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Implementation of a Heart Failure Discharge Guide and its Effects on Patient Self-Care

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Abstract

Heart failure (HF) is a chronic progressive disease that, if not managed adequately, may result in complications including rapid disease progression, frequent hospitalization, and early death. The prevalence of HF related deaths in Muscogee County, Georgia is the highest of all counties in Georgia. Additionally, Georgia is a state with one of the highest prevalence of heart- related diseases in the United States (Centers for Disease Control, 2016). The purpose of this translational project was to identify a standard HF discharge guide to implement on admission and determine if implementation increased self-care in HF patients after discharge. Self-care management scores at baseline (n = 22) *M* = 50.46 (SD 28.02) as compared to one- week post intervention (n = 22) *M* = 63.18 (SD 11.90) were indicative of statistical significance *t* = -2.301, *p* = .032 (CI -24.23- -1.22). There was no statistical significance identified in self-care scores from baseline to one-week post intervention for self-care maintenance, *t* (21) = -1.858, *p* = .077, (CI -15.41- .86), or self-care confidence, *t* (21) = -1.699, *p* = .104, (CI -18.09-1.82). The study did show an increase in mean score from self-care maintenance pre-intervention *M* = 54.68 (SD 12.93) to post-intervention *M* = 61.95 (SD 15.39) and self-care confidence pre-intervention *M* = 58.86 (SD 19.99) to post-intervention *M* = 67.00 (SD 17.78). This study suggests that an educational intervention for HF patients does increase aspects of self-care from baseline to one week after discharge. Any education that can result in consistent increased self-care skills for HF patients should be considered a benefit. Future studies should focus on patient-centered methods and interventions for HF that promote competence in self-care skills.

Keywords: Self-care, discharge instructions, heart failure

Chapter I

Heart failure (HF) continues to be one of the most prevalent types of heart disease in the United States (US). According to an update by the American Heart Association (AHA) in 2017, over six million Americans suffer with HF; this is an increase from the 5.7 million previously identified in 2016 (AHA, 2017). By the year 2030 the prevalence of HF is expected to affect 46% of those over age 18 in the US. HF attributes to a large portion of healthcare costs annually. In 2012, nearly $31 billion was spent on HF, with the majority of this cost being related to medical treatment expenses. It is anticipated that in 2030, almost $70 billion will be contributed to HF-related expenses (Centers for Disease Control and Prevention [CDC] 2016). While the national burden of HF is important, the individual responsibility associated with management of HF is vital as well. Individuals with HF must be aware of not only the disease progression of HF, but also the clinical manifestations of the disease process. Individuals with HF may experience a myriad of physical and mental symptoms. Many of these symptoms can lead to poor self-care causing difficulty with medication adherence and resulting in disease exacerbation, hospitalization, or death. It is imperative that patients discharged from healthcare facilities are provided with evidence-based discharge instructions focusing on HF specific education to promote self-care. The teach-back method should also be carried out prior to discharge to ensure that education was understood. This education process should be continued with a follow-up phone call to reinforce information retained during the education process and allow opportunity for HF specific concerns and questions (Haney & Shepherd, 2014).

Problem Statement

Nearly half of individuals with HF die within five years of diagnosis due to disease complications. Healthcare costs and expenses associated with HF management and treatment average 30.7 billion dollars and are expected to rise (CDC, 2016). The CDC identifies the Southern states as having the highest incidence of HF. However, HF prevalence is not solely restricted to the US. According to the National Institute of Health (NIH) (2017), HF affects at least 26 million individuals worldwide, classifying it as a worldwide pandemic. As HF progresses, the disease becomes more difficult to manage. Traditional therapies are commonly ineffective when exacerbation of the disease manifests and patients are often forced to seek treatment in an acute setting, typically a hospital. Management of HF requires individuals to be proponents of their care. Individuals with HF must maintain self-care skills to prevent associated complications and exacerbations leading to hospitalization or untimely death. Unfortunately, many patients are admitted to the hospital and eventually discharged without receiving quality HF discharge education (Henke, Karaca, Jackson, Marder, & Wong, 2016). Evidence-based measures must be taken to educate patients and their families to prevent the cycle of discharge-home-readmission without any improvement or understanding of what it means to maintain self-care regarding HF.

