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# Effects of a Discharge Planning Intervention on Perceived Readiness for Discharge

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Effects of a Discharge Planning Intervention on  
Perceived Readiness for Discharge

Systems Change Project  
Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Nursing Practice

St. Catherine University  
St. Paul, Minnesota

Julia Sara Hager

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ST. CATHERINE UNIVERSITY

ST. PAUL, MINNESOTA

This is to certify that I have examined this  
Doctor of Nursing Practice systems change project

Written by

Julia Sara Hager

and have found that it is complete and satisfactory in all respects,

and that any and all revisions required by  
the final examining committee have been made.

Judith A. Johnson

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Name of Faculty Project Advisor

December 2010

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Date

DEPARTMENT OF NURSING

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### Abstract

This study was a quasi-experimental pilot study designed to determine the effectiveness of an interdisciplinary team to develop improved discharge teaching and process with inclusion of early provision of discharge goals, identification of barriers, and subsequent teaching and problem-solving of the barriers to impact patient perceived readiness for discharge. Discharge goals and barriers were identified early in the hospital stay for the intervention group and the control group received usual discharge planning. A questionnaire was given to the intervention group on admission to determine patient perceived goals and barriers. Based on the goals and barriers identified by the intervention group, the interdisciplinary team formulated an intensive discharge plan to meet patients' goals and overcome barriers identified on admission. The investigator provided written goals at the bedside, planning brochure with video, and an anticipated discharge date was posted. A Perceived Readiness for Discharge Scale was administered prior to discharge to both groups, and two follow-up questionnaires post discharge were administered through follow-up phone calls. The phone calls and follow-up questionnaires were administered by an advanced practice nurse at 48-72 hours post discharge and at 10-14 days post discharge to assess any adverse events, patient satisfaction with the discharge process, and preparedness for discharge.

This study contributed to knowledge present in the current literature which describes discharge planning and went further to investigate if an intensive discharge planning intervention through identification of goals and barriers early in the hospital stay improves perceived readiness for discharge. This study also looked at whether perceived readiness also influences patient satisfaction with the discharge process from hospital to home and if the concept of early identification of barriers and an intensive discharge process is associated with decreased adverse events and readmissions within 72 hours and 14 days post discharge.

The Effects of a Discharge Planning Intervention on  
Perceived Readiness for Discharge

Chapter 1

*Background and Significance*

Effective, comprehensive discharge planning has been studied by nursing researchers over the past two decades, especially since there has been an effort to shorten length of stay for hospitalized patients. The average length of stay for hospitalized patients has been shortened by three days for patients across all age groups and by seven days in older patients since 1970 (Popovic & Kozak, 2000). In response to shorter lengths of stay, past research suggests that the profession of nursing recognized early on that there were gaps between hospital and community-based healthcare agencies charged with continuity of care, transfer of information between providers, and discharge education of patients and families. Forster et al. (2004) suggested that nearly a quarter of medical patients experienced an adverse event within one month of discharge with some being preventable and some being a direct cause of treatment. One-third of these events were associated with disability and one-half required additional health services. Adverse events included errors in medication orders or prescription filling, infection, confusion about discharge teaching, and failure to follow up unresolved problems.

Throughout the literature there are reports of patients' inability to recall discharge instructions, patients describing lack of inclusion in the discharge process, families questioning their ability to care for patients at home, and shortage of outpatient resources such as public health or home care agencies that can help patients with the transition (Forster, Murff, Peterson, Gandhi & Bates, 2003). What went wrong with these discharges? And how did some patients return home without the information and confidence they needed for a successful transition?

What is the cost to our nation's health care system and to the patients we serve when we fail to provide adequate discharge planning to hospitalized patients?

Similar issues were present in the investigator's practice in regard to decreased patient satisfaction with the discharge process, lack of interdisciplinary team involvement, lack of patients and families feeling included in the discharge process, and known adverse events which included patients being sent home without necessary vital equipment, without a clear understanding of how to manage their care, and calls post-discharge regarding who to call with problems that had developed. At times, the lack of care coordination and tailoring to patient needs resulted in delays in discharge. Improving patient satisfaction as well as reducing post-discharge adverse events are relevant measures of a successful discharge process, and nurses bring a unique perspective of caring to this process. Because of this unique perspective and ever increasing complexity of the discharge process, nurses assume a vital role in providing and developing safe, cost effective, discharge planning.

Given the complexity of the discharge process, Medicare has set forth recommendations mandating a discharge plan be in place to identify patients who are likely to suffer adverse events post discharge. It further stipulates that health care organizations provide discharge planning evaluations by licensed personnel who account for patients' capacity for self-care and availability of post-hospital services. They must show documentation of the process in the medical record, evidence of family inclusion in the process, and reassessment of the discharge plan to account for change in condition (Department of Health and Human Services, 2004). Other accrediting bodies, such as The Joint Commission on Accreditation of Healthcare Organizations, recommend that a discharge plan be developed that is based on appropriate levels of continuing care and exchange of patient information with other providers and health care professionals (Department of Health and Human Services, 1997).

Discharge planning is an area in need of fresh, innovative change, a project worthy of this DNP systems change project.

### *Problem Statement*

The purpose of the discharge change project was to determine the effectiveness of the interdisciplinary team to develop improved discharge teaching and processes with inclusion of early provision of discharge goals, identification of barriers, and subsequent teaching and problem-solving of the barriers to impact patient perception of the discharge process. This study examined whether or not patient perception of the discharge process impacted the incidence of patient satisfaction, adverse events and readmission post discharge. By using these organizational outcome indicators, this study hoped to shed new light on the development of measurable outcomes for successful discharge to decrease cost and improve quality of care for patients.

### *Project Objectives*

Project objectives addressed in this change project were to determine: a) if the current discharge planning process was associated with improved patient satisfaction and consistent with improved outcomes as measured by reduced adverse events and readmissions post discharge, and b) to determine if early identification of patient goals and barriers improved patient readiness for discharge. Research questions for this project that reflect the objectives are: 1) Does early identification of patient discharge goals and expectations improve perceived readiness for discharge? 2) Does early identification of barriers to discharge affect perceived readiness for discharge? 3) Does early identification of goals and barriers to discharge improve discharge education provided by the interdisciplinary discharge planning team? 4) Does perceived readiness for discharge affect patient satisfaction post discharge? 5) Does perceived readiness for discharge affect incidence of adverse events within 72 hours of discharge and 14 days post



discharge?

### *Opportunities and Challenges*

Known deficits in the current discharge process led to several meetings and discussions with key organizational stakeholders to allow a closer look into the discharge process and how it could be improved. Leadership executives were enthusiastic about the project and provided support from the IRB. A PhD-prepared statistician was available for consultation in the early stages of project. Challenges included lack of formal funding for the project which did not allow for hiring ancillary staff to assist the investigator in identifying potential study participants or conducting the study interventions. Other challenges included partnering with the interdisciplinary team to follow-through with establishing discharge goals that were parallel to patient identified goals and communicating those goals through education to staff and patients. Much of this information transfer occurred at the weekly interdisciplinary team meetings with the investigator taking much of that information and reinforcing it at the bedside for the intervention group.

### *Organization's Mission*

This project is synonymous with the organization's mission of providing exceptional, patient-centered health care that improves the health and well-being of the population served. Research, education, and community partnership are vital to the vision of this project as well as to the institution. Organizational values of excellence, customer commitment, empowerment through self care, continuous improvement, and collaboration among providers, patients, and families are inherent in this systems change project and are realized by eliminating barriers, providing education, and promoting successful discharge to home.

### *Project and Social Justice*

Health care in the 21<sup>st</sup> century has proven to be both an exciting and concerning era for

professional nurses and the healthcare consumers we serve. Increasing numbers of older adults, biomedical advances, shortages of healthcare workers, medical costs, continuing health care disparities, and explosions of information technology have positioned nurses at a crossroads. Does the profession follow the path of least resistance, of familiarity? Or, do we forge ahead and blaze our own path? Our current health care environment has catapulted a movement to prepare nursing as a profession for positively impacting health policy and patient care through advanced, visionary clinical leadership, integration of evidence-based theory into practice and development of clinical practice models that focus on further expansion of holistic human values and ethical principles.

As a caring science, nursing has a unique opportunity to influence health care by advocating for the health and needs of others and society. Nursing has adopted a social justice philosophy which strives to positively influence public policy for the welfare of the poor, sick, and vulnerable by maintaining its belief in the inherent dignity of the human person. Social justice advocates influence society by giving voice to those who are suffering and by changing social structures that do not promote health and well being. Responsibility for this change is best assumed by the nursing profession that has historically been positioned at the forefront of patient-centered care. To move toward a health care system grounded in social justice principles, nurses must reflect on the rights of people by evaluating organizational structures for disparities, and working for long-term social change by effectively addressing gaps in health education, resources, and access. Nursing as a profession focuses on the common good, thereby grounding their practice in respect for human dignity, solidarity, family, care of the poor and vulnerable, human equality and right to life, charity and justice, active stewardship of resources, cultivating community and public participation in health, and promotion of peace.

Tyler-Viola, et al (2009) endorse the idea that the profession of nursing has a

commitment to fulfill a “social contract” for care with society because nurses represent the largest number of health care workers, thereby claiming leadership in social responsibility as their own. They further advocate that “The hallmark of professions, including health professions, is a commitment to society; it is inherent in the definition of a profession that societal commitment, as well as a code of ethics, should govern the activities of the profession” (Tyler-Viola, et al., 2009, p. 111). Social justice has been described in the literature dating from Florence Nightingale’s idea that social justice was a key element in caring for the sick to Boutain (2005) advocating that “unequal benefits and burdens are created in society” (p. 405) and affect all members regardless of their status to some degree.

Based on social justice principles, nursing has a duty to advocate for reinventing the discharge planning process because of the vast disparities and complexity of our nation’s health care system today. By using social justice principles embedded in sound discharge planning, this systems change project will provide commitment to care and education lasting far beyond the walls of the health care institution.

Within the current health care system, patients are discharged from the hospital earlier as limited resources are spread over larger groups. Consideration of who will receive services will fall on the shoulders of advanced practice nurses and other providers. Taking action for social justice involves working toward reducing system-wide differences that disadvantage specific groups and prevent those groups from receiving health care services. The elderly population accounts for a disproportionately high percentage of health care dollars and as our population ages, our health care system will undoubtedly be faced with decisions that may include rationing of health care services. Injustice occurs when health care decisions are adopted based on irrelevant patient-specific factors, such as age, and not on medical need. As health care institutions search for areas to cut costs, nurses must advocate that discharge planning should not

be included in these budget cuts, because thorough discharge planning and anticipation of patient needs post discharge has the potential to save the organization money through prevention, safety, and patient satisfaction.

Discharge planning becomes even more imperative when one considers social justice issues related to cultural and ethnic differences which can affect how discharge planning is approached (Jewell, 1993; Bull & Kane, 1996; Spehar et al, 2001). Hage & Kenny (2009) purport that encouraging the infusion of social and cultural diversity in health care education encounters can affect a person's worldview. Cultural issues related to disease management or health care prevention can be linked to how a particular community defines itself in the health care arena. For example, if a person of another culture refuses services because of unsubstantiated fears or beliefs, this will impact the health care providers' ability to successfully care for this patient and may result in undue harm or risk related to those beliefs. Chadiha et al., (1995) found that African-American patients discharged from the hospital used fewer formal services and had more tentative discharge plans due to a false assumption of increased caregiver availability than their white counterparts.

As a profession, nursing can continue to lobby for improved discharge education and planning by applying a framework of acting, reflecting, and transforming on issues that negatively affect discharge planning in their organizations. First, the nurse must act to alleviate symptoms of social problems, by familiarizing themselves with the issues. At this point the issue develops a "face" and the nurse begins to "own it." Secondly, reflect on the problems or issues. Ask yourself, "Why are patients leaving the hospital without adequate discharge planning or education?" Listen to those most affected by the problems and ask the deeper questions that challenge the current social structure; explore the underlying causes of these issues. Lastly, nurses are called to transform the social structures that contribute to suffering and injustice. Our

profession must develop a plan or take a different route of action in regard to the health care/social issue. Transformative action looks at the root of the problem and does not stop at alleviating symptoms. As nurses, we can transform our communities and assist our patients with successful, seamless discharges by empowering them to become self-advocating and independent health care consumers.

## Chapter 2

### *Theoretical Framework*

Nursing's body of knowledge expands from grand theories to mid-range theories, and nursing research is based on nursing theories that drive practice. Grand theories are broad and do not generally lend themselves to testing, but nursing must continually base its practice and research on theory that gives a basis for elements being studied. The theoretical framework used in this systems change study is Orem's Theory of Self Care. The central concepts in this nursing theory address self-care deficits and nursing's role in helping the patient learn to care for self again. Orem's theory takes into consideration internal and external factors which may include the home environment, social support systems, and community resources that affect a person's ability to engage in self care as they prepare for successful discharge home. The self-care paradigm incorporates self care, which is caring for oneself to promote well-being and optimal health, and its relationship with the self-care agency, described as a person's abilities to perform self-care behaviors necessary to maintain health. This can be influenced by several factors such as age, gender, community resources, family systems, environmental factors, cultural influence, current health state, and health care system (e.g. treatment recommendations) (Kearney-Nunnery, 2008). Self-care deficit occurs when the demands for self care are greater than the person's ability to meet self care agency needs. Self-care agency is spontaneously learned and develops out of a need for individuals to interact with their current health situation and environment, specifically encouraging them to overcome obstacles and allow them to engage in care that results in successful self-care practice (Soderhamn, 2000).

Orem stressed the importance of understanding the care needs of patients and thought of this as the starting point in the patient's illness, which parallels the concept of asking patients early in their hospital stay what they perceive to be goals and barriers for discharge. By

engaging the patient in the discharge process, and thereby, encouraging them to partner with the health care team to anticipate discharge planning barriers, it allows the interdisciplinary team to assist individuals in decision-making about their discharge plan, provide education to overcome barriers, include family and community support systems in care planning, and allow for identification of social, cultural and ethnic values and beliefs that can potentially prevent an individual from overcoming self-care deficits. This theory has been used extensively in the acute-care setting as well as populations invested in health maintenance, symptom management, and chronic illness which are but a few of the issues facing patients who are contemplating complex discharge planning (Moore & Pichler, 2000).

### *Literature Review*

As patient needs increase, as the population ages, and as lengths of stay decrease, transitions between hospitals and home or skilled care facilities will become more complex. Carroll and Dowling (2007) identified essential elements for discharge planning that included communication, coordination, education, patient participation and collaboration between health care personnel as key concepts for successful discharge. Weiss et al. (2007) found that higher quality discharge teaching correlated with more favorable perception of discharge readiness. Bull and Roberts (2001) described four stages in complete, safe hospital discharge planning which included: 1) assessment of the patient, 2) development of an initial discharge plan, 3) implementation of the plan, and 4) assessment of the transition back to the community and post-discharge follow-up. In addition to these stages, expanding the assessment of the patient to include perceptions of their abilities to return home and their active involvement in the discharge process provides a “seamless” transition from hospital to home. The discharge process needs to be multidisciplinary and tailored to “where the patient is now” versus “where healthcare providers believe they should be” given the complexity of the process. This framework was felt

to encompass important concepts worthy of investigation in this study.

Review of the literature suggests there have been several qualitative studies done to address quality-of-life issues related to lack of discharge planning and health care provider perceptions of the discharge planning process (Bull & Kane, 1996; Evans & Hendricks, 1993; McMurray et. al, 2007; Bauer, Fitzgerald, Haesler, & Manfrin, 2009) as well as quantitative studies focused on adverse events and readmission rates post discharge (Phillips et. al, 2004; Jencks, Williams, & Coleman, 2009; Evans & Hendricks, 1993; Jack et al., 2009). The literature is peppered with studies from the U.S. Australia, England, Netherlands, Sweden, Canada and other countries detailing similar problems and issues associated with discharge planning.

There is a paucity of data in the literature using controlled trials on discharge planning effectiveness, but a study by Moher, Weinber, Hanlon, & Runnals (1992) did find statistically significant patient satisfaction associated with augmented discharge planning. Only in the past one-two years has there been an upsurge of studies focusing on discharge planning process itself. Jack et al. (2009) did a randomized control trial of 749 patients and found that patients who received intensive discharge planning, which included medication reconciliation, written patient education and follow-up phone call by a pharmacist after discharge, reported increased preparedness for discharge compared to the control group. This patient-centered discharge process focused on multidisciplinary delineation of roles and responsibilities in the discharge process and intensive education which lowered the rate of readmissions post discharge. Forster et al. (2004) did a prospective study of 328 hospital patients using telephone interviews and chart reviews to pinpoint discharge outcomes and found that 23% of patients experienced an adverse event post discharge. Jencks et al. (2009) did a prospective study of Medicare Provider Analysis and Review files (MEDPAR) for 11, 855,702 Medicare patients and reported that 19.6% of



patients discharged from the hospital are readmitted within 30 days, and 34% are readmitted within 90 days. Those patients readmitted within 30 days did not have evidence of a follow-up outpatient provider visit prior to their re-hospitalization. Jencks et al. (2009) also found that the highest rates of re-hospitalization occurred with those medical patients discharged with a diagnosis of heart failure, pneumonia, COPD, psychoses or GI problems and for surgical patients, post cardiac stent placement, orthopedic surgery, bowel surgery and vascular surgery were the most frequent diagnoses requiring readmission. Increased rates of readmissions varied by state and the reason for re-hospitalization was more highly correlated with number of previous hospitalizations and length of stay rather than age, sex, black race, or disability (though not specifically defined). Holland et al. (2006) developed a screening tool to identify users of hospital discharge planning services and “found that age, disability, living alone, and self reported walking limitation” (p. 3) were more predictive of needing post-discharge care which points out there is some conflicting evidence in the literature regarding discharge planning. Nursing research lead by Naylor et al. (1999) initiated intensive discharge planning and home follow-up by advanced practice nurses with reported readmission rates within 24 weeks post discharge to be 37.1% for the control group and 20.3% for the intervention group suggesting that close monitoring patients post discharge can provide cost-effective measures of care.

Looking at discharge planning from the patient’s perspective has been studied very little since the mid 1990s. The provider driven model, where needed information is provided by the team, to a model focusing on patient-centered care where individualized needs, views, cultural/religious beliefs and environmental barriers are considered has been vastly overlooked. Developing a new paradigm in discharge planning focused on molding the discharge plan to the patient rather than wasting resources on crafting a plan that the patient may not or cannot follow allows for consideration of both quantitative and qualitative research to be useful because patient

and family perspectives guide teaching.

Bull & Kane (1996) and Bull & Roberts (2001) have done extensive qualitative research on elders discharging home and have identified interdisciplinary team involvement, open communication, and family involvement as key issues in discharge planning. Bull, Hansen, & Gross (2000) also developed an educational program for heart failure patients that encouraged elderly patients and caregivers to identify discharge planning needs and found these patients scored higher in discharge preparedness.

Rose and Haugen (2010) surveyed patients and staff regarding the discharge process and found that as the process became more organized through development of an anticipated discharge date visible in patient rooms and post-discharge roles were more defined, staff and patient perception of the discharge process improved.

Another useful measurement might be patient satisfaction and avoided costs related to improved staff retention. Patient satisfaction is difficult to estimate and is usually reported as an intangible benefit. Intangible assets are those that have potential to facilitate “improved public image, increased job satisfaction, increased organizational commitment, reduced stress, and improved teamwork” (Phillips & Phillips, 2006, p. 22). If the conversion of data to monetary values is too subjective or immeasurable, the benefit is considered intangible, and it is up to the organization to consider whether these non-fiscal assets have merit and value. In some institutions, non-monetary benefits command as much energy and influence as items assigned pecuniary value. Patient satisfaction could potentially be extrapolated to staff satisfaction because improved patient satisfaction can emphasize a job well done. Several studies have looked at nursing staff turnover to quantify an estimated cost of replacing nursing staff, making nursing satisfaction a significant cost to the organization (O’Brien-Pallas et al., 2006; Hall, 1981; Contino, 2002; Bland Jones & Gates, 2009; Bland Jones, 1992; Bland Jones, 2004). Estimated

costs have ranged from \$10,000-33,000 per employee lost and include items such as advertising and recruitment, vacancy costs (e.g. paying for agency nurses, overtime, closed beds, hospital diversions), hiring, orientation and training, cost of management time with new employees, decreased productivity for new hires, background and reference checks, termination procedure, potential patient errors and compromised quality of care, poor work environment and culture with dissatisfaction and distrust of remaining workers, loss of organizational knowledge or “competitive advantage”, and additional turnover related to further staff dissatisfaction (Bland & Gates, 2009; Contino, 2002; Hall, 1981).

After an exhaustive search, there were no studies looking at the relationship between staff satisfaction and more specifically, discharge planning/patient outcomes, but many studies suggest there is a relationship between nursing turnover and quality of care. One study by VHA (2002) purports that organizations with a lower turnover rate (e.g. 4-12%) had a lower risk-adjusted mortality and lower lengths of stay than their counterparts with higher turnover rates. A Canadian study by Minore et al. (2005) reported negative effects in regard to communication, medication management, compromised follow-up, client disengagement, illness exacerbation, and increased family burdens of care when nursing turnover rates were high. A California study examined the effects of high patient-to-nurse ratios and found that surgical patients experienced higher risk of mortality and nurses experienced increased rates of burnout and job dissatisfaction (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). Studies specifically addressing the relationship between patient safety and nursing turnover are lacking, but many studies (Minore, et. al., 2005; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007; VHA, 2002; Aiken, et. al., 2002) elude that there may be a significant relationship between these entities.

Calkins et al. (1997) support findings that patients’ express a lack in understanding of activity restrictions and medication use, but go on to purport that there is a disconnect between

provider perception and patient perception of discharge instruction and process. Spehar et al. (2001) did a retrospective qualitative study looking at factors associated with readmissions and found themes similar to other studies related to cultural barriers in understanding medical interventions, inconsistent and lack of follow-up care, and confusion regarding medication use and side effects.

A qualitative study by Boughton & Halliday (2009) expanded on the patient's perspective with interviews of 14 caregivers and patients. Immerging themes of patients' describing *fear* related to lack of information and ability to handle problems with self care influenced their perception of wanting to return home; remaining in the hospital was perceived to be more secure. Still, there has been limited research to date addressing identification of individualized patient needs prior to discharge, patient perceived readiness for discharge, patient satisfaction with the discharge process, and the development of general discharge criteria to facilitate a patient's potential for discharge. Shepperd, et al. (2009) did a Cochrane meta-analysis and found that a study by Moher et al. (1992) reported increased patient satisfaction with intensive discharge planning interventions. Improving patient satisfaction and reducing post-discharge adverse events are relevant measures of a successful discharge process, and nurses bring a unique perspective of caring to this process.

Discharge planning interventions are not exclusively studied in the nursing and medical literature; there are several references in the social work, occupational therapy, bioethical, and physical therapy data bases detailing problems and observations related to post-hospital care. Many of these resources look at ethical issues related to discharge planning, but Smith, Fields, and Fernandez (2010) did a retrospective study which found readmission rates to be 2.9 times higher within 30 days of discharge when providers failed to follow physical therapy recommendations for discharge services.

Interestingly, there has been discussion on Capitol Hill by the Senate Finance Committee to withhold 20% of inpatient Medicare payments for hospitals who have higher readmission rates, and levying a 5% penalty for those with readmission rates that are higher than the industry standard (Bhalla & Kalkut, 2010). This has developed out of new health care reform efforts to reign in health care costs given the generous Medicare policy that pays for all readmissions except for those within 24 hours of discharge for the same condition for which the patient was initially hospitalized (Mor, Intrator, Feng, & Grabowski 2010). The current system lacks incentives for hospitals to address the discharge planning process, and as health care reform is molded, the current framework may give hospitals the impetus to take a “second look” in making major, long-lasting changes and investments in their discharge process.

## Chapter 3

### *Project Design and Methodology*

The study setting was a 75-bed sub acute, urban hospital medical-surgical unit. The beds were distributed over three wards with two wards having 25-32 medical-surgical patients and the third ward having 8-12 similar patients together with hospice patients. Patients were randomly assigned to each ward according to bed availability on any given day. The patient population ranged from adult to elderly with >95% of the patients being male. Sixty to seventy percent of patients admitted to these units were discharged home, and the patient population was culturally diverse. Demographic data depicted in Table 1 was collected on admission in order to characterize the population. Exclusion and eligibility criteria are listed in Table 2. The study received IRB approval from the participating hospital and the university. The initial research timeline was felt to be a year for data collection, however, the study ended early due to ongoing efforts to improve the discharge process which were felt to be in direct conflict with continuation of the study.

The pilot study design, with a sample size of 30, was a quasi-experimental design with a control group and intervention group. The hypotheses for this study were: 1) Early identification of patient discharge goals and expectations positively affects perceived readiness for discharge, 2) Early identification of barriers to discharge positively affects perceived readiness for discharge, 3) Early identification of discharge goals, barriers and educational needs improves the interdisciplinary team's educational plan for patient discharge needs, 4) Positive perceived readiness for discharge improves patient satisfaction post discharge, and 5) Positive perceived readiness for discharge decreases incidence of adverse events and readmissions within 72 hours and 14 days post discharge. Independent and dependent variables identified in the study are shown in Table 3.

