared with the general public (Visser et al., 2006), which may impact the recovery process following surgery. Patients undergoing surgery for colorectal cancer have reported feeling a loss of control in health management secondary to physical effects of surgery, as well as a feeling of loss and disconnection of mind from body because of lack of understanding of bodily changes (Taylor, Richardson, & Cowley, 2010). Patients who were having surgery for a recurrence of cancer also demonstrated lower levels in all subscales of the SF-36 than matched controls who were considered surgically cured of their cancer (Camilleri-Brennan & Steele, 2001). This suggests that physical and mental functional health status is also affected in individuals who already underwent a surgical procedure for the same diagnosis in the past. Physical and mental

functional health status declines can persist past the immediate post-operative period in cancer patients as demonstrated by Handy et al. (2002). Lung cancer patients demonstrated lower scores on the SF-36 six months after surgery for the following subscales when compared with pre-operative scores: physical functioning, role-physical, bodily pain, and mental health. Mental functional health status may also play a role in physical functional health status. Hodgson and Given (2004) found that the physical functioning and role-physical subscales of SF-36 were higher in surgical cancer patients who had higher levels of psychological well-being, as measured by the role-emotional and mental health subscales of the SF-36.

Patients report decreased quality of life following cardiac surgery (King, 2000; Myles et al., 2001; Rumsfeld et al., 2001) due to issues with physical symptoms, physical limitations, and psychological distress (Elliott et al., 2006) that may contribute to a prolonged recovery process (Myles et al., 2001; Westin et al., 1997). Less than half of the 111 patients undergoing cardiac surgery in one study were found to have improvements in the general health, bodily pain, and role-emotional subscales of the SF-36 one year following the surgery and had significantly lower subscale scores for physical functioning, role-physical, bodily-pain, social functioning, and role-emotional than the general public prior to surgery (Colak et al., 2008). Elliott et al. (2006) found that the mental component score (vitality, social functioning, role-emotional, and mental health) of the SF-36 was significantly lower in post-surgical cardiac patients six months after surgery than it was prior to surgery. Additionally, the subscales scores of physical functioning, role-physical, bodily pain, role-emotional, and the entire physical health component score on the SF-36 in a predominantly male patient sample were significantly

lower at discharge than they were prior to surgery, which could impact post-operative recovery (Elliott et al., 2006).

Suwanno et al. (2009) explored various predictors of functional health status, measured with the SF-36, in 400 patients in Thailand diagnosed with heart failure. They found that patient characteristics and illness factors such as age, education, severity of illness, comorbidities, and self-management ability predicted health status, while age, duration of illness, severity of illness, and comorbidities had a direct effect on self-management ability (Suwanno et al., 2009), which is also supported by Bayliss et al. (2003; 2007). Self-management ability was measured using the Self-Care of Heart Failure Index (SCHFI), which measures level of achievement in treatment adherence, symptom management, and confidence levels.

There have been numerous studies that have found significant positive associations between confidence levels in self-management and functional health status or health-related quality of life in individuals with a chronic illness (Riazi et al., 2004; Weng et al., 2010; Yoo et al., 2011). Confidence, often referred to as self-efficacy, is one of the components of patient activation (Hibbard et al., 2004) and is one of the factors contributing to the process of self-management (Ryan & Sawin, 2009). Interventions developed with the purpose of increasing confidence through skill mastery, modeling, and self-talk have also been shown to increase patient self-reports of general health and physical functioning (McGillion et al., 2008). In addition, a patient's level of confidence in physical and role function ability was shown to significantly predict physical, social, and family function in patients with cardiac disease (Sullivan, LaCroix, Russo, & Katon, 1998), whereas a decrease in confidence in ability to care for health was associated with

the following health outcomes: greater symptom burden; greater physical disabilities; lower quality of life; and lower perceptions of general health (Sarkar, Ali, & Whooley, 2007). The significant relationship between confidence and health outcomes persisted after controlling for various factors including social support, illness severity, gender, race, and age (Sullivan et al., 1998).

Self-management interventions have also been shown to improve functional health status in individuals with chronic illnesses (Lorig et al., 1999) through increased self-reported health, decreased levels of distress (Lorig et al., 2001), fatigue, and disability, and fewer social and role limitations (Lorig et al., 1999). A self-management intervention focusing on improving self-regulation led to increased psychosocial functioning in older adults with cardiac disease (Clark et al., 1992) and patients with asthma demonstrated improvements in vitality, social functioning, physical health, physical functioning, physical role, and general health, measured by the SF-36, 2 years following a self-management program (Lucas et al., 2001). Self-management interventions have also been shown to improve health-related quality of life in surgical oncology patients. Women who underwent surgery for a gynecologic cancer demonstrated improved mental and physical quality of life in women after receiving a self-management intervention to help them monitor and manage effects of surgery, develop skills for self-management, and provide support (McCorkle et al., 2009).

Patient characteristics may impact functional health status and health-related quality of life. While younger age has been associated with higher levels of psychological distress (Currie & Wang, 2004; Patten, Beck, Williams, Barbul, & Metz, 2003), results have conflicted as to whether age influences physical health status.

Patients aged 40-60 years, who were diagnosed with an advanced stage cancer (stage 3 or 4) within the last year, were shown to have higher psychological and symptom distress than patients aged 61-80 (Rose et al., 2008). Van Cleave, Egleston, and McCorkle (2011) demonstrated that age was not significantly associated with physical health status. Tanner (2004) concurs that age is a poor predictor of physical health status as the effects of age vary between patients, while Reeve et al. (2009) demonstrated increased age to be associated with a significant decrease in physical health and not mental health.

SES also appears to play a role in functional health status. Patients with chronic illness who were from a lower SES were found to have higher levels of psychological distress than those from a higher SES (De Ridder et al., 2008; Fortin et al., 2006). In addition, lower SES was found to be negatively correlated with total SF-36 scores (Van Cleave et al., 2011). The link between SES and functional health status could partially be due to differences in education level, as lower education levels have been associated with a significant decrease in both physical and mental health status (Reeve et al., 2009). No gender differences in physical health or mental health scores on the SF-36 were found in patients undergoing hemodialysis for chronic kidney disease (Kalantar-Zadeh, Kopple, Block, & Humphreys, 2001). In another study, women were found to have lower physical and mental health status levels on the SF-36 following cardiac surgery; however, the women were significantly older than the men at the time of surgery.

Illness factors have also been shown to impact both physical and mental health statuses. Van Cleave et al. (2011) demonstrated that three or more comorbidities, and symptom burden were significantly associated with lower total SF-36 scores in patients aged 65 or older undergoing surgery for a cancer diagnosis. Hodgson and Given (2004)

found that the physical functioning and role-physical subscales of the SF-36 were higher in surgical cancer patients who had fewer symptoms and had fewer comorbidities. A newly diagnosed comorbid condition was also associated with lower physical and mental health statuses (Reeve et al., 2009). The number of days spent in the hospital and total hospitalizations in patients with chronic kidney disease who were receiving hemodialysis were significantly negatively correlated with total SF36 score, mental health subscale score, and physical health subscale score (Kalantar-Zadeh et al., 2001). Additionally, mental health subscale score and total SF36 score were predictive of mortality in the same population of patients (Kalantar-Zadeh et al., 2001) where a 10 point decrease in total SF36 score equated to a 2.07 relative risk of death.

Functional health status can be used as a measure of an individual's psychological and physical adjustment to chronic illness (Stanton et al., 2001; Stanton et al., 2007). Patients diagnosed with a life-threatening chronic illness such as cancer or cardiac disease have been shown to have difficulty adjusting to the self-management of their chronic illness as a result of the disease process (Chou et al., 2007; Reeve et al., 2009; Saegrov, 2005) or a surgical intervention (Camilleri-Brennan & Steele, 2001; King, 2000; Myles et al., 2001; Rumsfeld et al., 2001; Taylor et al., 2010; Visser et al., 2006). Perceived empowering care was shown to positively impact physical functional health status level in patients living in nursing homes in Taiwan (Tu et al., 2006) and patient activation measure was shown to be positively correlated with physical and psychological functional health status in those with chronic illnesses (Hibbard et al., 2007), measured by the SF-36 (Skolasky et al., 2011a). In fact, perceived empowering care, measured by a revised version of Faulkner's (2001) Patient Empowerment Scale, was the strongest

predictor in the residents' quality of life scores (Tu et al., 2006), measured by Quality of Life Index-Nursing Home Version (Ferrans & Powers, 1985). Functional health status can be used as a nurse-sensitive patient outcome measure of patient-empowering nurse behaviors. This will be the first study to combine the concepts of patient-empowering nurse behaviors, patient activation, and functional health status into one study to determine the relationship between nursing care (patient perceptions patient-empowering nurse behaviors) and patient outcomes (patient activation and functional health status) in patients who recently underwent a surgical procedure for a life-threatening chronic illness of cancer or cardiac disease.

Summary of Relationships Between Concepts

Providing patients with the resources needed to feel confident and competent to engage in successful self-management of their chronic illnesses through patient-empowering nurse behaviors (Laschinger et al., 2010) should lead to activated patients, defined as those that have the confidence, knowledge, and skills necessary to actively participate in their care. Improved patient activation should significantly contribute to the process of self-management behaviors in patients who have undergone a surgical procedure for a life-threatening chronic illness of cancer or cardiac disease, as it is a precursor to engagement in the process of self-management behavior. Patients in this study who have higher perception levels of patient-empowering nurse behaviors are expected to be more activated, and therefore will experience heightened feelings of well-being due to their successful self-management behaviors and will report a higher health-related quality of life, as indicated by their functional health status. The relationship between patient engagement in the process of self-management behavior and functional

health status, an outcome of self-management behavior, is also supported by Ryan and Sawin's theory (2009).

Development of PPPNBS

The Patient Perception of Patient-Empowering Nurse Behaviors Scale was developed from the application of the concepts proposed by Kanter's (1993) theory of structural power in organizations, to patient-care in a hospital setting as described by Laschinger et al. (2010). In Kanter's theory, power is described as "the ability to get things done, to mobilize resources, to get and use whatever it is a person needs for the goals he or she is attempting to meet" (Kanter 1993, p. 166). Power is not something that is held by an elite few in order to control or dominate the behavior of the majority. Rather, power is something that should be encouraged in all individuals to increase productivity by promoting psychological empowerment, defined as having control over the surroundings that impact behavior (Kanter, 1993).

Organizational leaders may facilitate the development of psychological empowerment in their employees by promoting mastery and autonomy while providing them with opportunities to advance their knowledge and skills. The power that evolves within an employee through the successful accomplishment of a task is influenced by the employee's degree of access to resources, information, support, and the cooperation of others in the organization (Kanter, 1979). The process of empowerment is transactional or interactive, meaning that it is facilitated within relationships (Falk-Rafael, 2001; Gibson, 1991; Sigurdardottir & Jonsdottir, 2008). Within those relationships, open communication is critical for empowerment to occur (Kanter, 1983). Providing employees with the resources needed to successfully accomplish goals creates

opportunities for advancement within the organization and ultimately assists in self-motivating those employees to accumulate further knowledge and skills to continue evolve and succeed within the organization (Kanter, 1993).

Employee access to resources, information, and support, termed “power tools” depends on both formal and informal power systems (Kanter, 1983, p. 159, 1993) within the organization. Resources include material items, time, and space; information includes knowledge, data, and mastery; and support includes backing, approval, or cooperation from others (Kanter, 1983). Formal power systems are defined by the employee’s job activities. Empowerment is more easily facilitated within an employee who experiences flexibility in accomplishing goals, visibility and recognition of productivity, and centrality to the overall success of the organization (Kanter, 1979) than employees who do not experience feelings of autonomy or feel valued. Informal power systems are defined by an employee’s political alliances. Empowerment flourishes when an employee has connections with other employees at various levels within the organization and those other employees cooperate in order to accomplish common goals (Kanter, 1979).

This theory of structural power of organizations can be applied to the management of chronic illness within healthcare organizations. Nurses, much like organizational managers, are responsible for teaching and making sure patients have the skills and resources they need before discharge in order to successfully self-manage their health upon discharge (Foust, 2007; Nosbusch et al., 2011; Weiss et al., 2007). Laschinger et al. (2010) proposed an integrated conceptual model of nurse-patient empowerment using Kanter’s theory of structural power of organizations. Patient-

empowering nurse behaviors are defined in the integrated model as behaviors that provide patients with the resources needed to feel confident and competent to engage in successful self-management of chronic illness (Laschinger et al., 2010). This is accomplished by providing patients with access to information, access to support, access to resources, access to opportunities to learn and grow, informal power, and formal power (Laschinger et al., 2010).

The acknowledgement of the importance of patients' self-determination and autonomy is integral to the delivery of patient-empowering care (Falk-Rafael, 2001; Gibson, 1991; Rodwell, 1996). If the patient or the nurse does not value or realize the importance of autonomy and self-determination, the utilization or facilitation of patient-empowering nurse behaviors can be inhibited. In order to improve patients' utilization of the information, support, resources, and opportunities to learn and grow facilitated through patient-empowering nurse behaviors, nurses should emphasize to patients that they have the right to be active participants in their healthcare and that they are capable of being active participants (Alegria et al., 2008; Christensen & Hewitt-Taylor, 2006; Falk-Rafael, 2001; Feste & Anderson, 1995; Gibson, 1991). Therefore, a category of "initiation" was introduced into Laschinger et al.'s (2010) framework by this author. On the basis of the above conceptual definition of patient-empowering nurse behaviors, patient perception of patient-empowering nurse behaviors is operationalized as a patient's perceptions of: (1) initiation; (2) access to information; (3) access to support; (4) access to resources; (5) access to opportunities to learn and grow; (6) informal power; and (7) formal power. Items in each subscale were selected based on the description of each in Laschinger et al.'s (2010) conceptual framework and through review of empirical

findings from studies investigating behaviors similar to patient-empowering nurse behaviors in the literature (Waltz, Stricklan, & Lenz, 2010).

Research Aims and Hypothesizes

The overall aim of this study was to determine the relationship between patient perceptions of patient-empowering nurse behaviors during an acute care hospitalization and patient activation and functional health status six-weeks post-discharge in patients who recently underwent a surgical procedure for a life-threatening chronic illness (cancer or cardiac disease).

AIM 1: Conduct psychometric testing of the PPPNBS

H1. The PPPNBS total score and each of the seven subscale scores will have a Cronbach's alpha reliability of $\geq .70$.

H2. There will be a significant positive correlation between PPPNBS total score and pre-discharge PAM 13, providing evidence of concurrent validity.

H3. There will be a significant positive association between PPPNBS total score and six-week post-discharge PAM 13, providing evidence of predictive validity.

H4. There will be a significant positive association between PPPNBS score, Physical Component Summary (PCS) measure, and Mental Component Summary (MCS) measure six-weeks post-discharge, providing further evidence of predictive validity.

H5. In known group contrasts, patients of Caucasian race, older age, longer time since initial diagnosis, and longer lengths of stay will have significantly higher PPPNBS scores than patients not of Caucasian race, younger age, shorter time since initial diagnosis, and shorter lengths of stay, providing evidence for construct validity.

AIM 2: Determine the relationship between patient activation and functional health status six-weeks post-discharge in post-surgical patients with cancer or cardiac disease

H6. There will be a positive, significant correlation between six-week post-discharge PAM 13, PCS, and MCS.

AIM 3: Identify predictors of patient perceptions of patient-empowering nurse behaviors in post-surgical patients with cancer or cardiac disease at time of discharge

H7. Patient characteristics (age, SES, race, pre-discharge PAM 13) and illness factors (length of time since initial diagnosis, length of stay, diagnosis, unit) will have significant associations with total PPPNBS score.

AIM 4: Identify predictors of patient activation and functional health status in post-surgical patients with cancer or cardiac disease six-weeks post-discharge

H8. Patient characteristics (age, SES, race, pre-discharge PAM 13), illness factors (length of time since initial diagnosis, length of stay, diagnosis, unit), and total PPPNBS score will have significant associations with six-week post-discharge PAM 13.

H9. Patient characteristics (age, SES, race, pre-discharge PAM 13), illness factors (length of time since initial diagnosis, length of stay, diagnosis, unit), and total PPPNBS score will have significant associations with MCS and PCS six-weeks post-discharge.

Assumptions

The following assumptions were made during the development of this study:

1. Nurses use patient-empowering nurse behaviors when providing care to patients following surgery for a life-threatening chronic illness such as cancer or cardiac disease.

2. Patients will want to self-manage their life-threatening chronic illness following surgery.
3. Both transitions and self-management are complex and multidimensional. Many factors will impact both a patients' transition following surgery and their self-management behaviors.
4. Patients will experience changes in their roles, identities, and physical and mental health following surgery.
5. Patients will need to develop new knowledge, skills, and confidence in order to successfully self-manage their life-threatening chronic illnesses upon discharge following surgery.

CHAPTER THREE

Research Design and Methodology

Introduction

This chapter describes the research design and methods including a description of the pilot study for the PPPNBS instrument, comprehensive discussion of the research design, choice of setting, sampling method, justification for sample size, data collection methods, procedures for data analysis, description of statistical analyses, rationale for choice of analyses, and description of the protection of human rights. In addition, a description of procedures for ensuring methodological rigor will be described including the validity, reliability, scoring methods for all instruments used in the study, measures of the variables (independent and dependent variables), threats to internal and external validity, and efforts made to control for error or bias.

The overall purpose of this study was to determine the relationship between patient perceptions of patient-empowering nurse behaviors during an acute care hospitalization and patient activation and functional health status six-weeks post-discharge in patients who recently underwent a surgical procedure for cancer or cardiac disease. Within the study, tests of validity and reliability were conducted on a newly constructed instrument, the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS). Predictors of patient perceptions of patient-empowering nurse behaviors and patient activation and functional health status post-discharge were also examined.

Research Design

This study used a nonexperimental, correlational, prospective, and longitudinal design. A nonexperimental study design was chosen because the relationship between patient perceptions of patient-empowering nurse behaviors with patient activation, a proxy measure of self-management, and functional health status has not previously been examined. Before interventions are tested in an experimental study, a nonexperimental study must be conducted (Polit & Beck, 2010) to determine the relationships between concepts. A correlational design was chosen because the relationships between patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status must be demonstrated before intervention studies are implemented (Polit & Beck, 2010). The design was prospective in the fact that the study started by examining patient perceptions of patient-empowering nurse behaviors at hospital discharge and then examined the correlations between perceptions and patient activation and functional health status six-weeks following hospital discharge.

A longitudinal design was chosen so that the relationship between nursing therapeutics in an acute care setting and patient outcomes six-weeks after discharge could be examined. The recovery trajectory may impact patients' functional health status or self-perception of recovery (Zalon, 2004), ultimately affecting their ability to engage in self-management behaviors. Patients' post-operative fatigue and pain levels have been shown to dissipate over the six-week post-operative period in patients who had cardiac surgery (Zimmerman et al., 2011) and have significantly predicted patients' functional health status and self-perception of recovery following major abdominal surgery (Zalon, 2004).

Because the study sample included surgical patients with a life-threatening chronic illness (see sample description below), a period of six weeks was chosen to give patients adequate post-operative recovery time, but limit attrition due disease progression. Six-weeks post-discharge in this study marked a transitional period from post-operative recovery to living with and managing the life-threatening chronic illness (Taylor et al., 2010), making it an appropriate time to measure patient activation and functional health status. Patients are often expected to resume work and daily activities six weeks after surgery. Patients who have had surgery for cancer or cardiac disease have reported that the presence of physical symptoms beyond the six week recovery period have led to increased psychological distress due to the symptoms being a constant reminder that they are sick and also the interruptions they cause in daily activities (Olsson et al., 2002; Theobald & McMurray, 2004). Encouraging patient engagement in care through patient-empowering nurse behaviors during an acute care hospitalization following surgery for a life-threatening chronic illness should help facilitate the transition from post-operative recovery to engagement in self-management behavior, as measured by patient activation level and functional health status.

Subjects and setting

A convenience sample of post-surgical cancer and cardiac patients was chosen because of the life-threatening nature of their chronic illnesses and the feelings of vulnerability and powerlessness that often accompany a life-threatening diagnosis such as cancer or cardiac disease (Gray, Doan, & Church, 1991; Lapum et al., 2011). There is also evidence suggesting that these patients have unmet needs during the transition from hospital to home but are still expected to self-manage many aspects of their chronic

illnesses upon discharge (Goodman, 1997; Lapum et al., 2011). Convenience sampling is a type of non-probability sampling in which the researcher selects subjects based on nonrandom methods (Polit & Beck, 2010). To limit the bias introduced with using a non-probability sampling method, all eligible patients were approached by the researcher or research assistant on the days that they were present on the units.

Eligible patients were identified through chart review and with the help of the shift-coordinating nurse and were enrolled based on the following inclusion criteria: (1) at least 18 years of age; (2) able to speak and read English, (3) had surgery during the present hospitalization for a cancer or cardiac diagnosis; (4) stayed overnight in the hospital at least 2 nights; and (5) had telephone availability for post-discharge data collection. Patients who were enrolled in palliative or hospice care were excluded, unless palliative care or hospice care services were strictly used for pain management, because patients enrolled in hospice or palliative care have a different treatment trajectory and patient activation may be impacted by impending death. Patients who had a documented cognitive or developmental delay were also not included in the study because they may not have been able to fully comprehend the study questions. The shift coordinators working on the units and the nurses caring for potential patients were asked if surgical cardiac or cancer patients were enrolled in palliative care or had a documented cognitive or developmental delay. In addition, patients who were discharged to a rehabilitation facility were excluded because their expectations for self-management of their illness upon discharge were also different. The study was conducted at an academic Magnet hospital in the Midwestern United States that has 500 staffed beds and performed 286 cardiac surgeries, 542 thoracic surgeries, 429 colorectal surgeries, and 527 cancer-related

surgeries (pancreatic, gallbladder, liver, and gastric) in fiscal year 2011-2012 (M. Gaecke, personal communication, May 25, 2012). Data were not available to differentiate between thoracic and colorectal surgeries done for a cancer diagnosis and those done for a different reason. Subjects were not compensated for their participation.

This study was conducted on two medical-surgical units: unit one that cared for cardiac and thoracic surgical patients, including those having surgery for coronary, congenital, or valvular cardiac disease and unit two that cared for surgical oncology patients, including those having surgery for cancers of the pancreas, colon, gallbladder, esophagus, lung, stomach, liver, sarcomas, and melanoma. Nursing staff at the hospital worked a 7/70 schedule, meaning that they worked seven, ten-hour shifts in a row. This staffing approach provides patients with consistent nursing care, as the same nurse is assigned to the patient the entire week he or she works. The 7/70 schedule may have helped facilitate the development of trusting and respectful relationships that are necessary for the process of empowerment to occur.

An *a priori* power analysis was performed to estimate the required sample size for Hypothesis 8 and Hypothesis 9, which had the largest number of predictor variables. A sample size of 114 based on a multiple linear regression model with fixed effects for unit and diagnosis, power of 0.8, a medium effect size ($f^2=.15$), a significance level of .05, and 7 predictors (SES, age, race, pre-discharge PAM 13, time since initial diagnosis, length of stay, and PPPNBS score) was calculated using G*Power 3 (Faul, Erdfelder, Lang, Buchner, 2010). Oversampling due to an estimated attrition rate of 30% gives a target enrolled sample size of 163. This sample size is adequate for reliability estimation, as it is greater than 100 in size (Sapnas & Zeller, 2002).

Instruments

Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS).

The PPPNBS is a newly constructed 45-item scale with 7 subscales: (1) Initiation (items 1-5); (2) Access to Information (items 6-12); (3) Access to Support (items 13-22); (4) Access to Resources (items 23-28); (5) Access to Opportunities to Learn and Grow (items 29-33); (6) Informal Power (items 34-38); and (7) Formal Power (items 39-45). The PPPNBS is based on the work of Lashinger et al. (2010) and can be found in Appendix B. All of the questions are answered on an 11-point Likert scale with 0 meaning “not at all” and 10 meaning “a great deal”. A Likert scale was chosen because the instrument measures the perceptions of patients. Using a Likert scale allows patients to indicate their varying degree of perception of each item that is stated as a declarative statement (Devellis, 2012). Total scores for the PPPNBS can range from 0 to 450, with greater scores indicating higher perceptions of patient-empowering nurse behaviors. One question under formal power will be reverse coded because it is phrased in a negative manner.

The initiation subscale measures patients’ perceptions of whether the nursing staff helped them realize they have a right to make decisions, are capable of making decisions and participating in treatment planning, and increased their awareness of their health and treatment plan. Sample questions include “The nursing staff helped me recognize that I have the right to make decisions about my health” and “The nursing staff helped me realize that I can participate in my treatment planning”.

The access to information subscale measures patients' perceptions of how often the nursing staff provided useful information, explained the normal routine of the floor and individual care or treatments to patients, and gave ideas on where to find additional information about a diagnosis. Sample questions include "The nursing staff provided care only after explaining what they were doing" and "The nursing staff provided me with information I need to care for myself when I go home".

The access to support subscale measures patients' perceptions of how often the nursing staff may have listened to their concerns, inquired about social support, included family in friends in care coordination, encouraged achievement of goals, addressed any needs or complains, and respected that the patient had the right to make decisions. Sample questions include "The nursing staff respected my right to be the decision-maker in my care" and "With my permission, the nursing staff included my family/friends in discussions about my care".

The access to resources subscale measures patients' perceptions of how often the nursing staff may have facilitated access to clinical and community resources, helped patients identify their own resources including internal strengths, and provided enough time for tasks to be completed. Sample questions include "The nursing staff helped me realize that I have the skills to care for myself" and "The nursing staff gave me enough time to make decisions regarding my care".

The access to opportunities to learn and grow subscale measures patients' perceptions of how often the nursing staff assisted them to gain new knowledge and skills for managing their illness, helped them build upon their prior knowledge and skills, and incorporated family members and friends into treatment planning. Sample questions

include “The nursing staff explained treatments (including medications) before giving them to me” and “The nursing staff respected my right to be the decision-maker in my care”.