Purpose

The purpose of this translational project was to identify patients at risk for decreased self-care through best practice guidelines, evidence-based practice, and patient-centered care. Not only does the project empower patients and their families to be knowledgeable regarding self-management of HF, it also identifies trends in scores of individuals who score low on the Self-Care of Heart Failure Index (SCHFI) and any associated demographic or patient characteristic data. The project also aimed to realign the discharge process using evidence-based practice guidelines and recommendations at a local healthcare setting by increasing patient self-care as it relates to HF.

Aims and Clinical Question

The overarching goal of the project was to improve self-care in HF patients. The primary aim of the project was to improve self-care for HF patients one week after discharge using a HF discharge guide during admission and a one-week post discharge follow-up phone call. The secondary aim of the project was to identify any trends in self-care scores related to patient demographics and characteristics.

The clinical questions to answer are: 1) What relationship exists between patient characteristics and their self-care? 2) Does a HF discharge educational intervention improve self-care management, maintenance, and confidence in HF patients one week after discharge?

Background Information

Heart Failure

HF accounts for the highest rate of readmission in Medicare beneficiaries. HF is a progressive disease in which the hearts' ability to pump blood to the body is impaired. The heart enlarges as it attempts to compensate for this inability, thus increasing workload. Approximately 875,000 new instances of HF are diagnosed in America annually (Sterne, Grossman, Migliardi, & Swallow, 2014). HF is associated with over one million hospital visits and nearly three million treatment facility visits each year (Black et. Al, 2014). Those living in rural areas have an even higher incidence of hospital readmission due to lack of access (Young, Hertzog & Barnason, 2016). An estimated 20% of the population is expected to develop HF in their lifetime. Because of the aging population and successful interventions post- myocardial infarction (MI), HF prevalence is increasing (Ptotka, Prokop, Migaj, Straburzunska-Miga, & Grajek, 2017). A cure for HF has yet to be determined. Due to the nature of the disease, readmission episodes are costly for healthcare and are detrimental to patients' overall state of health (White & Hill, 2014).

Heart Failure Readmission Burden

More than half of the cost of healthcare is centered around hospital readmission rates. For every patient that is readmitted into a hospital, the cost of care will most likely be higher than their original admission. Patients readmitted due to HF generally exceed the average length of stay in the hospital when compared to other admitted patients. The Centers for Medicare and Medicaid Services (CMS) has taken a significant approach in addressing healthcare facilities with above national averages for certain readmitted disease processes; one of these being HF. Through the Hospital Readmission Reduction Program (HRRP), CMS is permitted to adjust hospital delivered payments. Healthcare facilities may be penalized a maximum of two percent of payment reduction for not complying with national standards (Sperry, Ruiz, & Najjar, 2014). It is estimated by the Medicare Payment Advisory Commission that the cost of unplanned admissions for HF reaches 17.4 billion dollars annually. Readmitted patients often present with worsening symptoms than the original admission encounter (Kim & Han, 2013). The patient, family, and healthcare facility bear the burden of financial and physical implications associated with HF rehospitalizations.

Heart Failure Education

One of the greatest tools patients and providers can possess is knowledge. Education centered around HF is not limited to the patient, or the family, or the nurse; it is collaborative in nature and demands clear set goals and understanding. No one manner of education fits every chronic illness, therefore, it is imperative that HF patients are educated appropriately to manage their care at home and prevent readmission.

Patient education is not a one-way exchange of handouts and generic teaching; patient-centered education must focus on the patient. Patient health literacy tools address the patient's cognitive abilities to understand HF teaching. Patient-centered education is vital to HF education and requires the nurse and patient to collaborate in the plan of care. Within the last five years, disease management programs have grown as the standard for management of HF on an outpatient basis. During admission, discharge education must be initiated due to the extensive nature of HF and associated complications (Sperry et al., 2015). Many patients with HF believe there is a cure, when in fact they may be referring to symptom management. A patients' understanding of HF will be an indicator to their quality of life (Ptoka et al., 2017). Lack of detailed engagement of the patient for discharge may result in decompensated HF, a further complication resulting in readmission costs and long-term health effects (Sperry, et al, 2015).

Patients are not the sole individuals who require HF education. Nurses are the primary person of contact during hospitalization for the patient with HF, therefore, the nurse being knowledgeable about HF is imperative. Nurses play an important role in the outcomes of their patients based upon their own ability to gather and disseminate data. Upon discharge of the HF patient, the nurse is vital in providing education of the disease process including lifestyle modifications, exercise, and medication adherence (Sterne et al., 2014). Care collaboration is an additional avenue of education the hospital nurse must be aware of. Working closely with a pharmacist at a transitional clinic or on the unit with a nutritionist to review education with the patient and collaborate in a manner that puts the patient in charge of their own care is vital to self-care adherence skills (Boykin, Wright, Stevens, & Gardner, 2018).