The sample size for this study was statistically determined from data obtained by Moher et al. (1992). Power calculations from Moher's data revealed a z-test comparing two proportions with a 0.050 two-sided significance between the intervention group proportion of 89% and a control group proportion of 62% satisfaction (odds ratio of 0.202) with an estimated sample size of 39 in each group for this study. An attempt was made to obtain slightly higher sample size to improve statistical significance (with initial output estimates projecting a target sample of 75-100 patients), but post discharge assessment gained significant momentum at the study institution resulting in premature and unforeseeable impetus by the organization to embark on an ambitious campaign to call all patients being discharged from the hospital (early in the study's inception) to elicit information in regard to patient satisfaction and preparedness post-discharge. A task force was also assembled with representatives from a five state area to develop a discharge phone questionnaire. This may have affected the estimated outputs for this project because some of the data collected for both the intervention and control groups was influenced by discharge phone calls conducted by the institution.

#### *Evidence-based Project Implementation*

In this study, the control group received usual discharge planning and the intervention group received an extensive discharge planning program. The control group received usual discharge planning which included weekly interdisciplinary team discharge rounds to assess patient needs, an interdisciplinary team conference within two weeks of admission to establish care planning issues, dietary consultation for dietary needs, physical therapy and occupational therapy care planning if consultation is initiated by the provider, and social work involvement for disposition.

The intervention group received intensive discharge planning material which included: a) an admission questionnaire assessing patient perceived goals and barriers to discharge

Table 1

## Demographic Data of Subjects

|                         |  |
|-------------------------|--|
| Age                     | a)Recorded in years  |
| Sex                     | a)Male<br>b)Female   |
| Race                    | a)White<br>b)Black<br>c)Hispanic<br>d)Asian<br>e)Other   |
| Education               | a)Less than high school<br>b)Some high school<br>c)High school graduate or GED<br>d)Some college or vocational training<br>d)4-year college degree or higher   |
| Hospitalization Factors | a)Planned admission<br>b)Unplanned admission<br>c)First hospitalization for primary condition<br>d)Previous admission for same primary condition<br>e)If yes to d, how long ago  |
| Discharge destination   | a)Home alone<br>b)Home with significant other, spouse or family member<br>c)Relative home  |
| Primary Diagnosis       | a)Heart Disease<br>b)Valvular Disease<br>c)CHF<br>d)Pneumonia<br>e)COPD<br>f)GI bleed<br>l)Neurology condition<br>h)Orthopedic surgery, fracture<br>i)Diabetes<br>j)Bowel condition<br>k)Sepsis<br>l)Liver disease<br>m)Psychiatric condition<br>n)Urologic condition<br>o)Stroke<br>p)ENT condition<br>q)Infected joint<br>r) Rheumatologic condition<br>s)Spinal stenosis<br>t)Wound care<br>u)Other |



Table 2

## Eligibility and Exclusion Criteria

| <b>Eligibility<br/>Criteria</b>  | <b>Exclusion<br/>Criteria</b>   |
|--|---|
| Age over 40 years of age   | Require nursing home or institutional setting at discharge                              |
| Discharged to a community, non-institutional setting                                     | Death during admission  |
| Admission to Community Living Center Ward 1D, 1E, or 1F at Minneapolis VA Medical Center | No access to a telephone or anyone who cannot give a contact number for phone follow-up |
| Medical or surgical patients admitted to primary care service                            | Cognitively impaired who cannot give informed consent                                   |
| Give consent to participate and to allow for written goals with name on paper at bedside | Subjects who do not speak English   |

Diagram 1

Decision Tree for Assessment of Cognitive Impairment to Participate in Study

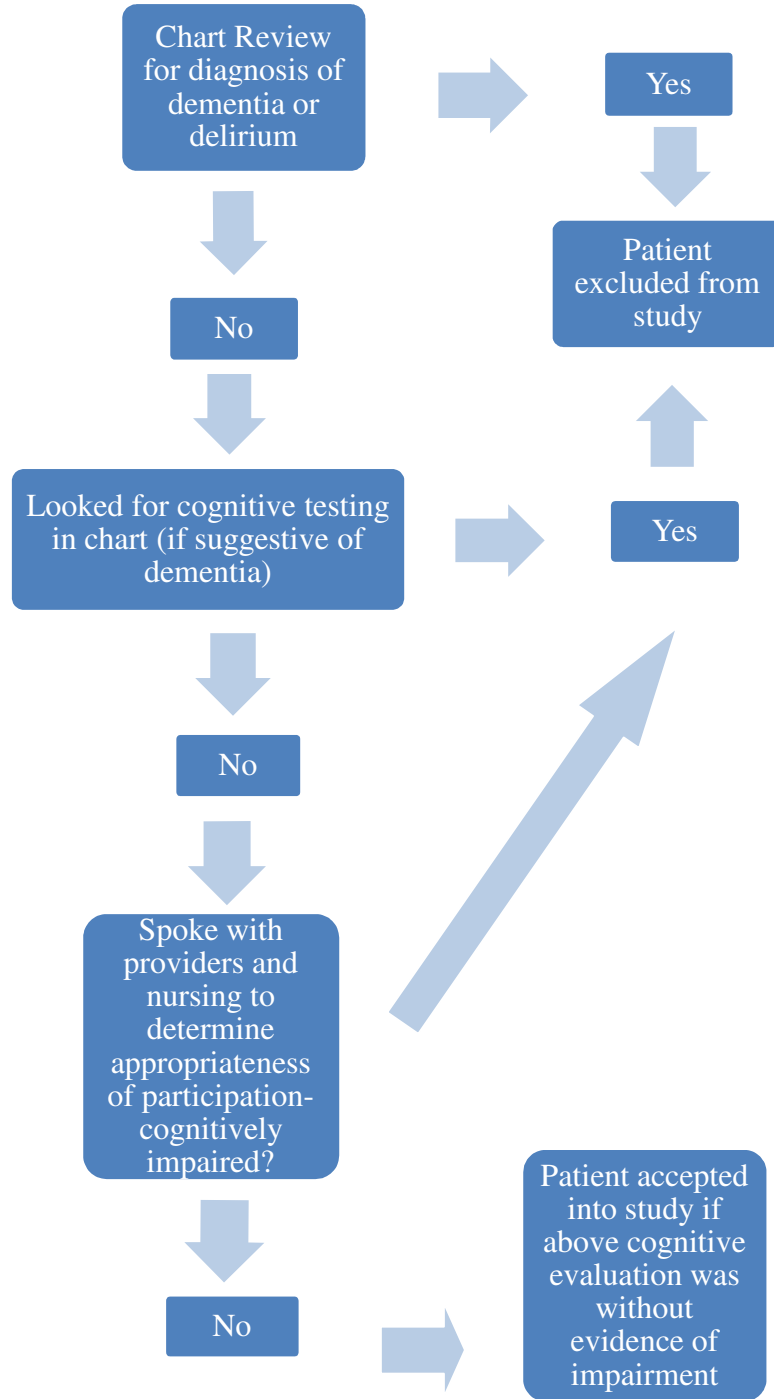


Table 3

## Independent and Dependent Variables

| <b>Independent Variables</b>   | <b>Dependent Variables</b>  |
|--|---|
| 1) Identification of patient perceived goals, barriers, educational needs, and support systems on admission.                                 | 1) Readiness for Hospital Discharge Scale questionnaire   |
| 2) Interdisciplinary team education to resolve identified patient goals and barriers to discharge identified on admission.                   | 2) Telephone follow-up questionnaire  |
| 3) Community Living Center Brochure  | 3) Patient satisfaction post discharge with education   |
| 4) Community Living Center Video (feasibility in progress)   | 4) Adverse events, readmission, patient satisfaction, perceived preparedness for discharge at 72 hours post discharge and 14 days post discharge, and death |
| 5) Provision of written treatment goals by third day of admission.   |   |
| 6) Comprehensive discharge education on medications, diet, disease management, signs and symptoms that may develop, provide contact numbers. |   |

administered within five days of admission to establish interdisciplinary goals. The interdisciplinary team was informed of any discharge goals and barriers for the intervention group in order to formulate an individualized plan of care, b) a written form within 5 days of admission detailing interdisciplinary discharge goals and gave a tentative discharge date that remained at the bedside throughout the hospital stay, c) a comprehensive discharge planning brochure, and d) opportunity to view a video (developed by this researcher) detailing the interdisciplinary team and procedures for rehabilitation and discharge. They also received a tracking form that allowed the patient to track weekly progress, and if appropriate, hospital library patient education material targeted toward primary diagnosis was distributed. In addition, the intervention group received frequent visits from the interdisciplinary team targeting goals and barriers noted on admission, and family follow-up if the patient gave permission to contact family members. An ongoing discharge flow sheet was kept in a notebook on the ward for interdisciplinary team members to document key elements addressed and education provided to the patient. The APN also educated and led the interdisciplinary team as well as provided guidance for staff nurses regarding discharge planning.

Within eight hours of discharge, both the intervention and control group completed the Readiness for Hospital Discharge Scale (RHDS) which has a reliability of 0.93 (Weiss & Piacentine, 2006). This was used to measure the patient's perceived readiness for discharge in each group. Both the control group and the intervention group received a follow-up telephone call with questionnaire administered by an APN within 72 hours and 14 days after discharge to measure patient satisfaction with the discharge process, perceived quality of the discharge education, perceived readiness for discharge, assessment of adverse events immediately upon discharge, and suggestions for improvement. Face validity was used to develop the admission questionnaire as well as the 72-hour and 14-day discharge questionnaires. Two nurse experts,

with extensive experience in the discharge planning process and published works on this subject, reviewed the documents for content validity. Changes were made to questions based on their recommendations.

The data was compiled and analyzed by a Ph.D.-prepared statistician familiar with research and organizational policies. The statistician used SPSS-8 for data analysis. Study findings were tabulated and reported.

### *Timeline*

The initial research timeline was felt to be nine months for data collection from May 2009 until January 2010, however, the study ended early due to ongoing efforts to improve the discharge process which were felt to be in direct conflict with continuation of the study.

Timeline for data collection was 5 months from May to September, 2009.

### *Resources*

This systems change project was conducted at a federal, non-profit institution which is still held to the highest standards of controlling cost, providing quality care within a budget, and showing improved outcomes using taxpayer dollars to fund care for the nation's veteran population.

Ralser (2007) purports that non-profit organizations are not significantly different from for-profit organizations because both provide wanted value to investors whether it be private groups, the federal government, or the individual taxpayer. The organization must demonstrate that outcomes are consistent with the values of the investor and that fiscal responsibility is an ongoing mission of the health care institution's long-range goals. Fleming (1994) suggests that determining perceived organizational value of a project is more meaningful than the validity of the investment. This allows the organization to take into account the intangible returns that may not be amenable to quantification in financial terms. Some questions to consider when

beginning and moving through a change project may be: 1) Does the project support the organization's business plan? 2) What is the potential value of the intervention to the organization and can that value be quantified? 3) How does the project support the organization's mission, goals, and strategies? 4) Is it a necessary cost of running the business? 5) What are the risks associated with this project and how do the risks affect the value of potential benefits? 6) What is the total cost of the project; is the cost short-term or long-term in nature? 7) How long will the costs and benefits last? By addressing these questions, a systems change project similar to the discharge planning intervention can be successfully implemented in an organization.

In order to persuade key stakeholders to invest in a discharge planning change project, understanding how the return on investment (ROI) would benefit the organization and the population served was vital in establishing support for resources. ROI is defined as return on investment divided by investment cost. Present value estimation of costs, meaning costs in today's dollars, can be used to determine the value of a program cost at any point in time and is felt to be a better estimate of present day value.

Input, or cost, is defined as the time and money needed to begin the program. Costs can be defined as development costs and implementation costs. Development costs are one-time expenses needed to develop a systems change project. Implementation costs are those associated with an action involved in carrying out the systems change intervention. Development costs included NP time researching the literature, consultation with a statistician, consulting with experts in the field to provide face validity for questionnaires, getting approval for use of a standardized tool, office supplies, printing costs of initial questionnaires and brochures, travel expenses, and phone costs. Implementation costs of the initial project included photocopy costs for questionnaires and brochures, DVDs for discharge planning video, printing of HIPPA, consents and IRB forms, telephone costs, researcher time consenting patients, implementing the

program, and purchase of computer program for video development. Some additional costs included NP time with bedside education of disease processes and team coordination to review any new barriers to discharge identified on admission. Resources included use of institutional IT equipment, phone resources, and some printing resources of consents and IRB required forms. There was no formal budget provided and, therefore, no additional personnel were available to institute this study. The APN consented all patients, reviewed records for potential research participants, and implemented the research study.

#### *Return on Investment*

This systems change project has several estimated and potential outcomes that target improved patient care in the areas of safety, satisfaction, and quality of life. The following plan attempted to outline an ROI for this discharge planning systems change project; specifically defining costs, project outcome, estimated value of the project outcome, and plan for collecting data to measure the ROI.

Outputs are defined as an accounting of what was done for the systems change project in terms of actual numbers of patients participating in the discharge planning study. There were 15 intervention group patients and 15 control group patients who completed the study. Three study participants were disqualified due to discharge destination as some were eventually discharged to nursing homes or assisted living centers. Sixteen patients (nine control group and seven intervention group patients) did not complete all questionnaires because they were unreachable within the time frame of the questionnaires.

Outcomes for this discharge planning project included one of seven control group patients encountering an adverse event at 72 hours post discharge and six of ten control group patients reporting an adverse event at 14 days post discharge. The intervention group had no reported adverse events. The intervention group also reported improved patient satisfaction, and

improved perceived readiness for discharge. ROI can be calculated given potential cost avoided if excellent discharge planning is in place. This can be extrapolated to the number of patients who were able to return to work. However, in both groups, no patients directly returned to work post discharge so estimation of lost productivity cannot be calculated. Only 2-3 patients likely returned to meaningful employment after discharge. Most research participants were age 50 and older, with some being retired or on disability.

One could also consider improved quality of life in those patients with increased satisfaction and fewer adverse events. Review of the literature reveals that the average calculation per additional year of quality life is \$129,090 (Lee , 2008). This figure is based on data from kidney dialysis patients with an estimated range of \$65,496 to provide an additional quality adjusted life year for the lowest percentile and \$488,360 for the top percentile. Oriol et.al. (2009) estimated dollar value of one life year as \$70,000. General consensus from the literature is that an estimated \$500,000 per quality life year is not sustainable in today's health care market.

Quality of life is one potential value of the project. In terms of home safety education and post-hospital education of chronic illness, the effects of discharge planning could certainly be carried over for 1-3 years. Review of the literature did not reveal estimates of the effects of discharge teaching or types of patient education related to long-term effects. However, Lee and Bokovoy (2005) estimated that patients' level of comprehension of discharge instruction averaged 65-71% post discharge. An estimate of length of improved quality of life could be estimated to be at least a year or longer with the Table 4 showing estimates in present value terms. Another estimated value of the project is avoided costs due to unnecessary emergency room visits, calls to the nurse triage center, inpatient medicine stays due to poor discharge planning, and decrease in patient satisfaction due to lack of knowledge and short notice of



impending discharge or lack of follow-up appointments being scheduled. Consideration was also given to staff retention due to satisfaction in the workplace associated with successful, effective discharge planning, and benefits of increased patient involvement in the discharge

Table 4

Quality Adjusted Life Year for Three Years

| Quality Adjusted Life Year Estimate | Year 1   | Year 2      | Year 3      |
|-------------------------------------|----------|-------------|-------------|
|                                     | \$65,496 | \$66,150.96 | \$66,812.47 |

process. Another ROI potentially extrapolated to discharge interventions is possible dissemination of programming to affiliated organizations which could lower the cost of development because the cost is spread over a greater number of staff and will serve a greater number of patients.

Improved discharge planning processes can improve efficiency of the system which will hopefully provide benefits to patients and to the organization for several years past the initial investment. Calculations can be made, however, to better define the cost of an ER visit, readmission to the hospital acute medicine ward, phone call to the nurse call center, repeat visit to the primary care provider, and missed or cancelled follow-up appointments due to lack of notification.

Collected data revealed four readmissions to the hospital in the control group, and no readmissions in the intervention group. A reasonable estimate could be five calls from the 30 patients enrolled in the study. Data from the institution’s operating report from August-September suggests that the three top diagnoses with longest length of stay are summarized in Table 5. Usually these patients are more seriously ill and require extensive discharge planning to return home. Van den Heede, Sermeus and Aiken (2009) found patient outcomes were

correlated with nursing care in some patient classifications of cardiac and respiratory dysfunction as well as correlation with safety issues such as falls, medication errors, unplanned extubations and restraint use prevalence.

Table 5

Diagnosis and Length of Stay for Top Three Diagnoses In Community Living Center For 2009

| Diagnosis   | Average Length of Stay |
|---|------------------------|
| Stomach esophageal and duodenal procedure                         | 43.5 days              |
| Tracheostomy with mechanical ventilation                          | 37 days                |
| Coronary bypass with medical complications                        | 30.5 days              |
| Tracheostomy for face, mouth, and neck diagnosis w/o complication | 29 days                |

The costs in Table 6 include almost all costs associated with an inpatient stay for each ward. This includes nursing costs, lab cost, radiology cost, pharmacy cost, meals, and ancillary services. It does not include surgical consults that the patient may have incurred while an inpatient. Return on investment is calculated by using benefits and costs (Phillips & Phillips, 2006).

The benefit/cost ratio is described as the monetary benefits of the program or intervention divided by the costs. The formula for calculating ROI is:

Benefit/cost ratio=  $\frac{\text{Discharge planning project monetary benefits}}{\text{Discharge planning project cost}}$

Discharge planning project cost

To estimate ROI, potential savings from improved discharge planning is divided by development and implementation costs. The total ROI for this project thus far does not take into account intangible benefits as mentioned above. Patient and staff satisfaction are important to the study organization's mission and these considerations will most likely carry some weight with administration. Estimated number of readmissions post discharge without intervention were

two admissions per 30 discharges, but at completion of the project, there were four readmissions in the control group and none in the intervention group. Conservative estimates of number of yearly discharges from the Community Living Center range from 550-600 per year. Seventy percent of 550 equals 385 admissions to home. If one calculates number of readmissions per 385 discharges to home, estimated number of readmissions is 51.3 per year.

Calculation:  $\frac{30}{4} = \frac{385}{x}$  computes to  $30x = 51.3$ , which equals 51.3 readmissions from patients discharged from the subacute rehabilitation unit in one year.

Table 6

Present Value for Services in Community Living Center for Study Site 2009

| <b>Potential Avoided Costs</b>  | <b>Year 1 Avg Cost per Encounter</b>  | <b>Year 2 Ave Cost per Encounter</b>   | <b>Year 3 Avg Cost Per Encounter</b>   | <b>Total Potential Savings For Avoided Readmissions Over Next 3 Years</b> |
|---|---------------------------------------|--|--|---|
| General Medicine Ward   | \$2,559.00/day                        | \$2,814.90                             | \$3,096.39                             | \$8470.29/day   |
| Subacute/ Rehab Unit  | \$1,292.00/day                        | \$1421.20                              | \$1563.32                              | \$4276.52/day   |
| Telephone Triage Care/Nurse line  | \$91/encounter                        | \$100.10                               | \$110.11                               | \$301.21  |
| Emergency Room visit  | \$463/encounter                       | \$509.30                               | \$560.23                               | \$1532.53   |
| Primary Care medicine visit   | \$163/encounter                       | \$179.30                               | \$197.23                               | \$539.53  |
| Phone medicine visit  | \$181/encounter                       | \$199.10                               | \$219.01                               | \$599.11  |
| Total savings if no extra services were needed                              | \$4749.00 per encounter per discharge | \$5,223.90 per encounter per discharge | \$5746.29 per encounter per discharge  | \$15,719.19 per encounter per discharge                                   |
| Total savings if only Emergency Room was used and Primary Care was bypassed | \$4405.00 per encounter per discharge | \$4,845.52 per encounter per discharge | \$5,330.05 per encounter per discharge | \$14,580.57 per encounter per discharge                                   |

Table 7 depicts a predicted savings of \$204,262.85 for the first year if an effective discharge planning program is in place to anticipate patients' needs at discharge so these needs can be quickly and completely addressed for patients returning to a home environment. This estimate does not include intangible benefits described earlier which may add further value to this project.

Table 7

Return on Investment for Discharge Planning Systems Change Project Fiscal year 2009 In Present Value Terms Over Three Years

| Cost  | Year 1  | Year 2   | Year 3   | Cumulative Savings Over 3 Years   |
|---|---|--|--|---|
| Development Costs   | \$10,395.85   | \$0  | \$0  | \$0   |
| Implementation Costs  | \$11,317.80   | \$12,449.58  | \$13,945.38  |   |
| Potential savings from improved discharge planning from CLC w/o primary care visit(cost per discharge x 51.3)   | \$4405.00/day x 51.3 readmissions/yr=<br>\$225,976.50 | \$4,845.52/day x 51.3 readmissions/yr=<br>\$248,575.17 | \$5,330.05/day x 51.3 readmissions/yr=<br>\$273,431.56 | \$14580.57 x 51.3=<br>\$747,983.24<br>(cost savings/day-savings may be more depending on length of stay)  |
| Potential savings from improved discharge planning from CLC with primary care visit (cost per discharge x 51.3) | \$4749.00/day x 51.3 readmissions/yr=<br>\$243,623.70 | \$5,223.90/day x 51.3 readmissions/yr=<br>\$267,986.07 | \$5746.29/day x 51.3 readmissions/yr=<br>\$294,784.67  | \$15,719.19 x 51.3=<br>\$806,394.44<br>(cost savings/day—savings may be more depending on length of stay) |
| Total ROI on discharge planning project without primary care  | \$204,262.85 for the first year                       | \$236,125.59 for the second year                       | \$259,486.18 for the third year                        |   |

### *Support from Site*

“Tipping points” used to engage key stakeholders in understanding the value of complete, informative discharge planning for hospitalized patients included discussion of patient safety (which has been a focus of health care institutions) and lost bed days of revenue due to delays and short-sighted discharge planning. Key stakeholders included in the initial development of this project included the medical director, and the Chief Nurse in charge of the sub-acute area. Each meeting identified real and potential gaps within the current discharge process. Discussion of issues associated with the current discharge policy, its inability to meet the veterans’ needs, and historical issues surrounding lack of further improvements not being pursued proved to be challenging and informative. By presenting vision for the process, from a nursing and quality improvement standpoint, as the presence of untapped potential revenue savings, the project was supported by the institution. The importance of discharge teaching, especially in light of recommendations for patient safety initiatives from The Joint Commission and Accreditation of Hospitals, is a mission of this institution, and this project fit into the organization’s plan for improvements. Lastly, the interdisciplinary team (administrators, nurses, healthcare providers, social workers, rehabilitation therapists, and dieticians) served as a critical link in the discharge process. As mentioned earlier, the multidisciplinary team is essential to effective discharge planning in a time when resources are limited.

### *Ethical Considerations*

Social justice is defined as “the fair distribution of society’s benefits and responsibilities and their consequences. It focuses on the relative position of one social group in relation to others in society as well as on the root causes of disparities and what can be done to eliminate them” (CNA, 2008, p. 28). This differs from ethics which is defined as “the moral practices, beliefs, and standards of individuals and/or groups” (CNA, 2008, p. 24).

The Code of Ethics for nursing provides a framework for nurses to use in ethical analysis and decision-making. It establishes an ethical standard for the profession (ANA, 2008).

Provisions one and three, which focus on advocating and protecting the health, safety, and rights of the patient as well as considering the differences of each patient, unrestricted by social or economic status, personal attributes, or nature of the health problems, are uniquely applicable to the discharge planning process (ANA, 2008). The International Code of Ethics (ICN) for nurses describes three essential elements of a) Respect for human rights which include cultural rights, right to dignity and respectful treatment, and right to life with choice, b) nursing care is provided irrespective of gender, age, color, disability, nationality, sexual orientation, race, politics, or social status, and c) nursing care is provided and coordinated for the individual, the family, and the community (ICN, 2006). These elements outline ethical parameters for how nursing care should be implemented and where the profession's obligations should be centered.

The concept of discharge planning is uniquely positioned to fit within the praxis of nursing ethics. The ethics of discharge planning expands well beyond the borders of the bedside environment and as advanced practice nurses, we must assume that "each patient is equally worthy of our attention and the concerns of the patients cannot be addressed without understanding the environment in which they live out their daily lives." (Grace, 2009, p. 107). Nursing values of "providing safe, compassionate competent and ethical care" (CNA, 2008, p. 3) are fundamental for patients discharged from the hospital because of the potential for adverse events post discharge, readmissions to the hospital, decreased patient and family satisfaction, as well as lack of patient-centered care and fulfillment of the organization's mission of improved care quality.

Review of the literature suggests studies involving ethics and discharge planning have been ongoing since the early 1980's and primarily emanate from the areas of social work and

nursing. Studies have focused on discharge planning, particularly with ethical dilemmas involving those patients discharged with cognitive impairment or issues of resource allocation. This became more apparent when diagnosis-related groups (DRGs) were instituted in 1983 and managed care with reimbursement capitation became a reality (Cummings & Cockerham, 1997). Managed care has resulted in shorter lengths of hospital stays with an emphasis on outpatient care that has carried into our health care system today. Shorter lengths of stay further reduce time the interdisciplinary team has to prepare the patient for discharge and has been associated with increased utilization of services post discharge (Naylor, et al, 1994). Effective discharge planning can facilitate patient discharges from the hospital and ensure a safe, seamless transition to home by reducing or preventing readmissions, decreasing family burden, improving patient satisfaction and reducing costs.