The informal power subscale measures patients’ perceptions of how often the nursing staff helped them to develop supportive relationships with other members of the healthcare team, their family members, and friends. It also assesses to what degree the nursing staff made the patient feel like a part of the healthcare team and incorporated the patient’s family or friends in care planning. Sample questions include “The nursing staff helped me create relationships with other members of the healthcare team” and “The nursing staff viewed me as an important member of the healthcare team”.

The formal power subscale measures patients’ perceptions of how often the nursing staff gave the patient flexibility in achieving goals and encouraged them to be active participants in their care. Sample questions include “The nursing staff let me decide when I would do things such as shower, eat, or walk” and “The nursing staff encouraged me to make decisions about my care”.

Pilot study.

A pilot study testing the content validity, internal consistency, and test retest reliability of the newly constructed PPPNBS was conducted. The content validity of a scale is defined as the degree that the items in the scale represent the construct being measured (Waltz et al., 2010). The content validity of the PPPNBS was assessed by having five content experts review the scale (one nurse researcher with expertise in self-management, two patients identified by the nursing staff as being active participants in their care, and two staff nurses identified by the unit’s clinical nurse specialist as being

empowering with patients [one new nurse and one veteran]). The experts were provided with the definition of patient-empowering nurse behaviors and the framework that was used to develop the instrument (Devellis, 2012). The content experts were then asked to rate how relevant each item of the PPPNBS was to the measurement of patient perceptions of patient-empowering nurse behaviors by selecting one of the following answers in response to each item: (1) not relevant; (2) unable to assess relevance without item revision; (3) relevant but needs minor alteration; or (4) very relevant. This approach is consistent with the method described by Lynn (1986). The content validity index (CVI) for each item was calculated by determining the proportion of experts that gave each item a rating of “3” or “4”. When using five experts, all five experts must give the item either a rating of a “3” or “4” for the content validity to be significant beyond the .05 level (Lynn, 1986). 20 items had a CVI of 1.0. The 26 items that had disagreement on relevance were examined further and panel feedback was incorporated into the final instrument.

One item was dropped entirely from the instrument and five were reworded. Two of the items that were reworded had to do with involving patients’ family and friends in their care and were in the Access to Support subscale and the Access to Opportunities to Learn and Grow subscale. The phrase “with my permission” was added to the items, as the two nurse experts and one patient expert had concerns that patients did not always want their family or friends involved in their care. One item in the Access to Information subscale (Item 10) was reworded from “The nursing staff gave me ideas on where I could look to find out more about my condition/diagnosis” to “The nursing staff gave me ideas on how I could find out more about my condition/diagnosis”. One patient was

concerned that simply being directed to search the internet or literature about a condition or diagnosis is not always the best and sometimes information should come from providers. Item 45, “I feel as though the nursing staff and I were equals”, in the Formal Power subscale was changed to “I feel as though the nursing staff and I were partners” because patients often answered “0” because the nurses had received specialized training in school that they had not received. Lastly, item 33, “The nursing staff used technology in my care (videos, internet)”, was changed to “The nursing staff helped me use technology in my care (for example provided me with videos to watch about my condition or treatment, provided me with information on how to access my electronic health record, or suggested internet resources I could use)”. The remaining 20 items were not altered because the patient experts both thought they were relevant and they were taken directly from Laschinger et al.’s (2010) framework of patient-empowering nurse behaviors.

Thirty-eight patients who underwent a surgical procedure for cancer or cardiac disease, from a total of three medical-surgical units, signed a consent form and were enrolled into the pilot study. The three units were as follows: Unit 1 (gastrointestinal surgical oncology patients), Unit 2 (cardiac surgical patients), and Unit 3 (genitourinary surgical oncology patients). The instrument was pretested in a smaller sample of patients, from the population for whom it was developed, in order to reveal any problems related to content, administration, or scoring (Waltz et al., 2010). Four patients were sent home before completing the PPPNBS and one patient withdrew after consenting. Five patients’ data were removed from the final dataset because they had skipped too many questions on the PPPNBS to be included in the final analyses. Twenty-eight patients had

completed data for the PPPNBS and were included in final analyses, resulting in a 26% attrition rate. A description of the pilot sample is included in Table 4.

Table 4

Pilot Patient Demographic Variables (N=28)

Variables	N	%
Gender		
Male	18	64.3
Female	10	35.7
Marital Status		
Married	18	64.3
Single	5	17.9
Separated	1	3.6
Divorced	1	3.6
Widowed	3	10.7
Race		
Caucasian	27	96.4
Non-Caucasian	1	3.6
Highest Level of Education		
High School	10	35.7
Some College	14	50.0
College Graduate	2	7.1
Graduate Degree	2	7.1
Live Alone		
Yes	4	14.3
No	24	85.7
Prior Hospitalization for Same Diagnosis		
Yes	11	39.3
No	17	60.7
Diagnosis		
Cancer	15	53.6
Cardiac Disease	13	46.4
Stage of Cancer		
0 (in situ)	1	6.7

	1	1	6.7
	2	1	6.7
	3	4	26.7
	4	8	53.3
Unit			
	1	12	42.9
	2	15	53.6
	3	1	3.6
Days Since Diagnosis			
	0-60 Days	7	25
	61-180 Days	10	35.7
	181-365 Days	6	21.4
	> 365 Days	5	18
Age			
		Mean (SD)	Range
		56.9 (14.1)	23-81
Length of Stay*			
		6.9 (3.4)	2-18
Comorbidities			
		2.4 (1.8)	0-7

*measured in days

The internal consistency reliability was determined by calculating Cronbach's alpha coefficients for the total scale and then each of the subscales. Cronbach's alpha coefficient determines how well the items in the instrument fit together to measure a concept. A coefficient alpha of .70 and above is considered acceptable for new instruments (Devellis, 2012). Cronbach's alpha coefficients for each of the subscales and the total scale are shown in Table 5 and the subscale and total scale descriptive are shown in Table 6. All scores were above .70 except the "access to opportunities to learn and grow" subscale which had the lowest Cronbach's alpha coefficient (0.65). One item was identified that substantially lowered the subscale Cronbach's alpha estimate (alpha when item removed was .85). The question pertained to the use of information technology. The majority of patients either answered "0" indicating that the nursing staff did not use

technology in their care or “10” that they used it a great deal. The wording of that question was changed as described above to include patients’ access to their electronic health record.

Table 5

Pilot Cronbach’s Alpha Values

Measure	No. of Items	A
Initiation	5	.93
Access to Information	7	.79 *
Access to Support	10	.93
Access to Resources	6	.74 *
Access to Opportunities to Learn and Grow	5	.65*
Informal Power	5	.85
Formal Power	7	.81
Total	45	.97

*items removed/reworded

Table 6

PPPNBS Total and Subscale Scores (N=28)

Measure	Range	Mean (SD)	Item Mean* (SD)
Initiation	29-50	43.8 (7.1)	8.8 (1.6)
Access to Information	36-70	58.3 (10.0)	8.3 (2.1)

Access to Support	52-100	85.9 (15.7)	8.6 (2.0)
Access to Resources	32-60	50.0 (8.7)	8.3 (2.2)
Access to Opportunities to Learn and Grow	24-50	39.7 (7.7)	7.9 (2.4)
Informal Power	12-50	38.4 (9.9)	7.7 (2.5)
Formal Power	40-70	59.8 (9.6)	8.5 (2.0)
Total	242-446	375.9 (61.6)	8.4 (2.1)

* has a range of 0-10

Lastly, the test-retest reliability was calculated. Test-retesting is often used to investigate the reliability in affective measures when they are expected to remain relatively stable throughout the study period (Waltz et al., 2010). A two-week interval for test-retest was used to limit patients' recall of their prior answers, while decreasing the likelihood that their perceptions will change (Devellis, 2012). Patients were asked to think back to the nursing care they received while they were initially hospitalized after their surgery, to prevent any influence from home nursing care they may have been receiving. The extent to which the two sets of scores were related was calculated using the Pearson product-moment correlation coefficient (Waltz et al., 2010). Pearson product-moment correlation coefficients for the subscales ranged between .63 and .82 and all were significant at $p < .001$. The PPPNBS total scores were significantly, positively correlated between discharge and two-weeks post-discharge ($r = .76, p < .001$). This means that patients' perceptions of patient-empowering nurse behaviors did not change significantly between the time of discharge and two-weeks post-discharge. The final PPPNBS was written at a sixth-grade reading level.

PAM 13.

The Patient Activation Measure (PAM) was originally a 22-item instrument that measured patients' self-reported knowledge, skill, and confidence for self-management of their health or chronic illness (Hibbard et al., 2004). It was then shortened to a 13-item instrument, the PAM 13, (Hibbard et al., 2005) that inquired about patients' beliefs, knowledge, and confidence with respect to active participation in their health care. The PAM 13 accounted for 92 percent of the variance in the 22-item instrument (Hibbard et al., 2005). The PAM 13 is not condition-specific and therefore can be used with a wide array of patients. The PAM 13 was used in this study. Items are scored on a scale from 1-4 with 1 meaning "strongly disagree" and 4 meaning "strongly agree". Patients are assigned a total raw score ranging from 13 to 52, which is then converted to an activation score of 0 to 100 through a calibration table. The PAM 13 is a copyrighted instrument and the license agreement is found in Appendix B.

The PAM 13 has Cronbach's alpha coefficients ranging from .87 to .90 (Fowles et al., 2009; Maindal, Sokolowski, & Vedsted, 2009; Skolasky et al., 2011a). The construct validity is also high, as those who scored high on activation had significantly lower levels of healthcare utilization, higher levels of physical and mental health on the SF-36, and higher levels frequencies of general preventive behaviors such as following a low-fat diet, exercising, and abstaining from smoking (Hibbard et al., 2005; Hibbard et al., 2004; Skolasky et al., 2011a). In addition, there were high correlations between PAM 13 scores and measures of optimism, hope, self-efficacy, and internalized locus of control (Skolasky et al., 2009). Confirmatory factor analysis of the PAM 13 administered to patients who underwent elective spine surgery demonstrated a three-factor model: (1)

beliefs; (2) knowledge and confidence; and (3) action and perseverance (Skolasky et al., 2009).

The PAM 13 has been shown to be valid and reliable in a number of chronic illnesses, including cardiac disease, hypertension (Hibbard et al., 2007; Hibbard et al., 2004), and inflammatory bowel disease (Munson et al., 2009) but has not previously been used specifically with cancer patients. It has also been shown to be valid and reliable in patients undergoing spine surgery (Skolasky et al., 2009; Skolasky et al., 2011b), but has not been used in patients undergoing surgery for cardiac disease or cancer. A randomized trial showed no significant differences in PAM 13 scores in patients who completed a self-administered version and those who completed the survey through a telephone interview (Greene, Speizer, & Wiitala, 2008). The PAM 13 is included in the appendix and permission to use the instrument in this research has been granted by the author. A license agreement for use between January 1st of 2012 and June 1st, 2013 was signed, with the ability to extend if necessary. Sharing of the calibration table with third-parties is prohibited through the license agreement, therefore only the questions are listed in the appendix.

The MOS 36-Item Short-Form Health Survey version 2.0 (SF-36 v.2).

The SF-36 was developed to measure health status in the Medical Outcomes Study. The SF-36 is a well-documented and tested measure of functional health status and well-being in both healthy individuals and those with various chronic illnesses and is the most widely used measure of health-related quality of life (Kalantar-Zadeh et al., 2001; Lawrence & Clancy, 2003; McHorney, Ware, Lu, & Sherbourne, 1994; Porter & Skibber, 2000; Schlenk et al., 1998; Ware, Kosinski, & Keller, 1994). The SF-36

consists of three levels: 36 items, 8 subscales, and 2 summary measures. The eight subscales measure the following health concepts: physical functioning, physical role limitations, bodily pain, social functioning, general mental health, emotional role limitations, vitality, and general health (Ware & Sherbourne, 1992). The questions of the SF-36 ask individuals to recall their experiences over the prior four weeks.

Most of the items selected for the SF-36 had been adapted from prior instruments that had been used for many years. Factor analysis has confirmed that the two summary measures (mental component summary [MCS] and physical component summary [PCS]) account for 80-85% of the variance in the eight subscales (Ware & Gandek, 1998). The SF-36 has readily demonstrated its ability to detect group differences in both physical and mental health status (Katz, Larson, Philips, Fossel, & Liang, 1992; Ware et al., 1994). There have been at least 100 publications citing the results of SF-36 administration in cancer patients (Lawrence & Clancy, 2003). Internal consistency reliability coefficients have ranged between 0.62 to 0.96 for each subscale of the survey and a median value of 0.80 has been demonstrated (McHorney et al., 1994). The social functioning subscale has been shown to have the lowest, but still acceptable reliability coefficient of 0.76 (Ware et al., 1992). Reliability scores for the mental component summary (MCS) and physical component summary (PCS) have generally ranged between 0.73 and 0.90 (Shmueli, 1998; Ware, n.d.). The physical component summary scale had a coefficient alpha of 0.89 in a study with surgical cancer patients (Hodgson & Given, 2004). There is now a second version of the SF-36 that was created to address problems with the first version. Wording was simplified, the layout of the instrument was made more user-

friendly, and response choices were changed for a few questions (Ware, n.d.). The SF-36 v.2 is a copyrighted instrument and the license agreement is found in Appendix B.

Enrollment form.

Patients were asked to complete the enrollment form at the time that consent was obtained (see Appendix B). The enrollment form asked for the patients' age, gender, marital status, race/ethnicity, if they live alone, how many other people live with them (if applicable), their occupation and highest level of completed schooling, their spouse/partner's occupation and highest level of completed schooling (if applicable), if they were ever hospitalized for the same illness, how many times they were hospitalized for the same illness in the last 365 days (if applicable), and how long it has been since they were told they had cancer or cardiac disease. SES will be calculated using Hollingshead Four Factor Index of Social Status by obtaining the patient's and spouse's (if applicable) education level and occupation (Hollingshead, 1975). Variables collected for the purpose of predicting patient perceptions of patient-empowering nurse behaviors, six-week post-discharge patient activation, and six-week post-discharge functional health status included length of time since initial diagnosis of cancer or cardiac disease, age, race, and SES. In addition, patient age, race, and length of time since initial diagnosis of chronic illness were necessary data to perform known group contrasts for the PPPNBS. Demographic data collected for the purpose of sample description only included gender, marital status, if they live alone, prior hospitalization for the same chronic illness within the last 365 days, and number of prior hospitalizations within the last 365 days for the same chronic illness (if applicable).

Contact information form.

Patients were asked to provide their names, telephone numbers, alternative telephone numbers if they had one, and the best times to be reached so that telephone interviews could be conducted to complete the PAM 13 and SF-36 at six-weeks post-discharge. The Contact Information Form can be found in Appendix B.

Medical record review form.

The information collected through medical review included stage of cancer, type of illness (cancer or cardiac), description of illness (type of cancer or cardiac disease), number of comorbidities, operation, unit, date of admission, date of discharge, length of stay, readmission between discharge and six-week follow-up telephone interview, and whether or not the patient was discharged with home health care. Calculating length of stay was necessary to perform known group contrasts for PPPNBS and was used in the prediction models for patient perceptions of patient-empowering nurse behaviors, six-week post-discharge patient-activation, and six-week post-discharge functional health status. Diagnosis was used as a fixed effect in the multiple linear regression models for predicting patient perceptions of patient-empowering nurse behaviors, six-week post-discharge patient activation, and six-week post-discharge functional health status. Stage of cancer, description of illness, number of comorbidities, operation, unit, and use of home health care were used to describe the study sample. Readmissions were recorded to determine the feasibility of a future study looking at the relationship between patient perceptions of patient-empowering nurse behaviors, patient activation, and readmission rates. The Medical Record Review Form can be found in Appendix B.

Procedure

Study approval was obtained from the Institutional Review Board (IRB) at MCW/Froedtert Hospital with an Institutional Authorization Agreement approved for Marquette University IRB to rely on MCW/Froedtert Hospital IRB for all IRB-related review and decisions. One graduate nursing student was recruited through the university to act as a research assistant and was compensated with the grant funds received through Sigma Theta Tau International. The research assistant was trained in the study aims and procedures. Specific training was provided on the proper method of enrolling and consenting patients to be in a research study. The research assistant also completed the necessary modules of the Collaborative IRB Training Initiative (CITI) Program. Copies of the IRB approval letters and the consent form are found in Appendix C.

The researcher met with the nurse managers and nursing staff on the two units prior to the enrollment period to educate the staff on the study aims and procedures. Reminder cards (see Appendix B) were placed on the patient's charts so that the nurse caring for the patient was reminded to distribute the PPPNBS prior to discharge if the PI or RA was not present at the time of the patient's discharge. Collection boxes were kept in the nurse conference rooms for each of the two units. On each day of enrollment, the researcher reviewed the medical records of the patients in each of the two units and then the staff nurses were approached to determine which patients met inclusion criteria. Eligible patients were then approached and the study was described by either the researcher or research assistant a day or two before the planned day of discharge. Patients were given adequate time to review the consent form and decide if they would like to be a part of the study.

Once consent was obtained, patients were asked to complete the enrollment form, the contact information form, and the pre-discharge PAM 13. The researcher or research assistant waited for the patient to complete the forms and they were then stored in a locked filing cabinet, in a locked research office at Marquette University. The nurses caring for enrolled patients were notified of a patient's participation in the study at the time of consent. The PPPNBS along with the signed consent was placed in the front of the patient's chart. A coversheet (see Appendix B) was included with each PPPNBS to remind the nurse about the procedure for distributing the PPPNBS to patients. The patient's medical record number was placed on the medical record review form so that on the day of discharge, or soon thereafter, the medical record review could be completed. Medical record reviews took around ten minutes per patient. Once the medical record review was complete, the medical record number was cut from the form and was placed in one of the confidential recycling receptacles that are destroyed in a shredder.

The patient was given the PPPNBS to complete within four hours prior to discharge. The discharge coordinators on each unit were notified when the RA and the researcher would be present on the units and were asked to remind an enrolled patient's nurse to distribute the PPPNBS prior to discharge if study personnel were unable to be present on the unit at the time of a patient's discharge. This procedure worked well during the pilot study. The nurses were not expected to help the patient complete the instrument. Nursing staff were instructed to page or call the researcher if a patient required assistance completing the study materials. The PPPNBS was preferably given after discharge teaching was completed, so that patients' perceptions of patient-empowering nurse behaviors included all behaviors demonstrated by the nursing staff

during their admission. The questionnaires were placed in sealed envelopes by the patients after completion. The sealed envelopes provided reassurance to patients that the nurses caring for them would not be able to see their individual answers regarding their perceptions of the nursing care that they received. The questionnaires were placed in a central collection box on the nursing units by the nursing staff if the research personnel were not present on the unit at the time of completion. The researcher or research assistant retrieved the completed forms at least three times per week. The box was not kept in a high-traffic area and no identifying data were present on the questionnaires that were placed in the collection boxes. This procedure was used successfully in the past by the researcher's mentor (Weiss et al., 2007; Weiss et al., 2011) and worked well with the pilot study. If a patient was sent home without completing the PPPNBS, the researcher or research assistant attempted to call the patient within 48 hours of discharge to complete the scale over the phone. Test-retest ability of the PPPNBS showed patient perceptions of patient-empowering nurse behaviors to be significantly correlated between the time of discharge and two-weeks post-discharge.

Patients were contacted by phone by either the research assistant or researcher at six-weeks post-discharge in order to complete the post-discharge measures of patient activation and the SF-36. Efforts were made to contact patients at the preferred times listed on their patient contact form. Patients were allowed to stop or postpone the telephone interview at any time if they become fatigued and were told that they do not need to answer a question if it made them uncomfortable. If patients expressed concerns or ask questions about their illness or treatment plans, they were directed to contact their

physicians. The patient contact form was destroyed after the telephone interview was complete, as it has both the study ID number and patient's contact information on it.

Provisions for the protection of human rights

Informed consent was obtained from all patients prior to any data collection. When enrolling patients into the study and throughout study conduction, the researcher respected human dignity by upholding patients' rights to self-determination and full disclosure. The consent form outlined that patients had the right to decide voluntarily if they would like to be in the study, may withdraw at any time, and have the right to ask question or refuse to answer certain questions (Polit & Beck, 2010). The researcher also fully described the nature of the study and any risks and benefits associated with it before a patient was consented to be in the study.

This study posed minimal risk to participants. One risk of taking part in a research study was that more people will handle subject's personal health information collected for this study. The study team made every effort to protect the information and keep it confidential. During data collection, subjects may have realized they were not managing their illness as well as they should be while answering items of the instruments, causing them psychological distress. If patients had any questions, or if they became anxious during data collection, they were directed to contact their physician. In addition, patients were encouraged to contact their surgeon's office if they communicated any post-discharge difficulties during telephone interviews. Lastly, patients may have become fatigued while answering the items on the instruments. They were given adequate time to complete the instruments and were told that they may stop or pause at any time. Patients have the right to protection from exploitation and were assured that

the information they provided would not be used for any purpose other than the research (Polit & Beck, 2010).

Patients were assigned a study ID number based on when they are enrolled (consecutive numbering starting at 100) and no identifying information was entered into the study database. The study database was on a password protected laptop. Consent forms were kept separately from other study materials in a locked file cabinet within a locked research office at Marquette University. The contact forms with patient names and phone numbers were destroyed once follow-up telephone calls were complete. The medical record number was removed from the medical record review form as soon as the review was complete. The medical record review forms did not leave the hospital until they had been de-identified. All study forms were kept in a locked cabinet within a locked research office at Marquette University. There was no intervention applied in this study and therefore all participants received usual care.

Data Analysis

Prior to analyses data were cleaned, variables were checked for normality, and transformations were performed when necessary. Outliers, detected on box plots, in the variables used for analysis were winsorized to the next highest or lowest values (Tabachnick & Fidell, 2007). Any discrepancies or missing data were verified against the raw data. Missing value analysis was conducted on the final data set to determine if missing data were missing completely at random or if they were related to any other variables. Case mean substitution, using the patient's subscale mean, was used for missing values on the PPPNBS if less than 30% of the subscale's items are missing (Shrive, Stuart, Quan, & Ghali, 2006). A patient's total mean value was imputed for

missing values on the PAM 13, when fewer than 30% of values were missing, because it is a one-dimensional scale.

Descriptive statistics (means and standard deviations) were calculated for the following variables: length of time since initial diagnosis (days), length of stay, number of previous hospitalizations for same illness within 365 days, age, SES, number of comorbidities, pre-discharge PAM 13, PPPNBS subscale and total scores, six-week post-discharge PAM 13, SF-36 MCS measure, and SF-36 PCS measure. Frequencies were calculated for type of illness (cancer or cardiac disease), unit, race, education level, prior hospitalization for the same chronic illness, gender, marital status, lives alone, discharged with home care, readmissions, level of patient activation, and stage of cancer or cardiac disease. A significance level of $p < .05$ was used in all analyses.

Hypothesis one was analyzed by calculating Cronbach's alpha reliability coefficient for each of the subscales for the PPPNBS and for the total scale. Hypothesis two was analyzed by calculating Pearson's correlation coefficient for PPPNBS total score and pre-discharge PAM 13. Hypothesis three was analyzed through linear regression with PPPNBS score as the predictor variable and six-week post-discharge PAM 13 as the dependent variable, while controlling for type of illness. Type of illness was controlled for because neither instrument had been used in a surgical cardiac or cancer population, so it is not known what influence the patient's illness will have on the predictors or outcome variable. Controlling for type of illness also in turn controlled for unit, as all cancer patients were on one unit while all cardiac patients were on the other. This was important because the degree of structural empowerment on each individual nursing unit will impact how psychologically empowered the nursing staff is, and may further impact

the patient-empowering behaviors of nurses on that unit (Laschinger et al., 2010).

Hypothesis four was analyzed through 3 separate linear regression models with PPPNBS total score as the predictor variable and six-week post-discharge SF-36 PCS measure and six-week post-discharge SF-36 MCS measure as the dependent variables, again using fixed effects for type of illness.

Hypothesis five was analyzed using an independent samples *t* test with race (Caucasian and non-Caucasian) as the independent variable and PPPNBS total score as the dependent variable. The sample was split by median value for age, length of time since initial diagnosis, and length of stay so that independent samples *t* tests could be run using those variables as independent variables and PPPNBS total score as the dependent variable. Hypothesis six was analyzed through a Pearson correlation matrix between six-week post-discharge PAM 13, six-week post-discharge SF-36 PCS measure, and six-week post-discharge SF-36 MCS measure. To adjust for the multiple comparisons, a Bonferoni correction for type I error was made and a significance level of 0.017 was used for this hypothesis.

Hypotheses seven, eight, and nine were analyzed by 3 separate systems of simultaneous multiple linear regression equations found in figure 2. First, equations for hypotheses seven and eight were examined as a system of two simultaneous equations: Hypothesis seven (equation 1) examined the relationships of illness factors and patient characteristics as predictor variables for PPPNBS. Hypothesis eight (equation 2) examined PPPNBS as a predictor variable for six-week post-discharge PAM 13. A fixed effect for type of illness was included. Hypothesis nine examined PPPNBS as a predictor variable for SF 36 MCS (equation 3) and SF 36 PCS (equation 4), in similar systems of

two simultaneous equations. This estimation model allowed for testing of direct and indirect relationships among variables that appear in more than one equation. To reflect the sequential nature of the relationships, outcome variables in one equation became predictor variables in the subsequent equation while accounting for the presence of all other variables. This allowed the researcher to see what each predictor contributed to the outcome that was different from the contribution of all the other predictors (Tabachnick & Fidell, 2007).

In equation one of the first system (H7 & H8), PPPNBS total score was the dependent variable and age, SES, race, pre-discharge PAM 13, days since initial diagnosis, type of illness, and length of stay were the predictors. In equation two of the first system (H7 & H8), six-week post-discharge PAM 13 was the dependent variable and age, SES, race, pre-discharge PAM 13 score, days since initial diagnosis, type of illness, length of stay, and PPPNBS total score were the predictors. In equation three of the second system (H7 & H9), SF-36 MCS measure was the dependent variable and age, SES, race, pre-discharge PAM 13 score, days since initial diagnosis, type of illness, length of stay, and PPPNBS total score were the predictors. A third system (H7 & H9) was run replacing SF-36 MCS measure (equation 3) with SF-36 PCS measure (equation 4).