Self-Care in Heart Failure

Self-care as defined by Riegal, et al. (2010), is the natural decision process that occurs when health maintenance meets symptom management. Providing patients with education is at the center of promoting self-care skills for HF patients. It is considerably important that patients and their families not only understand signs and symptoms of HF but can also identify why these symptoms occur. Symptom recognition is not enough in self-care skills; knowing the reason for the symptom promotes better understanding of HF (Lee, Moser, & Dracup, 2018). When evaluating HF patients for effective self-care measures, self-care management, maintenance, and confidence skills are all used as a guide to promote the best self-care possible. Measures such as hospital consumer assessment of healthcare providers and system (HCAHPS) scores and community needs assessments facilitate the continued need for research regarding measures that increase self-care in patients, particularly HF patients.

Needs Assessment and Feasibility

A needs assessment was conducted at Piedmont Columbus Regional-Midtown Campus to assess several quality and core measures identified by the facility. After an initial face to face interview with the unit director of adult care services (ACS), a need to address HF patient teaching and the discharge process for HF patients was identified. Improving self-care efficacy for HF patients not only addresses financial implications, but also the discharge process and promoting patient self-management to improve overall patient outcomes. Stakeholders included pharmacy, nursing, and quality improvement, all of whom have identified the need for a standard discharge process for HF patients. This process would help patients improve their ability to manage their HF at home, improving self-care and reducing the number of readmissions. A strengths, weaknesses, opportunities, and threats (SWOT) analysis and technical, economic, legal, organization, and schedule (TELOS) assessment, multiple interviews, and evidence-based research was conducted to further measure the need for an improved discharge plan for HF patients.

Community Needs Assessment

A 2015 community needs assessment was created for the facility of interest to assess the behaviors and needs of the community, and as a guide for decision making. The summary revealed that heart disease/stroke and cancer accounted for 50% of deaths in Muscogee county, Georgia. Among other comorbidities, Muscogee county also failed to meet goal objectives for the Healthy People 2020 initiative. Demographic data was identified as one of the potential causes for disparity of cardiovascular care in this area. Factors that increase the likelihood of developing HF such as hypertension, high cholesterol, and previous cardiovascular incidents are above the US average in this county (Professional Research Consultants, 2015). In addition to the community needs assessment, a search on the CDC atlas was used to evaluate the prevalence of HF and HF-related mortality in this area. From 2013-2016 Muscogee county had the most deaths related to HF than any other county in the state (CDC, 2016).

Data Organization

A three-part needs assessment was completed over a three-month time period. Stakeholders identified at the hospital included: patients with heart failure, bedside nursing and nursing ancillary staff, upper management nursing staff, pharmacists, three physicians, two clinical analysists and quality improvement personnel. The identified problem at this facility was a lack of standard discharge education for patients with HF. As the process stands, patients are admitted to the cardiac unit if a bed is available or placed on a medical-surgical floor and given a HF education handout. It is the responsibility of the primary nurse to initiate HF education on admission and place consults for nutrition, physical therapy, and pharmacy. Other than the multi-optional printable education located in the facility's intranet, patients are not given any formal education regarding HF on admission. The same process is carried out at discharge. From April 2018 to October 1, 2018, this facility was above their selected quartile for average length of stay associated with HF at 4.63 days with the quartile average of 4.48 days.

A SWOT analysis and TELOS assessment were also conducted as part of the needs assessment. Among the SWOT analysis, interested stakeholders were of a notable strength while understaffing and lack of HF standards were identified as weaknesses. Opportunities in the form of collaboration with other disciplines was assessed. A potential threat was identified and related to patient safety issues regarding patient falls.

With regards to technology, integration of a new electronic health record (EHR) was identified as a feasible measure to complete the project. Providing a standardized evidence-based education discharge process would potentially improve HF patients' understanding of self-care, thus potentially reducing the costs associated with HF readmission. The ethics committee and required legal standards ensures legal feasibility. Operational and scheduling factors such as implementation of a new process for discharge and the time required to carry out the intervention were identified as possible barriers in completing the project.

Patient Satisfaction

The importance of improving self-care for HF patients can also be apparent in patient perceived survey data. The hospital of interest currently participates in the consumer assessment of healthcare providers and systems (CAHPS) and the CAHPS hospital survey (HCAHPS). One benefit of these surveys and assessments is financial incentive. However, even though stakeholders have financial incentive as a motivator, the organization aims to deliver innovative quality patient care that is above national standards. Though patient satisfaction scores regarding discharge information has varied in the facility over the years, focusing on a standard discharge guide for HF patients has been expressed as an interest.