Policy disputes about allocation of resources to invest in programs such as discharge planning have never been more evident than in today's health care arena where health care providers and recipients are under the microscope to provide value and utilize resources responsibly and without waste. This creates ethical issues of access and equal distribution of resources as well as "potential conflict between client autonomy and provider paternalism" (Abramson, 1983, p. 46). Abramson (1983) also describes questions of distributive justice and allocation of scarce resources which are issues at the forefront of the health care debate today, implying that these are not new issues and solutions up to this point have not been effective in resolving these social dilemmas.

Effective discharge planning is one level at which we can begin to look at the root of the problem. By implementing preventive services and devoting attention to what really works for patients, we can eliminate or change the "way we've always done it" mode of doing business. Ethical dilemmas in discharge planning include development of discharge plans that are

inadequate or ineffective (Cummings & Cockerham, 1997). Continuing to function in a mode that does not fit the patient's lifestyle, cultural beliefs, or home situation has the potential to never produce cost effective, safe outcomes. Yet this must be balanced with efforts to protect individuals from risks related to lack of understanding their health care needs. Presenting patients with viable options, through sound discharge planning education, allows them to make informed choices at discharge. By identifying potential areas of safety concerns, environmental/home barriers and emotional concerns early in the hospital stay, we have a more complete picture from the patient's perspective to develop a patient-centered discharge plan that works. Including the family, caregivers and community in this process is important for successful discharge from the hospital as well (Bull & Kane, 1996; Bull et al, 2000; Naylor & McCauley, 1999; Spehar, et al, 2001).

Actions taken to avoid risk such as initiation of in-home follow-up care or relocation of patients to another environment such as long term care or assisted living can threaten an individual's emotional well-being. Change in environment post discharge has the potential to cause loss of identity, loss of self control and diminished self worth (Moats & Doble, 2006). There is no greater example of this than the elderly patient admitted to the hospital with illnesses that prevent them from returning home. As health care providers, we are ethically bound to balance self determination, "the individual's right to make his or her own decisions and choices in matters affecting him or her" with risk of harm (Abramson, 1981, p. 34). Beauchamp and Childress (1994) describe basic ethical principles used in discharge planning include autonomy, beneficence, and justice.

Autonomy is referred to as respect for patient self-determination and acknowledges that patients should be allowed to make decisions that "determine their fate". Beauchamp and Childress (1994) assert that two conditions of agency and liberty are essential to autonomy.



Agency affirms the patient must have capacity to understand and comprehend intention related to the discharge plan, and liberty maintains that the patient must have access to information about his options and condition that are free from coercion. The concept of beneficence purports that health care professionals' should not only do no harm, but should actively promote health and well-being of their patients. This concept is integral to discharge planning because the goal is for safe discharge that protects the individual from danger and fosters recovery from illness (Beauchamp & Childress, 1994). Challenges arise when health care providers, patients, and families disagree with interventions that constitute safe, effective discharges and with interfacing that defines benefit or harm. Lastly, justice requires fair allocation of limited resources to members of society. Some have proposed principles of "distributive justice" which entails the notion of a right to equal access to care, providing like services for like problems, and providing this care to as many as possible. Ethical dilemmas such as conflicting ethical beliefs between patients and families at discharge, need to "choose between two equally unsatisfactory options" (Cummings & Cockerham, 1997, p. 103), and challenges in determining actual risks and benefits of a particular action (e.g. discharging a patient who has capacity but has evidence of mild cognitive impairment) are examples of how justice principles can be infused even into the discharge planning process of health care. Danis and Hurst (2009) purport that as resources become scarcer and are needed to cover a larger population in the future, health care providers may need to enlist the help of ethics consultants to bridge the gap between bedside care and stakeholder decisions in health care systems and organizations. These issues need to be addressed in the future as health care professionals try to bridge the gap between ethics of justice and ethics of care.

Botes (2000) expands the ethics paradigm by describing health care decisions as becoming more dependent on the interdisciplinary team rather than individual providers. This

impacts discharge planning at several crossroads because several disciplines should be involved in the discharge process to ensure it is patient-centered. Botes (2000) found that ethics of care, which includes a holistic, need-centered approach to ethical issues, can complement traditional ethics of justice to promote harmonious relationships between the interdisciplinary team and the patient, family and their environment. Establishing trust, building relationships, and promoting ethical standards of informed consent was critical to enlisting patients for this study because it involved patients revealing home environmental situations, agreement to participate in discharge education as well as enlisting the help of family and friends or public health agencies depending on the situation. It also required an advanced practice nurse to follow-up by phone within three days and 14 days post discharge to assess for any adverse events, readmissions, educational gaps, or lack of follow-up. Viewing the patient as a holistic person with unique needs and diverse backgrounds makes patient-centered discharge planning critical for success not only for the organization but also for the patient and their families. Embracing the needs of patients and balancing those needs with rigorous institutional standards for human rights and data protection should be an integral part of all nursing research or systems change endeavors.

Maintaining patient dignity and respect as well as patient confidentiality of personal health information and data is essential to maintaining ethical principles in research. This discharge planning study included informed consents from all participants and risks/benefits of the study were explained to all potential research participants. Eligibility requirements were upheld and attempts were made to enroll patients from several ethnic groups. Study data as well as personal health information associated with the research remains at the organization protected by the institution's technology systems designed to secure the personal health records of patients. Basic ethical principles of confidentiality, equitable resource allocation, and informed decision-making were rudimentary standards employed in this study.

## Chapter 4

*Data Analysis*

The study period extended from May 2009 until September 2009 with 31 out of 84 screened patients being enrolled in the discharge planning study. There were 15 control and 16 intervention patients. One patient died during the study, three were excluded due to discharge to nursing home or other hospital facility. One patient asked to be removed from the study, with 26 patients completing the study. Sixteen patients (9 control group, 7 intervention group patients) did not complete all the questionnaires due to inability to locate the patients within the time frames of the initial study for each questionnaire. See demographic data in Table 8.

Study data was analyzed with the help of a PhD-prepared statistician. The SPSS-8 statistical program was used for analysis in this study. Test statistics used in this research were the Chi Square test which compares groups in crosstables with different questions, the Wilcoxon matched-pairs signed ranks test, which compares before and after change over time, and the Mann-Whitney U test which compares two groups on the same question at the same time. P values of 0.05 were considered significant changes between the intervention and the control groups in this pilot study. Nonparametric statistics were used because assumptions of parametric distributions did not seem reasonable given the sample size and types of scales that were used. No attempt was made to adjust for multiple comparisons on the same data set. This possibly may have resulted in a Type I error, but looked significant in this study.

Two of the patients in the control group were hospice patients. There was some concern that perhaps hospice patients may have different viewpoints on their care so the data was analyzed with and without the hospice patients. The following written summary gives a synopsis of questions that were statistically different if the hospice patients were removed from data analysis. Two questions on the 72-hour discharge questionnaire became statistically significant

Table 8

## Demographic Data of Subjects

|                       |                                     |           |
|-----------------------|-------------------------------------|-----------|
| Age                   | 40-50                               | 7.7%      |
|                       | 51-60                               | 26.9%     |
|                       | 61-70                               | 42.3%     |
|                       | 71-80                               | 19.2%     |
|                       | 81-90                               | 3.8%      |
| Sex                   | Male                                | 92.3%     |
|                       | Female                              | 7.7%      |
| Discharge Destination | Home alone                          | 30.8%     |
|                       | Home with spouse/family member      | 69.2%     |
| Race                  | White                               | 100.0%    |
|                       | Black                               | 0%        |
|                       | Hispanic                            | 0%        |
|                       | Asian                               | 0%        |
|                       | Hawaiian                            | 0%        |
| Education             | Less than high school               | 3.9%      |
|                       | High school grad or GED             | 53.8%     |
|                       | Some college or vocational training | 30.8%     |
|                       | 4-year college degree or higher     | 11.5%     |
| Number of medications | 0-4                                 | 0.0%      |
|                       | 5-9                                 | 26.9%     |
|                       | 10-14                               | 15.4%     |
|                       | More than 14                        | 57.7%     |
| Diet                  | Regular                             | 30.8%     |
|                       | Special                             | 65.4%     |
|                       | Dysphagia                           | 0.0%      |
|                       | Tube feeding                        | 3.8%      |
| Mean Length of Stay   | Mean LOS                            | 32.9 days |
| Primary Diagnosis     | Wound Infection/osteomyelitis       | 11.5%     |
|                       | Cancer                              | 19.2%     |
|                       | Endocarditis                        | 3.8%      |
|                       | Gout                                | 3.8%      |
|                       | Joint Replacement                   | 11.5%     |
|                       | Pneumonia/Pulmonary embolism        | 7.7%      |
|                       | Myocardial Infarction               | 3.8%      |
|                       | Renal Failure                       | 3.8%      |
|                       | Fracture                            | 7.7%      |
|                       | Abdominal Surgery                   | 7.7%      |
|                       | C-diff diarrhea                     | 3.8%      |
|                       | Hematoma                            | 3.8%      |
|                       | Vascular surgery                    | 3.8%      |
|                       | Diabetic Wound                      | 3.8%      |
| Biliary Disease       | 3.8%                                |           |

with a Mann-Whitney U test (comparing two groups on the same question at the same time) when the hospice patients were removed from the data. Question 1 and Question 4 regarding how the patients would rate the discharge process and whether the interdisciplinary team addressed the goals that were identified early in the hospital stay became significant in terms of patients in the intervention group rating the discharge process higher in these areas. Question 1 had a Mann-Whitney U test p value of 0.12 and went to a p value of 0.05; Question 4 had a Mann-Whitney U test with a p value of 0.15 which went to a p value of 0.03 when the hospice patients were removed from the data analysis. Question 3 related to how much impact did knowing the discharge goals early, prepare patients for discharge? This assessment was statistically significant with a Mann-Whitney U test p value of 0.03 when the hospice patients were included and decreased to 0.8 when the hospice patients were removed from the analysis.

There was no question on the 14-day questionnaire altered by the removal of the hospice patient data. On the Readiness for Hospital Discharge Scale, Questions 15 and 16 became less significant when the hospice patients were removed from analysis. These questions had more to do with how informed patients were on the next step in their care, and how much they know about services available in the community. Question 15, which looked at how informed patients are in regard to what happens next in their follow-up medical care, changed from 0.05 significance to 0.08, and Question 16, which looked at how much patients know about services and information available to them in the community, increased from a p value of 0.04 when the hospice patients were included to a p value of 0.06 when the data was analyzed without hospice patients, which suggests that hospice patients are fairly well informed about community resources compared to medical patients discharged from the hospital.

Question 19 assessed how well patients would be able to perform medical treatments like caring for surgical incisions, rehabilitation, taking medications at home, and this was the only

indicator that decreased in statistical significance. When hospice patients were removed from analysis, the Mann-Whitney U test became statistically significant with a p value of 0.04 which may be an indicator that hospice patients feel less secure with their ability to manage medical treatments at home.

### *Project Evaluation*

The Readiness for Hospital Discharge Scale questionnaire (RDHS) was given within 8 hours of discharge. Table 9 depicts the responses of the control and intervention groups and is continued on pages 40-51; the responses shown include the hospice patients. There were three questions showing statistically significant differences between the control and intervention groups. Questions involving the next step of care and available services in the community were statistically significant with the intervention group scoring higher in these areas than the control group. They were analyzed with a Mann-Whitney U test resulting in a p value of with 0.05 and 0.04 respectively. Question 19 which described how well the patients could perform their medical treatments was near statistical significance with a p value of 0.07 suggesting that the intervention group felt more comfortable with these cares. The intervention group was also statistically different than the control group when rating how much they knew about caring for themselves post discharge with a Mann-Whitney test revealing a p value of 0.02.

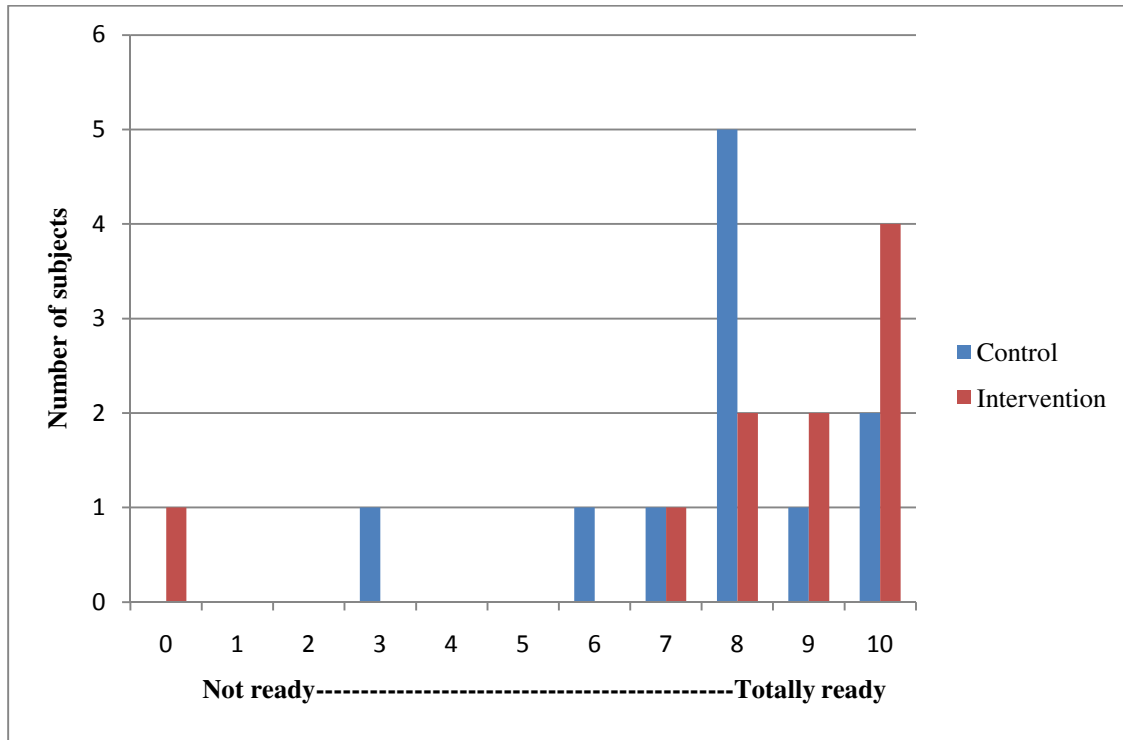
Table 9

### Readiness for Discharge Questionnaire Results

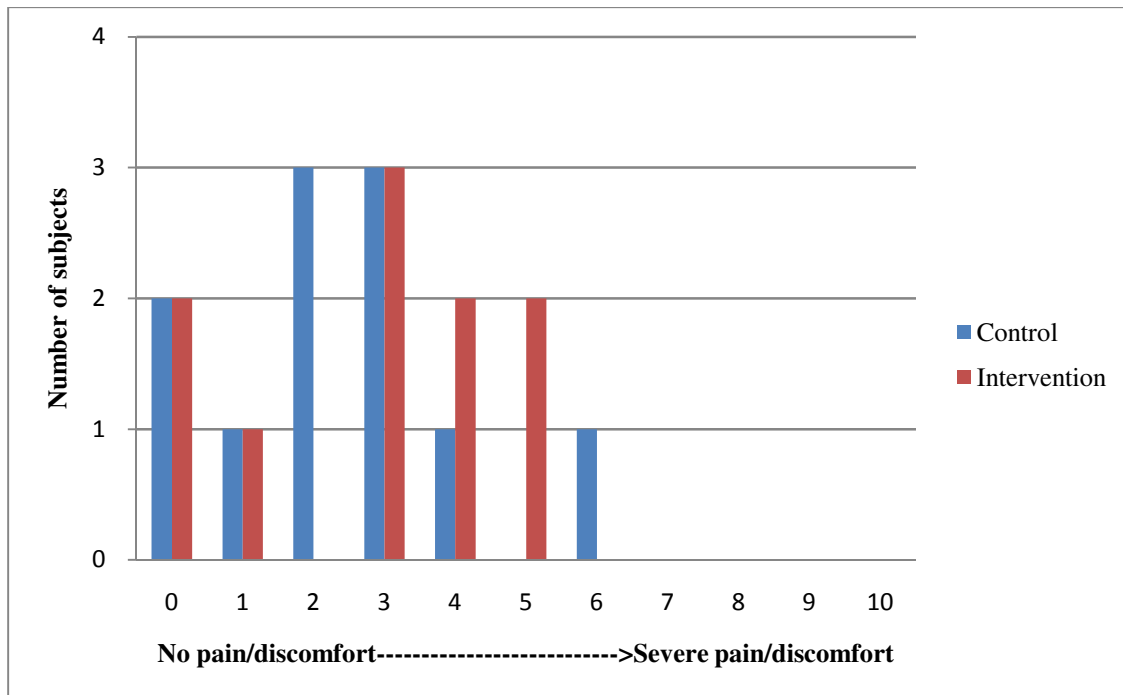
Question 1: As you think about your discharge from the hospital, do you believe you are ready to go home as planned?

| Group        | Yes      | No    |
|--------------|----------|-------|
| Control      | 9(100%)  | 0(0%) |
| Intervention | 10(100%) | 0(0%) |
| Total        | 19       | 0     |

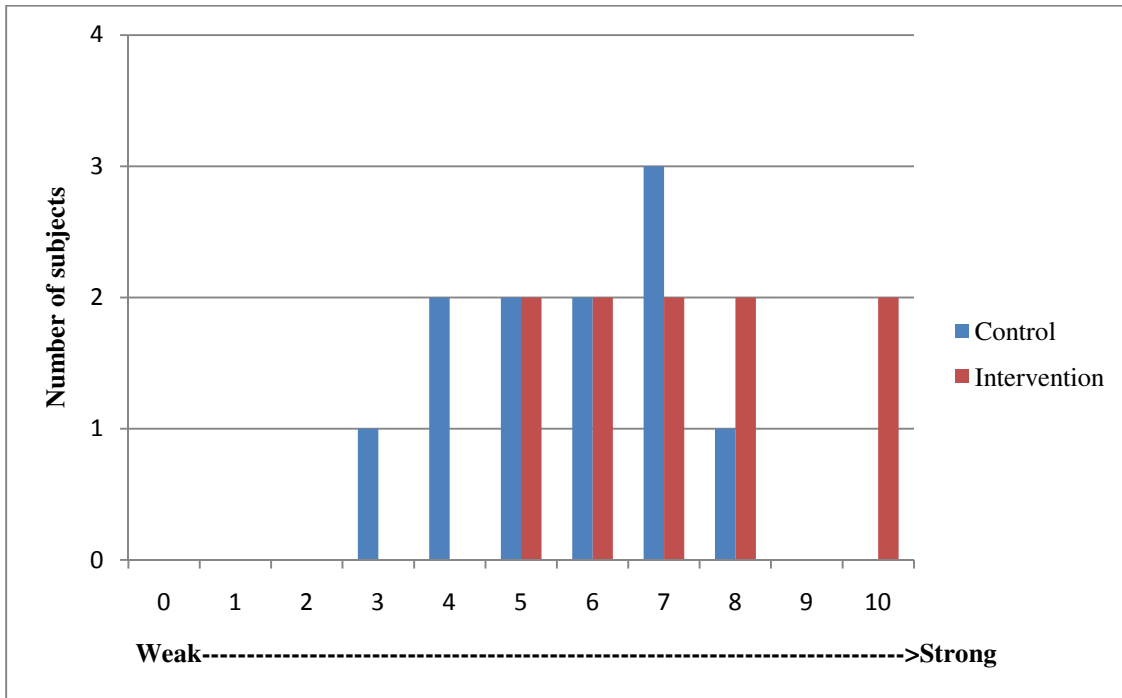
Question 2: How physically ready are you to go home?



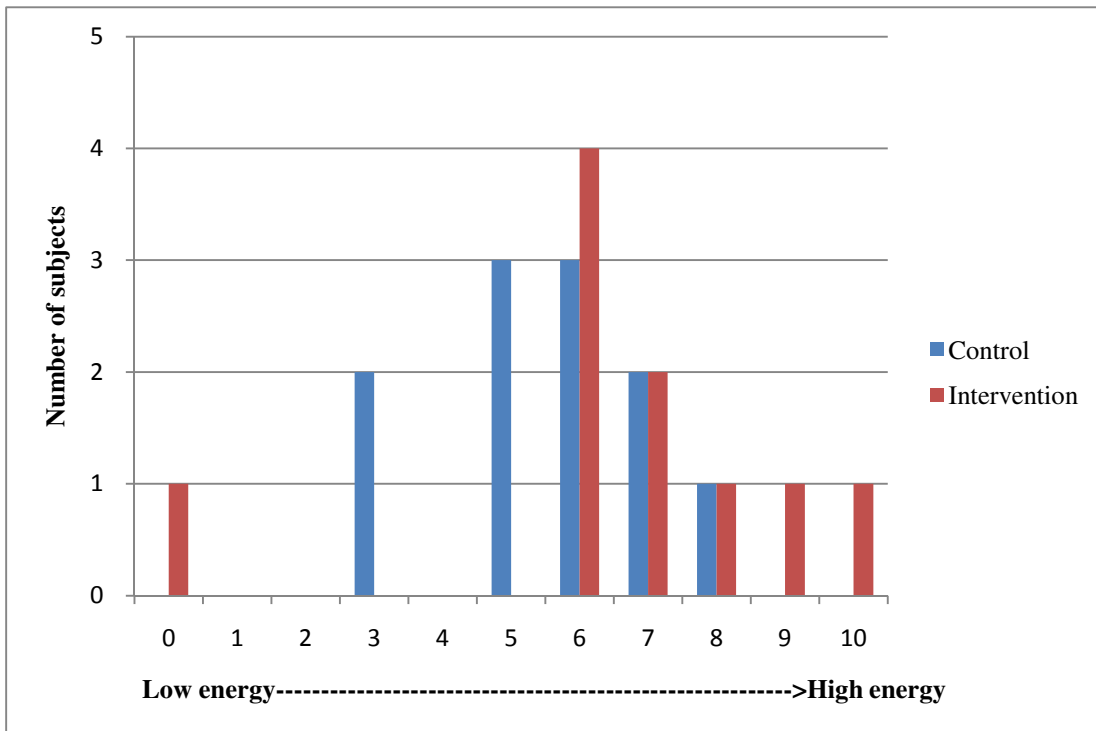
Question 3: How would you describe your pain or discomfort today?



Question 4: How would you describe your strength today?

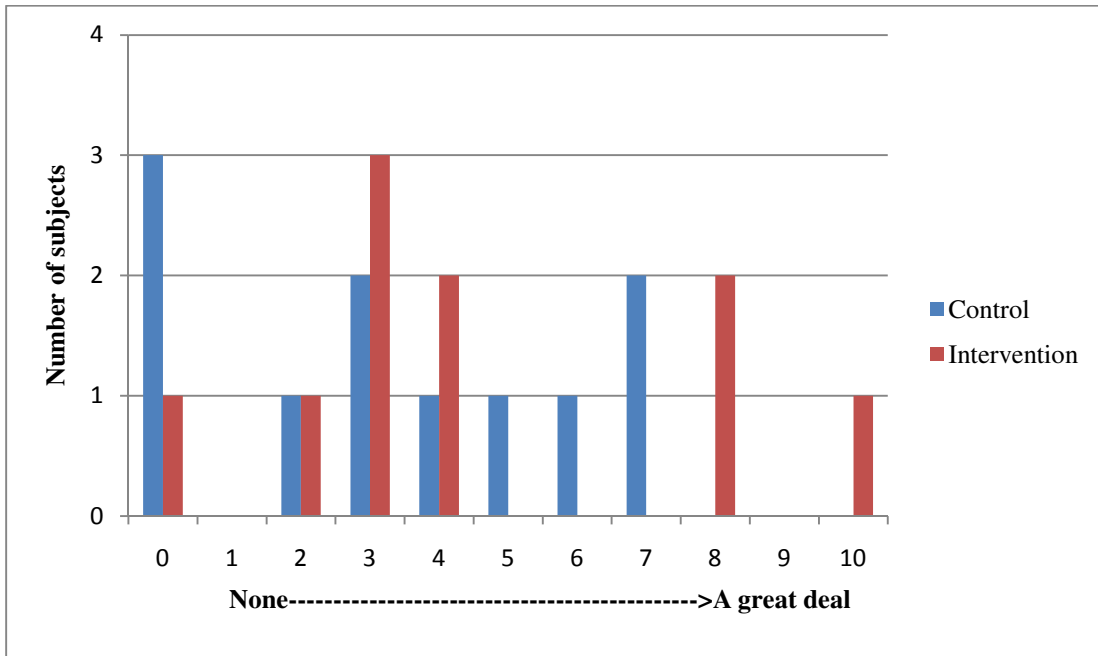


Question 5: How would you describe your energy today?