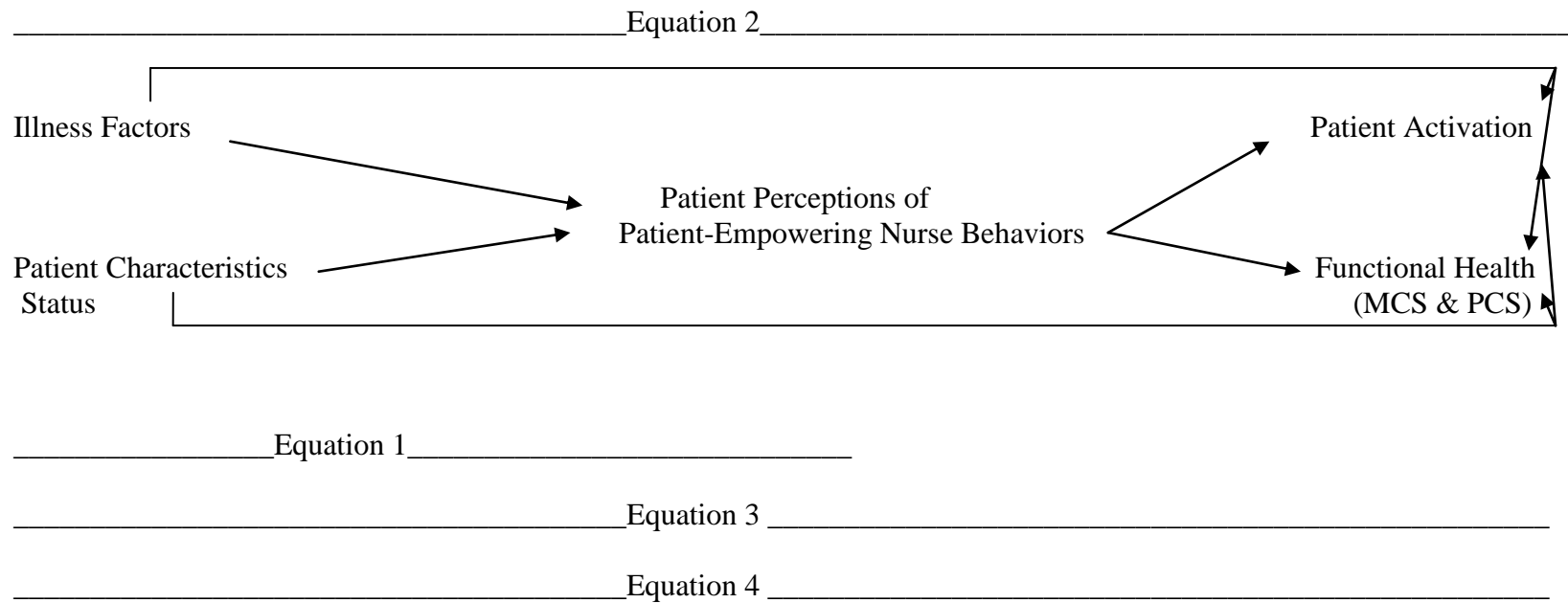


Figure 2 . Multi-level Analysis of Predictors of Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status

A summary of variables used as dependent and independent variables in regression analyses can be found in Table 7. A description of variables used for sample description can be found in Table 8.

Table 7
Summary of Variables used in Regression Analyses

Variable	Variable-Type	Time of Collection	Level of Measurement	Source	Description
PPPNBS: Total Score	Dependent (equation 1) Independent (equation 2&3)	Within 4 hours of hospital discharge	Interval	Patient Perceptions of Patient- Empowerin g Nurse Behaviors Scale	Sum of all 46 items
Pre- discharge PAM 13	Independent	At time of enrollment/consent	Interval	Patient Activation Measure	Sum of all 13 items converted to an activation score of 0 to 100 through a calibration table
Six-week Post- discharge PAM 13	Dependent	At 6 week telephone interview	Interval	Patient Activation Measure	Sum of all 13 items converted to an activation score of 0 to 100 through a calibration table
Physical Compone	Dependent	At 6 week telephone	Interval	SF-36	Sum of physical

nt Summary (PCS) measure		interview			functioning, role- physical, bodily pain, and general health scales
Mental Compon ent Summary (MCS) measure	Dependent	At 6 week telephone interview	Interval	SF-36	Sum of vitality, social functioning, role- emotional, and mental health scales
Age	Independent	At time of enrollment/consent	Interval	Enrollment Form	Patient age in years
SES	Independent	At time of enrollment/consent	Interval	Enrollment Form	Patient's SES according to Hollingshea d using education level and occupation of patient and spouse if applicable
Race	Independent	At time of enrollment/consent	Nominal	Enrollment Form	Race of patient combined into two categories: (1) Caucasian and (2)

					Other race
Unit	Independent	At time of medical record review	Nominal	Medical Record Review Form	Unit on which patient was hospitalized
Type of Illness	Independent	At time of medical record review	Nominal	Medical Record Review Form	Illness patient had surgery for (cancer or cardiac disease)
Length of Time Since Initial Diagnosis	Independent	At time of enrollment/consent	Interval	Enrollment Form	Number of days since patient was told he/she had cancer or cardiac disease
Length of Stay	Independent	At time of medical record review	Interval	Medical Record Review Form	Number of days patient was admitted to the hospital

Table 8.

Description of Variables Used For Sample Description

Variable	Time of Collection	Source	Description
Marital Status	At time of enrollment/consent	Enrollment Form	Marital Status of patient according to the following categories: (1) married; (2) single; (3) divorced;

			(4) widowed; (5) separated; or (6) other
Lives Alone	At time of enrollment/consent	Enrollment Form	Whether patient lives alone: yes/no
Hospitalized for same illness	At time of enrollment/consent	Enrollment Form	If patient has ever been hospitalized before for cancer or cardiac disease: yes/no
Number of hospitalization in last year	At time of enrollment/consent	Enrollment Form	Number of times patient was hospitalized for cancer or cardiac disease in last year if applicable
Gender	At time of enrollment/consent	Enrollment Form	Gender of patient
Home Health Care	At time of medical record review	Medical Record Review Form	Whether patient was discharged with home health care: yes/no
Readmission since discharge	At time of medical record review	Medical Record Review Form	Whether patient was readmitted after discharge during 6 week study period: yes/no
Stage of Illness	At time of medical record review	Medical Record Review Form	Stage of patient's cancer (AJCC staging guidelines) or cardiac disease (NYHA stage of heart failure)
Description of Cancer or Cardiac	At time of medical	Medical Record	Type of cancer or

Disease	record review	Review Form	cardiac disease
Comorbidities	At time of medical record review	Medical Record Review Form	Number of comorbidities
Operation	At time of medical record review	Medical Record Review Form	Type of operation

CHAPTER FOUR

Results

Chapter Four includes sample characteristics, descriptive statistics for study measures, and results of data analysis for hypotheses one through six, which are listed in Chapter Three. The findings of hypotheses seven through nine are presented in the manuscript “Patient Empowerment, Patient Activation, and Functional Health Status After Surgery” (Appendix D) and are not duplicated in this section.

Description of Sample

A total of 164 patients were enrolled in the study: 144 patients completed all pre-discharge measures and 127 completed all six-week post-discharge measures. The 17 patients lost to follow up at six-weeks post-discharge did not differ from the rest of the sample based on age: ($t(143) = -.75, p = .46$); SES: ($t(143) = 1.33, p = .19$); race: ($\chi^2(1) = .53, p = .47$); pre-discharge PAM 13: ($t(143) = -.97, p = .34$); time since diagnosis: ($t(143) = 1.81, p = .08$); LOS: ($t(143) = -1.41, p = .18$); type of illness: ($\chi^2(1) = .10, p = .75$); or total PPPNBS score: ($t(143) = 1.41, p = .16$). Of the 144 patients who completed all pre-discharge measures, 117 completed every question on the PPPNBS. Those 117 patients were included in the reliability analysis for Hypothesis 1. Following reliability analysis, mean substitutions for missing items were included in the PPPNBS and PAM 13 if substitution criteria were met. Scales scores corrected with mean substitution were used for all subsequent analyses. Fourteen patients were excluded from the complete sample of 127 because they answered “strongly agree” for all items on either the pre-discharge PAM 13 or the six-week post-discharge PAM 13 and were considered outliers. Prior studies have

eliminated patients who answered at either extreme for every item on the PAM 13 (either “strongly disagree” or “strongly agree”) from their analyses (Alegria, Sribney, Perez, Laderman, & Keefe, 2009; Hibbard & Cunningham, 2008). J. Hibbard, the author of the PAM, stated that patients who answer “strongly disagree” or “strongly agree” for all questions are thought to be answering dishonestly or are felt not to fully comprehend the items and are excluded from all of her studies using the PAM 13 (personal communication, February 8, 2013). Patients who were excluded due to their PAM 13 score did not significantly differ from the remaining sample based on age: ($t(143)= .78, p=.44$); SES: ($t(143)=1.54, p=.13$); race: ($\chi^2(1)= .27, p=.60$); time since diagnosis:($t(143)=.66, p=.51$); LOS: ($t(143)= -.20, p=.85$); type of illness:($\chi^2(1)=2.33, p=.13$); total PPPNBS score: ($t(143)= -.75, p=.46$); MCS: ($t(143)= -.83, p=.41$); or PCS: ($t(143)= .73, p=.47$) . Enrollment and exclusions from the sample used for analysis are described in figure 3.

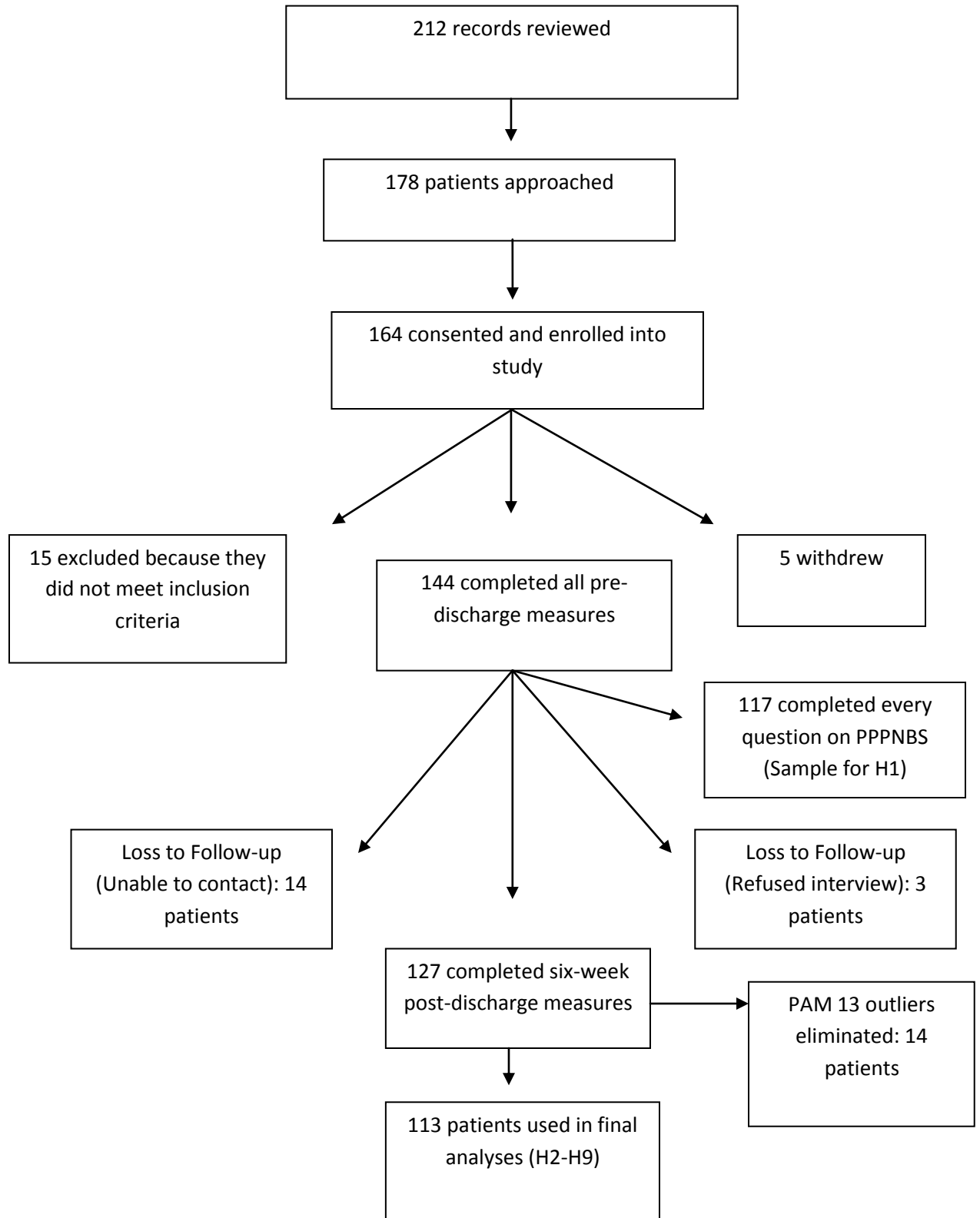


Figure 3. Explanation of Study Enrollment and Exclusions

Sample Characteristics

Sample characteristics are presented in 2 forms: The sample for reliability analysis (H1) and the sample where complete data were available for analyses of all other hypotheses (H2-H9). Sample characteristics for the sample used to calculate Cronbach's alpha reliability coefficients for the PPPNBS are listed in Table 9 below. There were no significant differences between the sample used to analyze hypothesis one and the sample used to analyze hypotheses two through nine.

Table 9
Sample Characteristics of Analysis of PPPNBS Reliability [Hypothesis 1] (N=117)

Patient Characteristics	N	%	Mean	SD
Gender				
Male	66	56.4		
Female	51	43.6		
Age			57.7	11.9
Socioeconomic Status ^a			42.8	14.0
Total pre-discharge PAM 13			71.0	15.2
Highest Completed Level of Education				
<High school	5	4.3		
High School	25	21.4		
Some College (at least 1 year)/Specialized Training	41	35.0		
College Graduate	28	23.9		
Graduate Degree	18	15.4		
Race				
White	97	82.9		
African American	11	9.4		
Asian	2	1.7		
Hispanic	3	2.6		
Other	4	3.4		
Marital Status				
Married	82	70.1		
Single	20	17.1		
Separated	3	2.6		
Divorced	7	6.0		
Widowed	3	2.6		

Other	2	1.7		
Live alone				
No	102	87.2		
Yes	15	12.8		
Illness Factors				
Type of Illness				
Cancer	87	74.4		
Cardiac Disease	30	25.6		
Length of Stay (days)			6.8	3.7
Time Since Initial Diagnosis				
0-60 days	27	23.1		
61-180days	35	29.9		
181-365 days	18	15.4		
> 365 days	37	31.6		
Stage of Cardiac Disease ^b				
I	3	10.3		
II	22	75.9		
III	4	13.8		
IV	0	0		
Stage of Cancer ^c				
I	16	18.8		
II	22	25.9		
III	14	16.5		
IV	33	38.8		
Number of comorbidities			2.1	1.8
Prior hospitalization for same diagnosis				
Yes	45	38.5		
No	72	61.5		
Number of prior hospitalizations for same diagnosis			1.3	2.1
Home Health				
Yes	49	42.0		
No	68	58.0		
Unplanned Six-Week Readmission				
Yes	14	14		
No	86	86		

^aHollingshead (1975) Four Factor Index of Social Status (Range 8-66)

^bNYHA Heart Failure Classification System

^cAJCC 7th edition

Sample characteristics from the sample used in analyses for H2-H9 are listed below in Table 10. A narrative description of the sample can be found in the manuscript in Appendix D.

Table 10
Sample Characteristics: Hypotheses 2 through 9 (N=113)

Patient Characteristics	N	%	Mean	SD
Gender				
Male	63	55.8		
Female	50	44.2		
Age			57.6	12.7
Socioeconomic Status ^a			44.6	13.7
Total pre-discharge PAM 13			68.0	12.5
Stage of pre-discharge PAM 13				
One	6	5.3		
Two	13	11.5		
Three	30	26.5		
Four	64	56.6		
Highest Completed Level of Education				
<High school	3	2.7		
High School	25	22.1		
Some College (at least 1 year)/Specialized Training	34	30.1		
College Graduate	28	24.8		
Graduate Degree	23	20.4		
Race				
White	95	84.1		
African American	10	8.8		
Asian	1	0.9		
Hispanic	3	2.7		
Other	4	3.5		
Marital Status				
Married	80	70.8		
Single	17	15.0		
Separated	1	0.9		
Divorced	8	7.1		
Widowed	4	3.5		
Other	3	2.7		
Live alone				
No	100	88.5		
Yes	13	11.5		
Illness Factors				
Type of Illness				
Cancer	86	76.1		
Cardiac Disease	27	23.9		
Length of Stay (days)			6.5	3.3
Time Since Initial Diagnosis				
0-60 days	27	23.9		
61-180days	38	33.6		
181-365 days	13	11.5		

> 365 days	35	31.0		
Stage of Cardiac Disease ^b				
I	6	22.2		
II	16	39.3		
III	4	14.8		
IV	1	3.7		
Stage of Cancer ^c				
I	12	14.0		
II	21	24.4		
III	16	18.6		
IV	37	43.0		
Number of Comorbidities			2.1	1.8
Prior hospitalization for same diagnosis				
Yes	41	36.3		
No	72	63.7		
Number of prior hospitalizations for same diagnosis ^d			1.0	1.4
Home Health				
Yes	37	32.7		
No	76	67.3		
Unplanned Six-Week Readmission				
Yes	16	14.2		
No	97	85.8		

^aHollingshead (1975) Four Factor Index of Social Status (Range 8-66)

^bNYHA Heart Failure Classification System

^cAJCC 7th edition

^dN=41

Sample characteristics were also analyzed for cancer and cardiac patients separately and are presented below in Table 11. Independent samples t-tests and chi square analyses were performed to determine if cancer and cardiac patients differed significantly for variables used in analyses. Sample characteristics did not differ significantly by type of illness except for years since initial diagnosis. There was a significant difference in years since initial diagnosis for Cardiac ($M=8.95$, $SD=12.98$) and Cancer patients ($M=1.32$, $SD=2.72$; $t(26.72) = 3.03$, $p=.005$, two-tailed). The magnitude of the differences in the means (mean difference = 7.63, 95% CI: 4.70 to 10.57) was moderate (eta squared = .08). The mean of years since initial diagnosis for cardiac

disease is much higher than that of cancer because six cardiac patients had a diagnosis of congenital cardiac disease. Five of those patients were diagnosed 24-30 years prior to the study and one was diagnosed later in life: 11 years prior to the study.

Table 11

Description of Sample Characteristics Used in Analyses by Illness Type (N=113)

Patient Characteristics	Illness Type		Mean	SD	p
	Cancer (N=86)	Cardiac Disease (N=27)			
	Mean	SD	Mean	SD	
Age	58.8	11.2	53.6	16.1	.12 ^a
Socioeconomic Status ^b	45.3	13.2	42.3	15.2	.33 ^a
Total pre-discharge PAM 13	67.3	12.3	70.4	13.3	.26 ^a
Race	N	%	N	%	
Caucasian	71	82.6	24	88.9	.80 ^c
Non-Caucasian	15	17.4	3	11.1	
Illness Factors	Mean	SD	Mean	SD	
Length of Stay (days)	6.5	3.5	6.7	2.7	.81 ^a
Time Since Initial Diagnosis (years)	1.3	2.7	9.0	13.0	<.01 ^a

^at-tests

^bHollingshead (1975) Four Factor Index of Social Status (Range 8-66)

^cchi-square

Patients' specific diagnoses, surgical procedures, and most common comorbidities are presented in Tables 12, 13, and 14 below. The most common diagnoses for cancer patients were: colorectal cancer [including appendiceal mucinous carcinoma] (24.4%); pancreatic cancer [adenocarcinoma and neuroendocrine tumors] (19.8%); lung cancer (14%) and liver and biliary cancers (12.8%). These diagnoses were associated with 24.4% of patients having lung resections, 19.8% liver resections, 18.6% pancreatic surgeries, and 14% colon resections. Colorectal cancer often metastasizes to the liver and lungs, which explains why lung resections and liver resections were the two most frequent surgeries for patients with cancer. The most common diagnoses for cardiac patients were: valvular cardiac disease (59.3%), coronary artery disease (37%), and

congenital cardiac disease (22.2%). These diagnoses were associated with 59.3% of patients having either a valve repair or replacement and 37% having a coronary artery bypass grafting (CABG). Five patients also had an aneurysm repair in addition to their valve or CABG surgery.

Because cancer is treated as a chronic illness in this study, a previous cancer diagnosis was counted as a comorbidity because of the continued surveillance, health promotion, and treatment effects that cancer patients manage (Jacobs et al., 2007). Eleven percent of the total sample had a prior cancer diagnosis. Twelve cancer patients had a previous different cancer, one cardiac patient had an active cancer, and one cardiac patient had a previous cancer diagnosis. A large number of patients had multiple comorbidities (53.1%) and 80.5% had at least one comorbidity. The most common comorbidities were hypertension (46.9%), hyperlipidemia (30.1%), and diabetes (15.9%). Twenty-seven comorbidities including chronic obstructive pulmonary disorder, cirrhosis, osteoporosis, had less than five occurrences in the sample and were combined into the category “”other””.

Table 12
Sample Characteristics: Primary Diagnoses (N=113)

Diagnosis	N	%
Cancer*		
Lower GI (Colorectal, Appendiceal)	21	24.4
Pancreatic		
Adenocarcinoma	14	16.3
Neuroendocrine	3	3.5
Lung	12	14.0

Liver and Biliary	11	12.8
Upper GI (Esophageal, Gastric, Gastrointestinal Stromal Tumor)	10	11.6
Carcinoid	4	4.7
Sarcoma	3	3.5
Renal Cell Carcinoma	3	3.5
Other	6	7.0
Cardiac**		
Valvular Disease	16	59.3
Coronary Artery Disease	10	37.0
Congenital Cardiac Disease	6	22.2
Aneurysmal Disease	4	14.8

* one patient had more than one cancer diagnosis so was accounted for twice

** nine patients had more than one cardiac diagnosis and were counted twice

Table 13

Sample Characteristics: Type of Operation (N=113)

Surgical Procedures	N	%
Cancer		
Lung resection	21	24.4
Liver resection	17	19.8
Pancreatic (whipple, partial or distal pancreatectomy)	16	18.6
Colon resection+	12	14.0
Heated Intraperitoneal Chemotherapy and Cytoreductive Surgery for Metastatic Disease (HIPEC/CRS)	6	7.0
Esophagectomy and/or gastrectomy	4	4.6

Small bowel resection	4	4.6
Other	6	7.0
Cardiac		
Valve replacement++	16	59.3
Coronary Artery Bypass Grafting (CABG)+++	10	37.0
Replacement of RV-PA conduit	1	3.7

+ 2 patients had combined colon and liver resection

++ 4 patients also had an aneurysm repair

+++ 1 patient also had an aneurysm repair

Table 14

Most Common Comorbidities (N=113)

Comorbidity	N	%
Hypertension	53	46.9
Hyperlipidemia	34	30.1
Diabetes Mellitus	18	15.9
Gastroesophageal reflux disorder	14	12.4
Cancer	14	12.4
Thyroid Disease (hypo and hyper)	10	8.8
Depression	9	8.0
Coronary Artery Disease	6	5.3
Chronic Kidney Disease	6	5.3
Arthritis	5	4.4
Anxiety	5	4.4
Benign Prostatic Hypertrophy	5	4.4

Gout	5	4.4
Other	52	46.0

Preliminary Screening of Data

Main study variables were examined for missing data. One item on the PPPNBS was missing for five patients. That item asked if the nursing staff helped patients find ways to improve their relationships with their family, friends, or community members. Patients who left the item blank indicated that they did not have this need; however, those five patients did not have other missing data. Four patients had a missing item on the PAM 13. Those patients also did not have any other missing data and therefore it was determined that those values were missing at random. There was no missing data for patient characteristics or other illness factors. Lastly, there were no missing items on the SF-36 v.2 measures.

Main study variables were examined for outliers and normality. PPPNBS total score was negatively skewed (-5.91) and kurtotic (4.77). When distribution is normal, skewness and kurtosis equal zero (Tabachnick & Fidell, 2007). Box plots were reviewed and outliers were addressed. Three patients had total PPPNBS scores that were low outliers on the box plot and therefore the values were winsorized (made equal to the next lowest score for PPPNBS total score) (Tabachnick & Fidell, 2007). Skewness improved to -4.08 and kurtosis improved to .16. The Shapiro-Wilk test was run to check for normality after eliminating outliers and the value was significant at $p < .001$. The PPPNBS total scores were then transformed by taking the log and the square root; however, the Shapiro-Wilk test remained significant for both transformations at $p < .001$.

Therefore transformed scores were not used in subsequent analyses. Skewness of pre-discharge PAM 13 was -1.08 and kurtosis was -1.89. The Shapiro-Wilk test was run to check for normality and the value was significant at $p < .001$. Transformations using the square root and log of pre-discharge PAM 13 did not change the results of the Shapiro-Wilk test. Because PPPNBS total scores were not transformed, the decision was made to also not transform the pre-discharge PAM 13.

A box plot of six-week post-discharge PAM 13 was created and revealed no outliers. The Shapiro-Wilk test was run to check for normality and the value was significant at $p = .01$. The log and square root of six-week post-discharge PAM 13 was calculated however the Shapiro-Wilk test continued to be significant and therefore six-week post-discharge PAM 13 was also not transformed.

Box plots for the MCS and PCS measures were created and MCS had two low outliers, which were winsorized to the next lowest value. PCS measure did not have any outliers. The Shapiro-Wilk test was run to check for normality after eliminating outliers for MCS and the value was significant at $p < .001$. After taking the square root and log of the MCS measure, the Shapiro-Wilk test continued to be significant. The variable was not transformed. The PCS measure had a normal distribution on the Shapiro-Wilk test ($p=.53$) and was not transformed.