Conceptual Framework

According to the American Association of Colleges of Nursing's (AACN) 2006 publication of *The Essentials of Doctoral Education for Advanced Nursing Practice*, the Doctorally prepared nurse is equipped to improve the healthcare delivery system through several practice-focused essentials. Essential one places nursing theory as an imperative guide to nursing practice. Essential two addresses the importance of leadership in healthy quality improvement and system outcomes, while essential three emphasizes the role of clinical scholarship and methods to analyze evidence-based research into practice. The project uses the 1998 Chronic Care Model (CCM) developed by Edward H. Wagner to outline how the components of this model pertain to the educational intervention for HF patients during a hospital admission.

Chronic Care Model (CCM)

Interaction between the healthcare provider and patient is an integral aspect of disease management. Acute symptom manifestations of chronic diseases are often placed at the forefront of patient care needs. This type of environment, if left unaddressed, will promote a reactive healthcare environment, instead of a proactive milieu of appropriate self-care behaviors. The CCM illustrates the community, healthcare system, and provider organization as the three overarching areas where chronic care management begins and continues. Within these three areas, six fundamental elements are identified to promote quality chronic disease management (Bodenheimer, Wagner, & Grumbach, 2002).

Community. The role of the community may not be evident initially in chronic care illness management; however, healthcare organizations often provide resources for members in the community to aid in disease management and self-care. Primary care providers and clinics may be limited in their resources. Providing patients with community access programs could prove cost-effective. Partnerships with other businesses, faith-based organizations, support groups, and exercise programs are methods to involve patients with community resources and agencies that will continue the self-care cycle after provider interaction (Bodenheimer, et al., 2002).

Healthcare organizations. Chronic care disease management, to include prevention and symptom treatment, must have undeniable significance to the goals of an organization for novel ideas to develop and healthcare outcomes to be substantial in the delivery system. Because healthcare organizations are businesses in addition to providers of care, revenue and reimbursement factors are greatly affected by chronic care management. Decreasing healthcare organization expenses and increasing quality of care can ensure longevity of an organization. Regulatory agencies and insurers must have evidentiary proof that healthcare organizations are meeting care standards to award these organizations for chronic care management quality (Bodenheimer, et al., 2002).

Self-management support. The core values of self-care ultimately reside with the patient or care giver. As providers of care, healthcare workers facilitate learning for patients. This learning must be a patient-centered, evidence-based educational intervention to place the patient in an active care role. Promoting interprofessional collaboration between patients and members of the healthcare team encourages a setting where self-care evaluation and constructive adjustments can be made (Bodenheimer, et al., 2002).

Delivery system design. Care delivery occurs during multiple stages for the individual with a chronic disease. Delineation of healthcare personnel roles can provide patients with a clearer understanding of their disease status. In the acute and non-acute setting, physicians or advanced care providers treat patients accordingly and ensure the development of treatment plans. Individuals who are not physicians or advanced care providers are tasked with a significantly important role as well. These individuals must ensure treatment regimens are being adhered to, while simultaneously reiterating patient self-care skills (Bodenheimer et al., 2002).

Decision Support. Best-practice guidelines serve as the quintessential measure of chronic illness disease care. These guidelines and other decision support tools are incorporated in the daily care regimen of patients and the healthcare team. To keep primary care providers proficient in best-practice evidence-based care management, continuing education is highly encouraged and open communication with care specialists is central (Bodenheimer et al., 2002).

Clinical information systems. The benefit and purpose of the computerized clinical information system is three-fold. First, computer systems serve as reminders for guideline compliance. Secondly, these systems provide feedback for advanced practice providers as they interpret diagnostic and laboratory results allowing the provider to evaluate the progress of a chronic illness. Finally, the clinical information system aids in patient and population centered-care registries. These registries can provide reflex generated reminders for care providers in the electronic health record prompting further interventions (Bodenheimer et al., 2002). (See Figure 1).