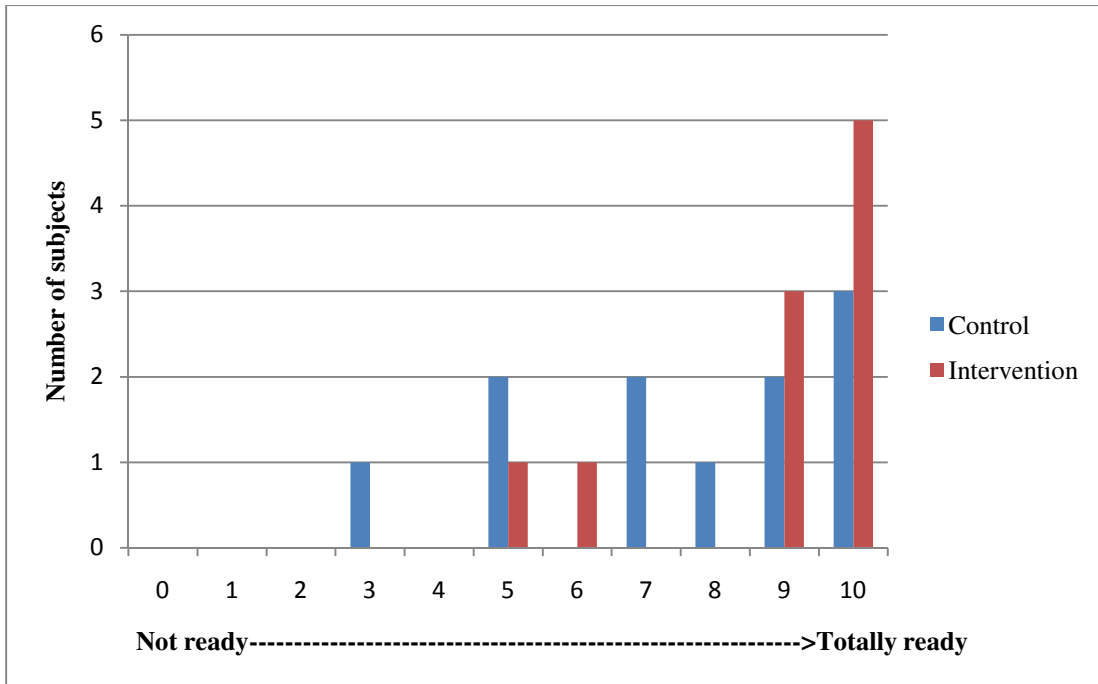




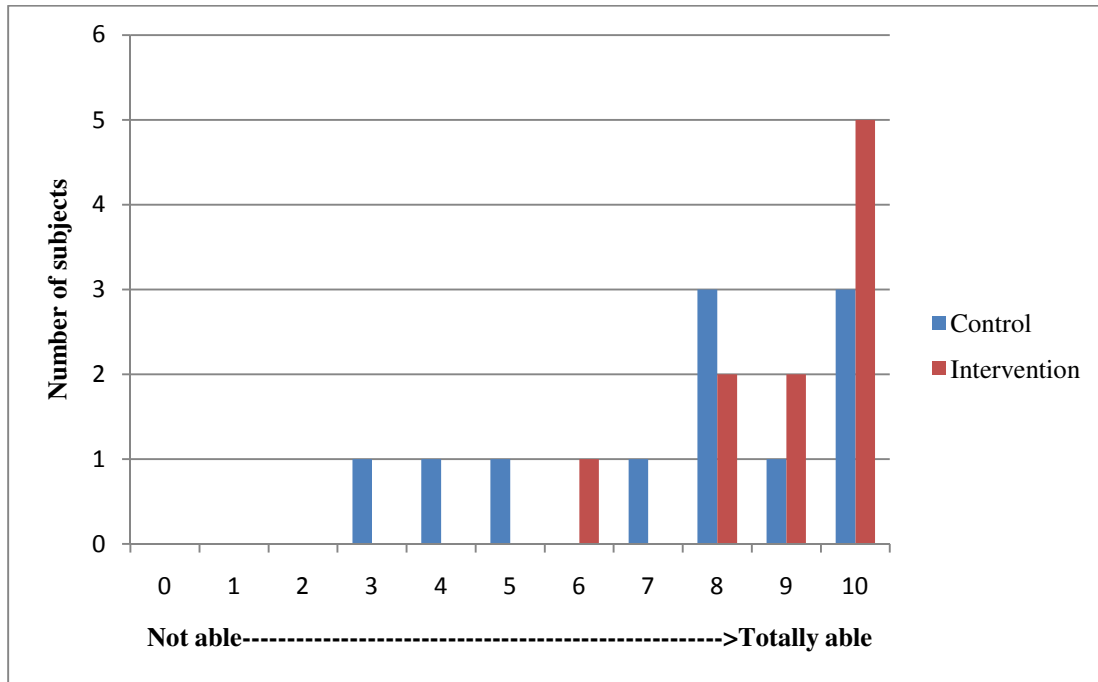
Question 6: How much stress do you feel today?



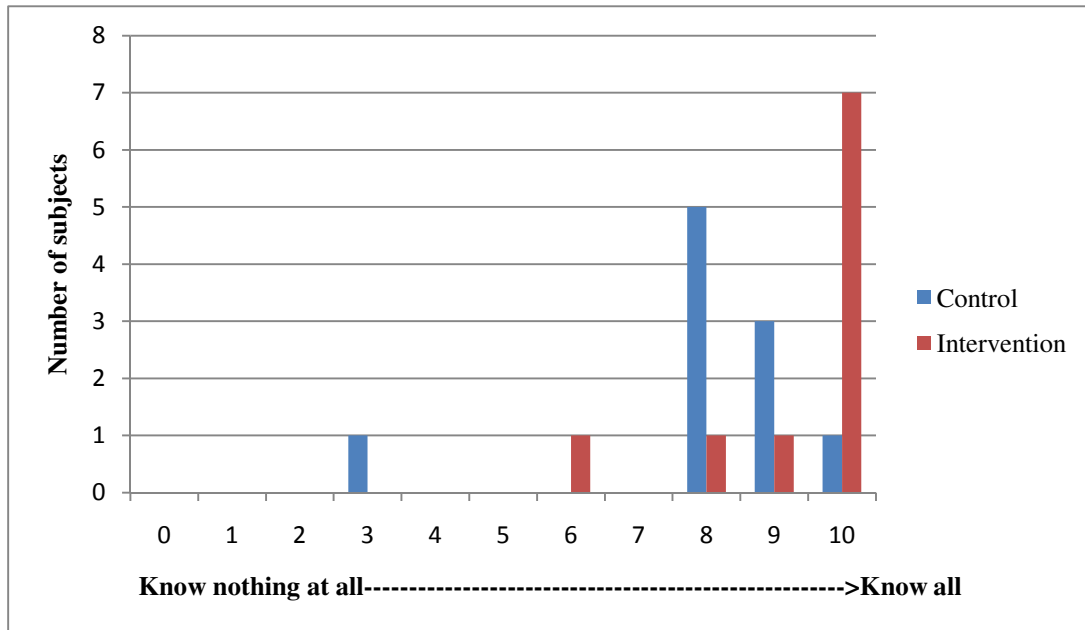
Question 7: How emotionally ready are you to go home today?



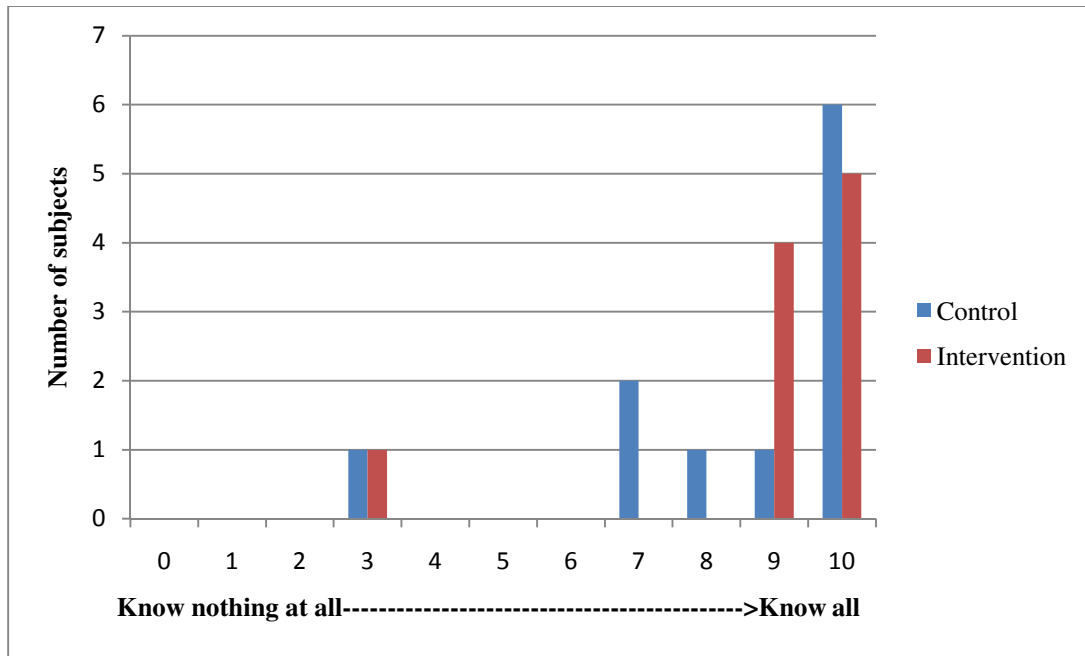
Question 8: How would you describe your physical ability to care for yourself today?



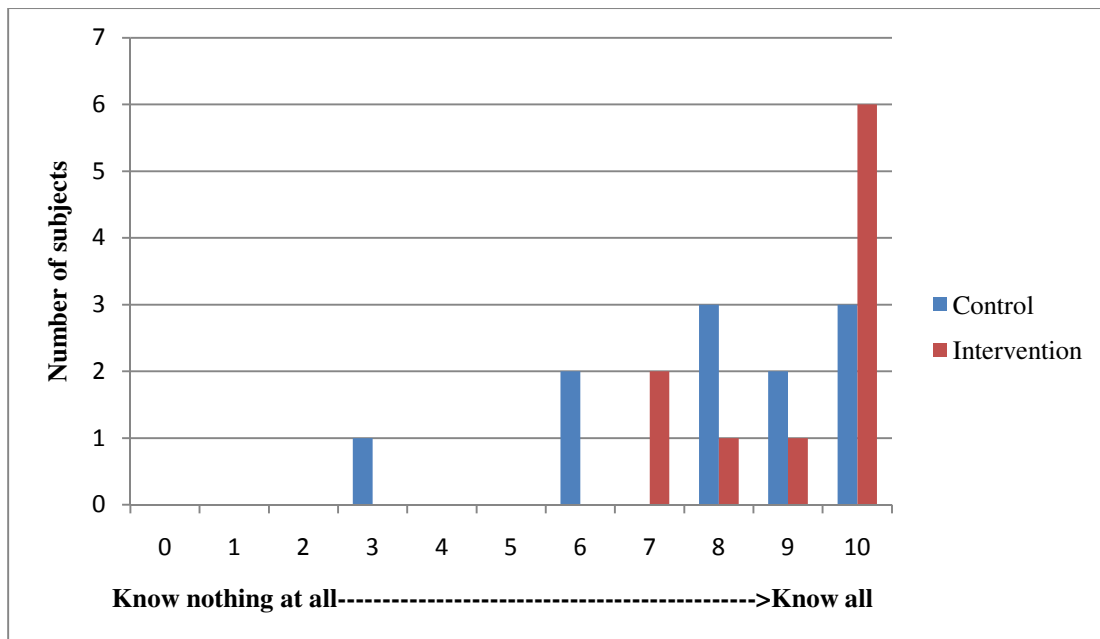
Question 9: How much do you know about caring for yourself after you go home?



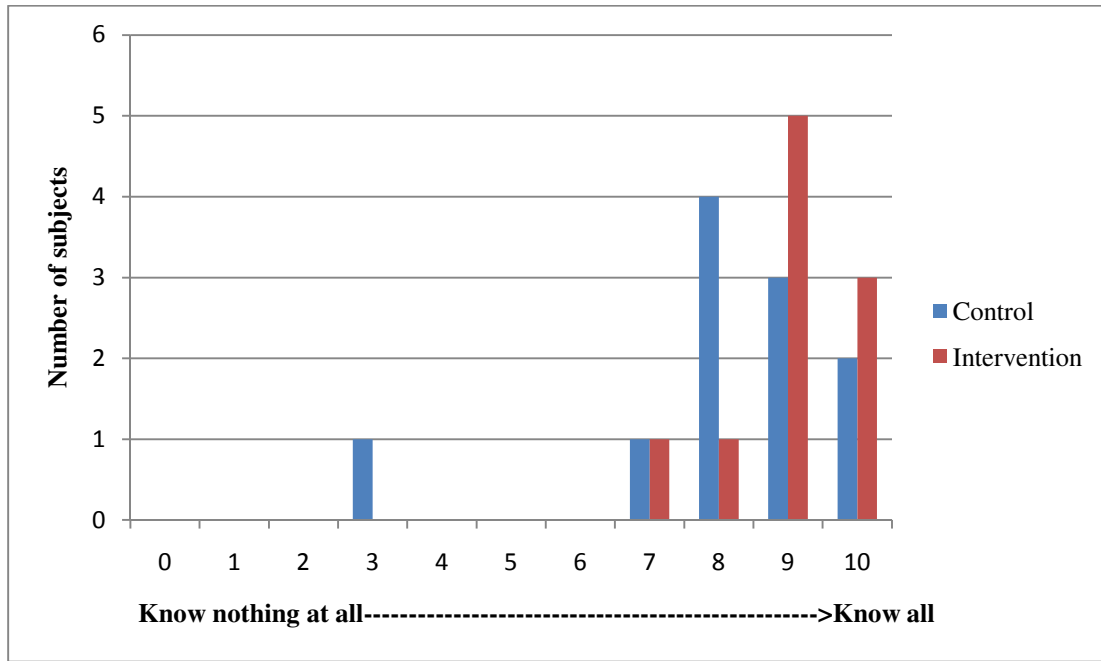
Question 10: How much do you know about taking care of your personal needs after you go home (e.g. hygiene, bathing, toileting, eating)?



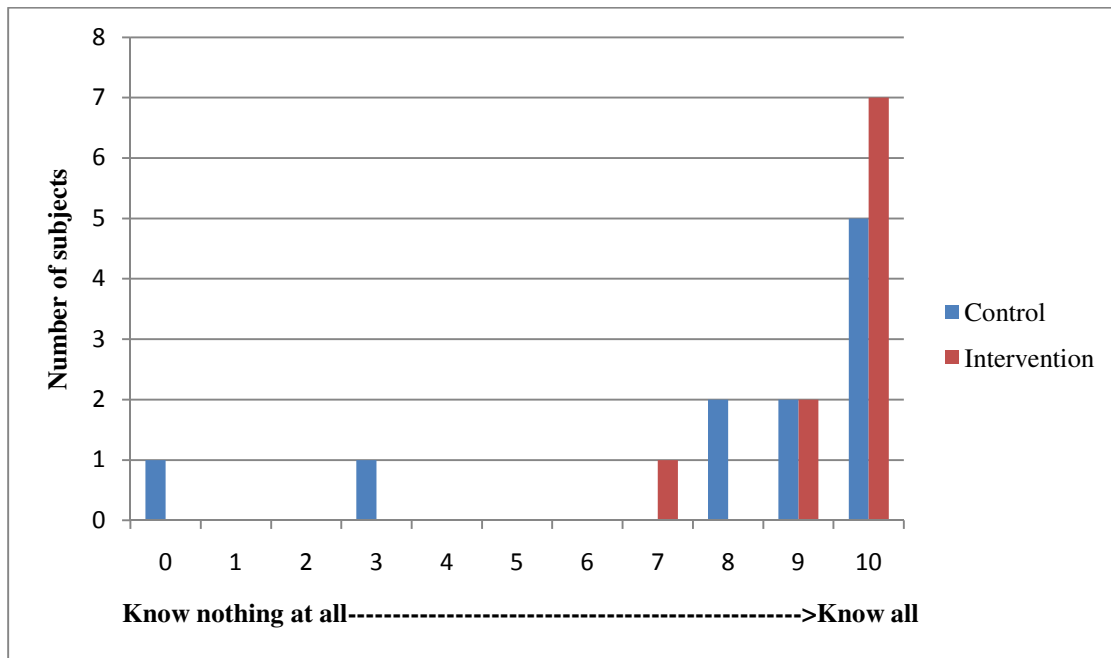
Question 11: How much do you know about taking care of your medical needs (treatments, medications) after you go home?



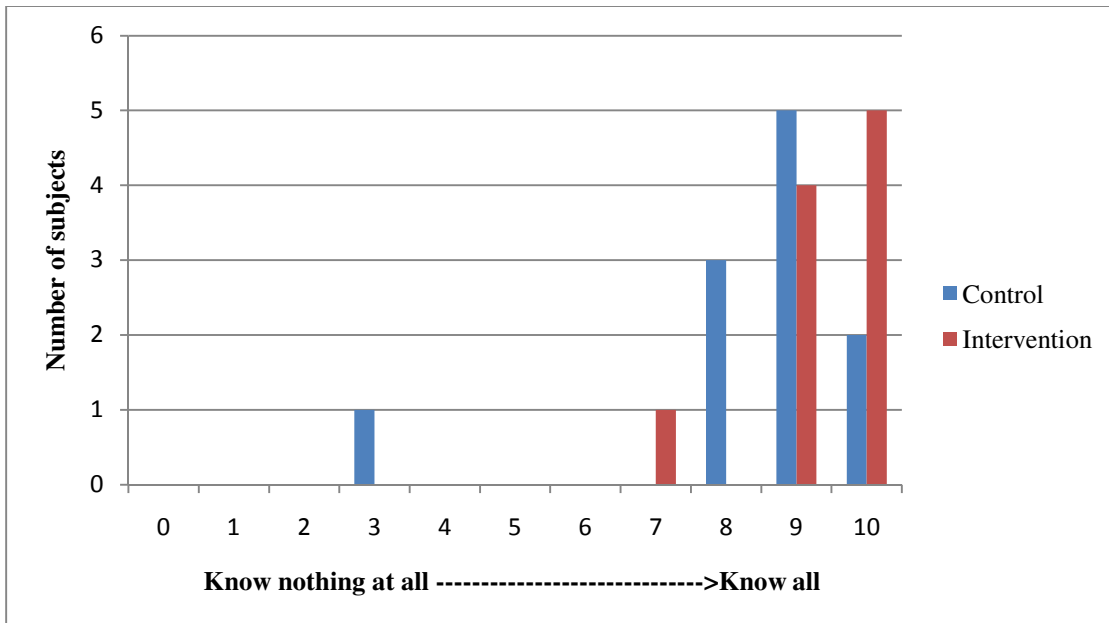
Question 12: How much do you know about problems to watch for after you go home?



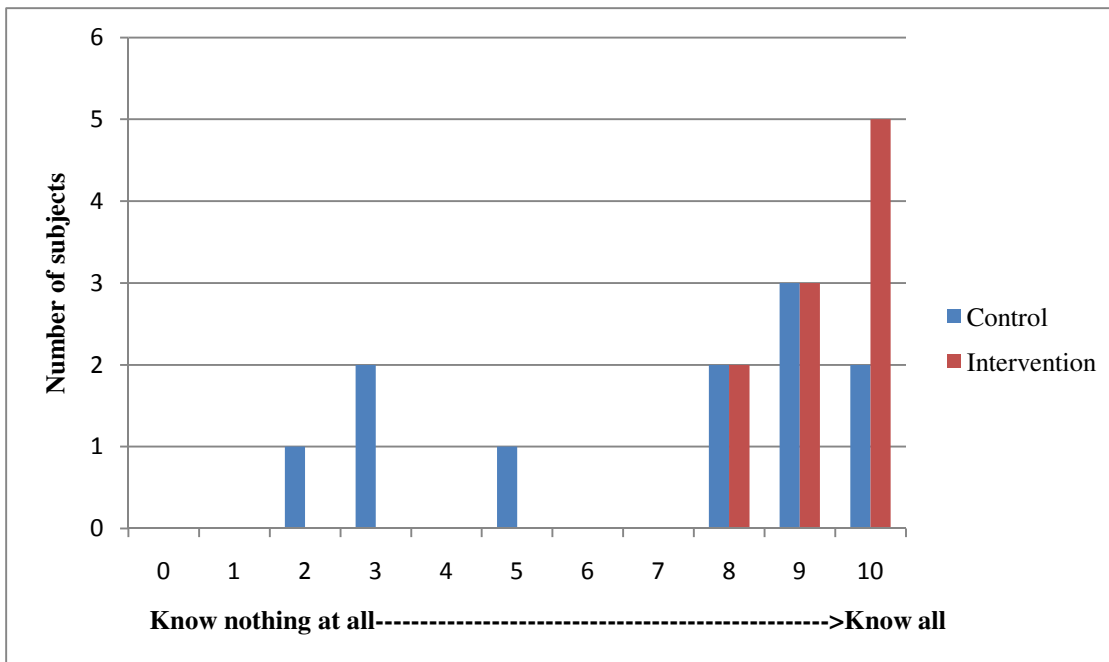
Question 13: How much do you know about who and when to call if you have problems after you go home?



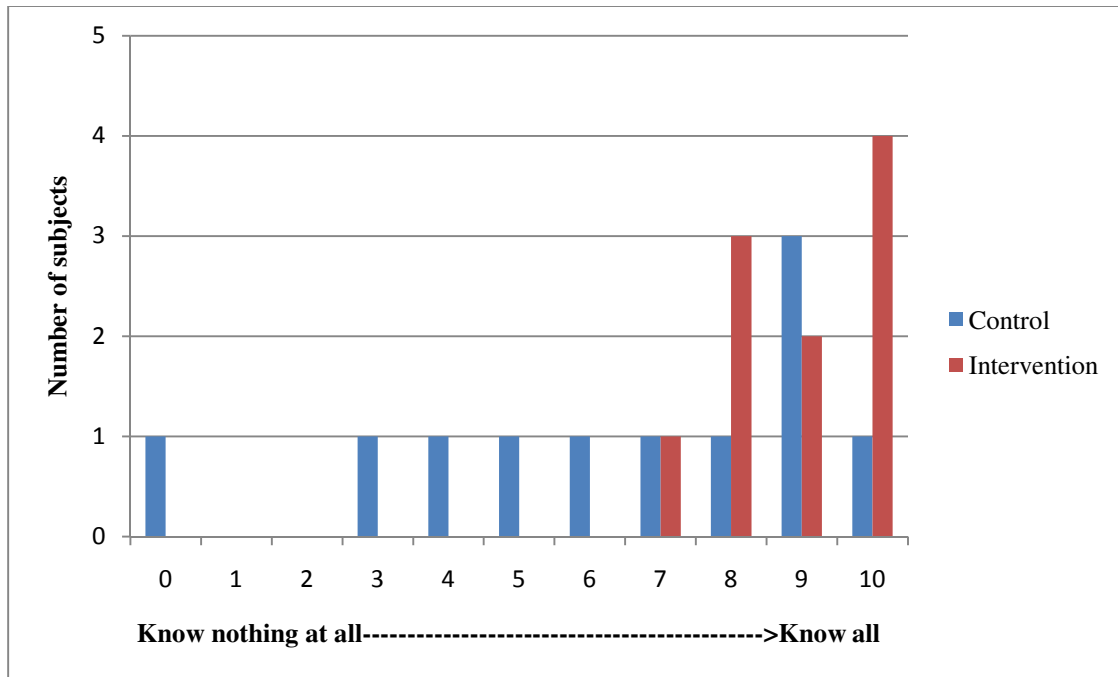
Question 14: How much do you know about restrictions (what you are allowed and not allowed to do) after you go home?



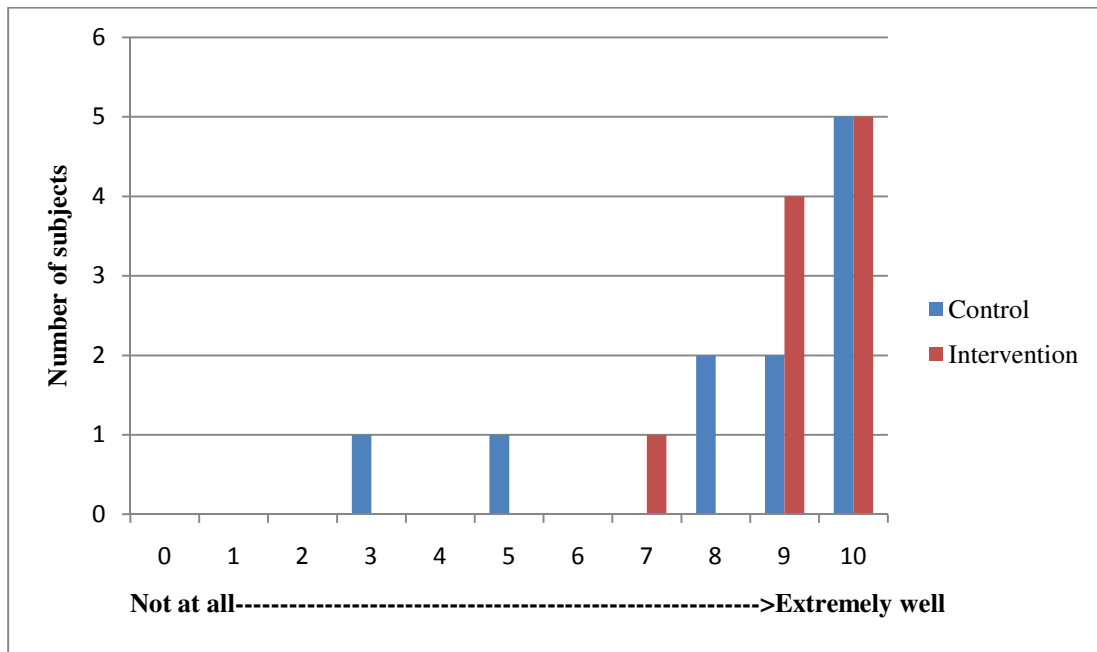
Question 15: How much do you know about what happens next in your follow-up medical treatment plan after you go home?