Preliminary analyses were conducted prior to proceeding with independent samples t -tests to ensure that dependent variables were normally distributed, the two groups had equal variance on the dependent variable by looking at the Levene's Test, and the two groups were independent of one another. Independence of the samples used in t -tests was established through the study design. As mentioned below, total PPPNBS score

was not normally distributed but given the large sample size, the Principal Investigator proceeded with the analysis. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, independence, and homoscedasticity were present for regression analyses (Tabachnick & Fidell, 2007). As mentioned below, the dependent variables (total PPPNBS, six-weeks post-discharge PAM 13, and MCS) were not normally distributed; however, the Principal Investigator proceeded with the analyses recognizing the violation of normality.

Psychometrics Analysis of PPPNBS

AIM 1: Conduct psychometric testing of the PPPNBS

H1. The PPPNBS total score and each of the seven subscale scores will have a Cronbach's alpha reliability of $\geq .70$.

Only patients who had complete data on the PPPNBS without substitutions for missing data were included in this analysis. Each of the seven subscales and the total scale had a Cronbach's alpha reliability of $\geq .70$. Cronbach's alpha reliability estimates along with scale descriptive statistics are listed below in Table 15. Each of the subscales were strongly correlated with each other and with the total scale at a significance level of $p < .001$. To assess need for item reduction, examination of inter-item correlations in each subscale revealed seven inter-item correlations that were between .82 and .86, indicating these items may measure the same characteristic. These items were retained for the present study but will be reviewed for redundancy when a larger sample size is obtained. One item in the "Formal Power" subscale had low inter-item correlations ($r = .12-.26$) because it was consistently scored higher by patients than the other items in the subscale

and it had little variance. Dropping the item from the scale however, would only have increased the α by .03, therefore the item was retained.

Table 15
PPPNBS Cronbach's Alpha Reliability Estimates and Scale Descriptive Statistics (N=117)

Measure	No. of Items	Range	Mean (SD)	Item Mean (SD)	α^*
Initiation	5	11-50	42.9 (7.6)	8.6 (1.7)	.92
Access to Information	7	16-70	60.0 (10.4)	8.6 (1.9)	.89
Access to Support	10	21-100	87.6 (14.0)	8.8 (1.8)	.93
Access to Resources	6	12.5-60	50.5 (9.8)	8.4 (2.2)	.85
Access to Opportunities to Learn and Grow	5	9-50	39.0 (9.8)	7.8 (2.7)	.79
Informal Power	5	0-50	38.9 (11.2)	7.8 (2.8)	.87
Formal Power	7	26-70	63.5 (8.5)	9.1 (1.6)	.86
Total	45	134-450	382.3 (64.9)	8.5 (2.1)	.98

H2. There will be a significant positive association between PPPNBS total score and pre- discharge PAM 13 score, providing evidence of concurrent validity.

There was a weak, positive correlation between PPPNBS total score and pre-discharge PAM 13 score ($r=.21$, $p=.03$), indicating that higher levels of patient activation at baseline were associated with higher perceptions of patient-empowering nurse behaviors by patients. The correlations between the subscales of the PPPNBS and pre-discharge PAM 13 are presented in table 16. There were significant correlations of pre-

discharge PAM 13 with 2 subscales of the PPPNBS. PPPNBS scale descriptives are found in Table 17 below.

Table 16
Correlations between PPPNBS subscales and Pre-discharge PAM 13 (N=113)

Measure	Initiation	Access to Info	Access to Support	Access to Resources	Access to Opportunities to Learn and Grow	Informal Power	Formal Power
Pre-discharge PAM 13	.18	.17	.18	.30**	.14	.21*	.17

** $p = .001$

* $p < .05$

Table 17

PPPNBS Scale Descriptive Statistics: Hypotheses 2 through 9 (N=113)

Measure	No. of Items	Range	Mean (SD)	Item Mean (SD)
Initiation	5	23-50	42.8 (7.0)	8.6 (1.7)
Access to Information	7	30.5-70	59.7 (9.2)	8.5 (1.9)
Access to Support	10	21-100	87.9 (13.4)	8.8 (1.7)
Access to Resources	6	12.5-60	50.2 (9.4)	8.4 (2.1)
Access to Opportunities to Learn and Grow	5	11-50	38.9 (9.2)	7.8 (2.6)
Informal Power	5	0-50	38.4 (11.0)	7.7 (2.7)
Formal Power	7	27-70	63.7 (7.1)	9.1 (1.5)
Total	45	134-450	381.5 (59.6)	8.5 (2.0)

To further identify the relationship between pre-discharge PAM 13 and total PPPNBS score, a one-way ANOVA was conducted to explore the impact of stage of activation on total PPPNBS score. There was a statistically significant difference for the four stages of patient activation: ($F(3,109) = 6.23, p=.001$). The effect size, calculated using eta squared, was .15. Post-hoc comparisons using Tukey indicated that the mean PPPNBS total score for patients in Patient Activation Stage One ($M=293.92, SD=62.64$) was significantly lower than patients in Stage Two ($M=384.15, SD=53.22, p=.003$), Stage Three ($M=389.88, SD = 55.93, p<.001$), and Stage Four ($M=387.53, SD= 48.67, p<.001$). Patients in Stage Two did not differ significantly from patients in Stage Three or Stage Four and Patients in Stage Three did not differ significantly from patients in Stage Four.

H3. There will be a significant positive association between PPPNBS total score and six-week post-discharge PAM 13 while controlling for type of illness, providing evidence of predictive validity.

Multiple linear regression was used to assess the ability of the total PPPNBS score to predict levels of six-week post-discharge PAM 13, after controlling for the influence of diagnosis. The overall model was significant ($R^2 = .09, F(2,110) = 5.11, p=.008$). As total PPPNBS increased, six-week post-discharge PAM 13 also increased ($B=.07, SE_{\beta}=.02, \beta=.29, p=.002, 95\% \text{ CI } [.02-.11]$). Diagnosis was not a significant predictor ($B= -2.31, SE_{\beta}=2.67, \beta= -.08, p=.39, 95\% \text{ CI } [-7.60-2.99]$). Total PPPNBS explained 8.5% of the variance of six-week post-discharge PAM 13.

Correlations between PPPNBS subscales and six-week post-discharge PAM 13 are presented below in table 18. There were significant correlations between all of the subscales of the PPPNBS and the six-week post-discharge PAM 13.

Table 18

Correlations between PPPNBS subscales and six-week post-discharge PAM 13 (N=113)

Measure	Initiation	Access to Info	Access to Support	Access to Resources	Access to Opportunities to Learn and Grow	Informal Power	Formal Power
Six-week post-discharge PAM 13	.24*	.28**	.24*	.33**	.20*	.20*	.26**

** $p = .001$

* $p < .05$

H4. There will be a significant positive association between PPPNBS score, MCS measure, and PCS measure six-weeks post-discharge while controlling for type of illness, providing further evidence of predictive validity.

Multiple linear regression analysis was used to assess the ability of total PPPNBS score to predict MCS and PCS measures, after controlling for the influence of diagnosis. The model for MCS was not significant ($R^2 = .03$, $F(2,110) = 1.46$, $p = .24$). The model for PCS was also not significant ($R^2 = .01$, $F(2,110) = .74$, $p = .48$). Diagnosis was not a significant predictor for either model.

H5. In known group contrasts, patients of Caucasian race, older age, longer time since initial diagnosis, and longer lengths of stay will have significantly higher PPPNBS scores than patients not of Caucasian race, younger age, shorter time since initial diagnosis, and shorter lengths of stay, providing evidence for construct validity.

Four independent-samples t-tests were conducted to compare the PPPNBS total scores for Caucasians and non-Caucasians, younger and older patients, patients with shorter and longer times since initial diagnosis, and patients who had shorter and longer lengths of stay in the hospital. There was no significant difference in scores for Caucasian ($M=385.85$, $SD=54.61$) and non-Caucasian patients ($M=366.63$, $SD=58.41$; $t(111) = -1.35$, $p=.18$, two-tailed). When age was split at the sample median, there was no significant difference in scores for patients aged < 58 years ($M=374.36$, $SD=56.99$) and patients aged ≥ 58 years ($M=390.24$, $SD=53.35$; $t(111) = -1.50$, $p=.13$, two-tailed). Because the p value was close to a level of significance for the variable age, a quartile split was performed breaking patients into the following age categories: 24-49 years; 50-57 years; 58-66 years; and 67-87 years. A one-way ANOVA was performed and patients in the four age categories did not differ significantly by their total PPPNBS score ($F(3,109)=1.1$, $p=.35$).

When days since initial diagnosis was split at the sample median, there was no significant difference in scores for patients diagnosed <144 days prior to discharge ($M=381.03$, $SD=58.96$) and patients diagnosed ≥ 144 days prior to discharge ($M=384.53$, $SD=53.17$; $t(111) = -.34$, $p=.74$, two-tailed). When length of stay was split at the sample median, there was no significant difference in scores for patients who stayed < 6 days ($M=385.08$, $SD=52.46$) and patients who stayed ≥ 6 days ($M=380.91$, $SD=58.09$; $t(111) = .40$, $p=.69$, two-tailed).

Analysis of the relationship between Outcome Variables

AIM 2: Determine the relationship between patient activation and functional health status six-weeks post-discharge in post-surgical patients with cancer or cardiac disease.

H6. There will be a positive, significant correlation between PAM 13 six-weeks post-discharge, Physical Component Summary (PCS) measure, and Mental Component Summary (MCS) measure.

There was a significant positive relationship between six-week post-discharge PAM 13 and PCS measure and MCS measure. There was not a significant relationship between PCS measure and MCS measure. See Table 19 below.

Table 19

Correlations Between six-week post-discharge PAM, PCS measure, and MCS measure

(*N=113*)

Measure	PCS measure	MCS measure
PAM 13 six-weeks post-discharge	.24*	.46**
PCS Measure		.12

** $p < .001$

* $p < .01$

Predictors of Patient-Empowering Nurse Behaviors

AIM 3: Identify predictors of patient perceptions of patient-empowering nurse behaviors in post-surgical patients with cancer or heart disease at time of discharge

H7. Patient characteristics (age, SES, race, pre-discharge PAM 13) and illness factors (length of time since initial diagnosis, length of stay, diagnosis, and unit) will have significant associations with total PPPNBS score.

The results of this analysis are found in the manuscript “Patient Perceptions of Patient-Empowering Nurse Behaviors” found in Appendix D.

Predictors of Patient Activation and Functional Health Status

AIM 4: Identify predictors of patient activation and functional health status in post-surgical patients with cancer or heart disease six-weeks post-discharge

H8. Patient characteristics (age, SES, race, pre-discharge PAM 13), illness factors (length of time since initial diagnosis, length of stay, diagnosis, and unit), and total PPPNBS score will have significant associations with PAM 13 score six-weeks post-discharge.

H9. Patient characteristics (age, SES, race, pre-discharge PAM 13), illness factors (length of time since initial diagnosis, length of stay, diagnosis, and unit), and total PPPNBS score will have significant associations with Mental Component Summary (MCS) measure, and Physical Component Summary (PCS) measure six-weeks post-discharge.

Based on the findings in Hypotheses Three, Four, and Six that PPPNBS was not a predictor of MCS or PCS, but was a predictor of post-discharge PAM 13(which was significantly positively correlated with MCS and PCS), Hypothesis Nine was changed to the following:

Patient characteristics (age, SES, race, pre-discharge PAM 13), illness factors (length of time since initial diagnosis, length of stay, diagnosis, and unit), total PPPNBS score, and PAM 13 score six-weeks post-discharge will have significant associations with Mental Component Summary (MCS) measure, and Physical Component Summary (PCS) measure six-weeks post-discharge.

The results of Hypothesis Eight and the revised Hypothesis Nine are in the manuscript. The revised simultaneous equation analysis model is found in figure 4.

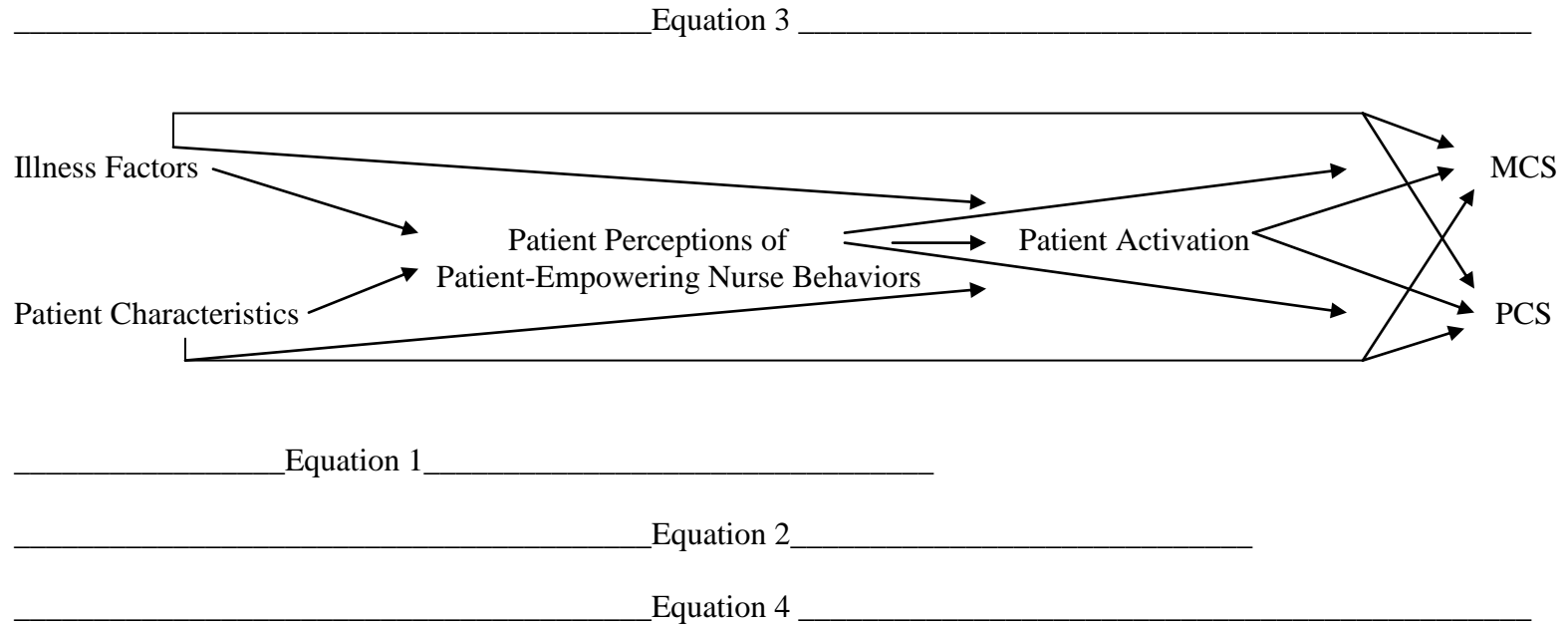


Figure 4. Revised Simultaneous Equation Analysis Model for Predictors of Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status

Additional Analyses

Additional analyses were performed to explore relationships not specified in the original study model.

Gender Analyses

Differences in main study variables were also assessed by gender. Independent samples t-tests were conducted to compare the total scale scores for PPPNBS ($t(111) = -.58, p = .56$), pre-discharge PAM 13 ($t(111) = -1.09, p = .28$), six-week post-discharge PAM 13 ($t(111) = -.89, p = .38$), PCS ($t(111) = 1.17, p = .25$), and MCS ($t(111) = -.41, p = .69$).

There was no significant difference in scores for male and female patients.

Type of Illness Analyses

Differences in dependent variables were assessed by type of illness. Mean scores are listed below in table 20 by type of illness. Independent samples t-tests were conducted to compare patients with cancer and cardiac diseases on total scale scores for PPPNBS ($t(111) = -1.25, p = .21$), pre-discharge PAM 13 ($t(111) = 1.14, p = .26$), six-week post-discharge PAM 13 ($t(111) = .47, p = .64$), PCS ($t(11) = 1.21, p = .23$), and MCS ($t(111) = .60, p = .55$). There were no significant differences.

Table 20

Description of Dependent Variables by Illness Type (N=113)

Variable	Illness Type				p
	Cancer (N=86)		Cardiac Disease (N=27)		
	Mean	SD	Mean	SD	
Total PPPNBS score	386.10	55.24	366.79	71.01	.21
Six-week post-discharge PAM 13	68.46	13.00	69.77	10.76	.64
PCS	41.13	8.76	43.46	8.67	.23
MCS	49.52	9.75	50.84	9.11	.55

Congenital Cardiac Disease

Independent samples *t*-tests were done to determine if there was a significant difference in the means of dependent study variables for those with congenital cardiac disease and those with standard cardiac disease. There were no significant differences in the means between these two groups for total PPPNBS score: ($t(25)=-.25, p=.80$); six-week post-discharge PAM 13: ($t(25)=.13, p=.90$); PCS: ($t(25)=-.62, p=.54$); and MCS: ($t(25)=.23, p=.82$).

Stage of Illness Analyses

A one-way analysis of variance was conducted to explore the impact of stage of cancer or stage of heart failure on the main study variables. Because the stage of cancer is interpreted differently than the stage of heart failure, the sample was split and separate analyses were computed with the cancer and cardiac patients. There was only one patient that was classified as having stage four heart failure, therefore stages three and four were combined leaving three groups of heart failure.

Patients from all four stages of cancer did not differ significantly for total PPPNBS: ($F(3,82)=2.56, p=.06$), pre-discharge PAM 13: ($F(3,82)=.32, p=.81$), six-weeks post-discharge PAM 13: $F(3,82)=1.2, p=.32$, PCS: $F(3,82)=.18, p=.91$, and MCS: $F(3,82)=.33, p=.80$. Similarly, patients classified in all three groups of heart failure did not differ significantly for pre-discharge PAM 13: $F(2,24)=1.23, p=.31$, six-weeks post-discharge PAM 13: $F(2,24)=.66, p=.53$, PCS: $F(2,24)=1.40, p=.27$ and MCS: $F(2,24)=.51, p=.61$. Patients classified in the three groups of heart failure did differ significantly for total PPPNBS: ($F(2,24)=5.51, p=.01$). Tukey post-hoc analysis was

conducted and showed that patients classified as having stage two heart failure ($M=389.17$, $SD=54.10$) had significantly higher scores on total PPPNBS than patients classified as having stages three and four combined ($M=304.00$, $SD=39.89$), $p=.008$. There were no differences between patients classified as having stage one heart failure ($M=379.12$, $SD=46.82$) and stage two heart failure ($M=389.17$, $SD=54.10$), or stage three and four heart failure ($M=304.00$, $SD=39.89$).

Cancer Recurrence

Differences in dependent variables were assessed by initial cancer diagnosis or recurrence. Eighteen patients had recurrent, metastatic disease in this sample. Independent samples t -tests were conducted to compare the total scale scores for PPPNBS ($t(84)= 1.56$, $p=.12$), six-week post-discharge PAM 13 ($t(84)= -.42$, $p=.68$), PCS ($t(84)= -1.66$, $p=.10$), and MCS ($t(84)= -1.66$, $p=.10$). There was no significant difference in scores for patients with an initial cancer diagnosis and those with recurrent, metastatic disease.

Presence of Comorbidities

An independent samples t -test was done to determine if there was a significant difference in the means of number of comorbidities for those with cardiac disease and those with cancer. Cardiac patients had significantly more ($t(110)= 2.35$, $p=.02$) comorbidities ($M=2.8$, $SD=1.9$) than cancer patients ($M=1.9$, $SD = 1.7$). This can be explained by the fact that cardiac patients often had hypertension and hyperlipidemia listed in their charts as comorbidities, which are related to their diagnosis of cardiac disease. There was a significant correlation between number of comorbidities and PCS

($r=-.27, p<.01$), but not pre-discharge PAM 13 ($p=.22$), total PPPNBS ($p=.68$), six-week post-discharge PAM 13 ($p=.79$), or MCS ($p=.78$). There was also a significant correlation between number comorbidities and age ($r=.36, p<.001$).

Home Health

There was a significant difference in the number of cardiac and cancer patients discharged with home health care ($\chi^2(1)=8.38, p.01$). Around 25% of cancer patients were discharged with home health care and nearly 62% of cardiac patients were discharged with home health care. There were no significant differences in dependent variable mean scores between those who were discharged with and without home health care: total PPPNBS: ($t(111)= -.26, p=.80$); six-week post-discharge PAM 13: ($t(111)= .54, p=.59$); PCS ($t(111)= .45, p=.65$); and MCS($t(111)= .41, p=.69$).

Readmission Analyses

Logistic regression analyses were used to examine the relationships between main study variables and unplanned six-week readmissions. Four separate regression analyses were run using the following predictors: illness factors, patient characteristics, total PPPNBS, and six-week post-discharge PAM 13, PCS, and MCS. Unplanned six-week readmissions were not associated with illness factors: ($\chi^2(4,N=113)=4.16, p=.39$), patient characteristics: ($\chi^2(4,N=113)=1.77, p=.78$), total PPPNBS: ($\chi^2(1,N=113)=.01, p=.94$), or patient activation and functional health status: ($\chi^2(3,N=113)=6.31, p=.10$). Unplanned six-week readmissions were associated with MCS measure ($p=.04$) in the last model (see table 21). For every point increase in MCS, there was a 6% reduction in readmission risk. Logistic regression analyses were used to examine the relationship between stage

of cancer or cardiac disease and unplanned six-week readmissions. Unplanned six-week readmissions were not associated with stage of cancer ($p=.78$) or cardiac disease ($p=.27$).

Table 21

Logistic Regression Analysis for Unplanned Six-week Readmissions (n=113)

Predictor	B	S.E.	Wald	df	P	Odds Ratio	95% C.I.
Illness Factors (Model 1)							
Type of illness ^a	-.85	.87	.96	1	.33	.43	.08-2.36
Days since diagnosis	.00	.00	.06	1	.81	1.00	1.00-1.00
LOS	.10	.07	1.83	1	.18	1.11	.96-1.28
New diagnosis (yes/no) ^{ab}	-.54	.88	.37	1	.54	.58	.10-3.28
Patient Characteristics (Model 2)							
Age	.00	.02	.01	1	.94	1.00	.96-1.05
SES	-.01	.02	.14	1	.71	.99	.95-1.03
Race ^a	.33	.73	.20	1	.66	1.39	.98-1.08
Pre-discharge PAM 13	.03	.02	1.50	1	.22	1.03	.33-5.86
Patient-Empowering Nurse Behaviors (Model 3)							
Total PPNBS score	.00	.01	.01	1	.94	1.00	.99-1.01
Patient Activation & Functional Health Status (Model 4)							
Six-weeks post-discharge PAM 13	.00	.03	.00	1	.97	1.00	.95-1.05
PCS	-.02	.03	.46	1	.50	.98	.91-1.04
MCS	-.07	.03	4.26	1	.04	.94	.88-.99

^a categorical variables

^bnew diagnosis considered < 1 year

CHAPTER FIVE

Interpretation of Findings

Chapter Five includes the interpretation of findings and discussion of the results. The discussion for Hypotheses 7, 8, and 9, about the relationship between patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery is in the manuscript “Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery”(Appendix D). The results will be discussed according to the nine individual hypotheses in the study.

Hypothesis One

Cronbach’s alpha estimation revealed that the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS) has acceptable reliability for a new instrument. Items with high correlations in subscales ($r > 0.8$) were examined further. Some of the items may be eliminated in future studies as they inquire about the same component of empowerment, while some items may benefit from having key words underlined so patients can differentiate between two similar items asking about different components of patient empowerment.

The item means tended to be near the more positive end of the range. In fact, only six items had item means less than eight (out of a possible 10). Patients often reported that they didn’t want to get the nurses in trouble or give them “bad marks”. To address this issue, the Principal Investigator would tell patients to answer items honestly, as the study was trying to determine which behaviors made a difference in patient

outcomes and nurses were not expected to perform every behavior on the survey. The Principal Investigator also emphasized that the nurses would not see their individual answers.

Items were grouped by subscale for the administration of this measurement. In future studies, it may be interesting to reorder the items, so they are not together with other items in the same subscale to see if reliability measures change. There is the possibility that if patients felt they were answering the same number for each of the items in each subscale, that they did not read the questions as closely as they would have if the items were reordered. There were also a few patients who answered “10” for all questions and those individual cases should be interpreted with caution. It is highly unlikely that a patient experienced every patient-empowering behavior by the nursing staff. Patients may have reported the same number down the line for every item because they thought the survey was too long. Unfortunately, for a new scale, there needs to be enough questions in each subscale to obtain relevant reliability scores. In future studies, some of the items that were highly correlated with each other may be eliminated to help with this issue, as they may be measuring the same component of the concept. The high reliability scores on each of the subscales and the total scale give the possibility to trade a reasonable amount of reliability for brevity, so that patients are not burdened by completing a lengthy scale at the time of discharge (DeVellis, 2012). In the future, identifying a shorter set of items with predictive properties may make the scale more practical for research and clinical evaluation uses.

Hypothesis Two

There was a positive correlation between a patient's pre-discharge PAM 13 and total PPPNBS score, providing evidence in support of concurrent validity of the PPPNBS. The patients in this study had higher than expected patient activation levels prior to discharge, with 57% of the sample being in level four. Prior studies conducted with adult patients with comorbidities including diabetes, arthritis, asthma, hypertension, heart disease, cancer, depression, and older adults aged 65 and older who had multiple comorbidities (average of four) found that between 17.2% and 41.4% (Hibbard & Cunningham, 2008; Shively et al., 2013; Skolasky et al., 2011) of patients were in level four of patient activation. However, one prior study done with indigent, urban diabetic patients found that 62.2% of the sample was in Stage Four of Patient Activation (Rask et al., 2009). None of the prior studies measured patient activation during an acute hospitalization, rather patient activation levels were measured in the community setting. In addition, prior studies have not measured patient activation levels in surgical patients; however, one study measured patient activation in patients prior to undergoing a lumbar spine surgery (Skolasky et al., 2008) in order to see if scores predicted post-operative treatment adherence.