Chapter II

Literature Review and Synthesis

An evidence-based advanced search in Galileo was conducted to identify supporting evidence for the clinical questions presented. Database selection included CINAHL Complete, Science Direct, Advanced Placement Source, Medline, PsycINFO, Academic Search Complete, and Complementary Index. The key phrases used for the advanced search were: discharge instructions and: heart failure, cardiac failure, CHF, chronic heart failure, or congestive heart failure and: self-care or management. The initial search yielded 27,302 articles. The search was narrowed by applying the filters of: scholarly articles published between 2013-2019 in academic journals, in the English language. The narrowed search yielded 2,844 articles. After selecting heart failure as the subject for the search, 131 articles were presented and after duplicates were removed there was a remainder of 80 articles. (See Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram).

Article Selection

From the 80 articles generated, 29 were eliminated as they were identified as systematic reviews, integrative reviews, abstracts, or journal excerpts. The remaining 51 articles were vigorously reviewed and 31 were found to be related to the specific aims and clinical questions of the project. No one article addressed all aspects of the SCHFI tool and the use of a discharge guide to assist patients in transition to home. The literature revealed the lack of an educational guide for the discharge process of inpatient HF patients. This concept is vital to the transition from hospital to home for HF patients. These patients must be able to effectively manage their disease process at home to prevent complications and rehospitalizations. Because HF is a chronic, progressive disease, every healthcare encounter with a patient must reinforce self-care skills and provide the patient an opportunity to share their understanding of the skill. The evidence reveals benefits for self-care management and measures to assist patients in managing their HF effectively.

Self-Care Management, Maintenance, and Confidence

Self-care as it relates to HF is described as one's natural capability to maintain health and adequately manage intrinsic or extrinsic factors that may challenge one's health status (Riegal, Lee, Dickson & Carlson, 2010). According to Yancy et. al, (2013), the burden of HF on the general population is so great, it has become a quality measure in the healthcare system over the past 20 years. The plan of care for patients with HF should have a strong focus on promoting an understanding and knowledge of self-care skills. Adequate self-care skills are at the epitome of HF management for the patient (Yancy, et.al, 2013).

HF is often accompanied by other comorbidities. The weight of HF accompanied with other comorbidities may place a patient in a confusing state when attempting to make decisions regarding self-care. In their mixed methods study, Dickson, Buck, and Riegal (2013) gathered data from 114 patients and assessed patient self-care using the Self-Care of Heart Failure Index (SCHFI). A descriptive meta-analysis was performed to examine qualitative data and determine if increased comorbidities affected patient self-care of HF by decreasing self-efficacy or confidence. The study revealed a significant decrease ($p=0.3$) in the patient's level of self-care in the presence of comorbidities.

Due to the complex nature of HF, patients must be able to demonstrate the ability to adequately care for themselves on an outpatient basis. Self-care skills depend on the patient's willingness to be active in self-care maintenance and management. Effective self-care skills are thought to be reflective of an individual's self-care confidence (Grafton, Bassett, & Cohn, 2017). In a descriptive correlational study by Grafton, Bassett, & Cohn, (2017), 40 patients participated in a survey using the SCHFI to assess if self-confidence directly affected self-care. The study found that patients who scored higher in self-care confidence, demonstrated a higher overall self-care score with a level of significance of 0.01.

It is not enough for patients to know about self-care for HF, they must also be able to understand why symptoms manifest in order to make better decisions in their care. Lee, Moser, and Dracup (2018), showed that of 571 patients grouped as having either poor, moderate, or complete understanding of HF, less than half (40.1%) had a moderate understanding of how symptoms of HF were associated with self-care. All patients were considered statistically significant in recognizing the use of diuretic management for edema in HF. This study emphasizes that self-care is not just about knowing what to do but understanding the why behind self-care skills (Lee, Moser, & Dracup, 2018). Programs that focus on disease management continue to focus on patient-centered teaching. One London study (Goodman, Firouzi, Banya, Lau-Walker, & Cowie, 2013) sought to assess how patients perceived their illness, quality of life, and self-care behavior before discharge and at two- and six-months post discharge using the SCHFI, Illness Perception Questionnaire, Hospital Anxiety and Depression Scale, and the Minnesota Living with Heart Failure Questionnaire. The study was conducted over a fifteen-month period at facilities that participated in heart failure management programs. Surveys were gathered at three intervals: prior to hospital discharge, at two months, and at six months. After two months, statistical significance was observed as patients improved their self-care maintenance scores at two months and maintained that improvement throughout the six-month interval ($p<0.0001$) using the SCHFI. A statistically significant relationship is noted between illness coherence and self-care confidence as well. One common theme noted was that patients considered HF symptoms to be out of their control. Patient learning is specific to the patient and patient specific barriers should be tackled. Patients' perceptions of HF determine their attitude toward disease management (Goodman, Firouzi, Banya, Lau-Walker, & Cowie, 2013).