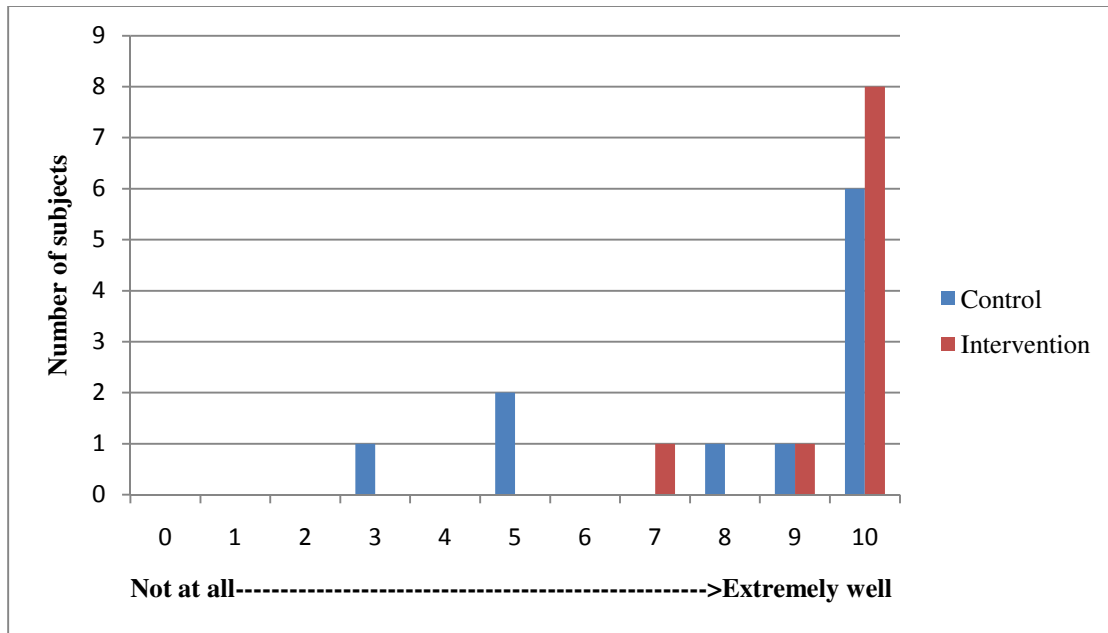
Question 16: How much do you know about services and information available to you in your community after you go home?



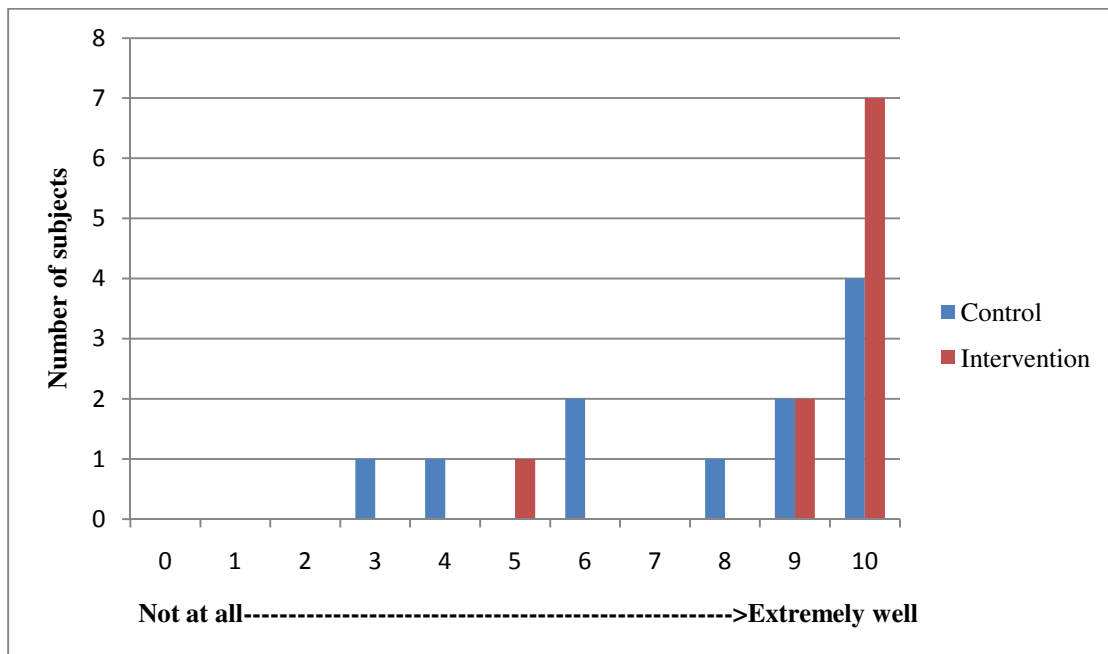
Question 17: How well will you be able to handle the demands of life at home?



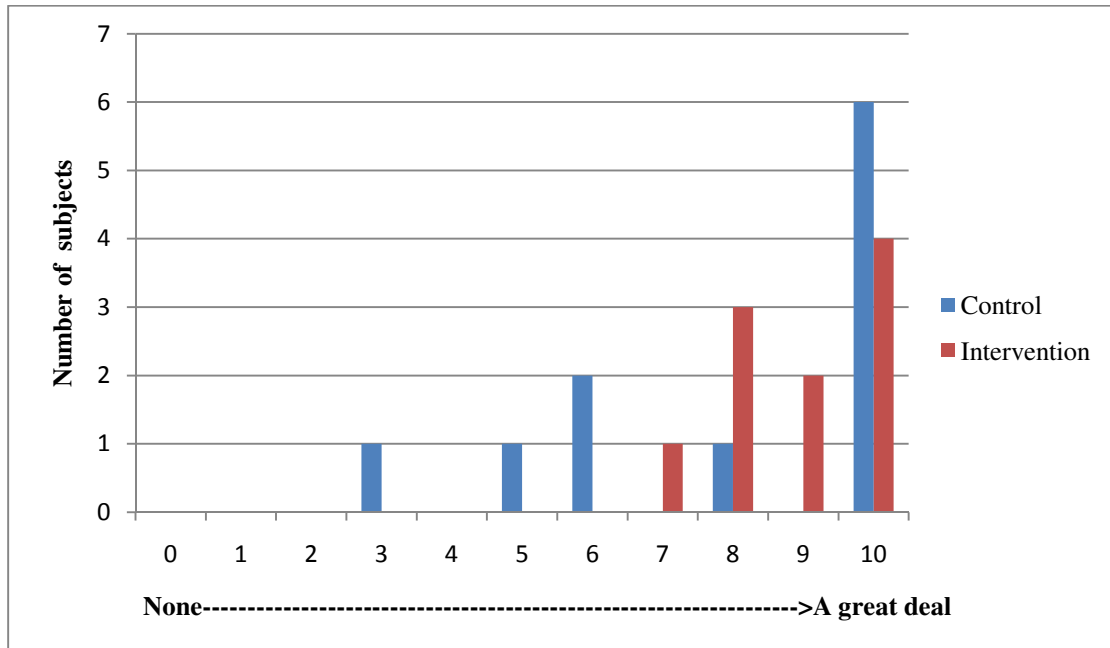
Question 18: How well will you be able to perform your personal care (for example, hygiene, bathing, toileting, eating) at home?



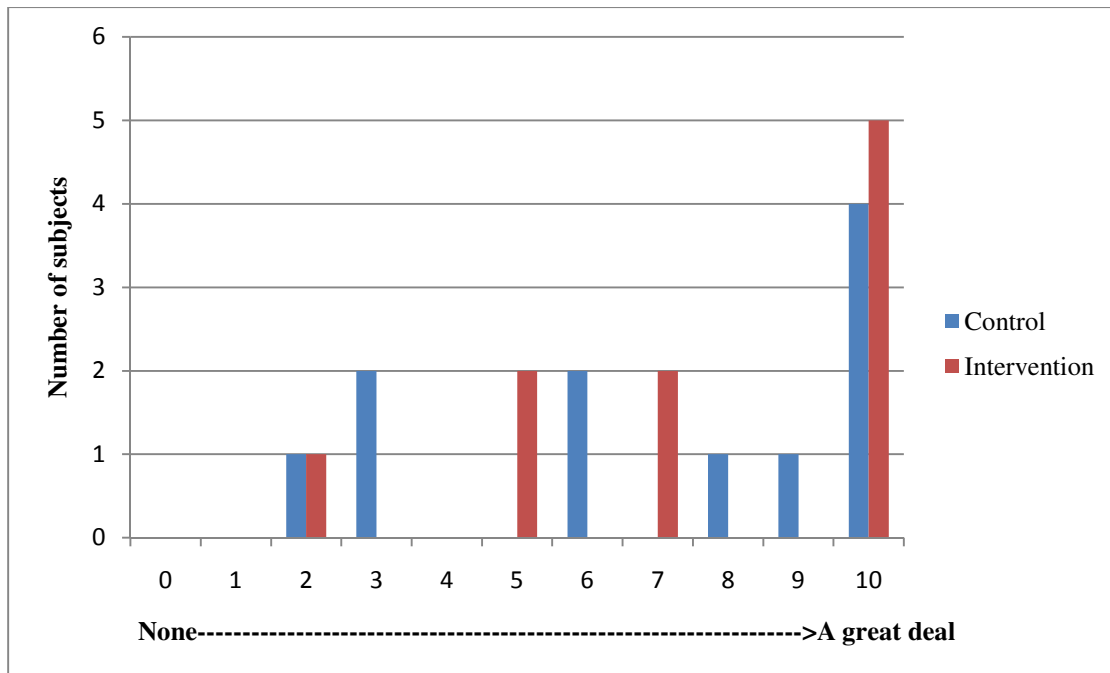
Question 19: How well will you be able to perform your medical treatments (for example, caring for a surgical incision, respiratory treatments, exercise, rehabilitation, taking your medications in the correct amounts and at the correct times) at home?



Question 20: How much emotional support will you have after you go home?

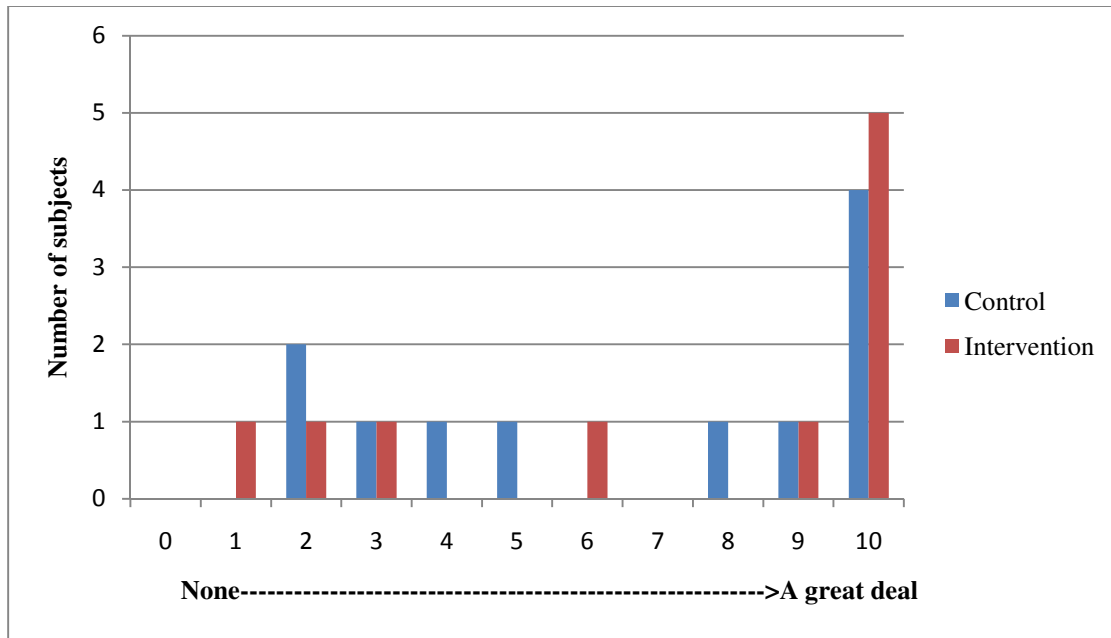


Question 21: How much help will you have with your personal care after you go home?

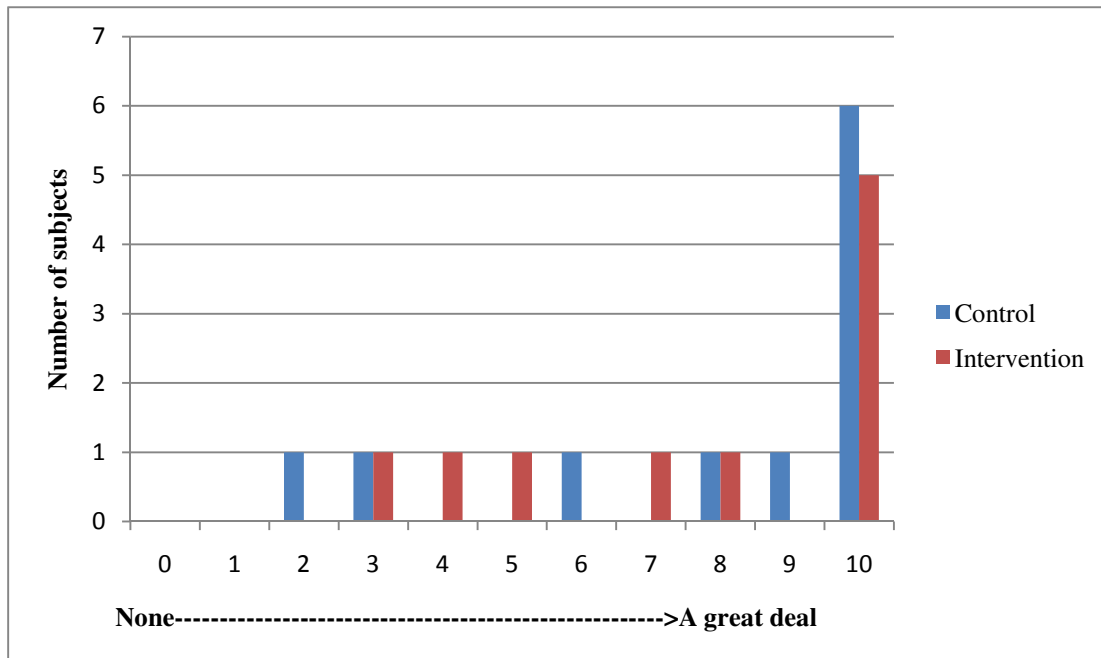




Question 22: How much help will you have with household activities (for example, cooking cleaning, shopping, babysitting) after you go home?



Question 23: How much help will you have with your medical care needs (treatments, medications)?



In Question 1, 100% of both the intervention and control group patients felt they were ready for discharge to home which is an interesting finding because the feelings of preparedness began to decline and became statistically significant in the control group at 72 hours post discharge.

Question 2 asked how physically ready patients were to return home. Results in the control group revealed three patients rating themselves 9-10 (totally ready), six patients rated themselves 7-8, one patient rated himself 5-6, one patient rated himself 3-4 (nearing not ready). The intervention group had six patients who rated themselves 9-10 (totally ready), three patients rated themselves as 7-8, and one patient rated himself a 0 (not ready). Using a Mann-Whitney U test to compare two groups on the same question at the same time, the results were not significant. The RHDS further evaluated patients for level of discomfort.

On Question 3, three patients in the control and intervention groups rated themselves as having no pain (0-1), six patients in the control group rated themselves 2-3 and three patients in the control group gave ratings of 2-3. Four patients in the intervention group rated their pain 4-5 and only one control group patient rated their pain in the 4-6 range, one patient in the control group rated their pain a 6-7. This was not statistically significant.

Question 4 asked about how patients would describe their strength the day of discharge. Two patients in the intervention group rated their strength 9-10 (strong) with no control group patients rating their strength in this range, four intervention and four control group patients rated themselves 7-8, four control and four intervention group patients rated their strength 5-6, three control group patients rated their strength 3-4. Overall, intervention group patients rated their strength higher, but the results were not statistically significant.

When patients were asked to rate their level of energy at discharge (Question 5), two intervention group patients rated their energy 9-10 ( high energy) while 0 control patients rated

their energy level in this range. Three intervention patients rated their strength 7-8 and three control group patients also rated strength 7-8. Four intervention group patients rated their strength 5-6 while six control group patients rated strength in the mid range of 5-6, two control group patients rated their strength 3-4, and one intervention group patient rated their strength 0 (low energy). Mann-Whitney U analysis did not find these results to be significant statistically.

Question 6 asked patients to rate their stress level at discharge, with one intervention group patient rating their stress level 9-10 (a great deal), two control and intervention group patients rating their stress level 7-8, two control group and 0 intervention group patients rating stress 5-6, five intervention group and three control group patients rating their stress 3-4, one intervention and control group patients rating their stress level 1-2 and three control group and one intervention group patient rated their stress a 0 (no stress). No statistical significance was found between groups.

When patients were asked about emotional readiness at discharge on the RHDS (Question 7), eight intervention and five control group patients responded 9-10 (totally ready), three control group patients and 0 intervention group responded 7-8, two intervention and two control group patients responded 5-6, one control group patient responded 3-4. Mann-Whitney U analysis of groups did not find a statistical relationship, but overall the intervention group scored higher than the control group in feeling emotionally ready for discharge.

Question 8 asked, "How would you describe your physical ability to care for yourself today?" with seven of the intervention group patients and four control group responding 9-10 (totally able), four control group and two intervention group responding 7-8, one control and one intervention group patient rating physical ability 5-6, and two control group patients rating their physical ability as 3-4. The intervention group rated their physical ability higher overall but the results were not statistically significant.

In Question 9, the RHDS asked about “How much do you know about caring for yourself after you go home?”, eight intervention group patients and four control group patients responded 9-10 (know all) in regard to knowledge about caring for themselves. Five control group and one intervention group patient answered 7-8, one control group patient answered 5-6 and one control group patient answered 3-4 (nearing know nothing at all). Using Mann-Whitney U test the p value was significant at 0.02 indicating that the intervention group rated their knowledge about caring for self significantly higher than the control group. This may have impacted the study in terms of lack of adverse events and unplanned visits in the intervention group.

When patients were questioned about, “How much do you know about taking care of your personal needs after you go home (e.g. hygiene, bathing, toileting, eating)?” in Question 10, the intervention group scored higher than the control group, though it was not statistically significant. Nine patients in the intervention group answered 9-10 (know all) while seven control group patients answered in this range. Three control group patients answered in the 7-8 range, and one in both the control and intervention groups answered in the 3-4 range (nearing know nothing at all). There was no statistical difference between the groups.

Question 11 asked the patients how much they knew about taking care of medical needs (e.g. treatments and medications) after they go home. Seven intervention group patients responded 9-10 (know all) while five control group patients answered in this category. Three intervention and three control group patients answered 7-8, two control group answered 5-6, and one control group answered 3-4 (nearing the know nothing at all range). This was not statistically significant.

When patients were asked, “How much do you know about problems to watch for after you go home?” (Question 12), intervention group patients rated themselves higher overall, though this was not statistically significant. Eight intervention group patients and five control

group patients rated themselves 9-10 (know all), five control and two intervention group patients rated themselves 7-8, and one control group patient rated self in the 3-4 range (nearing know nothing at all). No statistical significance was found with this question, but the intervention group rated themselves higher in this measurement.

Question 13 looked at how much the patients knew about who and when to call for problems post discharge. The intervention group rated themselves higher than the control group in this category as well but it was not found to be statistically significant. Nine in the intervention group answered 9-10 (know all) while seven in the control group answered in the same category. Two control group patients rated their knowledge 7-8 while one in the intervention group rated themselves in this category. One patient in the control group answered 3-4 (near know nothing at all) and one control group patients answered 0 (know nothing at all).

When patients were asked “How much do you know about restrictions (what you are allowed and not allowed to do) after you go home?”(Question 14), the intervention group scored slightly higher than the control group but the difference was not significant statistically. Nine patients in the intervention group and seven in the control group answered in the 9-10 category (know all), three patients in the control group and one in the intervention group responded in the 7-8 category, and one control group patient answered in the 3-4 category ( bordering on know nothing at all).

Question 15 asked patients about follow-up care, “How much do you know about what happens next in your follow-up medical treatment plan after you go home?” Using a Mann-Whitney U test the p value was 0.05, meaning that the groups were statistically different with the intervention group feeling like they knew more about their follow-up treatment plan post discharge. Eight patients in the intervention group and five patients in the control group answered in the 9-10 category ( know all), two intervention and control patients answered in the

7-8 range, one control group patient answered in the 4-5 range, and three control group patients answered in the 2-3 range (near know nothing at all).

When asked “How much do you know about services and information available to you in your community after you go home?” (Question 16) the intervention group scored higher and this value was statistically significant with a Mann-Whitney U test revealing a p value of 0.04 suggesting that the intervention group was more familiar with services in the community. Six patients in the intervention group and four patients in the control group rated their knowledge in the 9-10 range (know all), four intervention group and two control group patients rated their knowledge 7-8, two control group patients rated their knowledge 5-6, two control group patients rated their knowledge 3-4 (bordering on know nothing at all) and one control group patient rated their knowledge at 0 (know nothing at all).

Question 17 asked, “How well will you be able to handle the demands of life at home?” Nine intervention group patients and seven control group patients answered in the 9-10 range (extremely well), while two control group and one intervention group patient answered in the 7-8 range and one patient from the control group answered in the 4-5 range and 2-3 range. This was not statistically significant.

When asked, “How well will you be able to perform your personal care (for example, hygiene, bathing, toileting, eating) at home?” in Question 18, the intervention group rated themselves slightly higher but there was no statistically significant difference. Nine intervention group patients and seven control group patients rated themselves 9-10 (extremely well), one control group and one intervention group patient answered 7-8, two control group patients rated themselves 5-6 and one control group patient answered 3-4 (nearing not at all).

Question 19 asked, “How well will you be able to perform your medical treatments (for example, caring for a surgical incision, respiratory treatments, exercise, rehabilitation, taking

your medications in the correct amounts and at the correct times) at home?” Analysis by Mann-Whitney U, which compares two groups on the same question at the same time, revealed a p value of 0.07 which was very close to being statistically significant. The intervention group clearly rated themselves higher with nine intervention group patients and six control group patients answering 9-10 (extremely well), one control group patient answering 7-8, two control and one intervention group patient answering 5-6, and two control group patients rating their ability as 3-4 (nearing not at all).

The next question asked, “How much emotional support will you have after you go home?” Both groups were similar in their responses. Six intervention group and six control group patients answered 9-10 (a great deal), four intervention and one control group patient answered 7-8, three control group patients answered 5-6, and one control group patient answered 3-4 (nearing none). After analysis, this was not found to be statistically significant.

Question 21 asked about how much help the patient would have with personal care after returning home. The groups were similar with their responses. Five intervention group and five control group patients answered 9-10 (a great deal), one control and two intervention group patients answered 7-8, two intervention and two control group patients answered 5-6, two control group patients answered 3-4, one control and one intervention group answered 1-2 (nearing none).

Question 22 asked about, “How much help will you have with household activities (for example, cooking, cleaning, shopping, babysitting) after you go home?” The group responses were scattered but perhaps the control group scored slightly higher. Six intervention and five control group patients answered 9-10 (a great deal), one control group patient answered 7-8, one control group and one intervention group patient answered 5-6, two control group and one intervention group patient answered 3-4, two control group and two intervention group patients

answered 1-2 (nearing none). The difference between groups was not statistically significant.

The final question in the RHDS, Question 23, asked about how much help patients would have with their medical needs (e.g. treatments, medications). Five intervention patients and seven control group patients answered 9-10 (a great deal), two intervention patients and one control group patient answered 7-8, one intervention and one control group patient answered 5-6, two intervention and one control group patient answered 3-4, and one control group patient answered 1-2. The two groups were fairly similar indicating a broad range of help with medical needs in these patients.

Seventy-two hours after patients discharged, they completed the first phone questionnaire (Table 10). Table 10 depicts the responses of the control and intervention groups for the 72-hour questionnaire and is continued on pages 59-65; the responses depicted include the hospice patients. The 72-hour questionnaire results reflect statistical significance in Questions 2, 3, and 7. These questions had to do with the discharge education, discharge goals, and preparedness. The groups were different in how they felt about discharge goals being given early in their stay with the intervention group feeling like their goals were more often provided early, with a statistically significant p value of 0.01. They also felt that knowing the discharge goals early in their hospital stay prepared them for discharge and was statistically significant with a p value of 0.03.