The race and education levels of this sample may explain the higher patient activation levels found in this sample. Patients in this sample were predominantly Caucasian and well educated, factors that have been associated with higher patient activation levels in prior studies (Alegria et al., 2008; Hibbard et al., 2005; Hibbard et al., 2008; Lubetkin, Lu & Gold, 2010; Street et al., 2005). Hibbard and Cunningham (2008) did not specify the race or SES of their sample; however the sample size was 13,500 and

Hispanic race, low education level, and low SES were negatively correlated with patient activation level. Nearly half of the sample in Skolasky et al.'s study were African American and 26% of the sample had less than a high school education, which may explain the fewer number of patients who reported level four patient activation in that study. The majority of the patients in Shively et al.'s (2013) study were white (77%) and SES was not reported.

Patients with higher activation scores have been shown to be more engaged in their care and have demonstrated participation in more self-managing behaviors (Hibbard et al., 2007; Shively et al., 2013; Skolasky et al., 2011). One of the attributes of empowerment is a relationship of mutual trust or respect, often referred to as a collaborative relationship (Jerofke, in review). Within a collaborative relationship, empowerment flourishes through open communication, active participation and listening, and a genuine display of mutual interest (Hawks, 1992; Jennings, Parra-Medina, Messias, & McLoughlin, 2006; Kim, 2000; Paterson, 2001). Patients' contributions to the process of empowerment through their engagement in their care may impact their PPPNBS scores. Patients who are more activated or engaged in their care may participate more in their care while hospitalized and have higher perceptions of patient-empowering nurse behaviors, while patients who score lower on the PPPNBS may be less receptive to patient-empowering behaviors because they are less engaged in their care. Patients in Stage One of patient activation may be overwhelmed or unprepared to participate in their own health care (Hibbard, Greene, & Tusler, 2009), which supports the finding that patients in Stage One of patient activation prior to discharge in this study had the lowest total PPPNBS scores.

The subscale “Access to Resources” had the strongest correlation with pre-discharge PAM 13. This subscale measured the degree to which the nursing staff familiarized the patient with the healthcare team, built upon the patients’ own strengths and resources, and provided the patient enough time to make decisions and perform tasks. Patients who are more activated may already have the knowledge and skills to care for themselves and therefore are able to better appreciate when the nursing staff helped them focus on their strengths, knowledge, and skills, thus leading to higher perceptions in this subscale. Patients with lower activation levels may still need diagnosis-specific knowledge and information before being able to access resources, interact with the healthcare team, and build upon their knowledge and skills.

Hypothesis Three

A patient’s total PPPNBS was a significant predictor of six-week post-discharge PAM 13, providing evidence for predictive validity. Correlations between the subscales “Access to Resources” and “Informal” became stronger with PAM 13 after discharge. In addition, all other subscales of the PPPNBS were significantly correlated with six-week post-discharge PAM 13 but not with pre-discharge PAM 13. In this study, nursing therapeutics, in the form of patient-empowering nurse behaviors, during an acute care hospitalization were evaluated as a means to help facilitate the process of patient engagement in self-management after discharge. Patients who had higher perceptions of patient-empowering nurse behaviors (reported experiencing them more often), also had higher six-week post-discharge PAM 13 scores. This supports the theoretical proposition that that patient-empowering nurse behaviors in an acute care setting can help facilitate the process of patient engagement in self-management following hospital discharge.

While the PAM 13 was not used to measure self-management directly in this study, it was used as a proxy measure for self-management behaviors, as knowledge, skill, and confidence are precursors to engagement in the process of self-management.

Hypothesis Four

Total PPPNBS score was not a significant predictor of PCS or MCS measures when controlling for type of illness. There are many other factors that can contribute to a patient's physical or mental health status that were not controlled for in this analysis. Many of the patients had multiple comorbidities that could have impacted their functional health status once discharged. The number of comorbidities and PCS measure were significantly negative correlated in this study. Six-week post-discharge patient activation level was not included in this analysis but in analysis for hypothesis nine was demonstrated to be a significant predictor of MCS measure. Lastly, although PCS and MCS were measured at six-weeks post-discharge, the survey asked patients to recall their general health over the last four weeks. Therefore, the reported PCS and MCS measures were an overall impression for the four week period and not necessarily the PCS and MCS measure at six-weeks post-discharge. Reported scores on the PCS and MCS measures may have been higher if patients were asked to report current functional health status rather than functional health status over the prior four weeks, when they were still experiencing the psychological and physical effects of surgery.

Hypothesis Five:

Total PPPNBS mean scores did not differ significantly in patients according to age, race, LOS, or time since initial diagnosis, meaning that patients perceive patient-

empowering nurse behaviors in similar manners regardless of their age, race, LOS, or time since initial diagnosis. This means that the instrument, which measures patients' perceptions of patient-empowering nurse behaviors, doesn't vary by specific patient characteristics. Because there were no systematic differences in mean PPPNBS total scores by age, race, LOS, or time since initial diagnosis, the PPPNBS will be useful for measure of patient perceptions of patient-empowering nurse behaviors for a broad range of patients during an acute care hospitalization following a surgical procedure.

Hypothesis Six

There were significant positive correlations between six-week post-discharge PAM 13, PCS, and MCS measures. There was not a significant correlation between PCS and MCS measures. This finding is consistent with prior studies that have shown a positive, significant correlation between PAM 13 score and PCS and MCS measures (Hibbard et al., 2004; Hibbard et al., 2007; Skolasky et al., 2011a) in patients with chronic illnesses such as diabetes, hypertension, cardiac disease, and cancer. Patients who are more activated may have higher functioning levels because they are better able to manage the effects of their illness. Patients with higher activation levels may also be more proactive in their care and discuss their limitations or concerns with their physicians, so that a different or modified plan of care can be made to improve their functional health status.

According to the scoring manual for the SF-36 v.2, PCS and MCS measures are scored to be statistically independent of one another and should not be averaged together to obtain one general functional health status measure (Ware, n.d.). This may explain

why PCS and MCS measures were not significantly correlated with each other in this study.

Hypothesis Seven – Hypothesis Nine

The discussion of the results of these hypotheses is found in the manuscript “Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery” found in Appendix D.

Additional analyses

The Principal Investigator’s clinical expertise with both surgical cardiac and cancer patients allowed her to uncover the similarity in patient experience that led to studying these 2 patient groups as a similar class of patients. Patients’ perceptions of patient-empowering nurse behaviors, patient activation, and functional health status measures did not differ between surgical cancer and cardiac patients and supports the assumption in this study that patients with both cancer and cardiac disease have similarities in their post-operative needs and experiences. Regardless of diagnosis, patients perceived patient-empowering nurse behaviors in a similar manner. This study provides support for using the PAM 13 in an acute care setting to measure patient activation as a risk indicator for post-discharge outcomes in post-surgical patients. Future studies may measure patient activation prior to surgery and then again after surgery to determine the impact of surgery or nursing care on patient activation level. Future studies should also be conducted with other surgical patient populations to determine if the measures can be applied to a wider range of patients.

The length of time an individual had their chronic illness was not a significant predictor of patient perceptions of patient-empowering nurse behaviors, patient activation, or functional health status. Nurses should be cognizant of this fact and should not assume that patients who have had their illness for a longer period of time require less empowering-behaviors because they may already know everything. A patient's knowledge, skill, and confidence in their self-management ability were not predicted by how long they have had the illness. Nurses should be making assessments as to what needs (information, support, resources, skills) each particular patient requires, so that patient-centered care can be delivered.

Nurses should also not assume that patients who have more advanced cancer are not ready to participate in their care or may be too sick to do so. Patients with stage four cancer had comparable scores on the PPPNBS and PAM 13 to patients in stages one through three and should continue to be actively engaged in their care. Due to advances in treatments, patients are living longer with stage four cancer and must self-manage their illnesses, much like patients with less advanced disease. For example, patients with a stage four pancreatic neuroendocrine cancer or breast cancer have a five-year estimated survival rate of 15% (American Cancer Society, 2013a, 2013b).

Patients classified as having stage two heart failure had significantly higher patient perceptions of patient-empowering nurse behaviors than patients in other stages of heart failure. Either these patients were more receptive to patient-empowering nurse behaviors, or nurses exhibited more patient-empowering nurse behaviors to these patients. Patients with stage two heart failure, by definition, have cardiac symptoms that are present with ordinary physical activity (American Heart Association, 2013). Patients

classified as having stage two heart failure may be more interested in learning about self-management of their chronic illness because the symptoms are interfering with their daily life. Patients classified as having stage one heart failure by definition do not have symptoms and may not have the same needs. Patients classified as having stage three or four heart failure may have had lower perceptions of patient-empowering nurse behaviors because they were more symptomatic during their hospitalization, preventing them from participating in their care to the same degree as patients in stages one and two of heart failure. There were only five patients in this study who were classified as having stage three or four heart failure and were combined into one category, so results should be interpreted with caution.

While the presence of home health care was not associated with a difference in perceptions of patient-empowering nurse behaviors, patient activation, or functional health status, it could be used as a way to empower patients following discharge. Home health care nurses could carry out patient-empowering interventions tailored to baseline patient activation levels to help strengthen patient self-management of life threatening chronic illnesses following hospital discharge.

The MCS measure was found to be a significant predictor of six-week readmissions in this sample. This provides support for a larger-scale future study that examines the relationship between patient perceptions of patient-empowering nurse behaviors and readmissions or other post-discharge health care utilization such as an emergency room visit. Patient-empowering nurse behaviors were a significant predictor for six-week post-discharge patient activation level, which was significantly associated with MCS measure. Therefore an indirect relationship between patient perceptions of

patient-empowering nurse behaviors and readmissions could be argued. Demonstrating that patient perceptions of patient-empowering nurse behaviors predict post-discharge health care utilization could demonstrate the cost effectiveness to the method of delivery of nursing care and the need for the development of nursing interventions that incorporate patient-empowering behaviors.

Theoretical Considerations and Implications for Theory Development

Meleis' Transitions Theory and the Individual and Family Self-Management

Theory provided useful theoretical frameworks to evaluate the multiple factors contributing to patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status (Meleis et al., 2000, Ryan & Sawin, 2009). Each of Meleis' four transition theory concepts (Meleis et al., 2000) and Ryan and Sawin's (2009) three self-management process concepts were represented by the study variables. The patients in this study faced multiple illness-related transitions associated with the recovery from their surgery for a life-threatening chronic illness and taking on the role of managing their health within the context of their life-threatening chronic illness upon hospital discharge. The study examined the association of patient-empowering nurse behaviors to self-management outcomes. The process of self-management was represented in the PPPNBS as nursing behaviors to facilitate patient engagement in the three process components of self-management. Patients' perceptions of nursing therapeutics, in the form of patient-empowering behaviors, were predictive of six-week post-discharge patient activation, used as a proxy measure for the participation in self-management behaviors, but were not predictive of functional health status, used a measure of quality of life. However, a significant relationship was found between six-

week post-discharge patient activation and functional health status, which supports patient activation as a proxy measure of a proximal outcome and functional health status as a distal outcome, consistent with Ryan and Sawin's (2009) definition of self-management outcomes. In future studies, MCS should be measured subsequent to post-discharge patient activation to support a causal inference for successful achievement of self-managing behaviors on improved functional health status (Ryan & Sawin, 2009).

The study findings demonstrate the ability to apply an integrated middle-range theory, using relationships from Meleis' Transitions Theory and the Individual and Family Self-Management Theory, to the sub-population used in this study, to derive a situation-specific theory. Future testing must be done to refine the relationship between patient activation and functional health status in this population.

Implications for Vulnerable Populations

The patients included in this study had a life-threatening chronic illness and their self-reported mental and physical functional health statuses were below the population norms. In addition to the life-threatening chronic illness, patients in this study had a mean of two additional comorbidities, which were associated with decreased functional health status. The feelings of powerlessness in patients that often accompany a chronic illness diagnosis (Aujoulat et al., 2007b; Devins, 2010; Strandmark, 2004) can be addressed through the use of patient-empowering nurse behaviors. Surgical patients have reported that teaching was not tailored to their needs, availability of resources and support upon discharge was not assessed, and many questions were left unanswered (McMurray, Johnson, Wallis, Patterson, & Griffiths, 2007). Nurses can address the deficiencies in post-surgical care through patient-empowering nurse behaviors. Patients'

perceptions of patient-empowering nurse behaviors predicted six-week post-discharge patient activation levels, providing evidence that patient-empowering nurse behaviors impact patients' knowledge, skill level, and confidence in self-management behavior. Engaging patients with life-threatening chronic illness in their care through patient-empowering nurse behaviors is one way that nurses can deliver patient-centered care to vulnerable populations that is consistent with national health care priorities.

Implications for Nursing Practice

Discussion about the implications for nursing practice can be found in the manuscript "Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery" found in Appendix D.

Implications for Nursing Research

The results from this study generated questions for future research involving patient perceptions of patient-empowering nurse behaviors. When conversing with patients, they reported that while they didn't experience a certain patient-empowering behavior from the nursing staff, a different staff member may have addressed their need for post-discharge resources or provided them with information about their diagnosis or treatment. The PPPNBS could be adapted to measure patient-empowering behaviors of the healthcare team in general and not just of the nursing staff. An instrument that measures both the empowering behaviors of the entire healthcare team and the nursing staff could also be developed to determine nurses' unique contribution to empowering-behaviors that patients experience during a hospitalization.

The PPPNBS has only been administered to surgical patients in one institution. Future studies could be conducted to determine if the instrument psychometrics are

similar for medical patients and samples at other institutions that may have a different demographic. Additionally, an intervention study could be developed to determine if educating nurses on how to be empowering may impact patient self-management outcomes.

A larger-scale study could be conducted at multiple hospitals to further examine the relationship between patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery. Functional health status should be measured subsequent to post-discharge patient activation to determine the relationship between the two outcome measures and to give surgical patients a longer time to recover from the physical and psychological effects of the surgery. Additionally, a larger sample size makes it possible to determine the relationship between patient-empowering nurse behaviors, patient activation, functional health status, and post-discharge healthcare utilization.

Implications for Nursing Education

The study results demonstrate the importance of the way nurses deliver inpatient care to patient outcomes post-discharge. This important study finding should be incorporated in nursing education so that nursing students understand the importance of how they deliver their nursing care to patient outcomes. Encouraging nursing students to use patient-empowering nurse behaviors during clinical experiences will not only benefit patients but will also increase students' confidence to provide quality nursing care through the establishment of collaborative relationships with patients and other staff members (Bradbury-Jones, Sambrook, & Irvine, 2007; Siu et al., 2005). Students have

reported that being given the opportunity to demonstrate responsibility for patient care contributed to feelings of empowerment (Bradbury-Jones et al., 2007).

Nurses need to be instructed to be intentional in their methods of delivering care to post-surgical patients so that patients' individual needs are incorporated into their treatment plans and care through patient-centered, patient-empowering behaviors. Patients should be engaged in their care starting with their hospitalization following surgery, as engagement in care during an acute hospitalization is predictive of patient activation post-discharge. Measuring patient activation levels at admission may help tailor patient-empowering nurse behaviors to patients' needs, as there was a significant relationship between patient activation at baseline and patient perceptions of patient-empowering nurse behaviors.

Nurse managers should be educated about the benefits of creating a nursing unit environment that is empowering to staff nurses (Laschinger et al., 2010). Managers can promote empowerment in nursing units by also practicing empowering behaviors that: (1) practice open communication and communicate goals of the unit; (2) provide recognition for achievements and support; (3) assure nurses have access to resources to accomplish their work; (4) add new challenges and opportunities to build on skills; (5) encourage relationships among coworkers; and (6) provide opportunities for nurses to practice autonomously (Laschinger et al., 2010). Empowered nurses are more likely to empower patients through the use of empowering-behaviors (Laschinger, Finegan, Shamian, & Wilk, 2001). The perceived structural empowerment of a nursing unit was found to be a significant predictor in interprofessional collaboration in new nurses (Laschinger &

Smith, 2013). Collaboration is an important component of patient-empowering nurse behaviors.

Additional discussion about the implications for nursing education can be found in the manuscript “Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery” found in Appendix D.

Strengths and Limitations

The major strengths and limitations of this study are discussed in the manuscript “Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery” in Appendix D. Additional discussion of strengths and limitations is presented in this section.

Conducting a longitudinal study meant that some patients were lost to follow-up over the six-week study period. Seventeen patients (11.8%) were lost to follow-up in this study. Attrition is problematic because patients lost to follow-up may be characteristically different than those who are not lost to follow-up (Polit & Beck, 2010). Patients may drop out of the study due to death or severity of illness. Patients may also drop out of the study due to lack of motivation to participate, potentially resulting in more empowered or activated patients continuing in the study and less empowered or activated patients dropping out of the study. Therefore, lack of motivation to participate could have led to a bias in the data collected at six-weeks post-discharge and the sample that was included in the final data analysis. The patients who were lost to follow-up in this study were not different on recorded patient characteristics and illness factors from the patients used in analyses.

There were more cancer patients than cardiac patients in this study in part because cardiac patients were more often discharged to a rehabilitation facility. Older patients were frequently not eligible to be in the study because they were discharged to a rehabilitation facility. In addition, sicker patients may not have been included in the study because they were discharged to rehabilitation facility. To minimize the number of patients who had to be removed from the study due to discharge to a rehabilitation facility, patients were enrolled close to the time of their discharge when the discharge disposition had been decided.

Surgical patients tend to be on narcotics or epidurals following surgery for pain management which may cause sedation, making communication about the study inappropriate at the time they were approached to discuss their participation in the study. Certain patients were also not approached because they were in high levels pain and it was felt to be an inappropriate time to discuss their participation in the study. Pain management after surgery may also have impacted patients' abilities to remember the empowering nurse behaviors that they experienced during their hospitalization. Two patients asked to be withdrawn from the study because they didn't feel they could complete the PPPNBS at the time of discharge because of feeling "foggy".

Staging a patient's cancer or cardiac disease was not always straightforward. Cancer was staged according to American Joint Cancer Committee (AJCC) guidelines (Edge, Byrd, Compton, Fritz, & Greene, 2010) and cardiac disease was staged according to New York Heart Association (NYHA) classification of heart failure (AHA, 2013). When possible, stage of cancer was recorded according to stage documented in the medical record. Certain cancers such as hepatocellular carcinoma and pancreatic

neuroendocrine tumor are not generally staged. For consistency, when stage was not recorded in the medical record, the Principal Investigator (who is an advanced practice nurse with expertise in both surgical oncology and cardiovascular nursing) used medical record information to determine the stage using AJCC guidelines by looking at tumor size, lymph node involvement, and presence of metastases. Cardiac patients infrequently had a NYHA classification recorded in their charts. If not present, the admission history and physical was read and the presence or absence of symptoms was used to determine the patient's stage.

While medical record analyses and interviews were used to determine if patients were readmitted, there is always the possibility that patients forgot or did not report an outside hospital readmission. There were a few patients who reported they were not readmitted during their interview but their medical record review showed otherwise.

Summary

This chapter provides a detailed discussion of study findings not discussed in the manuscript "Patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status after surgery" (Appendix D). Theoretical considerations and implications for theory development, vulnerable populations, nursing research, and nursing education are also discussed. Lastly, strengths and limitations of the study are presented.

Concluding Statement

This study examined the relationship between the patient care process of patient empowerment, reported from the patient's perspective in an inpatient setting, to self-

management outcomes. The study findings support a sequential association of patient perceptions of patient-empowering nurse behaviors to patient activation and the mental component of functional health status in the post-discharge period but not physical functional health status. The PPPNBS was a valid and reliable patient-reported measure of patient-empowering nurse behaviors during hospitalization. An integration of Transitions Theory and the Individual and Family Self-Management Theory provided a useful framework to examine the contribution of nursing care, represented by patient-empowering nurse behaviors, to patient self-management outcomes. The findings represent a new situation-specific theoretical framework for the process of patient empowerment in post-surgical patients with life-threatening chronic illnesses. Patient-empowering nurse behaviors can be used to facilitate engagement in self-management behavior, improve functional health status, and ultimately could improve the cost of chronic illness care through improved patient activation.

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Appendix A: Manuscript I

Jerofke, T.A. (In Review)

*A Concept Analysis of Empowerment from Patient and Provider Perspectives Within the
Context of Cancer Survivorship*

Abstract

Aim. This paper is a report of an analysis of the concept of empowerment from patient and provider perspectives within the chronic illness trajectory.

Background. The liberal usage of the concept of empowerment in numerous disciplines has led to the development of a broad and ambiguous term. In healthcare, empowerment is a core principle of patient-centered care that promotes increased patient participation within the chronic illness trajectory.

Data Sources. Data sources included a sample of 237 papers covering the period 2000 to 2011 from CINAHL, Google Scholar, Proquest, Medline, and PsychINFO.

Review Methods. Rodgers' Evolutionary Method of Concept Analysis was used to design the study. A dimensional analysis uncovered differing views of empowerment from provider and patient perspectives.

Results. Empowerment within a chronic illness trajectory is defined as power-with that is actualized through a beneficial relationship of mutual trust and respect for autonomy that develops within a dynamic, individualized, and patient-centered process. The attributes along with the antecedents and consequences form a descriptive situation-specific theory of empowerment in the chronic illness trajectory of cancer survivorship. The process of empowerment can be used to strengthen self-management in those with chronic illnesses. Execution of cancer survivorship care plans is used as an exemplar case.

Conclusion. The identification of the attributes of the process of empowerment within the chronic illness trajectory provides a foundation for development of empowering nursing practices and investigation of their contribution to the empowerment of cancer survivors and other chronic illness patient populations.

Keywords: concept analysis, chronic illness, cancer, patient participation, therapeutic relationship, nurse-patient relationship, empowerment

Introduction

The liberal usage of the term empowerment to describe any event in which individuals or groups take control of some aspect of their lives (Malterud, 2010) has led to a broad and ambiguous understanding of the term (Dooher & Byrt, 2005; McCarthy & Freeman, 2008; Sigurdardottir & Jonsdottir, 2008). Empowerment has been used in organizational management as a way to improve productivity, efficiency, and retention in the workplace (Chang et al., 2008; Kanter, 1993; Laschinger, & Finegan, 2005), in sociology and psychology with a focus on legal rights through citizen organization (Kieffer, 1984; Rappaport, 1984), and in nursing education as a way to increase knowledge and confidence in students (Bradbury-Jones et al., 2010). There has been growing interest in encouraging empowerment in healthcare as the burden of chronic illness grows; now accounting for 60% of deaths worldwide (National Institutes of Health, 2011). The Commonwealth Fund (2009), Institute of Medicine (IOM) (2001), and the National Priorities Partnership (NPP) (2008) stress the necessity of patient-centered care in reforming healthcare to improve quality, affordability, and patient outcomes. Empowerment is one way to provide patient-centered care through patient education (IOM, 2001), respect for patient values and needs (NPP, 2008), involvement of patients in care planning through the development of partnerships (Adolfsson et al., 2008; Holmstrom & Roing, 2009), and the development of mutual trust (Ho et al., 2010). The terms ‘patient-centered care’, ‘patient autonomy’, and ‘self-efficacy’ are often used in conjunction with empowerment.

Empowerment is a practical way to address the burden of chronic illness, more specifically the feelings of uncertainty and vulnerability associated with the complexity

of treatment that cancer survivors experience (Ganz, 2009b; Peck, 2008). According to the National Coalition for Cancer Survivorship (NCCS) (2011), patients are labeled a cancer survivor from the time of diagnosis until death regardless of treatment success. Increased self-efficacy and confidence in self-management, both outcomes of empowerment (Arneson & Ekberg, 2005; Falk-Rafael, 2001; Piper, 2010) have been associated with improved quality of life, improved detection of late-onset treatment effects or disease recurrences, and a reduction in the prevalence of new cancers, recurrences, or comorbidities (Ganz, 2009a; Landier et al., 2006) in cancer survivors. Unfortunately, much of the survivorship literature focuses on the content of cancer survivorship care rather than the delivery of the care. The American Society of Preventative Oncology (ASPO) reports that further research must be conducted to determine how to activate and engage patients in their survivorship care, while positively impacting the cost of that care through improved patient outcomes (Hudson et al., 2009). This concept analysis will analyze the concept of empowerment so that it can be placed within the specific context of cancer survivorship.

Background

The World Health Organization (2009) recently rallied for individual and community empowerment in order to advance health promotion efforts and improve health outcomes. They defined empowerment as a process through which individuals uncover their needs and concerns in order to develop strategies to become more involved in their care by setting achievable goals (World Health Organization 1998). Empowerment in patients with chronic illness has been shown to reduce the cost of hospitalization by reducing length of stay (Melnik & Feinstein, 2009), improve health

promoting and self-managing behaviors by strengthening patient confidence and self-efficacy (Kravitz et al., 2011; Suter et al., 2011), increase autonomy (Davison & Degner, 1997), and strengthen the decision-making capability in individuals with chronic illnesses (Munn, 2010; Tsay & Hung, 2004). Healthcare providers, more specifically nurses, can help facilitate the process of empowerment by providing patients with access to information, support, resources, and opportunities to learn and grow (Laschinger et al., 2010), also known as patient-empowering behaviors. Providing patients with the information and tools that they need to successfully maintain their health through a patient-centered empowerment approach leads to improved confidence, knowledge, and skill levels in patients' self-management of chronic illness (Laschinger et al., 2010).

Nurses play a key role in the care of cancer survivors by focusing holistically on meeting patients' physical, psychological, social, and spiritual needs (Ferrell et al., 2003). The number of cancer survivors worldwide is expected to triple from 25 million in 2008 to 75 million in 2030 (Ferlay et al., 2010). Advances in technology and treatment has resulted in the reconceptualization of cancer as a terminal to a chronic illness and a shift of focus from cancer patients as victims to survivors (National Coalition for Cancer Survivorship, 2010). Patients with cancer continue to have needs after their immediate treatment has been completed, and gaps in care management can occur if a designated plan is not developed for surveillance (Houldin et al., 2006; Oeffinger & McCabe, 2006). The NCCS (2006) urges cancer survivors to become knowledgeable and informed consumers so that they have an understanding of possible late-onset treatment effects, self-management expectations, and surveillance plans (Morgan, 2009).

There have been eight prior concept analyses of empowerment and all have agreed that empowerment is a process that requires active and mutual participation of both patients and providers (Ellis-Stoll & Popkess-Vawte, 1998; Finfgeld, 2004; Gibson, 1991; Hawks, 1992; McCarthy & Freeman, 2008; Rodwell, 1996; Ryles, 1999; Tengland, 2008). Some analyses emphasized the importance of knowledge sharing and providing access to resources to exert control over one's health, while others discussed sharing of power between the provider and patient. None of the concept analyses however, placed the concept of empowerment within the context of the chronic illness trajectory, more specifically that of cancer survivorship. Three concept analyses of cancer survivorship were found in the literature that collectively defined cancer survivorship as an individualized, life-changing, ongoing process that involves feelings of uncertainty and requires self-advocacy (Doyle, 2008; Farmer & Smith, 2002; Shepherd & Woodgate, 2010). Empowerment and cancer survivorship have both been conceptualized as individualized, dynamic processes, and while survivorship involves uncertainty and requires self-advocacy, empowerment works to dissolve uncertainty through the realization that one has the capacity and right to take control.

Initially explored using Rodger's (1989) evolutionary approach to concept analysis, the analysis evolved to a dimensional analysis following the methods of Caron and Bowers (2000). This concept analysis identified attributes of empowerment evident in the intersecting perspectives of patient and providers within the context of the chronic illness trajectory of cancer survivorship.

Data Sources

The sample for this concept and dimensional analysis consisted of English language written sources published between the years of 2000 and 2011. A keyword search of ‘empowerment’ conducted in CINAHL yielded 3,841 articles and ‘survivorship’ yielded 868. When the two keywords were combined to limit the search results to articles consistent with the goal of the analysis, only 7 articles were identified. A decision was made to expand the search to include other chronic illnesses and the surrogate terms of ‘patient-centered care’, ‘self-efficacy’, and ‘patient autonomy’. Therefore, the keyword ‘empowerment’ was combined with ‘chronic disease’, yielding 87 articles. Then the key word ‘chronic disease’ was combined with ‘patient-centered care’, yielding, 169 articles; with ‘patient autonomy, yielding 3 articles; and with self-efficacy, yielding 6 articles. Additional relevant sources were also obtained from the reference lists of selected articles.

To illuminate the social construction of empowerment through different perspectives and contexts (Caron & Bowers, 2000), articles were also obtained from the disciplines of medicine, social work, public health, psychology, counseling, and business management by searching the keyword ‘empowerment’ in Google Scholar, Proquest, Medline, and PsychINFO and through ancestral searching of works referenced in these sources. Abstracts were reviewed for relevance to the purpose of the analysis and ultimately 237 articles were selected for detailed review. Some articles dating back to the 1970s were included to demonstrate the evolution of the concept over time due to social, political, and economic influences. The commonalities among the various descriptions of empowerment developed into the attributes of this concept and dimensional analysis.

Consistent with Rodger's method, attention was given to current usages of the concept of empowerment and potential future applications (Rodgers, 2000). To situate the resulting attributes within the context of cancer survivorship, an exemplar case was constructed (Caron & Bowers, 2000).

Results

Attributes

Dynamic, individualized and patient-centered process.

It is important to envision empowerment not as a dichotomous variable, but rather as continuous (Anderson & Funnell, 2005; Fitzsimons & Fuller, 2002) and multi-dimensional (Jennings et al., 2006; Lewin & Piper, 2007). Empowerment in healthcare delivery requires constant effort, as an individual's health, treatment, and maintenance may change over time, requiring the acquisition of new knowledge and resources (Johnson, 2011). One of the earliest and most frequently quoted definitions of empowerment is that it is "a process: the mechanism by which people, organizations, and communities gain mastery over their lives" (Rappaport, 1984, p. 3). Others have described empowerment as a process that involves assessing the roots of a problem, gathering information, and making informed decisions to achieve goals (Funnell et al., 1991; Rodwell, 1996; Zimmerman, 1995).

Not only is empowerment a process, but it is also dynamic, with alternating periods of empowerment and disempowerment (Campbell, 2003; Crawford Shearer & Reed, 2004). Empowerment may be influenced by factors such as personal values, religious or cultural beliefs, determination, past experiences, diagnosis, and social support (Falk-Rafael, 2001; Meyer et al., 2008). The individualized nature of empowerment

means that a “one size fits all method” is not acceptable and health care needs to be tailored to fit the needs of the individual, making it a patient-centered approach (Cooper et al., 2003; Holmstrom & Roing, 2009; Tang et al., 2010).

When providing care to cancer survivors, it is necessary to get to know the patient as a person before deciding upon a treatment plan. Knowing what the patient is fearful of or what side effects are not acceptable to the patient may help determine the direction of the treatment plan (Morgan 2009, Epstein *et al.* 2010). Providing patient-centered care to cancer survivors does not mean giving them an abundance of information regarding their diagnosis and letting them decide for themselves what to do. It is rather the process of reviewing options to meet health goals and sorting out how those options fit in with the patient’s beliefs, values, and culture (Epstein et al., 2010). The lived experience of cancer is unique to each patient and active engagement by the patient must be encouraged so that the treatment plan is targeted to each patient’s unique needs (Doyle, 2008).

The way providers and patients view the process of empowerment may differ. Providers may view the process of empowerment as personal growth in patients (Falk-Rafael, 2001) or as a strategy to motivate patients to do what they recommend by focusing on adherence as a metric of empowerment (Christensen & Hewitt-Taylor, 2006; Ellis-Stoll & Popkess-Vawter, 1998). Providers may feel directly responsible for the degree of empowerment a patient perceives because it is thought to be secondary to their behaviors of educating and resource sharing. Providers may also feel that delivering patient-centered empowering care is burdensome because of the perception that it increases their workload and takes time away from other necessary tasks (Arnetz et al., 2008).

Patients, on the other hand, may view the process as the realization of the potential to change (Shearer, 2007), or as the opportunity to take responsibility for their lives (Falk-Rafael, 2001). Therefore, patients may feel that the process of empowerment originates from an internal sense of control (Aujoulat et al., 2007). In a patient-centric view, empowerment has been described as “patient perceptions of access to information, support, resources, and opportunities to learn and grow that enable them to optimize their health and gain a sense of meaningfulness, self-determination, competency, and impact on their lives” (Laschinger et al., 2010, p. 5). Patients who are more involved in their care have higher levels of satisfaction with respect to their care (Edwards & Elwyn, 2006; Joosten et al., 2008).

Beneficial relationship of mutual trust and respect for autonomy.

The process of empowerment is transactional or interactive, meaning that it is facilitated within relationships (Falk-Rafael, 2001; Gibson, 1991; Sigurdardottir & Jonsdottir, 2008). The health care provider has the health information the patient needs to make informed choices, but the patient is the expert on his or her body or subjective information (Kaplan & Frosch, 2005; Kim et al., 2001). Communication must flow in two-directions, making the process mutual or reciprocal (Ellis-Stoll & Popkess-Vawter, 1998; Liu et al., 2010; Stang & Mittelmark, 2010). In order for patients to take active roles in their care, providers must support them by including them in treatment planning and make sure they have all the information needed to form a partnership with the healthcare team (Doss et al., 2011). Empowerment therefore is a joint effort between the provider and the patient.

Each person in the relationship has something to gain and something to add to the process (Rappaport, 1985). In the healthcare context, empowerment has been presented as a way to replace traditional provider-dominant views of medical care and patient compliance, by involving the patient in the care planning process (Jones & Meleis, 1993; Little et al., 2001; Malterud, 2010). Empowerment can help prevent burnout of health care providers, as it shifts some responsibility of care onto the patient (Anderson & Funnell, 2010). There is also more emphasis on subjective needs in empowerment, otherwise concealed through traditional care (Skinner & Cardock, 2000).

Both providers and patients agree that a trusting, respectful relationship is crucial to empowerment (Ho et al., 2010; Nyatanga & Dann, 2002; Stajduhar et al., 2010) and patient concerns need to be voiced so that they can factor into the healthcare decision making process (Kaplan & Frosch, 2005). A trusting and respectful relationship, sometimes described as a partnership (Opie, 1998; Paterson, 2001), is facilitated through open communication, active participation and listening, and a genuine display of mutual interest (Hawks, 1992; Jennings et al., 2006; Kim, 2000; Paterson, 2001). In patient-centered care, the provider should build on the patient's point of view and strengths (Falk-Rafael, 2001; Lewin & Piper, 2007), while encouraging and supporting the decision-making process through mutually agreed upon goals (Anderson & Funnell, 2010; Nyatanga & Dann, 2002; Tveiten & Meyer, 2009).

The provider must acknowledge patient autonomy and respect the patient's capacity and right to make decisions (Adolfsson et al., 2008; Falk-Rafael, 2001; Piper, 2010; Rodwell, 1996) in order for the process of empowerment to occur. It is beneficial to provide patients with numerous choices and resources to meet those goals

(Sigurdardottir & Jonsdottir, 2008; St-Cyr Tribble et al., 2008) in a manner that demonstrates confidence that the patient can in fact meet those goals (Suter et al., 2011). Autonomy will be present in varying degrees depending on the extent to which patients understand and process information and accept the responsibility to take control of their lives (Anderson & Funnell, 2010). In fact, an individual may make the choice to defer decisions to another individual, which is an autonomous act as long as that person is making an informed decision (Anderson & Funnell, 2010; Lowden, 2002).

Respecting patient autonomy may become a dilemma for the provider if a patient's choice or decision does not coincide with what the provider thinks is the best for the patient (Ellis-Stoll & Popkess-Vawter, 1998; Finfeld, 2004; Piper, 2010; Rodwell, 1996; Ryles, 1999). If a difference in knowledge causes a discrepancy in goals between the provider and patient, it is the provider's responsibility to share that knowledge with the patient so that informed decision-making can occur (Tveiten & Meyer, 2009). Within the empowerment model, the role of the provider is not to simply change patients' behavior, but rather to help patients identify ways to attain mutually agreed upon goals (Funnell & Anderson, 2003). The provider must be cognizant not to "empower" a patient to undertake his or her goals, but rather should make sure the patient's goals are represented in the plan of care.

Because of the feelings of vulnerability and uncertainty that frequently occur in cancer survivors, it is important to develop a partnership that demonstrates mutual trust and respect for autonomy. Cancer survivors may feel as though information is being withheld from them because of the life-threatening nature of a cancer diagnosis (Anderson et al., 2003). They may also not tell their provider about some of their

concerns or side effects because they don't want to be viewed as bad patients or for their treatment to stop (Victorson et al., 2007). Patients need to feel welcome to share even the smallest of concerns, because those concerns could impact their treatment or quality of life in the long run (Victorson et al., 2007). In addition, the guidelines for the treatment of cancer are often complex and while patient autonomy for decision-making regarding treatment options should be respected, patients often desire the guidance of providers when making difficult decisions (Mendick et al., 2010). Providing patients with justification of why a certain treatment or surveillance measure is being prescribed help patients feel ownership in the care planning process (Mendick et al., 2010).

Power-with

Power has been defined as “being aware of what one is choosing to do, feeling free to do it, and doing it intentionally” (Caroselli & Barrett ,1998, p. 9) or “the ability to get things done, to mobilize resources, to get and use whatever it is a person needs for the goals he or she is attempting to meet” (Kanter, 1993, p. 166). Most agree that empowerment is not about giving or taking power, but is more like a ‘win-win’ situation (Swift & Levin, 1987). Empowerment is about enabling others to do something by sharing power, and is not about delegating by using power.

From a poststructuralist perspective, power is seen as a dynamic entity, not fixed in either the provider or patient, but rather changing form based on the context (Bradbury-Jones et al., 2008). Power is not about oppression but rather “produces things, induces pleasure, forms knowledge, produces discourse” (Foucault & Gordon, 1980, p. 119). In this view, power in the context of healthcare would be something that flows between the provider and the patient through the sharing of knowledge and the

facilitation of action. Power can also be described as an individual's freedom to participate knowingly in life changes by making informed choices, such as those involved with health promotion (Barrett, 1986).

Laverack (2007) described three types of power in health care: power-over, power-from-within, and power-with. Often providers are viewed as having power-over because they have been professionally trained and have access to resources (Laverack, 2007), also known as expert power. Power-over can either be used to exert control over the patient such as in a paternalistic relationship, or can be used to increase the patient's power-from-within in an empowering provider-patient relationship. Power-from-within develops internally in patients due to a sense of self-knowledge or strength, and is demonstrated within an empowering relationship when patients start to sense an opportunity for control over their lives (Rissel, 1994) and begin using knowledge as a tool of power (Christensen & Hewitt-Taylor, 2006). Therefore, in an empowerment model, the provider uses power-over to share expert knowledge in an interactive process where the patient uses power-from-within to assert personal goals, circumstances, beliefs, and solutions.

The process of integrating power-over with power-from-within is called power-with. The sharing of power that is demonstrated through power-with is an essential part of an empowering discourse between providers and patients. The development of power-with involves choosing the topic of discussion, giving opportunities to participate in the discourse, and giving the patient an opportunity for reflection (Virtanen et al., 2007). Power-with is evident when patients have enough knowledge and skill to make choices and take action with respect to their health management. Once patients start actively

participating in care by using the relevant information and resources identified through the help of the provider, the patient can be said to be activated or engaged (Johnson, 2011).

The development of power-with is an integral component of cancer survivorship care. Cancer survivors were found to have higher levels of psychological distress than individuals with other chronic conditions or health controls (Kaiser et al., 2010), which was amplified further if the survivor had fewer resources to manage his illness. On the contrary, cancer survivors have been shown to perceive a higher quality of life when they feel knowledgeable about their treatment options and when they become active participants in their care (Pedro, 2001). By providing patients with the knowledge and skills necessary to meet their survivorship needs and access available resources, feelings of vulnerability and uncertainty can be curtailed, leading to a higher quality of life and greater satisfaction in care (Hewitt et al., 2005).

For empowerment to occur, the perceived expert must be willing to step down from the controller role and participate in the process of empowerment with the patient (Lewin & Piper, 2007; Ryles, 1999; Sigurdardottir & Jonsdottir, 2008). Some providers may equate patient empowerment with giving up power or control (Henderson, 2003). Providers must avoid the paternalistic approach of empowering patients to be compliant with the provider's goals (Chapman, 1994; Opie, 1998; Skelton, 1994), and instead empower patients to adhere to mutually agreed upon goals (Anderson & Funnell, 2010).

While empowerment is commonly viewed as beneficial to the patient, not all patients will want to assert power in the relationship. Some patients may wish to play a passive role in the patient-provider relationship (Henwood et al., 2003). Empowerment

might make some patients uncomfortable or uncertain (Faulkner, 2001) and they may want to be entirely looked after as a means of comfort or protection from the reality of their diagnosis (Faulkner, 2001). In fact, Lewin and Piper (2007) found that 87% of their study patients in England were content with entrusting their care to health care providers. Patients may also feel that if they don't do as the provider says, they will not continue to receive quality care (Henderson, 2003)

Providers may also feel that one behavior is empowering, while patients report a different behavior as being empowering. For example, providers may feel that their knowledge sharing is the facilitator of empowerment (Anderson & Funnell, 2010), while patients may rather find that the presence of social support and resources is a key facilitator to their empowerment (Roberts, 1999; Shearer, 2004). Cancer patients reported that online support groups improved self-confidence in their treatment, enhanced their self-esteem, and strengthened their relationship with their providers (Bartlett & Coulson, 2011).

Definition

The identification of these attributes and how they were related to each other resulted in the definition of empowerment within a cancer chronic illness trajectory as *power-with that is actualized through a beneficial relationship of mutual trust and respect for autonomy that develops within a dynamic, individualized, and patient-centered process.*

Antecedents and Consequences

The identification of antecedents, “phenomena found to proceed an instance of the concept” and consequences, phenomena that “follow an occurrence of the concept”

present further clarity about a concept (Rodgers, 1989, p. 334). Before empowerment can occur, patients need to realize that they have a right and are capable of making decisions about their care (Christensen & Hewitt-Taylor, 2006; Falk-Rafael, 2001; Gibson, 1991). There also has to be motivation for knowledge, control, or action (Aujoulat et al., 2007; Ellis-Stoll & Popkess-Vawter, 1998). If an individual does not believe he can play an active role in his care and make decisions, the motivation or drive to play an active role will be diminished (Bandura, 1977; Pellino et al., 1998).

Empowerment results in many consequences including increased self-efficacy (Arneson & Ekberg, 2005; Spreitzer, 1995; Tsay & Hung, 2004), self-esteem (Christensen & Hewitt-Taylor, 2006; Menon, 2002; Piper, 2010), inner confidence (Falk-Rafael, 2001), feeling more informed (Bartlett & Coulson, 2011), perceived control (Perkins & Zimmerman, 1995), resource mobilization (Perkins & Zimmerman, 1995), and overall well-being (Christensen & Hewitt-Taylor 2006; Nyatanga & Dann, 2002).

Identification of an exemplar case

An exemplar case is provided to demonstrate how the concept of empowerment can be placed in a cancer survivorship context (Rodgers, 2000). Miller (2008) reports how her institution used survivorship care plans as a way to increase involvement of breast cancer survivors in their care. Consultations were held between a nurse and the patient to construct a survivorship care plan within a few weeks of initial therapy completion. The nurse was involved in the development of the survivorship care plan because patients had established a trusting and respectful relationship with her throughout their treatment. The care plan served as a guide to teaching and provided the nurse and patient an opportunity to discuss a summary of the up-to-date treatment that the patient

received, recommended follow-up care, health promotion strategies, and contact information in case the patient had a question or concern. There was also a section that walked through an assessment of the survivor's psychosocial, employment, insurance, and financial issues. Focusing on the subjective concerns of survivors made the care plan patient-centered and individualized and addressed the dynamic nature of empowerment. Patients' autonomy was respected by providing the knowledge and skills necessary for patients to make informed choices about their future treatment and health promotion. Power-with was demonstrated during qualitative interviews with the survivors after the consultations. Survivors reported that the consultations helped them understand their illness better and helped them recognize that they played an important role in the survivorship trajectory. The overwhelming feelings and confusion they felt prior to the consultation had dissipated and the survivors found the care plans beneficial to their future.

Discussion

The challenge of conducting a concept analysis of empowerment within the dual perspectives of patient and providers was that there was more literature published from the expert or provider perspective, creating a unidirectional view of empowerment. A second challenge was the limited amount of literature on empowerment in cancer survivorship, the context of interest for this analysis. Although empowerment has been shown to involve chronic illness patients in their care by helping them understand their illnesses, seek active participation in their care, and realize they have the right and capacity to support or maintain their health (National Priorities Partnership (NPP), 2008), empowerment interventions have not been used in cancer survivorship research to date,

in part because cancer as chronic illness is a relatively new perspective. Despite these limitations, illuminating the attributes of an empowering patient-provider relationship creates the opportunity to study the process of empowerment empirically and link provider behaviors to patient outcomes.

The attributes along with the antecedents and consequences form a descriptive situation-specific theory of empowerment in the chronic illness trajectory of cancer survivorship. Because the scope of the review of literature encompassed chronic illness as a more inclusive concept, the results may apply more broadly and represent the early stages of development of a middle-range theory. Providers can use empowering behaviors as a way to develop survivorship care plans and build confidence in self-managing and health promoting behaviors in cancer survivors to improve the care of comorbidities, disease-free survival, and functional declines in cancer survivors (Demark-Wahnefried et al., 2006). By helping cancer survivors realize that they have the right and capacity to make decisions about their care and by actively involving them in their care through mutual goal setting and patient-centered education, power-with should become evident. Power-with occurs when patients demonstrate the knowledge and skills necessary to take control of their health care and leads to consequences such as increased self-efficacy, self-esteem, perceived control, and higher quality of life.

Laschinger et al. (2010) argue that empowering patients so that they are able to better manage their health is a central focus of nursing practice. Nurses and patients often work together to obtain access to necessary information, resources, support, and opportunities for skill and knowledge development (Laschinger et al., 2010) necessary for patients to become more involved in their care and exert more control over their

health and nurses play a fundamental role in advocating for patients (Zomorodi & Foley, 2009). Future research needs to be directed at measuring patient-empowering nurse behaviors from the patient's perspective so that recommendations can be made for strengthening nurse-patient interactions to improve patient outcomes, measured as self-management ability.

Conclusion

This dimensional, evolutionary concept analysis demonstrated how the concept of empowerment has been constructed over time from the differing perspectives of providers and patients and how it can be placed within the context of the chronic illness trajectory, specifically cancer survivorship. The patient-centered approach of empowerment targets the Institute of Medicine and Commonwealth Fund's urging for effective, quality care. The trusting, respectful relationship that is formed is beneficial not only for patients, but also providers, as it is more likely that patients will take charge of their plan of care if they feel respected and feel like they are part of the decision process. The autonomy of patients must be stressed and respected in order for empowerment to be successful and for the responsibility for health care to shift away from a unidirectional provider-to-patient relationship to a joint responsibility between the provider and patient.

This conceptual analysis could be used to frame future research of empowerment within the context of cancer survivorship. The identification of the attributes of the process of empowerment within the chronic illness trajectory will provide a foundation to investigate the contribution of nursing care to the empowerment of cancer survivors. Patient perceptions of patient-empowering nurse behaviors could be further investigated

using Laschinger et al.'s (2010) framework for patient-empowering nurse behaviors based on Kanter's (1993) structural empowerment framework. This modified framework can be applied to nursing care of patients, since nurses work with their patients to make sure they have the knowledge and skills necessary to succeed, much like managers do with their employees. There is also the possibility of investigating empowerment within a Transitions Theory perspective that recognizes the trajectory of transitions within chronic illness (Meleis et al., 2000). Empowerment is a patient-centric concept that can be examined within the patient-nurse relationship. Nurse behaviors can be linked to patient outcomes using a wide range of theoretical, research, and practice models.

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Appendix B:
Study Forms and Instruments

Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS)

Copyright pending

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PAM 13 ©

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SF-36 v. 2 ©

Used with Permission from Quality Metric Incorporated

Study ID # _____ Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status After Surgery

Enrollment Form – Patient Reported

Thank you for agreeing to participate in our study about patient perceptions of patient-empowering nurse behaviors. We need some preliminary information about you.

Your age: _____

male female

Gender:

Your marital status:

Married

Single

Separated

Divorced

Widowed

Other, please describe _____

Your race/ ethnicity: (check all that apply)

Asian

African American

Hispanic

White

Other, please describe

Do you live no yes **alone?**

If no, how many other people live with you? _____Adults & _____Children (less than 18 yrs)

Your Occupation (Job): _____	Your spouse or partner's occupation (Job): _____
Retired: []no [] yes (if retired, write in your occupation before you retired)	Retired: []no [] yes (if retired, write in your occupation before you retired)

Your highest completed level of education

- Less than 7th grade
- Junior high school (9th grade)
- Partial high school (10th or 11th grade)
- High school graduate
- Partial college (at least 1 year) or specialized training
- College or university graduate
- Graduate degree

Your spouse/partner's highest completed level of education

- Less than 7th grade
- Junior high school (9th grade)
- Partial high school (10th or 11th grade)
- High school graduate
- Partial college (at least 1 year) or specialized training
- College or university graduate
- Graduate degree

Have you ever been hospitalized for the same condition before?

Yes

No

If Yes how many times in the last 365 days? _____

How long as it been since you were told you had cancer or heart disease? Please be as accurate as possible - for example 1 year and 6 months

Years

Months

Days

Study ID # _____

**Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and
Functional Health Status After Surgery**

Contact Form

Your Name: _____

Telephone Number: _____

Alternate Telephone Number: _____

Best Time To Call: _____

Study ID # _____

MRN _____

**Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation , and
Functional Health Status After Surgery**

Medical Record Review Form

Stage of Cancer: _____ Stage of Cardiac Disease: _____

Type of Cancer or Cardiac Disease: _____

Operation: _____

Comorbidities:

Illness: Cancer Cardiac disease 3NT 3NW Unit:

Date of Admission:

Month		Date		Year			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Date of Discharge:

Month		Date		Year			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Length of Stay:

Home Health: no yes DaysReadmission: no Yes

**This patient is enrolled in the
“Patient Perceptions of Patient-Empowering
Nurse Behaviors” Study.**

This patient has agreed to fill out a questionnaire prior to discharge. The forms are located in the front of the chart.
Look for our bright red sign.

Please give the study forms to the patient within 4 hours before discharge. The patient will fill out the study forms before going home and put them in the attached envelope. Put the envelope in the box marked Patient Perceptions of Patient-Empowering Nurse Behaviors Study located at the nursing station.

Thank you for distributing and collecting the study forms.
Your efforts in support of the study are vital to its success.

If you have questions, please contact: the co- researcher; Teresa Jerofke (414-805-8827), Dr Marianne Weiss at Marquette University College of Nursing, or your Unit Manager.

**This patient is enrolled in the
“Patient Perceptions of Patient-Empowering
Nurse Behaviors” Study.**

This patient has agreed to fill out a questionnaire prior to discharge. The forms are located in the front of the chart.
Look for our bright red sign.

Please give the study forms to the patient within 4 hours before discharge. The patient will fill out the study forms before going home and put them in the attached envelope. Put the envelope in the box marked Patient Perceptions of Patient-Empowering Nurse Behaviors Study located at the nursing station.

Thank you for distributing and collecting the study forms.
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Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status After Surgery

This patient has agreed to fill out a questionnaire prior to discharge.

Please give this study form to the patient within 4 hours before discharge. The patient will fill out this study form before going home and will seal it in the provided envelope. Please put the sealed envelope in the box marked Patient Perceptions of Patient-Empowering Nurse Behaviors Study located in your unit's assigned area.

Thank you for distributing and collecting the study forms.

Your efforts in support of the study are vital to its success.

If your patient needs assistance filling out this study form or you have any questions

please contact the co-researcher - Teresa Jerofke at

(414) 805-8827 (office phone) or

(414) 318-4570 (pager)

Please tear off this sheet before giving it to the patient.