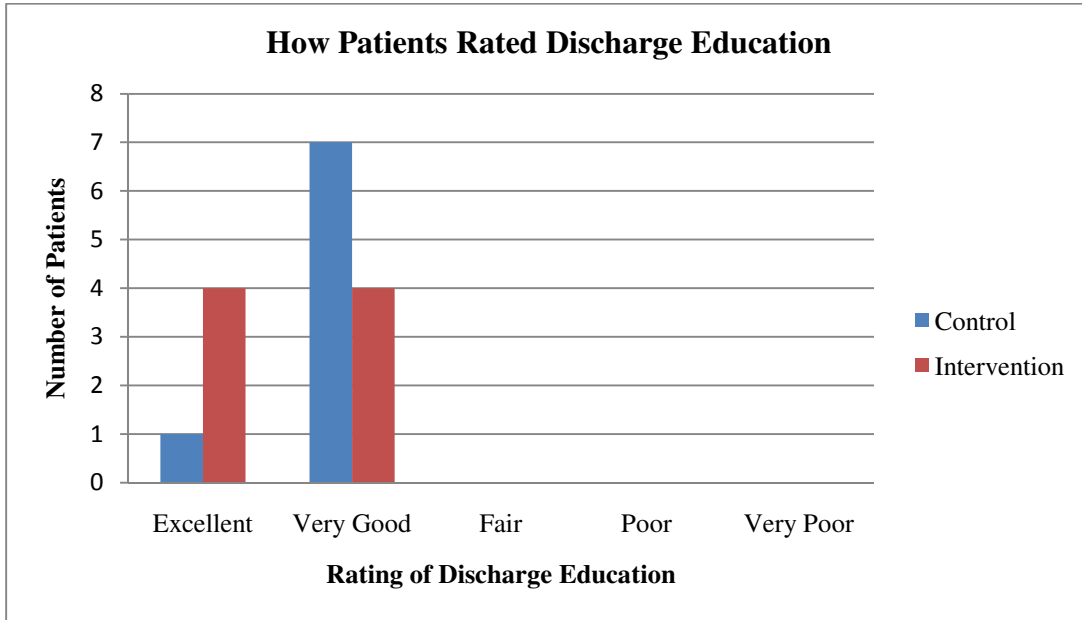
Preparedness for discharge was an integral part of this research and this was also statistically significant at 72 hours post discharge with the intervention group feeling more prepared to return home, with a Mann-Whitney U test p value of 0.01 (Table 11). There were two adverse events in the control group at 72 hours post discharge, but one patient was unavailable to be interviewed, and hence, the results of the questionnaire were not tabulated so this was not counted in the data. This adverse event involved a readmission which was counted in the final data (Table 12).



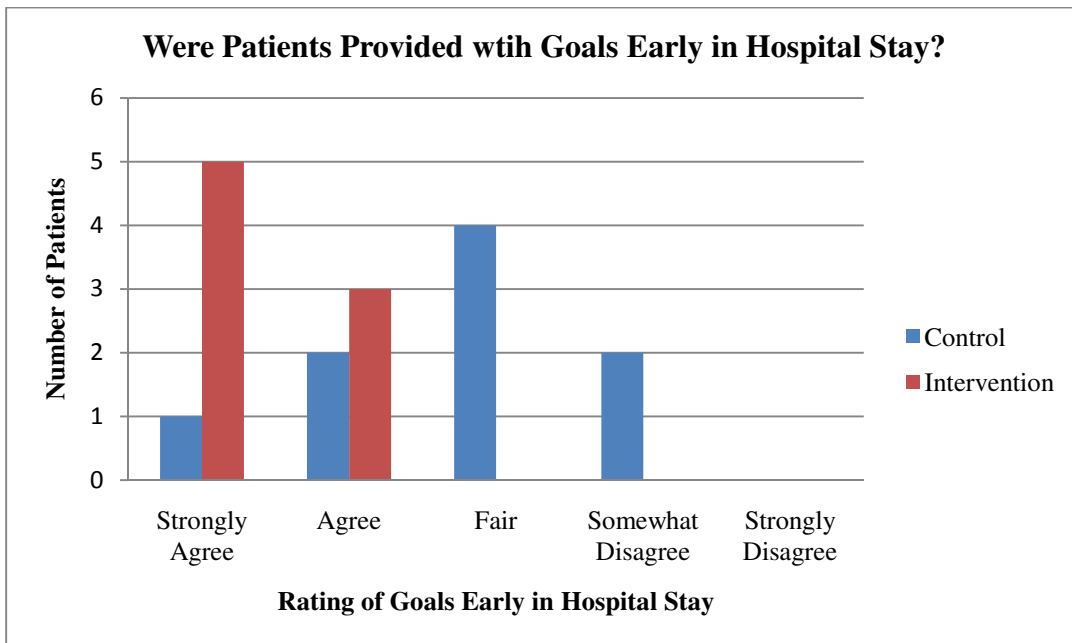
Table 10

Telephone Discharge Questionnaire 72 Hours Post Discharge

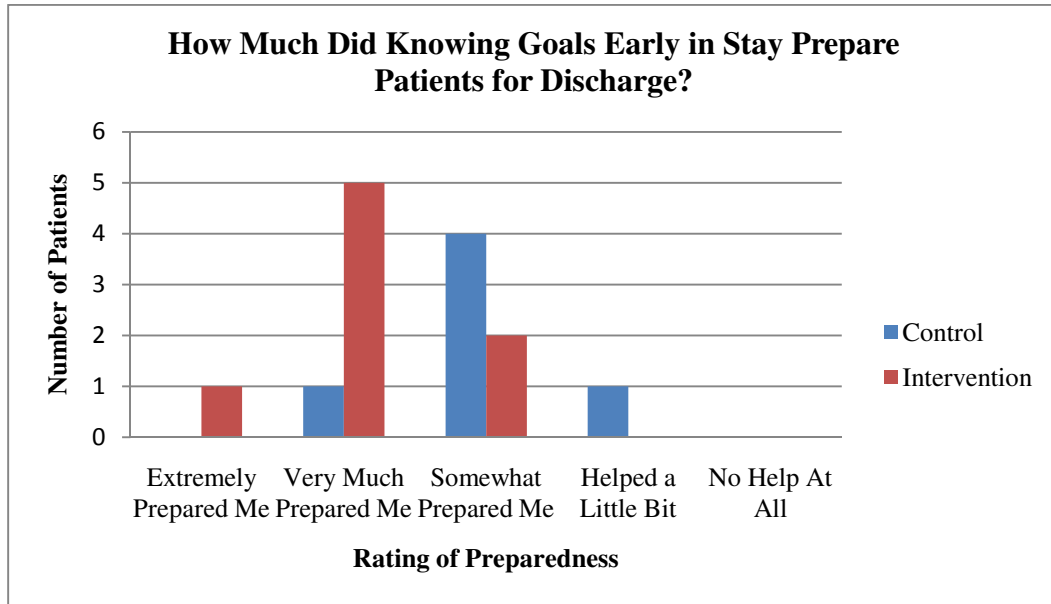
Question 1: How would you rate the discharge education you received?



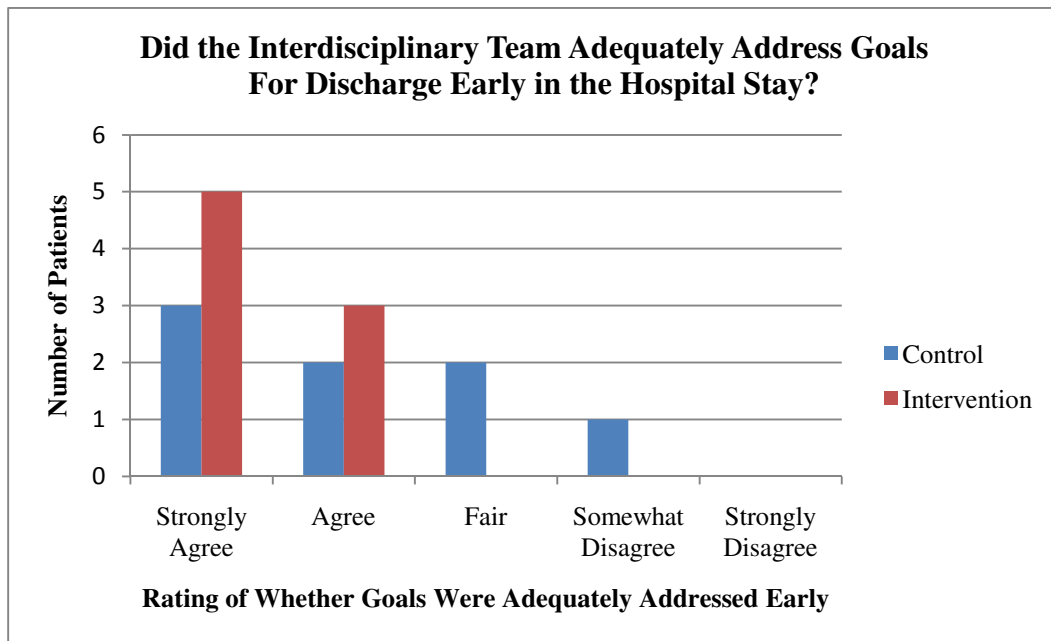
Question 2: You were provided with discharge goals early in your hospital stay.



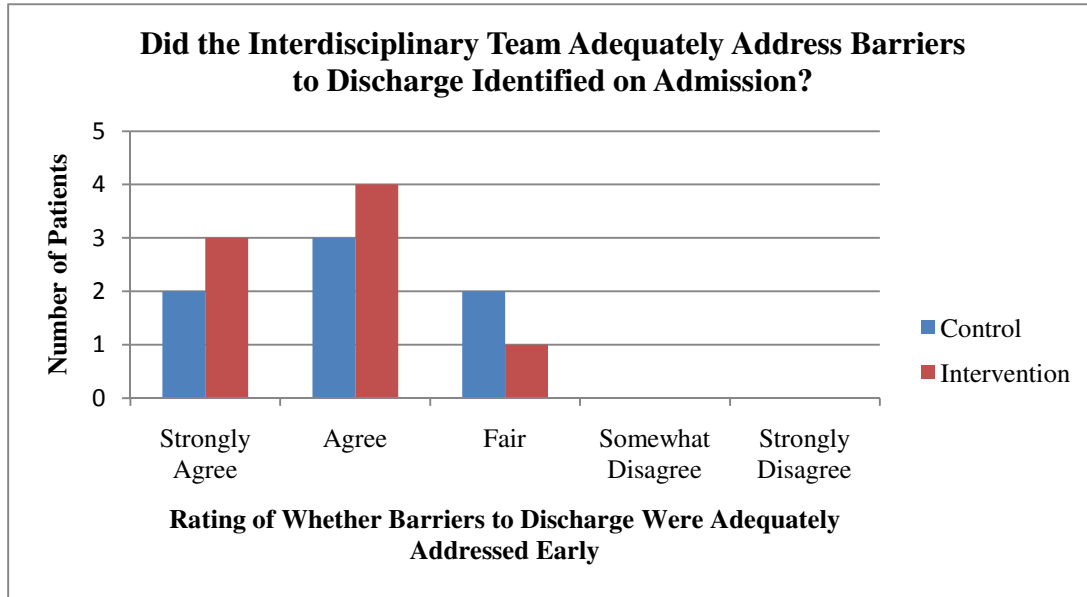
Question 3: How much did knowing your discharge goals early in your hospitalization prepare you for discharge?



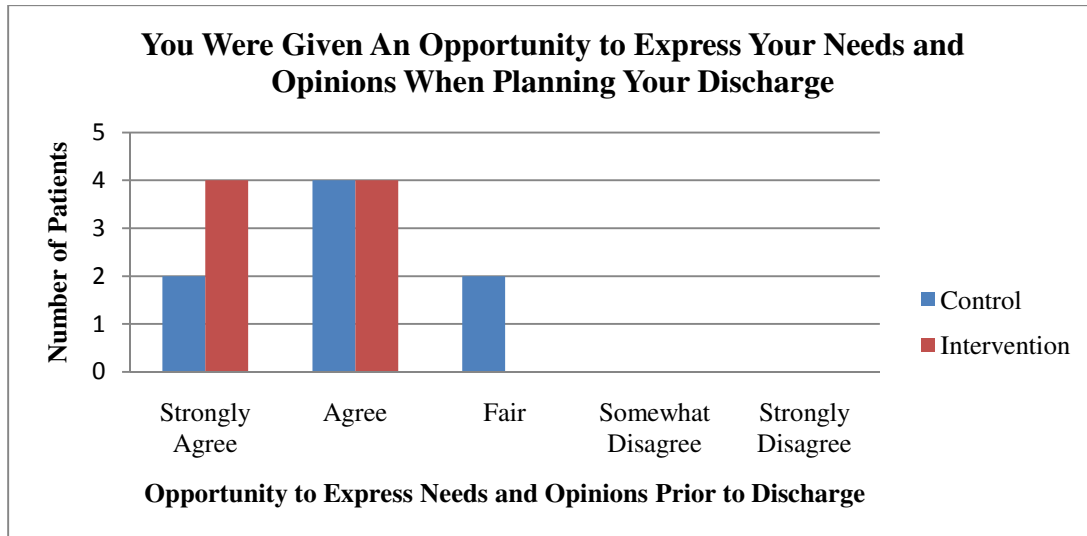
Question 4: The interdisciplinary team adequately addressed the goals you identified early in your hospital stay.



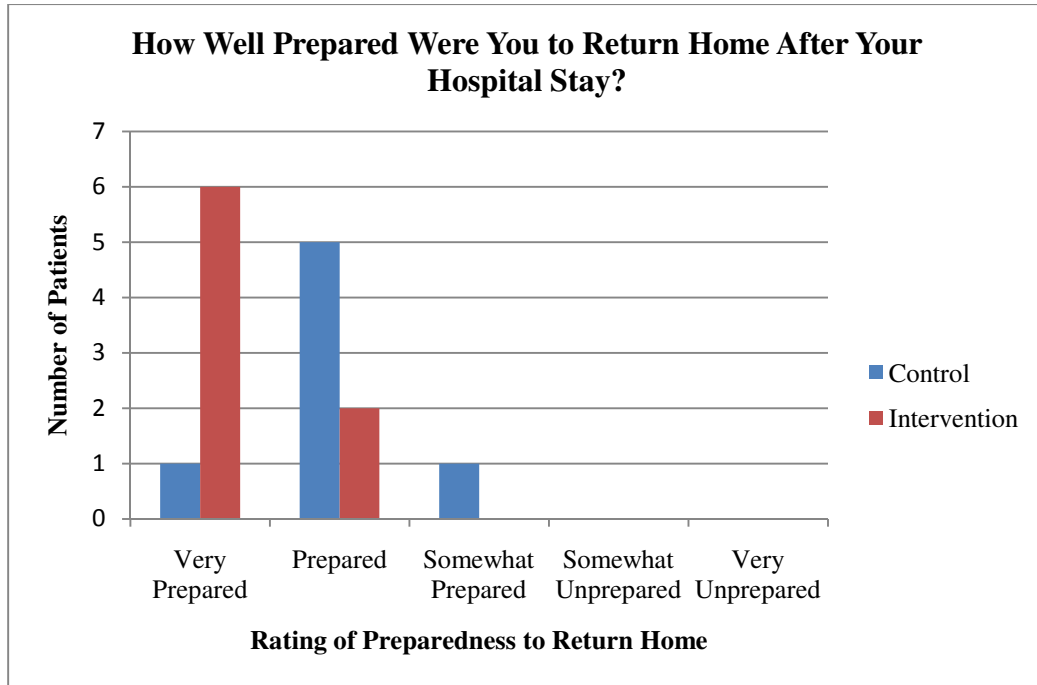
Question 5: The interdisciplinary team adequately addressed the barriers you identified on admission.



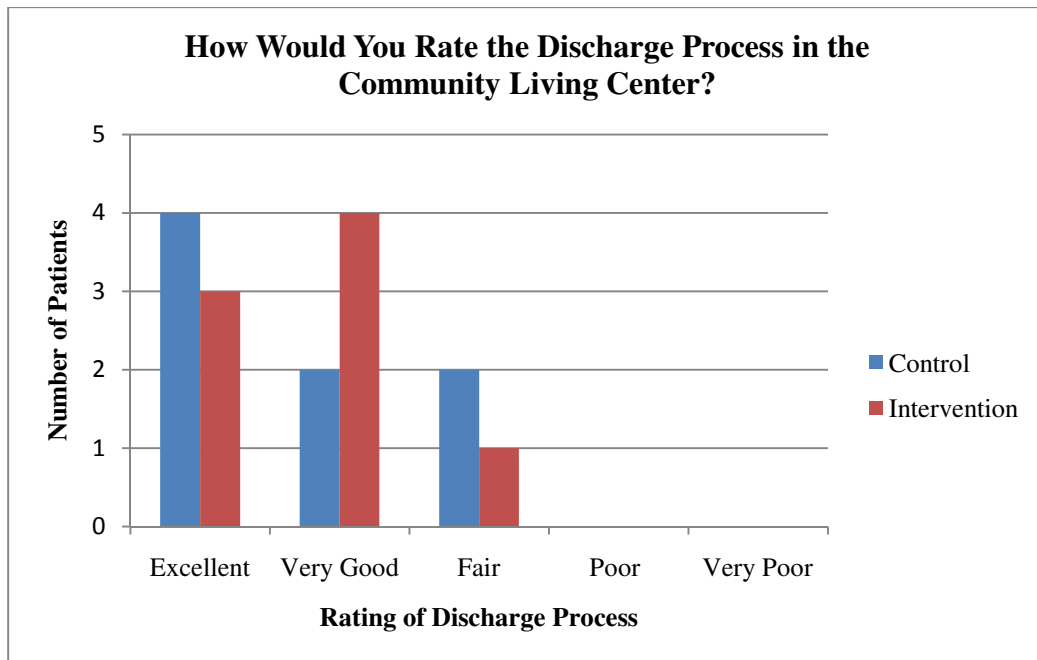
Question 6: You were given an opportunity to express your needs and opinions when planning your discharge.



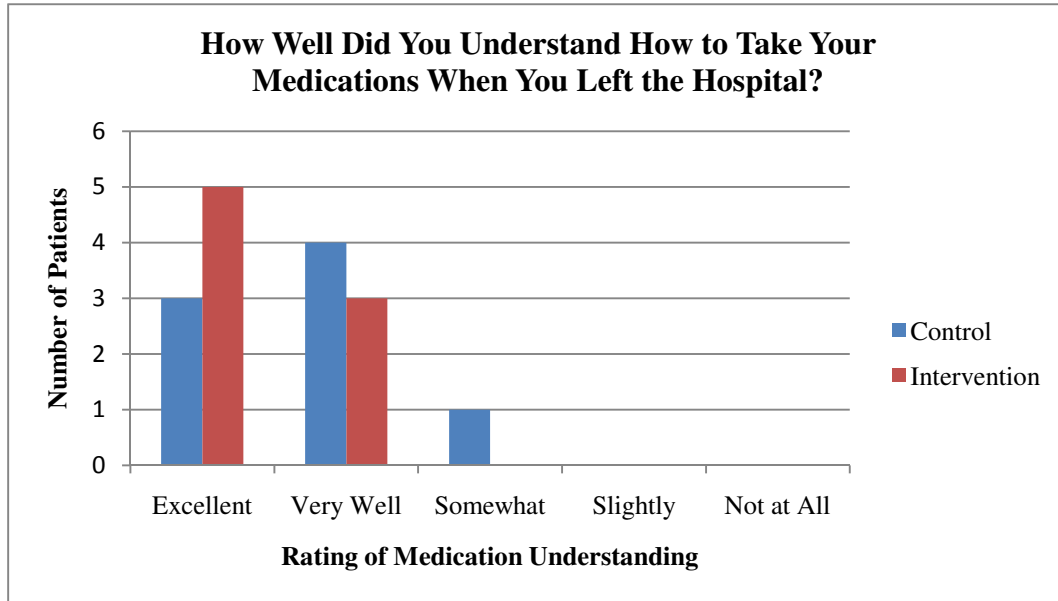
Question 7: How well prepared were you to return home after your hospital stay?



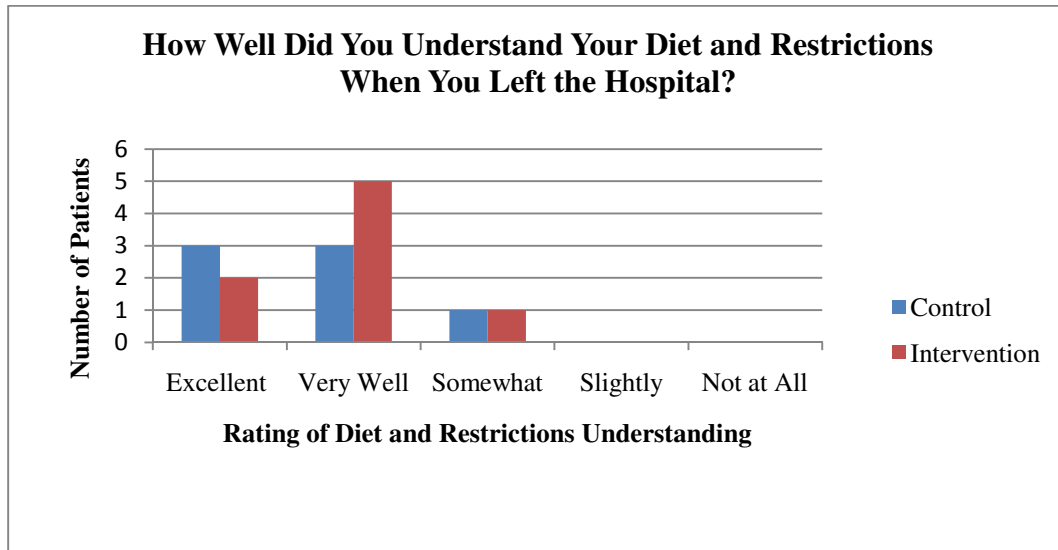
Question 8: How would you rate the discharge process in the Community Living Center?



Question 9: How well did you understand how to take your medications when you left the hospital?



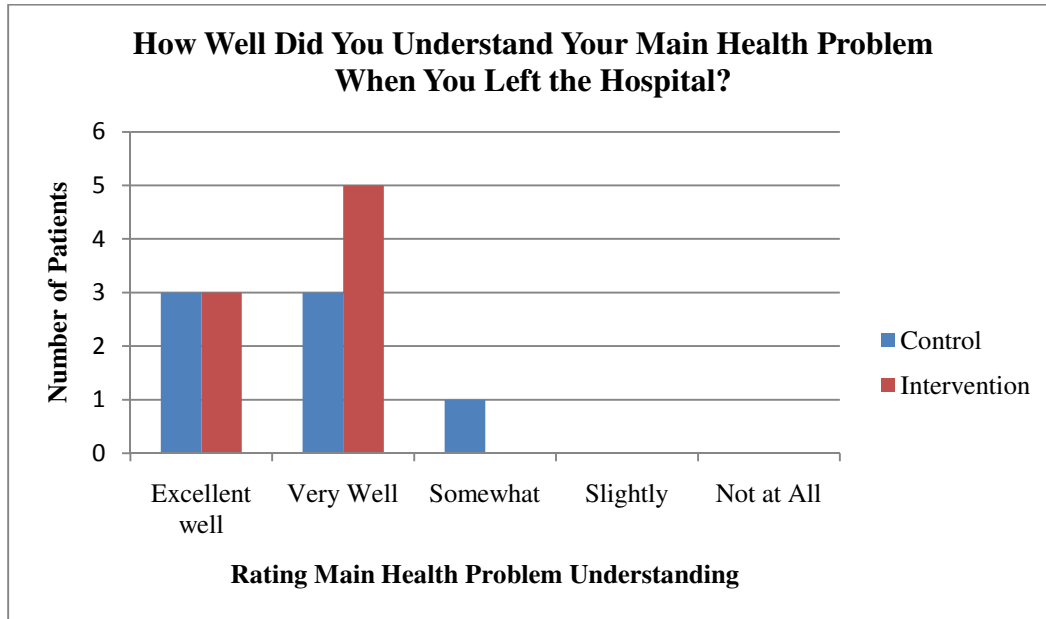
Question 10: How well did you understand your diet and restrictions, if any, when you left the hospital?



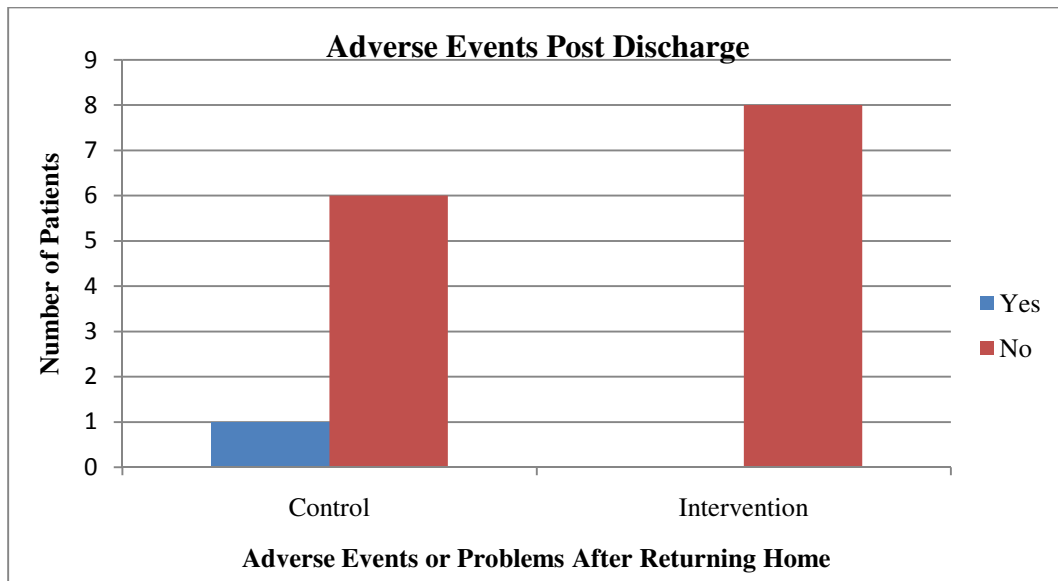
Question 11: What was the main health problem or diagnosis you were treated for during your hospital stay?