Appendix C
Institutional Review Board

Medical College of Wisconsin & Froedtert Hospital
Informed Consent for Research
 Template X - Version: October 25, 2010
 IRB Protocol Number: PR00017157 - Version:
 IRB Approval Period: 8/1/2012 - 7/31/2013

EFFECTIVE

AUG 01 2012

**Medical College of Wisconsin and Froedtert Hospital
 CONSENT TO PARTICIPATE IN RESEARCH**

Name of Study Subject: _____

Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and
 Functional Health Status After Surgery – Phase 2

Marianne Weiss, DNSc, RN
 Teresa Jerofka, MSN, RN, Doctoral Student
 CTSI
 414-805-8827
 Medical College of Wisconsin
 8701 Watertown Plank Road
 Milwaukee WI 53226

You are invited to take part in this research study. This form tells you why this research study is being done, what will happen in the research study, and possible risks and benefits to you. If there is anything you do not understand, please ask questions. Then you can decide if you want to join this study or not.

A1. INTRODUCTION – WHY ARE WE ASKING YOU ABOUT THIS STUDY?

You are invited to participate in this research study because you have just had surgery and now will be going home from the hospital and are expected to care for yourself.

A total of about 163 people are expected to participate in this study at the Medical College of Wisconsin/Froedtert Hospital.

The Principal Investigator of the study is Marianne Weiss, DNSc, RN at the College of Nursing at Marquette University and CTSI at the Medical College of Wisconsin. Teresa Jerofka, MSN, Doctoral Student is the Co-Investigator and is working with Marianne Weiss on the study. There will be a research assistant (RA) working on the study who is a student at Marquette University.

Sigma Theta Tau International, the honor society of nursing is funding the study.

A2. DO I HAVE TO BE IN THIS STUDY?

You can decide whether to take part in this study or not. You are free to say yes or no. If you say no, your regular medical care will not change. Even if you join this study, you do not have to stay in it. You may stop at any time.

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A3. WHY IS THIS RESEARCH STUDY BEING DONE?

The purpose of this study is to find out if patient perceptions of the way nurses encourage their patients to participate in their care [we call this patient-empowering nurse behaviors] influences what patients actively do to maintain their health [we call this patient activation] after discharge and how they function. For this part of the study, we are testing the questions in a newly developed questionnaire about patient-empowering nurse behaviors.

B1. WHAT WILL HAPPEN IF I TAKE PART IN THE STUDY?

If you agree to participate in this study, we would ask you to do the following:

- a. We will collect information directly from you while you are in the hospital, possibly 1-2 days after you go home, and then at 6 weeks after you go home from the hospital.
- b. While you are in the hospital, the nurse taking care of you, Teresa Jerofke, or the RA will give you four study forms to fill out. One asks information about you such as age, occupation, education, and if you have been in the hospital in the past. The second asks for your contact information so we may contact you in 6 weeks after you go home to conduct a brief telephone interview. The third form is a questionnaire about 'patient-empowering nursing behaviors' and the fourth form asks you to respond to statements that people sometimes make when they talk about their health.
- c. Teresa Jerofke or the RA will perform a medical record review to find out more information about you and your health condition.
- d. Approximately 6 weeks after you go home, Teresa Jerofke or the RA will conduct an interview by phone. During this second interview, she will ask you the questions from the same questionnaire about statements people make about their health that you answered when you went home from the hospital. She will also ask you questions about your physical and psychological functioning. This interview will take about 15-20 minutes.
- e. All study paperwork including this signed consent form will be kept in a locked file cabinet in a locked research office at Marquette University.

B2. HOW LONG WILL I BE IN THE STUDY?

You will be in this study for about 6 weeks until you complete the second interview which is completed over the telephone.

B3. CAN I STOP BEING IN THE STUDY?

You may stop at any time. If you decide to leave the study, please let the study team know.

The study investigator may stop your participation in the study at any time for any reason without your consent. She will tell you if this happens.

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Informed Consent for Research
 Template X - Version: October 25, 2010
 IRB Protocol Number: PRO00017157 Version:
 IRB Approval Period: 8/1/2012 - 7/31/2013

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C1. WHAT RISKS OR PROBLEMS CAN I EXPECT FROM THE STUDY?

You may realize you have not been as involved in your care as you would have liked to have been or that you may not be managing your illness as well as you should be while answering the questionnaires. If you have any questions or if you become anxious during data collection you will be directed to contact your physician.

Another risk may be loss of confidentiality. Every effort will be made to keep your study records confidential but we cannot guarantee it. Depending on the kind of information being collected, if your study information were accidentally seen, it might be used in a way that could embarrass you or affect your ability to get insurance. If you have questions, you can talk to the study director about whether this could apply to you.

C2. ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?

This study will not help you, but we hope the information from this study will help us provide better health services for people following surgery.

D1. ARE THERE ANY COSTS TO BEING IN THE STUDY?

There are no costs to you for any activities in this study.

D2. WILL I BE PAID FOR BEING IN THE STUDY?

You will not be paid for participating in this study.

D3. WHAT HAPPENS IF I AM HARMED BECAUSE I TOOK PART IN THE STUDY?

No funds have been set aside to pay any costs if you are harmed because of this study. If you think that you were harmed because of this study, let the study director know right away by calling 414-288-3855. By signing this form, you do not give up your right to seek payment for harm you receive while participating in this study.

D4. WHO CAN ANSWER MY QUESTIONS ABOUT THE STUDY?

- If you have more questions about this study at any time, you can call Teresa Jerofke at 414-805-8827 or Dr. Marianne Weiss at 414-288-3855.
- If you have questions about your rights as a study participant, want to report any problems or complaints, obtain information about the study, or offer input you can call the Medical College of Wisconsin/Froedtert Hospital Research Subject Advocate at 414-456-8844.

E. PERMISSION TO COLLECT, USE AND SHARE HEALTH INFORMATION

E1. What health information will be collected and used for this study?

To do this research study, we need your permission to collect and share some of your health information, or you cannot be in the study. This information may come from questions we ask, forms we ask you to fill out as described below, or your medical record. We will only collect information needed for the study.

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 IRB Protocol Number: PR00017157 - Version:
 IRB Approval Period: 8/1/2012 - 7/31/2013

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 AUG 01 2012

The health information we will collect and use for this study is:

Health information collected during this study include data provided by you in the questionnaires and information from medical records pertaining to your illness including what your diagnosis is, the severity/stage of your diagnosis, if you have any other illnesses or conditions, what floor of the hospital you were on, and how many days you were in the hospital.

E2. Who will see the health information collected for this study?

The only individuals allowed to handle your health information are those on the study team (Teresa Jerofke, a doctoral student in the College of Nursing at Marquette University and Marianne Weiss, a professor in the College of Nursing at Marquette), the RA, those on the Institutional Review Board (IRB) and those who check on the research activities to make sure the hospital's rules are followed.

We will not use your health information for a different study without your permission, or the permission of a hospital research review board (IRB). Once all personal identification is removed, the information might be used or released for other purposes without asking you. Results of the study may be presented in public talks or written articles, but no information will be presented that identifies you.

E3. What are the risks of sharing this health information?

One risk of taking part in a research study is that more people will handle your personal health information collected for this study. The study team will make every effort to protect the information and keep it confidential, but it is possible that an unauthorized person might see it. Depending on the kind of information being collected, it might be used in a way that could embarrass you or affect your ability to get insurance. If you have questions, you can talk to the study director about whether this could apply to you.

E4. How long will you keep the health information for this study?

If you sign this form, we plan to keep your information for 10 years after the research study ends on May 31st, 2013 in case we need to check it again for this study.

E5. Can I cancel my permission to share this health information?

If you change your mind later and do not want us to collect or share your health information, you need to send a letter to Dr. Marianne Weiss at Marquette University College of Nursing, 530 N. 16th St., Milwaukee, WI 53233. The letter must say that you have changed your mind and do not want the researcher to collect and share your health information. At that time, we may decide that you cannot continue to be part of the study. We may still use the information we have already collected.

CONSENT TO PARTICIPATE IN THE STUDY

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 IRB Protocol Number: PR00017157 - Version:
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By signing my name below, I confirm the following:

- I have read (or had read to me) this entire consent document. All of my questions have been answered to my satisfaction.
- The study's purpose, procedures, risks and possible benefits have been explained to me.
- I agree to let the study team use and share the health information and other information gathered for this study.
- I voluntarily agree to participate in this research study. I agree to follow the study procedures as directed. I have been told that I can stop at any time.

IMPORTANT: You will receive a signed and dated copy of this consent form. Please keep it where you can find it easily. It will help you remember what we discussed today.

Date or Date & Time: Time on subject's line is optional to include; if included in template, must be completed by each subject.

Subject's Name <i>please print</i>	Subject's Signature	Date
Name of Legally Authorized Representative (if applicable) <i>please print</i>	Signature of Legally Authorized Representative	Date
Name of Witness (if applicable) <i>please print</i> (for short form consent process, or consent of blind or illiterate subject)	Signature of Witness	Date

Signature line instructions:

Generally the subject's signature is sufficient. Signature lines for Principal Investigator or designated representative should be included only when the Investigator chooses to include it, or when required by Sponsor. Thus, the signature lines below are **optional** to include.

Name of person discussing/obtaining consent <i>please print</i>	Signature of person discussing/obtaining consent	Date

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Informed Consent for Research
Template X - Version: October 25, 2010
IRB Protocol Number: PRO00017157 Version:
IRB Approval Period: 8/1/2012 - 7/31/2013

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** A member of the study team trained and authorized by the Principal Investigator to act on her/his behalf in obtaining informed consent according to the protocol. In all research study protocols the Principal Investigator is responsible and accountable for the study.*



Office of Research Compliance
 Research Compliance, IRB
 P.O. Box 180
 Milwaukee, Wisconsin 53233-0180
 P: 414.224.7570
 F: 414.224.7570
www.compliance.marquette.edu/irb

February 14, 2012

Ms. Teresa Jerofke
 Nursing

Dear Ms. Jerofke:

Thank you for your protocol submission IIR-2292 titled, "*Patient perceptions of patient-empowering nurse behaviors and patient activation after surgery.*" Your documentation has been reviewed by members of Marquette University's Institutional Review Board. Marquette University and Medical College of Wisconsin have entered into an Institutional Authorization Agreement effective 2/14/2012, where Marquette University's IRB will rely on MCW's IRB review and approval.

By deferring to the MCW IRB, the Marquette University IRB must keep the protocol and the other institution's IRB approval letters on file. The Marquette University IRB must be informed of any problems encountered at the other institution related to this protocol, any amendments or modifications made to this protocol and the outcome of the annual reviews performed for this protocol at the other institution.

If you have any questions or concerns, please do not hesitate to contact me at 288-7570.

Sincerely,

Amanda J. Ahradt, RN, MS, MSN, CPM
 IRB Manager

cc: Dr. Christopher Okunseki, IRB Chair
 Dr. Marigone Weiss, Nursing

From: help-ebridge@mcw.edu [help-ebridge@mcw.edu]
Sent: Tuesday, March 13, 2012 11:06 AM
To: Weiss, Marianne
Subject: eBridge IRB: IRB Study Decision Letter

*Medical College of Wisconsin /
Froedtert Hospital
Institutional Review Board*

Marianne Weiss, RN,DNSc
To:
Teresa Jerofke

Date: March 13, 2012

Re: Study Full Title: Patient Perceptions of Patient-Empowering Nurse Behaviors and Patient Activation After Surgery

Study # & Link: [PRO00017157](#)

IRB Approval Date: 3/9/2012

IRB Expiration Date: 3/8/2013

The MCW/FH Institutional Review Board #5 has granted approval for the above-referenced submission in accordance with 45 CFR 46.111 by expedited review, Category #5 & #7.

The consent forms and related HIPAA authorization are effective as of 3/9/2012. Signed consent forms for each subject must be kept on file as part of the project records.

The items listed below were submitted and reviewed when the IRB approved this submission. Research must be conducted according to the IRB approved protocol listed below:

PRO00017157

ICF-PRO00017157 Consent Form Phase 1

ICF-PRO00017157 Consent Form Phase 2

ICF-PRO00017157 Consent Form Phase 1 content validity

Any and all proposed changes to this submission must be reviewed and approved by the IRB prior to implementation. When it is necessary to eliminate hazards to subjects, changes may be made first. This should be followed promptly by a protocol deviation and amendment.

In accordance with federal regulations, continuing approval for this submission is required prior to 3/8/2013 . The Continuing Progress Report (CPR) must be received by the IRB with enough time to allow for review and approval prior to the expiration date. Failure to submit the CPR in a timely manner may result in the expiration of IRB approval.

A Final CPR must be submitted to the IRB within 30 days of when all project activities and data analysis have been completed.

All Unanticipated Problems Involving Increased Risk of harm to Subjects or Others (UPIRSOs) must be reported promptly to the MCW/FH IRB according to the IRB Standard Operating Procedures.

If you have any questions, please contact the IRB Coordinator II for this IRB Committee, Dee Burns, at 414-955-8464_ or dburns@mcw.edu.

Sincerely,

Kathryn Gaudreau

David Clark, PhD

IRB Chairs

MCW/FH Institutional Review Board #5

*Medical College of Wisconsin
Froedtert Hospital
Institutional Review Board*

To: _____
Marianne Weiss, RN,DNSc

Teresa Jerofke

Date: August 1, 2012

Re: Study Full Title: Patient Perceptions of Patient-Empowering Nurse Behaviors and Patient Activation After Surgery

Study #: PRO00017157

Amendment Title: Ammendment July 2012

Amendment # & Link: [AME00009784](#)

Description of Amendment: Amendment to grant approval to use SF 36 v2. and ask patients if they had been readmitted to the hospital or if they accessed their electronic health record since discharge, call patients at home 1-2 days after discharge if they do not complete the PPPNBS at the time of discharge, and collect the following additional information on the medical record review form: (1) if patient was re-admitted in the 6 weeks after discharge, (2) if patient was discharged with home health, (3) the type of surgery, (4) the type of cancer or heart disease. The total number of patients for phase 2 will now be 163. The inclusion/exclusion criteria has also changed. Lastly, Harpreet Singh-Gill was added as a research assistant.

The MCW/FH Institutional Review Board #5 reviewed this amendment and determined that the project with these changes continues to satisfy requirements of 45 CFR 46.111. Expedited approval has been granted by the MCW/FH Institutional Review Board #5 and is effective as of 8/1/2012.

The consent form is effective as of 8/1/2012. Signed consent forms for each subject must be kept on file as part of the study records.

All project activities must be conducted according to the protocol that was approved by the IRB.

Any and all proposed changes to this submission must be reviewed and approved by the IRB prior to implementation. When necessary to eliminate hazards to subjects, changes may be made first. This should be followed promptly by submission of a protocol deviation and amendment.

All Unanticipated Problems Involving increased Risk of harm to Subjects or Others (UPIRSOs) must be reported promptly to the MCW/FH IRB according to IRB Standard Operating Procedures.

If you have questions, please contact the IRB Coordinator II for this IRB Committee, Dee Burns, at 414-955-8464 or dburns@mcw.edu.

Sincerely,

Kathryn Gaudreau

David Clark, PhD

IRB Chairs

MCW/FH Institutional Review Board #5

Appendix D: Manuscript II

Jerofke, T.A., Weiss, M., & Yakusheva, O. (In Review)

Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation and Functional Health Status After Surgery

Title Page

Patient Perceptions of Patient-Empowering Nurse Behaviors, Patient Activation, and Functional Health Status After Surgery

Teresa Jerofke, PhD, RN, APNP-BC

Acute Care Nurse Practitioner, Medical College of Wisconsin, Milwaukee, Wisconsin

Marianne Weiss DNSc, RN

Associate Professor, College of Nursing, Marquette University, Milwaukee, Wisconsin

Olga Yakusheva, PhD

Associate Professor, Marquette University College of Business and Graduate School of Management, Department of Economics, Marquette University, Milwaukee, Wisconsin

Correspondence to T Jerofke: teresa.jerofke@marquette.edu

Acknowledgements: The authors sincerely thank Beth Showalter, BSN for her assistance with gathering and entering the data, and Polly Ryan, PhD, RN, Kathleen Bobay, PhD, RN, and Jessica Pruszynski, PhD, for their insightful review and critique.

Conflict of interest: No conflict of interest has been declared by the authors.

Funding: This research was funded through a small grant from Sigma Theta Tau International.

Abstract

Aim: To explore the association between the nursing care process of patient empowerment during post-surgical hospitalization and post-discharge patient self-management outcomes, specifically patient activation and functional health status.

Background: Patient-centered care models advocate for patient empowerment in chronic illness care. Post-surgical patients with life-threatening chronic illnesses frequently feel powerless, and have unmet needs, decreased functional health status, and high readmission rates; however prior studies of patient empowerment have conceptualized empowerment as an outcome primarily in outpatient settings, with little attention paid to provider processes used to empower patients during a hospitalization.

Design: A prospective, longitudinal, correlational study

Methods: This sample consisted of 113 post-surgical cancer and cardiac patients enrolled between August 2012 and February 2013. Patient perceptions of patient-empowering nurse behaviors and baseline patient activation were measured prior to discharge. Patient activation and functional health status were measured six-weeks following discharge. Data were analyzed with multiple linear regression using a simultaneous equation approach.

Results: Patients reported high perceptions of patient-empowering nurse behaviors and patient activation levels. Functional health status scores were below population norms. Patient perceptions of empowering nurse behaviors were positively associated with post-discharge patient activation, which was positively associated with mental functional health status. Length of stay was the only significant predictor of physical functional health status.

Conclusion: When nurses are empowering, post-surgical patients are more activated to engage in self-management of their life-threatening chronic illness. Intentional use of patient-empowering nurse behaviors can lead to improved functional health status, and ultimately decreased cost of chronic illness care.

Keywords: chronic illness, nurse-patient relationships, patient participation, post-operative care, therapeutic relationships, self-efficacy, nurses

Summary Statement

Why is this research needed?

- Patient empowerment has been advocated as a way to engage patients in self-management of chronic illness in emerging patient-centered models for healthcare improvement
- Nurses can empower patients by: (1) helping patients realize they can and should participate in their care and treatment planning; (2) providing patients with access to information, support, resources, and opportunities to learn and grow; (3) helping facilitate collaboration with providers, family, and friends; and (4) allowing patients autonomy in decision making
- The majority of research on patient empowerment has studied empowerment as an outcome in outpatient settings, with little attention paid to provider processes used to empower patients during a hospitalization.

What are the key findings?

- Surgical patients in this study were receptive to empowering behaviors and had high levels of activation, supporting the need for future research on the impact of patient empowerment in the inpatient setting.
- When controlling for level of patient activation prior to discharge, patient-empowering nurse behaviors were significantly associated with post-discharge patient activation levels, which was significantly associated with post-discharge mental functional health status.

- Study findings add to evidence on the impact of nursing care processes on patient outcomes, specifically the impact of hospital care on outcomes following hospital discharge

How should the findings be used to influence police/practice/research/education?

- Patient-empowering nurse behaviors can be used to help facilitate engagement in self-management behavior and improve functional health status through its association with patient activation and should be examined as a way to improve the cost of chronic illness care through improved patient activation levels.
- The Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS) can be used to quantitatively measure the process of empowerment from the patient's perspective

Introduction

As the burden of chronic illness rises due to increasing prevalence and cost of care, the engagement of patients in managing their chronic illness care through the process of patient empowerment has been advocated as a critical component of emerging patient-centered models for healthcare improvement (National Health Service n.d., Australian Commission on Safety and Quality in Healthcare 2010, Bupa 2011, Nursing Alliance for Quality Care 2011, Patient-Centered Outcomes Research Institute 2012). The process of patient empowerment occurs within collaborative provider-patient relationships with the intention of increasing patients' capacities to take control of their illnesses (World Health Organization 2012). In their many encounters with patients across the continuum of chronic illness care, nurses can empower patients by: (1) helping patients realize they can and should participate in their care and treatment planning; (2) providing patients with access to information, support, resources, and opportunities to learn and grow; (3) helping facilitate collaboration with providers, family, and friends; and (4) allowing patients autonomy in decision making (Laschinger *et al.* 2010, Munn 2010, Suter *et al.* 2011). Engaging patients through empowering behaviors is an important component in patient care, as interventions utilizing empowering behaviors have been shown to reduce health care costs (Hibbard *et al.* 2009, Melnyk & Feinstein 2009, Hibbard & Greene 2013).

Patient-empowering nurse behaviors can help to facilitate the engagement of patients in self-management behaviors through the development of patient activation. Activated patients have the knowledge, skills, and confidence necessary to manage their chronic illnesses effectively (Hibbard *et al.* 2004). Highly activated patients have demonstrated lower costs of care and predicted future costs (Remmers *et al.* 2009,

Greene & Hibbard 2012, Hibbard *et al.* 2013) and higher functional health status through successful engagement in self-management behaviors (Hibbard *et al.* 2007, Stepleman *et al.* 2010, Skolasky *et al.* 2011a).

The majority of research on patient empowerment has studied empowerment as an outcome in outpatient settings (Chen & Li 2009, Herbert *et al.* 2009). Little attention has been paid to provider processes used to empower patients during a hospitalization. Post-operative patients with life-threatening chronic illnesses, such as cancer and cardiac disease, face multiple illness-related transitions associated with the recovery from their surgery and taking on the role of managing their life-threatening chronic illness upon hospital discharge (Schumacher & Meleis 1994, Kralik *et al.* 2004).

Background

Several published studies have examined the relationship between empowering behaviors and self-management of chronic illness in outpatient and long-term care settings. Interventions using an empowering approach in the outpatient setting have been associated with increased confidence in self-management and problem-solving ability in individuals with chronic illnesses such as cancer, diabetes, heart failure, obesity, and hypertension (Chen & Li 2009, Munn 2010, Suter *et al.* 2011). Empowering behaviors have also been associated with improved quality of life in cancer patients (Bakitas *et al.* 2009) and nursing home patients in Taiwan (Tu *et al.* 2006).

Patient activation can be viewed as a precursor to the engagement in self-management behaviors, as the components of patient activation (knowledge, skills, and confidence) are factors that influence the process of self-management behavior (Ryan & Sawin 2009). Higher patient activation has been linked to higher functional status,

adherence to self-management behaviors, and lower costs of care (Hibbard *et al.* 2007, Mosen *et al.* 2007, Hibbard *et al.* 2013). Functional health status, used as a measure of quality of life, is a useful outcome measure to evaluate an individual's physical and psychological adjustment to chronic illness (Stanton *et al.* 2007) and has been identified as a nurse-sensitive outcome (Doran 2011).

Various patient characteristics or illness factors may influence patients' perceptions of patient-empowering nurse behaviors. Younger patients may prefer a more active role in their care (Deber *et al.* 2007), expect more empowering behaviors from the nursing staff, or place a higher value on empowering behaviors than older patients. Patients from a lower socioeconomic status (SES) and non-Caucasian patients may have lower perceptions of patient-empowering nurse behaviors because of feelings of powerlessness and lower levels of education (Ross & Mirowsky 2002, Lubetkin *et al.* 2010) and trust (Halbert *et al.* 2006). The amount of time since diagnosis of a chronic illness may impact a patient's ability to perceive or be receptive to empowering behaviors, as some patients may experience disarray or turmoil closer to time of diagnosis, but over time may successfully incorporate their chronic illness into their lives (Kralik 2002, Aujoulat *et al.* 2007). Lastly, a longer length of stay may affect patient perceptions of patient-empowering nurse behaviors through greater opportunity for interaction with the nursing staff.

Patients with life-threatening chronic illnesses, such as cancer and cardiac disease, frequently experience heightened feelings of powerlessness following surgery. During the discharge transition they are suddenly expected to take responsibility for the management of a chronic illness while still experiencing the physical and psychological

effects of surgery (Lapum *et al.* 2011) and a loss of control over their bodies, emotions, and identities (Aujoulat *et al.* 2007, McCorkle *et al.* 2011, Okamoto *et al.* 2011). The transition from post-surgical hospitalization to self-management post-discharge is threatened by unmet discharge needs (McMurray *et al.* 2007) and decreased functional health status (Myles *et al.* 2001, Hodgson & Given 2004, Elliott *et al.* 2006). Post-surgical cancer and cardiac patients have high readmission rates secondary to inadequate self-management ability (Murphy *et al.* 2008, Slamowicz *et al.* 2008, Martin *et al.* 2011).

Theoretical Framework

The design for this study was guided by an integrated model using two explanatory theories: Meleis' Transitions Theory (Meleis *et al.* 2000) and The Individual and Family Self-Management Theory (Ryan & Sawin 2009). Neither framework alone adequately addressed the relationship of patient-empowering nurse behaviors and patients' engagement in self-management of their chronic illness care. Both theories contributed patient and illness factors that could inhibit or facilitate the transitional experiences patients face following surgery for a life-threatening chronic illness. Transitions Theory demonstrates the importance of nursing therapeutics in promoting positive outcomes during a transition such as hospital discharge following surgery, while the Individual and Family Self-Management Theory identifies the patient process components toward which patient-empowering nursing behaviors can be targeted. Table 1 specifies the theoretical concepts, study variables, and empirical measures.

The Study

Aim

The aim of this study was to explore the trajectory of associations between the nursing care process of patient empowerment during an inpatient post-surgical hospitalization, and post-discharge patient self-management outcomes, specifically patient activation and functional health status, by simultaneously examining the direct and indirect effects of patient-empowering nurse behaviors on patient activation and functional health status post-discharge.

Design

A non-experimental, prospective, longitudinal, correlational study was used to test the following hypotheses: (1) Patient characteristics (age, SES, race, pre-discharge patient activation (measured with the 13-item patient activation measure [PAM-13])) and illness factors (length of time since initial diagnosis, length of stay, and diagnosis) will have significant associations with patient perceptions of patient-empowering nurse behaviors (measured with the Patient Perceptions of Patient-empowering Nurse Behaviors Scale [PPPNBS]); (2) Patient characteristics, illness factors, and patient-perceptions of patient empowering nurse behaviors will have significant associations with six-week post-discharge patient activation (measured with the PAM-13) ; and (3) Patient characteristics, illness factors, patient perceptions of patient-empowering nurse behaviors, and six-week post-discharge patient activation will have significant associations with functional health status (physical and mental) six-weeks post-discharge (measured with the SF-36 mental component summary measure [MCS] and physical component summary measure [PCS]).

Patient characteristics, illness factors, and patient perceptions of patient-empowering nurse behaviors were measured during the post-surgical hospitalization. Patient activation and functional health status were measured six-weeks following hospital discharge. Six-weeks post-discharge marks a transitional period from post-operative recovery to living with and managing a life-threatening chronic illness (Taylor *et al.* 2010), making it an appropriate time to measure patient activation and functional health status.

Sample

This study was conducted on two medical-surgical units at a Magnet-designated academic medical center in the Midwestern United States: one unit cares for cardiac surgical patients, including those having surgery for coronary, congenital, or valvular heart disease and one unit cares for surgical oncology patients, including those having surgery for gastrointestinal and lung cancers.

An a priori power analysis using G*Power 3 (Faul *et al.* 2010) estimated the required sample size of 114 subjects for a multiple linear regression model (hypothesis 3) with a fixed effect for diagnosis, power of 0.8, a medium effect size ($f^2=.15$), an alpha of .05, and 8 predictors. Oversampling due to an estimated attrition rate of 30% gave a target enrolled sample size of 163.

A convenience sample of post-surgical cancer and cardiac patients was selected using the following inclusion criteria: (1) at least 18 years of age; (2) able to speak and read English, (3) had surgery during the present hospitalization for a cancer or cardiac diagnosis; (4) stayed at least 2 nights in the hospital; and (5) had telephone availability for post-discharge data collection. Patients who were enrolled in palliative or hospice

care, had a documented cognitive deficit or developmental delay, or were discharged to a rehabilitation facility were excluded from this study.

A total of 250 patients were screened, 179 patients were eligible, and 164 consented. Of the 164 patients, 144 completed the all pre-discharge measures, and 127 completed the six-week discharge interview. The 17 patients lost to follow up at six-weeks post-discharge did not differ from the rest of the sample on age, SES, race, pre-discharge patient activation time since diagnosis, LOS, or type of illness. Consistent with PAM-13 scoring recommendations, fourteen patients who answered “strongly agree” for every item were excluded from the final sample. The excluded patients also did not significantly differ from the remaining sample on patient characteristics and illness factors. The final sample had 113 patients.

Measures

Patient characteristics and illness factors.

Patient characteristics (age, SES, race, pre-discharge patient activation) were collected from patients at the time of enrollment, usually the day before discharge. SES was calculated using Hollingshead Four Factor Index of Social Status (Hollingshead 1975). Pre-discharge patient activation was measured with the PAM-13 (described below). Illness factors were collected directly from the patient (time since initial diagnosis) and from medical records (length of stay and diagnosis). Additional patient characteristics (gender, education level, marital status, live alone, and prior hospitalizations for the same diagnosis) and illness factors (stage of cancer or heart failure, surgical procedure) were collected for sample description. Patients' telephone

numbers and preferred time for the follow-up telephone interview were collected on a contact information form.

Patient perceptions of patient-empowering nurse behaviors.

Patient perceptions of patient-empowering nurse behaviors were measured with the Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS), a newly constructed 45-item scale that has 7 subscales: (1) Initiation (5 items); (2) Access to Information (7 items); (3) Access to Support (10 items); (4) Access to Resources (6 items); (5) Access to Opportunities to Learn and Grow (5 items); (6) Informal Power (5 items); and (7) Formal Power (7 items). Items were rated by patients on an 11-point Likert scale with 0 meaning “not at all” and 10 meaning “a great deal”. Total scores for the PPPNBS range from 0 to 450, with greater scores indicating higher perceptions of patient-empowering nurse behaviors.

Patient activation.

Pre-discharge and six-week post-discharge patient activation was measured with the 13-item Patient Activation Measure (PAM-13). Originally 22-items, the PAM-13 measures patients’ self-reported knowledge, skill, and confidence for self-management of their health or chronic illness (Hibbard *et al.* 2004). Scores on the PAM-13 account for 92 percent of the variance in the 22-item instrument (Hibbard *et al.* 2005). The PAM-13 is not condition-specific and therefore can be used with a wide array of patients. Items are scored on a scale from 1-4 with 1 meaning “strongly disagree” and 4 meaning “strongly agree”. Patients are assigned a total raw score ranging from 13 to 52, which is then converted to an activation score of 0 to 100 through a calibration table. The calibrated activation score was used in analyses, with higher scores indicating higher

activation. The calibrated activation score can also be categorized into four levels of patient activation.

Functional health status.

The SF-36 was used to measure functional health status. The SF-36 consists of three levels: 36 items, 8 subscales, and 2 summary measures. The items of the SF-36 ask individuals to recall their experiences over the prior four weeks. The mental component summary measure (MCS) includes vitality, social functioning, role-emotional, and mental health subscales; the physical component summary measure (PCS) includes, physical functioning, role-physical, bodily pain, and general health subscales (Ware & Sherbourne 1992). MCS and PCS measures are transformed aggregate scores (sum of z-scores of subscales multiplied by mental or physical factor score coefficient) to t-score based scoring (mean 50, SD 10). The MCS and PCS measures were used in analyses as a measure of mental and physical functional health status. The SF-36 has demonstrated its ability to detect group differences in both physical and mental health status (Ware *et al.* 1994).

Data Collection

Data were collected between August 2012 and February 2013. Informed consent was obtained prior to the day of discharge, at which time the contact information form, enrollment form, and pre-discharge PAM-13 were completed. The PPPNBS was placed in patients' charts and was given to patients by either their nurse or the research staff within four hours before discharge, The PPPNBS was returned in a sealed envelope. If patients were discharged without completing the PPPNBS, they were contacted by the research staff within two days of their discharge and the PPPNBS was completed over the

telephone. Six patients' (5.3%) data were obtained by this mechanism. Six-weeks following discharge, patients were contacted for a telephone interview at which time the post-discharge PAM-13 and SF-36 (MCS and PCS) were completed.

Ethical considerations

Institutional Review Board (IRB) approval was obtained from university and hospital institutional review boards

Data analysis

Analyses were conducted using SPSS version 18.0 (SPSS Inc., Chicago, IL, USA) and Stata version 11.0 (Stata Corporation 2009a). Variables used in analyses were checked for normality using graphs and extreme outliers were winsorized (Tabachnick & Fidell 2007) to the next highest or lowest number. Missing data on the PPPNBS and PAM-13 were mean-substituted if more than 70% of item responses were completed. Descriptive statistics were calculated for sample description and for patient characteristics, illness factors, PPPNBS, PAM-13, MCS, and PCS.

Predictors of PPPNBS, post-discharge PAM-13, and SF-36 (MCS and PCS) were analyzed by two separate systems of three simultaneous multiple linear regression equations. This estimation model allowed for testing of direct and indirect relationships among variables that appear in more than one equation, while adjusting the estimates for correlated standard errors among the equations (Davidson & MacKinnon, 1993). To reflect the sequential nature of the relationships, outcome variables in one equation became predictor variables in the subsequent equation, while accounting for the presence of all other variables. This approach allowed the researcher to evaluate the independent contribution of each predictor to the outcome (Stata Corporation 2009b). A significance

level of $p < .05$ was used for all analyses. All equations were calculated with robust standard errors and fixed effect for diagnosis (which also controlled for nursing unit). Because of the broad range of time since diagnosis, a fixed effect for new diagnosis (diagnosed less than one year prior) was included.

In the first equation of the first system, PPPNBS total score was the dependent variable and patient characteristics (age, SES, race, pre-discharge PAM-13) and illness factors (days since initial diagnosis, type of illness, and length of stay) were the predictors (equation 1, hypothesis 1). In equation 2 (hypothesis 2), six-weeks post-discharge PAM-13 was the dependent variable and PPPNBS total score was added to the predictors from equation 1. In equation 3 (hypothesis 3), MCS was the dependent variable and patient characteristics, illness factors, PPPNBS total score, and post-discharge PAM-13 were the predictor variables. In the second system of equations, PCS replaced MCS (equation 4; hypothesis 3) as the dependent variable and the predictor variables remained the same.

Validity/reliability

The PPPNBS is based on an integrated model of Kanter's (1993) work empowerment theory and Lashinger et al's (2010) patient empowerment model, supporting its content validity. Preliminary psychometric testing of the PPPNBS was conducted with 28 post-surgical patients prior to this study. Following minor item revisions, the instrument demonstrated acceptable reliability. In this study, Cronbach's alpha reliability estimate for the total scale was .98 and all subscales exceeded .70. The PAM-13 and SF-36 have been widely used in prior studies with patients with chronic illnesses and have been validated and tested for reliability by several studies (Ware n.d.,

Shmueli 1998, Hibbard *et al.* 2005, Skoloasky *et al.* 2011a). In this study, Cronbach's alpha reliability estimate for pre-discharge PAM-13 was .85 and for six-week post-discharge PAM-13 was .87. Cronbach's alpha reliability estimates for the subscales comprising the MCS measure were between .77 and .89 and for the PCS measure were between .79 and .91 in this study.

Results

Description of the Sample

Characteristics of the sample are presented in Table 2. The 113 patients used in analyses included 50 females (44%) and 63 males (58%). The sample included a range of ages from 24 to 87 with a mean age of 57.6 (SD=12.7). Seventy-one percent of patients were married and 12% lived alone. The Hollingshead 4-Factor Index of Social Status mean score (SES) was greater than the scale's median value of 37 with 45% of the sample reporting they were college graduates. The sample was primarily Caucasian (84%) with 9% African American. Eighty-three percent of the sample reported a pre-discharge patient activation level categorized as level three (beginning to engage in self-management behaviors) or level four (difficulty sustaining self-management behaviors during stress). There were 27 cardiac (24%) and 86 (76%) cancer patients in the study; each hospitalized on their respective units.

Time since initial diagnosis (in years) was significantly higher for cardiac patients than cancer patients ($t(26.72) = 3.03, p=.005$); however, time since initial diagnosis was not a significant predictor in any of the equations. Cardiac and cancer patients did not differ significantly by age, SES, race, pre-discharge PAM-13, LOS, and illness type.

Patients reported high perceptions of patient-empowering nurse behaviors, with a mean PPPNBS total score of 381.5 ($SD = 59.6$, range 134-450) and item mean of 8.5 ($SD = 2.0$) out of 10. Patients' six-week post-discharge PAM-13 scores were skewed toward higher activation ($M=68.8$, $SD = 12.5$, Range 41.7-91.6), with the majority of patients reporting level four activation (56%). Three percent of patients were in level one, twelve percent in level two, and twenty-nine percent in level three. Both MCS ($M=49.8$, $SD = 9.6$, Range 20.2-66.0) and PCS ($M=41.7$, $SD = 8.8$, Range 20.6-62.8) measures were below the general population norm ($M=50.0$) (Ware, n.d.). There was not a significant change ($t(112) = -.60$, $p=.55$) between pre-discharge PAM-13 ($M=68.0$, $SD = 12.5$) and six-week post-discharge PAM-13 ($M=68.8$, $SD= 12.5$) for the total sample but there was a significant increase between pre-discharge PAM-13 ($M=55.9$, $SD=7.1$) and six-week post-discharge PAM-13 ($M=63.5$, $SD=12.2$) in those patients in levels one through three at baseline ($t(48) = 4.63$, $p <.001$). Seventy percent of patients who were in level four of patient activation pre-discharge remained in level four six-weeks post-discharge.

Predictors of PPPNBS, PAM-13, and SF-36

The results of the simultaneous equation models (equations [1-4]) are presented in Table 3. Patient characteristics and illness factors were not significant predictors of PPPNBS (equation 1; hypothesis 1). Patient characteristics, illness factors, and PPPNBS explained 30.6% of six-week post-discharge PAM-13 variance (equation 2; hypothesis 2). Race, pre-discharge PAM-13, and PPPNBS were significantly associated with six-week post-discharge PAM-13. A one point increase on the PPPNBS (scale range of 450 points) was associated with a .04 ($p= .02$) point increase on the six-week post-discharge PAM-13 and Caucasian patients scored, on average, 6.8 points higher ($p=.03$) on the six-

week post-discharge PAM-13 than non-Caucasian patients. Patient's pre-discharge PAM-13 was significantly associated with their six-week post-discharge PAM-13 ($B=0.42, p<.001$).

Patient characteristics, illness factors, PPPNBS, and six-week post-discharge PAM-13 explained 27% of the variance in MCS (equation 3; hypothesis 3). A one point increase on the six-week post-discharge PAM-13 (scale range of 100 points) was directly associated with a .27 point ($p<.001$) increase on the MCS measure. Patient characteristics, PPPNBS, and six-week post-discharge PAM-13 were not significant predictors of PCS (equation 4; hypothesis 3). Only length of stay was a significant predictor of PCS. Each one day increase in length of stay was associated with a .54 point ($p=.02$) decrease in the PCS measure.

Discussion

The results of this study provide preliminary evidence of a path of association from patient perceptions of patient-empowering nurse behaviors during acute care hospitalization through patient activation at six weeks post-discharge to mental functional health status. These findings are consistent with prior studies which have demonstrated a significant association between the method in which nursing care is delivered during hospitalization and patient outcomes after discharge (Suhonen *et al.* 2007, Weiss *et al.* 2007).

When controlling for level of patient activation prior to discharge, patient-empowering nurse behaviors were significantly associated with post-discharge patient activation levels. Although the coefficient was small, we are optimistic that these findings provide support for the contribution of patient-empowering nurse behaviors to

patient participation in self-management behaviors during a stressful transition period following a surgical procedure for a life-threatening chronic illness. While the PAM-13 was not used to measure self-management directly in this study, it was used as a precursor to engagement in self-management behaviors, as knowledge, skill, and confidence are necessary components in the process of patient self-management. The findings in this study are consistent with prior studies which have shown improved knowledge, confidence, ability to self-manage, autonomy, self-capacity building, and purposeful participation in patients exposed to interventions incorporating an empowering approach (Munn 2010). Future studies should focus on tailoring patient-empowering nurse behaviors to baseline patient activation levels, as prior studies have demonstrated that tailored interventions improve patient activation levels and engagement in self-management behaviors in patients with chronic illness (Ryan & Lauver 2002, Hibbard *et al.* 2009, Shively *et al.* 2013).

There have been numerous studies that have found significant positive associations between confidence levels in self-management and functional health status in individuals with a chronic illness (Riazi *et al.* 2004, Weng *et al.* 2010, Yoo *et al.* 2011) and between patient activation levels, mental functional health status (Green *et al.* 2010), and depressive symptoms (Hibbard *et al.* 2007, Skolasky *et al.* 2008). While there was a significant positive association between six-week post-discharge patient activation level and mental functional health status in this study, both outcome measures were collected at the same time. Future studies should measure functional health status and post-discharge patient-activation at different time points to validate the sequential nature of the influence of patient activation on functional health status or vice versa.

Interestingly, patient perceptions of patient-empowering nurse behaviors and patient activation were not significant predictors of physical functional health status. Factors such as activity restrictions and pain following surgery may have impacted a patient's PCS measure. Being asked to recall their general health over the last four weeks for the SF-36 may have diminished the association with patient perceptions of patient-empowering nurse behaviors and patient activation. Prior studies that have shown a positive association between patient activation levels and physical functional health status were conducted with medical patients who did not have the same restrictions and pain as post-surgical patients (Hibbard *et al.* 2007, Green *et al.* 2010). Skolasky *et al.* (2011) demonstrated significantly improved physical functional health status following spine surgery among patients in the highest level of activation prior to surgery. In future studies, increasing the measurement interval to allow for recovery from surgery and the four-week recall period used in the SF-36, or measuring a baseline physical functional health status before the surgery, may produce a more accurate assessment of physical functional health status after discharge.

The patients in this study had a high patient activation levels, with 57% of the sample being in level four at baseline and 56% being in level four six-weeks post-discharge; whereas prior studies found that between 17.2% and 41.4% were in level four of patient activation (Hibbard & Cunningham 2008, Skolasky *et al.* 2011a, Shively *et al.* 2013). Patients were predominantly Caucasian and well educated, factors that have been associated with higher patient activation levels in prior studies (Hibbard *et al.* 2005, Street *et al.* 2005, Alegria *et al.* 2008, Hibbard *et al.* 2008, Lubetkin *et al.* 2010). Replicating this study in individuals with a lower baseline patient activation level may

generate different results given that pre-discharge patient activation level was a significant predictor of six-week post-discharge patient activation level.

Meleis' Transitions Theory and the Individual and Family Self-Management Theory provided useful theoretical frameworks to evaluate the relationships between patient perceptions of patient-empowering nurse behaviors, patient activation, and functional health status (Meleis *et al.* 2000, Ryan & Sawin 2009). The study findings supported Meleis *et al.*'s (2000) proposition that nursing therapeutics, represented by patient-empowering nurse behaviors, can impact patterns of response, measured as six-week post discharge patient activation and functional health status. The study findings also support Ryan and Sawin's (2009) proposition that processes of self-management, facilitated through patient-empowering nurse behaviors, impact self-management outcomes, measured as six-week post-discharge patient activation and functional health status. Future testing must be done to refine the relationship between patient activation and functional health status in this population.

Strengths and Limitations

Strengths of this study include linking nursing behaviors during hospitalization with patient outcomes following discharge using a theory-guided approach. Examining the experience of two different patient types captured a broad range of post-surgical post-discharge experiences. Lastly, using simultaneous equations modeling to test the complete sequential path of influence from nurse behaviors during hospitalization to patient activation and to functional health status six-weeks post-discharge, within a prospective longitudinal design, was also a significant methodological strength.

The process of patient empowerment was measured with the PPPNBS, a patient-reported measure of nursing behaviors. The instrument asked patients to recall the patient-empowering behaviors of the nursing staff only, so that the unique contribution of nursing care to patient activation and functional health status could be determined. Discerning which providers exhibited patient-empowering behaviors may have been difficult for some patients, influencing the way the patient interpreted and answered the items. Additionally, the PPPNBS asked patients to perceive the patient-empowering nurse behaviors of the nursing staff as a whole; however, some patients may have answered the survey while keeping in mind one nurse that may have been particularly empowering or disempowering. The PPPNBS has demonstrated acceptable reliability and validity in pilot testing and in this study; however, it should be subjected to comprehensive testing with other patient populations, including non-surgical patients.

The nurses in this study provided usual nursing care, therefore the PPPNBS did not measure patient-empowering nurse behaviors directly. It will be important in future studies to evaluate patient perceptions of patient-empowering nurse behaviors while nurses engage in deliberate patient-empowering nurse behaviors. However, patient perceptions of nurse behaviors are an important patient-reported outcome measure of patient experience and are consistent with healthcare priorities for improving patient-centered care.

This study was conducted at one academic Magnet-designated medical institution in the United States with predominantly Caucasian participants. Magnet designation is awarded to hospitals recognized as having high quality nursing care including strong leadership, empowered professionals, and exemplary practice (ANCC 2013).

Replication at other sites, including non-Magnet hospitals, is recommended.

Additionally, the nurses practicing on the two units knew that this study was being conducted and a Hawthorne effect may have been introduced into the study.

The outcome variables used in the analysis were negatively skewed and normality was not achieved using logarithmic and square root transformations. The simultaneous equation modeling proceeded using robust standard errors with recognition of the need for cautious interpretation in the presence of violation of the normality assumption. Additionally, patient activation and functional health status were not measured prior to the hospitalization or exposure to patient-empowering nurse behaviors, therefore the impact of the surgery and patient-empowering nurse behaviors on change in patient activation and functional health status was not known. Overall this study looked at associations between variables and not causality. While some other known factors impacting the outcome variables are included in the modeling of associations, all competing explanations were not fully specified in the model and further research will be needed to explore the relationships in more depth.

Conclusion

Examining the relationship of patient reports of patient-empowering nurse behaviors to patient activation and functional health status six-weeks post-discharge provides further quantitative evidence supporting the relationship between quality nursing care and post-discharge patient outcomes. Patient empowerment is an important concept to nursing because nurses are responsible for discharge preparation and ensuring that patients have the skills and knowledge they need before discharge in order to navigate their way through their transition from hospital to home (Foust 2007, Weiss *et*

al. 2007, Nosbusch *et al.* 2011). Patient empowerment should be practiced not only in outpatient settings, but also in inpatient settings, as post-surgical patients with life-threatening chronic illnesses demonstrated that they are receptive to patient-empowering nurse behaviors.

Nurses should be educated about the importance of being intentional in their methods of delivering care to post-surgical patients through patient-empowering nurse behaviors with the goal of promoting patient activation. Nurses should not only provide education about chronic illness self-management, but also encourage patients to be active participants in their care while offering them access to information, support, resources, opportunities to build on prior knowledge and skills, helping them establish collaboration with other providers and family or friends, and giving them flexibility and autonomy in decision making. Patient-empowering nurse behaviors can be used to facilitate engagement in self-management behavior, improve functional health status, and ultimately improve the cost of chronic illness care through improved patient activation. Measuring patient activation level at admission should be considered as a method to assist in tailoring patient-empowering nurse behaviors to patients' baseline knowledge, skill and confidence in self-management, in order to significantly impact patient activation, engagement in self-management behaviors, functional health status, and healthcare utilization following hospital discharge.

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Table 1
Relationships of Meleis' Transitions Theory¹ and the Individual and Family Self-Management Theory² to Study Variables and Measures

Meleis' Transitions Theory Concept	Nature of the Transition (Type & Properties)	Transition Conditions (Personal)		Nursing Therapeutics *			Patterns of Response
Individual and Family Self-Management Theory Concept	Context Risk & Protective Factors			Process of Self-Management			Proximal Outcomes
	Condition Specific	Physical & Social Environment	Individual & Family	Knowledge & Beliefs	Self-Regulation Skills & Abilities	Social Facilitation	
Theoretical Study Concept	Illness Factors	Patient characteristics		Patient-Empowering Nurse Behaviors			Patient Activation Functional Health Status
				a. Initiation b. Access to Information c. Access to Resources	a. Access to Opportunities to learn and grow	a. Access to Support b. Informal Power c. Formal Power	
Empirical Indicator	a. Length of time since initial diagnosis b. Type of Illness (Cancer vs. cardiac disease) c. Length of Stay d. Hospital Unit	a. Race b. SES	a. Age b. Pre-discharge PAM 13	Patient Perceptions of Patient-Empowering Nurse Behaviors Scale (PPPNBS)			Patient Activation Measure 13 (PAM 13) (Hibbard <i>et al.</i> 2005) SF-36 v.2 (Ware n.d.) - MCS - PCS

¹ (Meleis *et al.* 2000, Schumacher & Meleis 1994) ² (Ryan & Sawin 2009)

*Nursing Therapeutics are represented in this study as a way to facilitate the engagement of patients in the process of self-management. The actual process of self-management is not measured

Table 2

Sample Characteristics (N=113)

Patient Characteristic Variables	N	%	Mean	SD
Age			57.6	12.7
Socioeconomic Status ^a			44.6	13.7
Race				
White	95	84.1		
African American	10	8.8		
Asian	1	0.9		
Hispanic	3	2.7		
Other	4	3.5		
Total pre-discharge PAM 13			68.0	12.5
Illness Factors				
Time Since Initial Diagnosis				
0-60 days	27	23.9		
61-180days	38	33.6		
181-365 days	13	11.5		
> 365 days	35	31.0		
Length of Stay (days)			6.5	3.3
Type of Illness				
Cancer	86	76.1		
Cardiac Disease	27	23.9		
Additional Sample Descriptors				
Stage of pre-discharge PAM 13				
One	6	5.3		
Two	13	11.5		
Three	30	26.5		
Four	64	56.6		
Stage of Cardiac Disease ^b				
I	6	22.2		
II	16	39.3		
III	4	14.8		
IV	1	3.7		
Stage of Cancer ^c				
I	12	14.0		
II	21	24.4		
III	16	18.6		
IV	37	43.0		
Number of comorbidities			2.1	1.7
Gender				

Male	63	55.8
Female	50	44.2
Highest Completed Level of Education		
<High school	3	2.7
High School	25	22.1
Some College (at least 1 year)/Specialized Training	34	30.1
College Graduate	28	24.8
Graduate Degree	23	20.4
Marital Status		
Married	80	70.8
Single	17	15.0
Divorced	8	7.1
Other	8	7.1
Live alone		
No	100	88.5
Yes	13	11.5
Prior hospitalization for same diagnosis		
No	72	63.7
Yes	41	36.3

^aHollingshead (1975) Four Factor Index of Social Status

^bNYHA Heart Failure Classification System (American Heart Association 2013)

^cAJCC 7th edition (Edge *et al.* 2010)

Table 3
Results for Simultaneous Equation Estimation (n=113)

	Equation 1 PPNBS					Equation 2 Six-week Post-Discharge PAM-13				
	B	SE	95% CI		P>z	B	SE	95% CI		P>z
			Lower	Upper				Lower	Upper	
Six-Week Post-Discharge PAM-13										
PPNBS						0.04	0.02	0.01	0.08	0.02
Race	14.88	14.99	-14.50	44.27	0.32	6.82	3.05	0.83	12.80	0.03
Pre-discharge PAM-13	0.88	0.47	-0.04	1.80	0.06	0.42	0.09	0.24	0.59	0.00
LOS	0.08	1.54	-2.94	3.11	0.96	-0.24	0.24	-.71	.23	0.31
R ²	.10					.31				

	Equation 3 MCS					Equation 4 PCS				
	B	SE	95% CI		P>z	B	SE	95% CI		P>z
			Lower	Upper				Lower	Upper	
Six-Week Post-Discharge PAM-13	0.27	0.08	0.11	0.43	0.00	0.11	0.08	-0.04	0.27	0.16
PPNBS	0.00	0.02	-0.03	0.03	0.96	-0.01	0.02	-0.04	0.02	0.42
Race	0.27	2.45	-4.52	5.07	0.91	1.84	2.25	-2.56	6.25	0.41
Pre-discharge PAM-13	0.10	0.08	-0.05	0.25	0.19	0.06	0.08	-0.10	0.23	0.46
LOS	0.03	0.27	-0.49	0.56	0.90	-0.54	0.24	-1.00	-0.07	0.02
R ²	.27					.15				

Table Notes: The model was estimated using the simultaneous equations method with robust standard errors. Estimates are from linear regressions. Only significant predictors are displayed. All equations also included patient-level controls for age, socioeconomic status, type of illness [cancer, cardiac], time since initial diagnosis [in days], and new diagnosis [yes/no]. PPNBS – Patient Perceptions of

Patient-Empowering Nurse Behaviors Scale; PAM -13 – Patient Activation Measure; MCS – Mental Component Summary Measure; PCS – Physical Component Summary Measure