All study participants were able to correctly identify the main health problem they were treated for 72 hours after discharge.

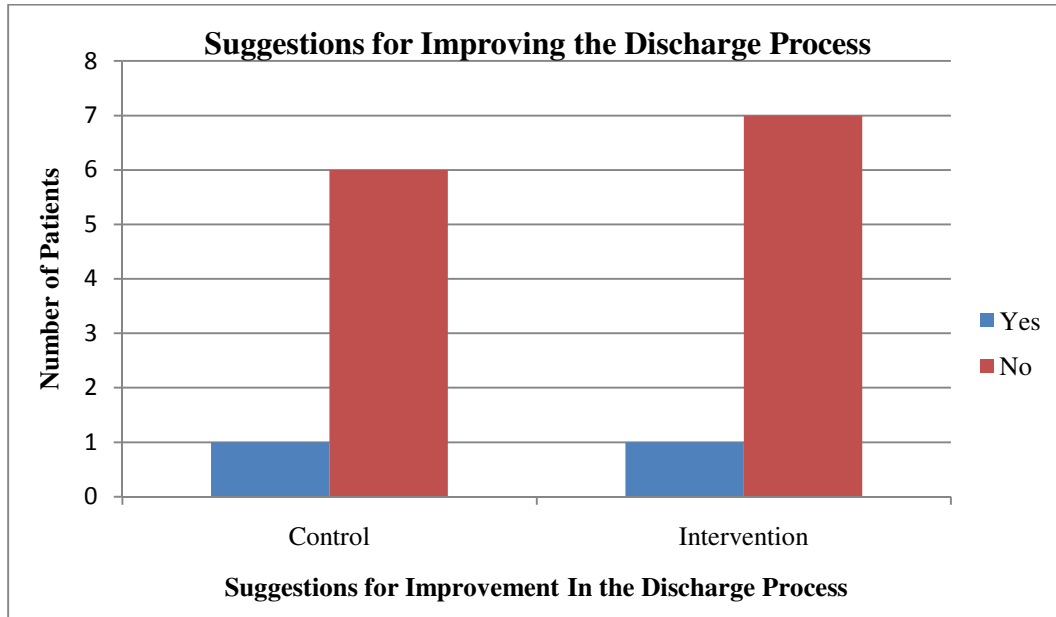
Question 12: How well did you understand your main health problem when you left the hospital?



Question 13: Did you experience any adverse events or problems after you returned home?



Question 14: Do you have any suggestions for improving the discharge process?



The 72-hour questionnaire begins with Question 1 asking how patients rated the discharge process. In the control group, one patient rated it as excellent and seven rated it as very good. The intervention group rated the education slightly higher with four patients rating the education excellent and four rating the education as very good. When analyzed with a Mann-Whitney U test, the p value was 0.12 making the difference not statistically significant.

When patients were asked about whether they were provided discharge goals early in their hospital stay (Question 2), control group results included one patient who “strongly agreed”, two who “agreed”, four who rated it “fair”, and two “somewhat disagreed”. The intervention group rated this higher and five “strongly agreed” they received their discharge goals early and three “agreed” with the statement. Using a Mann Whitney U test, which compares two groups on the same question at the same time, a p value of 0.01 was statistically significant. The intervention group felt that they more consistently received their discharge goals early. This may have helped them to be better prepared for discharge.

When patients were asked about how much did knowing their discharge goals early

prepare them for discharge (Question 3), the control group had one answer of “very much prepared me”, four answered “somewhat prepared me”, and one answered “helped a little bit”. The intervention group had one answer “extremely prepared me”, five answered “very much prepared me”, and two answered “somewhat prepared me”. Using a Mann-Whitney U test this was statistically significant with a p value of 0.03.

Patients generally felt that the interdisciplinary team adequately addressed the patient goals identified early in the hospital stay, however, the intervention group scored higher overall. For Question 4, the control group answered with three indicating “strongly agree”, two answered “agree”, two answered “fair” and one answered “somewhat disagree” to the statement. The intervention group reported five who “strongly agreed” and three who “agreed” that the interdisciplinary team addressed the discharge goals early. The differences were not statistically significant though the intervention group rated themselves higher. This may have facilitated the intervention group feeling more prepared when both groups were compared at 72 hours and 14 days post discharge (Table 11).

The 72-hour questionnaire elicited data regarding whether the team adequately addressed barriers identified on admission. Question 5 asked them to rate whether barriers were addressed early, and in the control group, two answered “strongly agree”, three answered “agree”, and two answered “fair”. The intervention group scored slightly higher with three answering “strongly agree”, four answering “agree” and one answering “fair”. The differences were not statistically significant.

Question 6 asked patients to rate whether they were given an opportunity to express their needs and opinions when planning their discharge. The control group had two “strongly agree” with this statement, four “agree” and two felt their involvement was “fair”. The intervention group rated their involvement as four who “strongly agreed” and four who “agreed” with the



statement, which did not elicit a statistically significant difference, but the intervention group scored higher overall.

Question 7 looked at preparedness to return home after the hospital stay. This was a key question in this research project and was statistically significant with a p value of 0.01 on a Mann-Whitney U test comparing two groups at the same time. The control group answered with one rating preparedness to return home as “very prepared”, five rating themselves “prepared” and one rating themselves as “somewhat prepared”. In contrast, the intervention group rated themselves with six feeling “very prepared” and two feeling “prepared” for discharge home.

When patients rated the discharge process in general in Question 8, the control group had four respondents rate the process as “excellent”, two rated it as “very good” and two rated it as “fair”. The intervention group was similar in their rating with three rating the process as “excellent”, four rating it as “very good”, and one rating it as “fair”. The groups were similar in how they rated the discharge process in general.

Medication education is an important area of discharge planning, and Question 9 asked how well the patients understood how to take their medications. Both groups were fairly similar with the control group scoring slightly lower overall. In the control group, three indicated they understood their medications in the “excellent” category, four said “very well” and one rated their understanding as “somewhat”. In the intervention group, five rated their understanding of medications as “excellent” and three rated it as “very well”.

Understanding of diet and restrictions was explored with Question 10 which asked how well the respondents understood their diet and restrictions. The control group rated themselves with three rating their understanding as “excellent”, three rating it as “very well” and one rating it as “somewhat”. The intervention group answered with two in the “excellent”, five in the “very well” and one in the “somewhat” categories. Both groups were fairly similar.

Question 11 asked about whether patients could identify the main health problem or diagnosis they were treated for, and all patients were able to successfully report their conditions. This indicates that the patients were aware of their diagnosis and reason for hospitalization.

When asked how well they understood their main health problem in Question 12, both groups were similar in their responses. The control group answered with three in the “excellent”, three in the “very well” and one in the “somewhat” categories respectively. The intervention group rated themselves with three in the “excellent” group and five in the “very well” group respectively.

Adverse events post discharge was a clinical measure in this study and it was not statistically significant at 72 hours post discharge in Question 13. There was one adverse event reported and six respondents without adverse events in the control group. This would be shown to be more significant at 14 days post discharge. The intervention group reported no adverse events at 72 hours post discharge. The groups were not statistically significant in regard to adverse events at 72 hours post discharge. There were two adverse events in the first 72 hours post discharge in this pilot study as noted in the following Table 12, but only one was counted since the patient was readmitted.

When respondents were asked about suggestions for improving the discharge process in Question 14, the control group had one patient offering suggestions and six had no further suggestions for improvement. The intervention group answered with one patient having suggestions and seven without suggestion to improve the process. These numbers were not statistically significant.

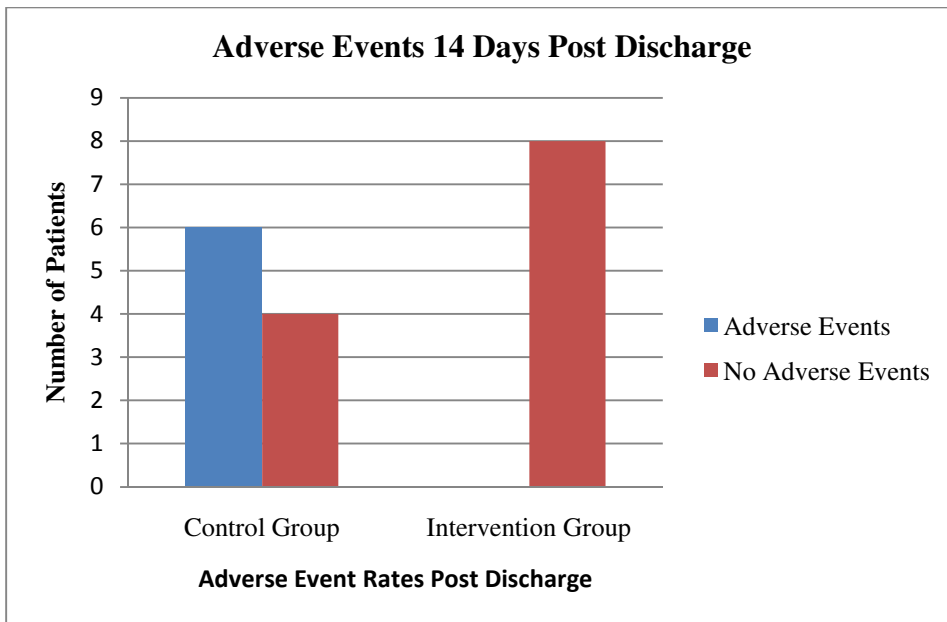
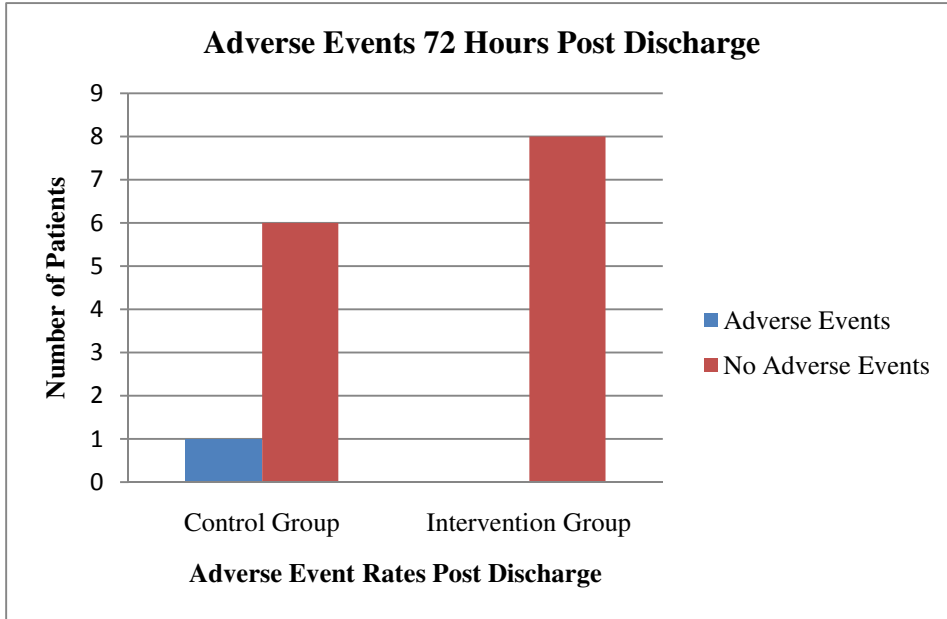
Table 11

Feeling of Preparedness from 72 hours to 14 days Post Discharge

| Preparedness between 7 and 14 days compared | Control   | Intervention  |
|---|---|---|
| 72 hr < 14 days                             | 4 patients felt less prepared than at 14 days                   | 1 patient felt less prepared than at 14 days                    |
| 72 hr > 14 days                             | 0 patients felt more prepared than at 14 days                   | 1 patient felt more prepared than at 14 days                    |
| 72 hr = 14 days                             | 3 patients felt the same level of preparedness at 7 and 14 days | 5 patients felt the same level of preparedness at 7 and 14 days |
| Total                                       | 7 patients  | 7 patients  |
| Wilcoxon Matched Pairs Signed Ranks Test    | 0.046   | 1.00  |

Table 12

Adverse Events 72 Hours Post Discharge



Fourteen days post-discharge, respondents were contacted again and asked about preparedness for discharge and adverse events (Table 13). Question 1 asked about how well patients were prepared to return home after their hospital stay. At 14 days, Question 1 revealed the control group answered with four being “very prepared”, four being “prepared”, and two feeling “somewhat prepared”. The intervention group responded with six feeling “very prepared”, and two feeling “prepared”.

The greatest difference in preparedness was in the control group at 72 hours post discharge. When the values were compared with a Wilcoxon matched-pairs test, which measures before and after change over time from 7 to 14 days, the p value was 0.05 which was statistically significant. The intervention group did not have statistically significant change. At 7 and 14 days, there were three patients in the control group who were equally prepared and five patients in the intervention group that were equally prepared (Table 11).

Question 2 asked if the patient had returned to their provider for any unplanned or unexpected visits since the past phone follow-up. In the control group, five patients reported unplanned visits and five did not. The intervention group did not report any unplanned visits. This was statistically significant with a Pearson Chi-Square measurement of p value to be 0.02. Four of these visits resulted in readmissions to the hospital (Table 15).

When the control group was asked (Question 3) if any unplanned visits were related to the recent hospital stay, four responded yes and one responded no. This was not analyzed because there was only one group.

Question 4 focused on narrative responses for unplanned visits from the control group, some of which included patients reporting follow-up for pain management, depressed mood, feeling like they needed more time for rehabilitation prior to discharge and lack of interdisciplinary team including patients and families in the discharge process.

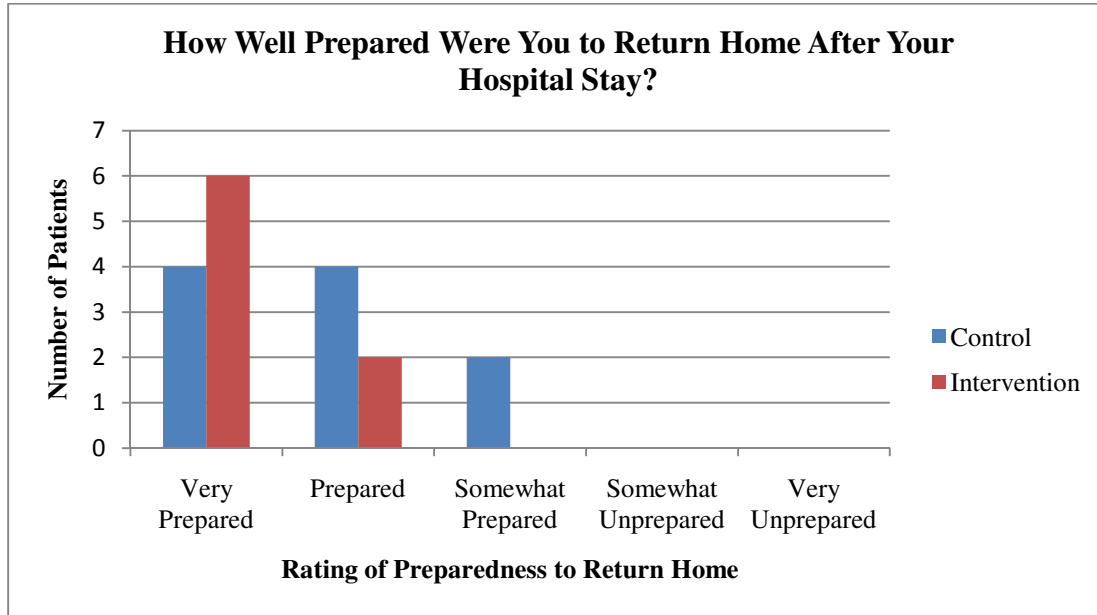
At 14 days post discharge, respondents were asked if they had experienced any adverse events or problems surrounding their discharge (Question 5). Six out of ten respondents in the control group answered yes and eight out of eight in the intervention group answered no. Chi-Square analysis revealed a p value of 0.01 which was statistically significant with the control group having more adverse events than the intervention group. When patients were asked at the 14-day follow-up call whether they had returned to their provider for any unexpected visits, the control group had five out of ten patients reported calling their provider for questions about changes in their condition and medications. This was statistically significant with a Pearson Chi-Square value of 0.02. In addition, when the control group was asked if they had experienced any adverse events post discharge, six out of ten answered yes. This was statistically significant with a Pearson Chi Square value of 0.01 (see Table 12).

When asked about how well the patients were managing their illness now (Question 6), the control group had two answer “excellent”, four answer ‘very well’, three answer “somewhat”, and one answer slightly. The intervention group revealed four who answered “excellent” and four who answered “very well”. When the results were tabulated with Mann-Whitney U which compares two groups at the same time on the same question, the p value was 0.06 which is close to statistically significant.

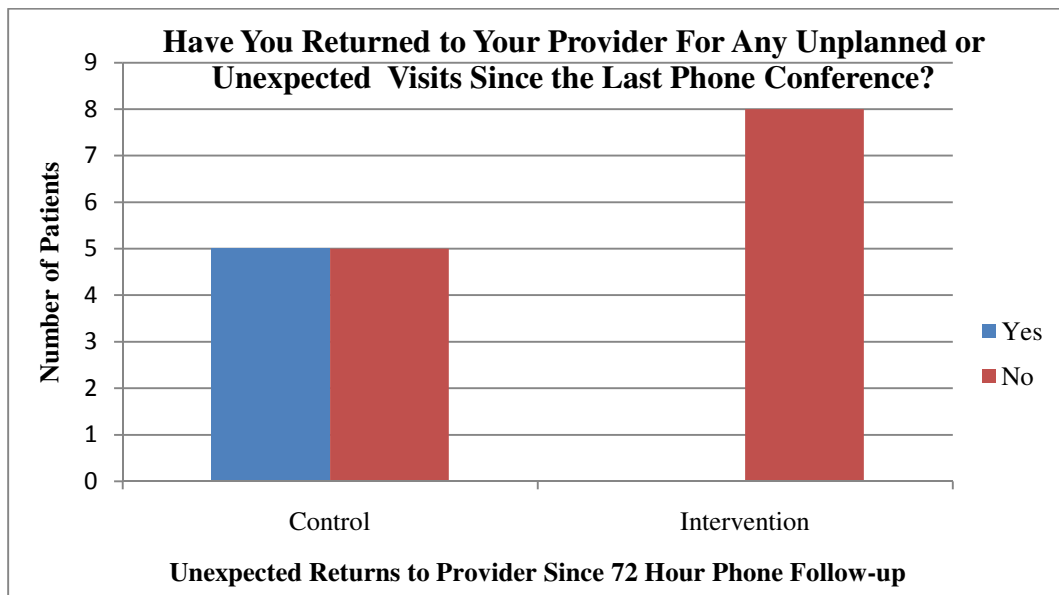
Table 13

Discharge Questionnaire 14 Days Post Discharge

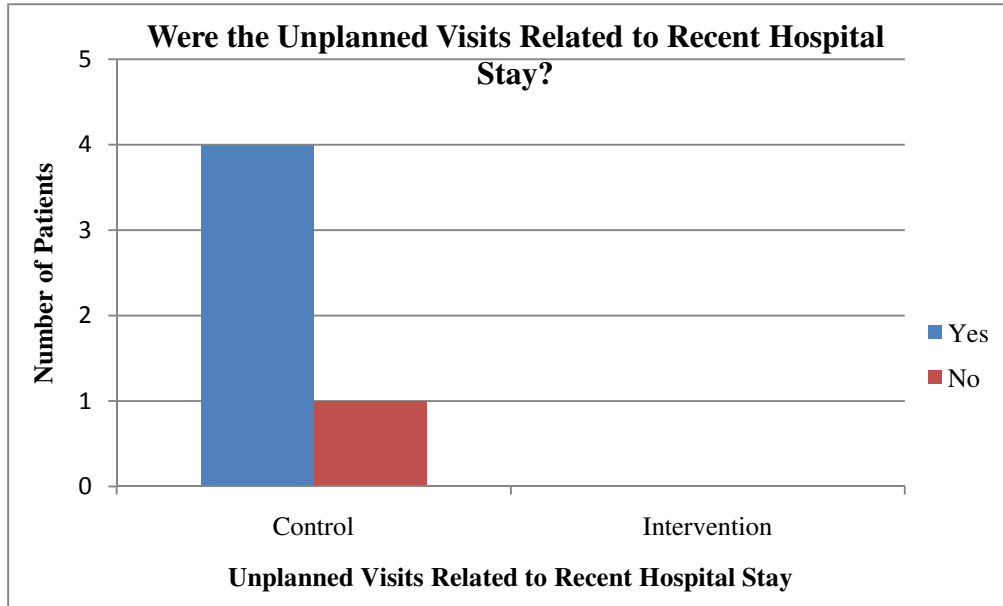
Question 1: How well prepared were you to return home after your hospital stay?



Question 2: Have you returned to your provider for any unplanned or unexpected visits since our last phone conference?



Question 3: If so (referring to Question 2), were your concerns related to your recent hospital stay?

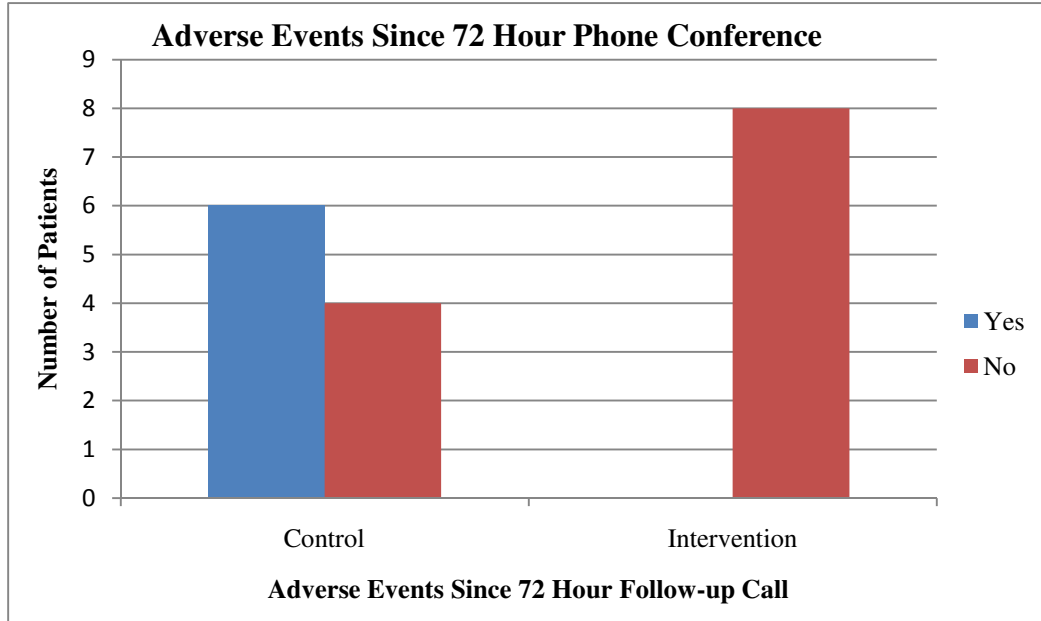


Question 4: If you have returned for an unplanned visit, could you describe the reason for the unplanned visit?

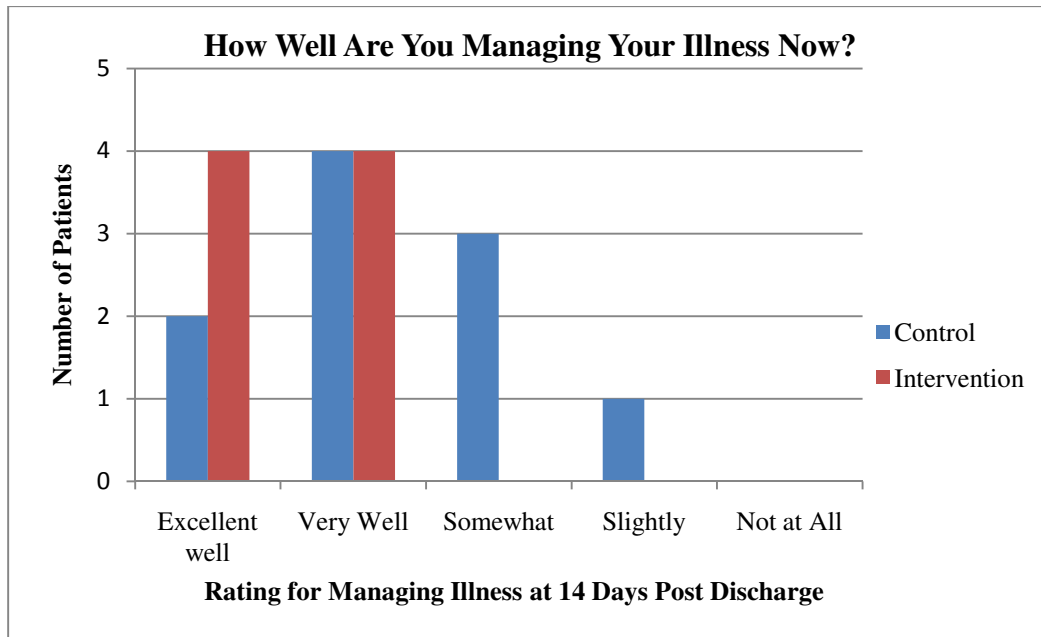
| <b>Reason for Unplanned Visit</b>                       |
|---|
| Depressed mood  |
| Pain management   |
| Rehabilitation not long enough, unable to care for self |
| Failure to cope at home post discharge                  |
| Recurrent symptoms of initial illness                   |



Question 5: Have you experienced any adverse events or problems surrounding your discharge since our last phone conference?



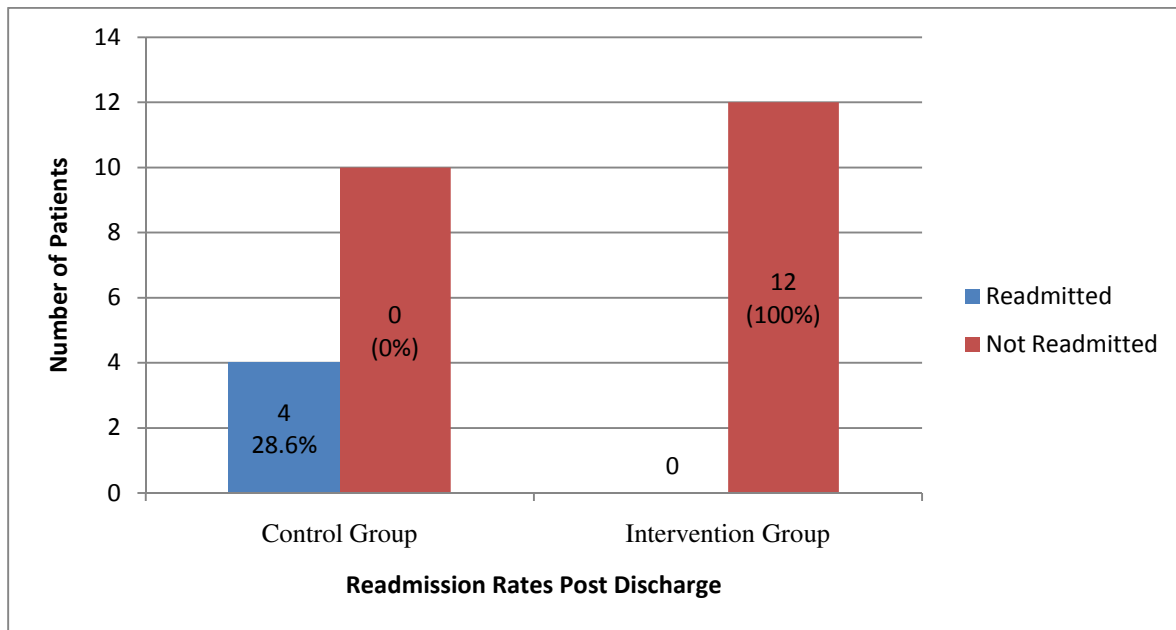
Question 6: How well are you managing your illness now?



Readmission rates were also prominent in the control group with four of ten control group patients experiencing unexpected readmissions within 14 days of discharge. The intervention group, which consisted of twelve patients, did not have any readmissions within this time period. This was statistically significant at 0.04 (Table 14). There was one intervention group patient who had a scheduled admission within the 14 day study period and this was not included in the data analysis since it was a known, expected admission. One of control group patients was not able to complete the remainder of the questionnaires because he was readmitted within 48 hours of discharge.

Table 14

Readmission Rates For Control and Intervention Groups



Qualitative data was recorded during the phone interviews, and this patient’s family member shared her feelings of disappointment with the discharge process but the data was not included since it was not from the patient who consented to the research study. Some qualitative data was collected to enrich the discharge planning experience that included reasons for readmission, adverse events, and suggestions for improvement in the discharge process.

Some patients in the control group described feelings that have been documented in the literature by other researchers such as not patients not knowing who to call for information, lack of available contact numbers, family members describing lack of discharge education and summary of what happened in the patient’s care, as well as poor communication between providers. Others in the control group were happy with the care. In the intervention group, patients were generally satisfied with their care, and tended to focus on care while in the hospital rather than discharge planning process if there was an issue (Table 15).

Table 15

Qualitative Statements About Discharge Process

| Control  | Intervention  |
|--|---|
| <p>“No one would look up information for us. I saw a lot of doctors, and never understood who was in charge and who was making the decisions. We had a lot of questions; communication was poor. I felt like some doctors didn’t know what was going on.”</p>  | <p>“Everything was excellent. Everything was explained by everybody; including equipment cares.”</p>  |
| <p>Family member described discharge process as “no one came together and met with us to tell us what needed to be done. The caregivers are left out. It was a nightmare. You guys need to forewarn families about what to expect when someone goes home from the hospital.”</p>   | <p>“I’ve been a lot of places, and this care is the best.”</p>  |
| <p>“I am having trouble just doing the day-to-day things. I think the discharge was too soon. I’m afraid, overwhelmed.”</p>  | <p>“Felt going home presented different stressors than in the hospital, for example, different beds. Sometimes felt lack of supportive environment where someone goes from nursing and team helping the patient to home independently.”</p>   |
| <p>“The staff did a good job, it worked out pretty well.”</p>  | <p>“I really felt comfortable here. Everybody treated me with respect. If I had to be there, rehab was the place to be. Only issue was that sometimes the nurses didn’t respond.”</p>   |
| <p>“Certain level of depression since I left. Lethargic. I’ve spoken very highly of this hospital. I’d compare it to the private sector.”</p>  | <p>“Very wonderful service.”</p>  |
| <p style="text-align: center;"><b><u>Themes</u></b><br/>                     Communication<br/>                     Fear<br/>                     Grateful Attitude<br/>                     Confusion<br/>                     Isolation (patient and caregiver)<br/>                     Inadequacy<br/>                     Comfortable<br/>                     Preparedness</p> | <p style="text-align: center;"><b><u>Categories</u></b><br/>                     Lack of care coordination/support<br/>                     Lack of team involvement<br/>                     Lack of understanding expectations/instructions<br/>                     Lack of energy<br/>                     Appreciation for care<br/>                     Lack of family involvement<br/>                     Prepared for self care<br/>                     Knowledgeable about care and who to call with questions</p> |

## Chapter 5

### *Discussion of Findings and Outcomes*

The majority of patients in this pilot study were age 61-70 with 92.3% of them being male. Most patients returned home with a spouse or family member and the remainder of patients returned home alone. Over one-half of the patients had a high school degree with many having some form of vocational training in the past. The majority of these medically complex patients left the hospital on more than 14 medications and most were on some type of special diet. All of the patients who agreed to participate in this pilot study were white.

The mean length of stay was 32.9 days and there was a diversity of primary diagnosis as depicted in Table 8. There was a representative mix of medical and surgical conditions which included wound care, acute medical/surgical conditions, infection-related problems, and cancer. Two of the patients were formally on hospice. Lack of ethnic diversity in this study is a drawback. Several attempts were made to enroll racially diverse eligible patients for this study, however, all declined to participate.

Several positive lessons were learned from this pilot study, and the information gleaned from this study will assist other researchers in furthering this important area of health care. The Analysis of the Readiness for Hospital Discharge Scale Questionnaire revealed that all patients felt they were ready for discharge home, in both the intervention and control groups. The intervention group consistently scored as well or better than the control group on all questions except for the assessment which asked about discomfort. The intervention group may have scored slightly lower than the control group, though it was not statistically significant. The main differences in the groups where statistical significance was reached was with questions about medical follow-up and treatment plan post discharge as well as knowledge about services in the community. The intervention group scored significantly higher with p values of 0.05 and 0.04

respectively. The two groups were also near statistical significant when asked about the ability to perform medical treatments, which had a statistical significance of 0.07, indicating that the intervention group felt more comfortable with caring for wounds, respiratory treatments, exercise rehabilitation, and medication administration prior to discharge.

Post discharge calls were made by the investigator within 72 hours of discharge and there were three areas that were statistically significant between the intervention and control groups on this questionnaire. Again, the intervention group scored higher across the board than the control group, yet these were not statistically significant. In areas such as quality of discharge education, addressing barriers to discharge, allowing for expressing of needs and opinions in planning discharge, and understanding of diet, main health problem and medications, the intervention group scored higher than their control group counterparts, though it was not statistically significant.

When asked about receiving discharge goals early in their hospital stay, the intervention group scored higher with a statistically significant p value of 0.01. Some of the control group patients did not answer the question because they felt they did not receive their goals early. Knowing their discharge goals early was felt to prepare the intervention group and was also statistically significant at 0.030. At 72 hours post discharge, the intervention group felt more prepared than the control group and this was also reflected with a statistically significant p value of 0.01. The numbers in this study are too small to draw absolute conclusion. However, it appears from the data in this pilot study that knowing goals early in the hospital stay helped the intervention group feel more prepared for discharge. It is this investigator's opinion that knowing discharge goals early in the hospitalization allows for early dissemination of the goals from the team to the patient and family, therefore allowing the patient more time to learn how to meet the goals and expectations discharge will bring. This also may help them to feel more

prepared to care for themselves post discharge.

At 14 days post discharge, the investigator placed the last phone call to the patients in this study. Once again, the intervention group scored higher than the control group in most areas. The feeling of preparedness for discharge was not statistically significant at two weeks post discharge, but the intervention group patients rated themselves as feeling more prepared. When asked about unplanned visits post discharge, the intervention group had no unexpected visits post discharge with a statistically significant p value of 0.02. One half of the control group patients had unplanned visits to their providers and most were reported to be related to their hospital stay. In the area of adverse events, the intervention group described no adverse events post discharge, while the control group patients had over half the respondents report adverse events. This was statistically significant at 0.01.

When describing how well patients were managing their illness post discharge, the groups were nearly statistically significant at 0.06 as noted above. The intervention group felt they were managing their illness better overall than the control group.

Much of this information was supported by qualitative data as depicted in Table 15, which can be used to extrapolate some feelings of satisfaction and comfort with the discharge process. While some patients in the control group were happy with their discharge planning care, others had a myriad of feelings related to poor communication among providers and providers to families, lack of care coordination, lack of preparing the patient for what to expect post discharge, all of which have been described in the literature by other scholars.

When preparedness was compared between 7 and 14 days post discharge for each group, there was a statistical relationship. The Wilcoxon matched-pairs signed ranks test revealed a p value of 0.05 at 72 hours post discharge, indicating that the control group felt less prepared at 72 hours than the intervention group. The intervention group had no differences in feeling of

preparedness for discharge at either 72 hours or 14 days post discharge.

Readmission rates between the control and intervention groups were also statistically significant with a Pearson Chi-Square 2-sided test of 0.04 (Table 14). Twenty-seven percent of the control group patients were readmitted while no intervention group patients were readmitted post discharge. At 72 hours post discharge, the adverse event rate was not clinically significant with a Pearson Chi-Square p value of 0.268. However, at 14 days post discharge, the control group had a total of six adverse events, with a p value of 0.01 and a rate of unexpected visits to the provider of 60%. The intervention group did not have any unplanned readmissions and no reports of adverse events. This pilot study is limited by small numbers making it difficult to draw inferences, however, giving patients the opportunity to express their goals and barriers to discharge should be considered an integral part of every discharge planning program for this population. It just makes good sense to allow the patients to have an active role in their care. See Table 16 for summary of study results (p. 90).

Lastly, this discharge planning study focused mainly on patient satisfaction and was not designed to take into account staff satisfaction with the discharge process, but in retrospect, this would have been a valuable measure to consider given this change project.

The results of this study are parallel to literature findings by Weiss (2007) who reported higher quality discharge teaching correlated with more favorable perception of discharge readiness. The intervention group who received an intensive discharge planning intervention was found to have increased preparedness for discharge compared to the control group. Research by Jack et al. (2009) and Naylor (1999) further support the results of this study that those patients who receive intensive, patient-centered discharge planning can potentially have lower rates of readmission and adverse events as was evidenced by the intervention group having no reports of adverse events or readmissions 14 days post discharge. The rate of adverse events in this study

was 20% of total the total number of patients, which is comparable to numbers found by Forster et. al (2004), but all adverse events occurred in the control group. If one calculates the number of adverse events in the control group only, this results in a value of 40% of 15 control group patients in this study. The qualitative data gleaned from patient responses is similar to data reported by Bull and Roberts (2001) and Carroll and Dowling (2007). Essential elements critical to successful discharge planning need to include communication, coordination of care, education, patient/family participation and collaboration between health care providers in the interdisciplinary plan of care.

The research question addressing whether early identification of discharge goals and expectations improves readiness for discharge reached statistical significance in the intervention group with those patients reporting increased feelings of preparedness associated with receiving goals early. The control group did not have statistical significance in this area. Research questions addressing whether early identification of barriers to discharge improves readiness for discharge and improves the education provided by the interdisciplinary team was supported by higher scores in the intervention group vs. the control group, but was not statistically significant. Patients in the intervention group scored higher on their rating of satisfaction with the discharge process as well. Probably the most striking finding was the lack of readmissions, lack of unexpected return visits to a provider, and lack of adverse events post discharge in the intervention group who received intensive discharge planning compared with the control group. Study hypotheses which mirrored the research questions were supported in the same manner as noted above.

### *Conclusions*

Intensive discharge planning with inclusion of the patient and family early in the process, as well as identification of goals and barriers to discharge has the potential to significantly



reduce cost by decreasing readmissions and adverse events, improve patient satisfaction, and assist patients with feeling more comfortable as they transition from hospital to home. This pilot study suggests that patients who identify goals and barriers early in the hospital stay can work with the interdisciplinary team to effectively develop a plan for returning home. By increasing patient preparedness, patients can feel more confident with their care. The intervention group consistently scored higher when asked specifically about diet, medication management, activity restrictions, available resources post discharge, disease management and who to contact with problems. Post discharge telephone follow-up allows patients to ask questions and to review any issues they may have regarding recommended treatments and restrictions. With shorter lengths of stay, patients and families need to begin the educational process within two to five days after admission so they have adequate time to begin to identify barriers and goals for hospital discharge. This also gives the interdisciplinary team time to involve the patient and family in the discharge plan and has the potential to create a seamless transition home. Early involvement of the intervention group resulted in no adverse events, no readmissions and no unexpected visits to providers in this study, which is a significant finding.

The discharge planning process is an important concept as patients are discharged earlier and more constraints are placed on our time. Guided by principles of informatics, nurses gather data and information and then translate these building blocks into knowledge. Knowledge then has the potential to be transformed into wisdom as the knowledge is synthesized and blended with experience, resulting in deeper insight and understanding. DNP's will be the next generation of nurses that will embrace development and cultivation of nursing wisdom to be used in the competitive health care arena as organizations struggle to balance patient care with fiscal limitations and mobilize staff to improve patient care and safety. Some hospitals are moving toward the "care team" as a new paradigm in management (Simpson, 2003), and DNP's are in

the forefront to be the logical leaders of these teams. Nurses understand critical pathways and are visionary leaders who have the practical skills to understand how clinical systems function.

This DNP systems change project focuses on the discharge process to streamline and assign workload, organize patients' needs to avoid duplication of services, educate patients so they can succeed after discharge, and improve patient satisfaction. Health care organizations can no longer fiscally support the notion that "if it is documented we will pay", rather now payers are asking the hard questions of "Why did you do it?", "Was it necessary for quality, seamless, patient-centered care?", and "Is there a way to do it more efficiently?" The discharge process needs to be revolutionized to improve patient flow from inpatient to outpatient settings, to reduce adverse outcomes, and to improve patient satisfaction. I am hoping that this systems change project will provide positive change. Nursing must embrace the challenge to take a fresh look at the tough issues to improve health care for all who entrust their hopes and dreams in our profession.

Probably first and foremost, increased knowledge and awareness of the discharge process as well as increased efforts to improve discharge planning care have been adopted at the study institution. Plans at the study institution for transferability of the project include a discharge planning class that is being developed for all patients and families admitted to the sub-acute unit. In addition, a 5-state task force comprised of several federal health care institutions was brought together to look at discharge planning and how it could be improved. A discharge planning questionnaire was developed but was not instituted due to lack of funding at the time. Hopefully this pilot study will shed some light on potential returns on investment for discharge planning in both a tangible and intangible sense.

#### *Investigators Recommendations*

Therefore, based on the above thoughts addressing ethical issues and social justice, as

well as evidence-based review of the importance of discharge planning, this researcher is even more convinced that discharge planning is the key to improving patient outcomes post discharge. Patients need intense discharge planning that looks at perceived barriers to discharge in order for patients to succeed when they return home. Health care education should not exist in a vacuum, and if we do not make efforts to understand our patients' world and where they come from, our efforts will be in vain.

The shortage of primary care providers does not allow for timely follow-up after discharge in some cases. Health care organizations should institute follow-up phone calls after discharge to anticipate problems before they occur which may in the end, avoid costly readmissions and corrections of adverse events. Investment in discharge planning that tailors discharge planning to the individual with evaluation of discharge barriers, timely response to resolving those barriers, and continued education and involvement of the interdisciplinary team with patients and families assists them to feel more confident and prepared for discharge home.

All patients in this study were able to correctly recall the admitting diagnosis, so we appear to be doing a good job in educating patients about their initial problems. However, more work needs to be done in regard to how the health care industry can efficiently disseminate the vital information patients need. This study has served as a foundation for future scholarly work in the area of discharge planning and the importance of addressing barriers early in the hospital stay, tailoring education to patient needs, continued family involvement in the discharge process, and team planning early in the hospital stay to provide increased preparedness for hospital discharge. DNP-prepared leaders can positively affect practice in the area of discharge planning by advocating for adequate, close follow-up post discharge which can provide the necessary educational, emotional, and community support that patients need when they return home.

Lastly, financial opportunities do not reflect the potential human and emotional returns

evidenced by improved patient satisfaction, perceived readiness for discharge and patient/family confidence personally witnessed by this researcher when patients truly feel ready to return home. Health care organizations can do a better job of bridging the gap and improving quality of care by investing in meaningful, comprehensive discharge planning by including the patients and families in the plan as well as beginning the process early in the hospital stay.

Table 16

## Summary of Questions and P values

| Readiness for Hospital Discharge Scale   | Test   | P Value     |
|--|--|-------------|
| 1. As you think about your discharge from the hospital, do you believe you are ready to go home as planned?  | Not computed-all study participants answered "yes" |             |
| 2. How physically ready are you to go home?  | Mann-Whitney U test                                | 0.26        |
| 3. How would you describe your pain or discomfort today?   | Mann-Whitney U test                                | 0.43        |
| 4. How would you describe your strength today?   | Mann-Whitney U test                                | 0.07        |
| 5. How would you describe your energy today?   | Mann-Whitney U test                                | 0.12        |
| 6. How much stress do you feel today?  | Mann-Whitney U test                                | 0.43        |
| 7. How emotionally ready are you to go home today?   | Mann-Whitney U test                                | 0.18        |
| 8. How would you describe your physical ability to care for yourself today (for example, hygiene, walking, and toileting)?   | Mann-Whitney U test                                | 0.12        |
| 9. How much do you know about caring for yourself after you go home?   | Mann-Whitney U test                                | <b>0.02</b> |
| 10. How much do you know about taking care of your personal needs (for example, hygiene, bathing, toileting, eating) after you go home?  | Mann-Whitney U test                                | 0.76        |
| 11. How much do you know about taking care of your medical needs (treatments, medications) after you go home?  | Mann-Whitney U test                                | 0.15        |
| 12. How much do you know about problems to watch for after you go home?  | Mann-Whitney U test                                | 0.19        |
| 13. How much do you know about who and when to call if you have problems after you go home?  | Mann-Whitney U test                                | 0.20        |
| 14. How much do you know about restrictions (what you are allowed and not allowed to do) after you go home?  | Mann-Whitney U test                                | 0.10        |
| 15. How much do you know about what happens next in your follow-up medical treatment plan after you go home?   | Mann-Whitney U test                                | <b>0.05</b> |
| 16. How much do you know about services and information available to you in your community after you go home?  | Mann-Whitney U test                                | <b>0.04</b> |
| 17. How well will you be able to handle to demands of life at home?  | Mann-Whitney U test                                | 0.47        |
| 18. How well will you be able to perform your personal care (for example, hygiene, bathing, toileting, eating) at home?  | Mann-Whitney U test                                | 0.17        |
| 19. How well will you be able to perform your medical treatments (for example, caring for a surgical incision, respiratory treatments, exercise, rehabilitation, taking your medications in the correct amounts and at the correct times) at home? | Mann-Whitney U test                                | 0.07        |
| 20. How much emotional support will you have after you go home?  | Mann-Whitney U test                                | 0.74        |
| 21. How much help will you have with your personal care after you go home?   | Mann-Whitney U test                                | 0.63        |
| 22. How much help will you have with household activities (for example, cooking, cleaning, shopping, babysitting) after you go home?   | Mann-Whitney U test                                | 0.38        |
| 23. How much help will you have with your medical care needs (treatments, medications)?  | Mann-Whitney U test                                | 0.82        |

Table 16

Summary of Questions and P values (continued)

| <b>72-Hour Telephone Discharge Questionnaire</b>  | <b>Test</b>  | <b>P Value</b> |
|---|--|----------------|
| 1. How would you rate the discharge education you received (for example, discharge education=the information you needed to take care of yourself when you returned home)?   | Mann-Whitney U test  | 0.12           |
| 2. You were provided with discharge goals early in your hospital stay.  | Mann-Whitney U test  | <b>0.01</b>    |
| 3. How much did knowing your discharge goals early in your hospitalization prepare you for discharge?   | Mann-Whitney U test  | <b>0.03</b>    |
| 4. The interdisciplinary team (for example, doctors, nurses, therapists, dietician, SW) adequately addressed the goals you identified early in your hospital stay.  | Mann-Whitney U test  | 0.15           |
| 5. The interdisciplinary team adequately addressed the barriers you identified on admission.  | Mann-Whitney U test  | 0.31           |
| 6. You were given an opportunity to express your needs and opinions when planning your discharge.   | Mann-Whitney U test  | 0.17           |
| 7. How well prepared were you to return home after your hospital stay?  | Mann-Whitney U test  | <b>0.01</b>    |
| 8. How would you rate the discharge process in the Community Living Center?   | Mann-Whitney U test  | 0.91           |
| 9. How well did you understand how to take your medications when you left the hospital?   | Mann-Whitney U test  | 0.26           |
| 10. How well did you understand your diet and restrictions, if any, when you left the hospital?   | Mann-Whitney U test  | 1.00           |
| 11. What was the main health problem or diagnosis you were treated for during your hospital stay?   | Qualitative response-100% answered correctly                     |                |
| 12. How well did you understand your main health problem when you left the hospital?  | Mann-Whitney U test  | 0.90           |
| 13. Did you experience any adverse events or problems after you returned home (for example, infection, lack of information, medication problems)? In other words, did anything go wrong?  | Chi Square Test  | 0.27           |
| 14. Do you have any suggestions for improving the discharge process?  | Chi Square Test  | 0.92           |
| <b>14-Day Telephone Discharge Questionnaire</b>   | <b>Test</b>  | <b>P Value</b> |
| 1. How well prepared were you to return home after your hospital stay (for example, in terms of knowing how to for yourself, understanding limitations)?  | Mann-Whitney U Test  | 0.11           |
| 2. Have you returned to your provider for any unplanned or unexpected visits since our last phone conference (for example, doctor/provider office visits, emergency room visits, readmissions to the hospital, outpatient therapy)? | Chi Square Test  | <b>0.02</b>    |
| 3. If so, were your concerns related to your recent hospital stay?  | Not computed because group is a constant; 4 of 5 responded "yes" |                |
| 4. If you have returned for an unplanned visit, could you describe the reason for the unplanned visit?  | Qualitative Data   |                |
| 5. Have you experienced any adverse events or problems surrounding your discharge since our last phone conference (for example, infection, lack of information, medication problems)?   | Chi Square Test  | <b>0.01</b>    |
| 6. How well are you managing your illness now?  | Mann-Whitney U Test  | 0.06           |

Table 16

Summary of Questions and P values (continued)

| <b>Significant Comparisons</b>   |                             |                          |
|--|-----------------------------|--------------------------|
| Preparedness between control and intervention groups at 72 hours was statistically significant for the control group but not for the intervention group. Control group 0.046, Intervention group 1.00. | Wilcoxon Matched-Pairs Test | <b>0.05 for controls</b> |
| Unplanned visits at 14 days post discharge was significant for the control group. Intervention group had no unplanned post discharge visits.   | Chi-Square Test             | <b>0.02</b>              |
| Adverse events were compared post discharge at 72 hours and 14 days. This became statistically significant for the control group at 14 days. Intervention group had no adverse events.                 | Wilcoxon Matched-Pairs Test | <b>0.01</b>              |
| Readmission rates at 14 days post discharge for control group. Intervention group had no unexpected readmissions.  | Wilcoxon Matched-Pairs Test | <b>0.04</b>              |

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