Self-management behaviors are a major outcome of HF teaching. Achieving self-management skills has an impact on an individual's quality of life because the individual must decide how they will tackle symptoms of HF. Interventions to enhance self-management are set to have a lasting impact on patient's overall health perception. Musekamp et al. (2017), found after a discharge intervention in an inpatient rehabilitation center, patient's self-reported self-management behaviors predicted their change in quality of life and depressive indicators (Musekamp, et al, 2017).

Self-management interventions have also been shown to decrease HF readmissions in rural area patients. In a study by Young, Hertzog, & Barnason (2016), patients who received a patient activation intervention (Patient AcTivated Care at Home[PATCH]) showed significant adherence to self-management behavior of obtaining daily weights, adhering to a low-salt diet, and following their daily medication regimen and physical activity routine three and six months post discharge ($p<0.005$) when compared to the standard care group. Additionally, a p-value of <0.05 was found regarding self-management of HF and short-term readmission of 30 days (Young, Hertzog, & Barnason, 2016).

Patient Centered-Care

Financial burdens of HF management in the healthcare setting are well known. The enactment of the Hospital Readmission Reduction Program (HRRP) by the Centers for Medicare and Medicaid Services (CMS) has placed a heavy emphasis on financial reimbursement for hospitals with high rates of readmission (Boykin, Wright, Stevens & Gardner, 2018). The Institute of Medicine (IOM) sees patient care as an integral part of the healthcare system. The IOM (2001) defines patient-centered care as care that addresses the needs, values, and preferences of the patient in a respectful and responsive manner so that what the individual deems valuable is influencing the clinical decision-making process. Though the financial environment of HF related healthcare costs is important, focusing on patient-centered education explores potential barriers that may contribute to frequent hospitalizations, lack of self-care skills, and even mortality

In a study by Matthew & Thukha, (2017), baseline information was assessed using a mental status exam, SCHFI, and the Atlanta heart failure knowledge test to better guide patient-centered care for HF patients. To improve the effectiveness of a patient-centered intervention, a HF booklet and YouTube videos were used to allow patients to be active participants in their care. Three different sessions were conducted with patients and post-intervention analysis showed significant improvement in patient self-care maintenance, management, and confidence with a p-value of <0.000 (Matthew & Thukha, 2017).

For HF patients, identifying a knowledge gap related to self-care is one effective way to tailor educational interventions specifically to patient needs. Gonzaga (2018), conducted a survey identifying patient gaps in effective self-care maintenance, management, and confidence behaviors as evidenced by the SCHFI tool. Once identified, the researcher spent 15-20 minutes with the patient or their family and focused on the area of deficiency. Self-care maintenance, management, and confidence all showed significant improvement after the intervention.

Another important aspect of patient-centered care involves interprofessional collaboration. HF is a multifaceted disease process that requires intentional teaching methods for patients to possess effective self-care behaviors. This not only aids patients in understanding their care, but also benefits to the healthcare system by reducing the number of hospital readmissions. Pharmacists have become an integral part of patient-centered education in the hospital setting as much of HF self-care focuses on medication adherence. In addition to pharmacists, Boykin, Wright, & Gardner (2018) recognizes the integration of a trained community paramedic who performs home visits and identifies life-threatening issues. An advanced care provider and HF nurse contacts the community paramedic if further follow up is needed and provides patient-centered discharge follow-up respectively. This process occurs up to thirty days after the patient is discharged from the hospital. From July 1-31st 2016, the healthcare facility that utilized this model experienced a decrease in readmission rates from 23.5% to 10.5%. This illustrates patients benefit from patient-centered care interventions (Boykin, Wright, & Gardner, 2018).

Readmission and Discharge

Readmission rates for HF continue to be of concern for healthcare facilities despite HF specific innovations. Identification of patients at risk for recurrent, or less than 30-day, readmission has gained national attention. From an admission standpoint, nurses serve as an instrumental asset for reviewing and adhering to the plan of care for patients with HF. Clinical factors such as self-management and patient education are major factors when considering readmission. Nurses must assess current patient treatment plans, surmise if the treatment plan will align with patient needs at discharge and reemphasize HF education with the patient and family. Participation in self-management requires knowledge and a skill set to be effective. When focusing on self-management, medication adherence is one of the most substantial behaviors in self-care. The role of the nurse when educating patients with HF is to provide evidence-based patient specific concepts that actively engage the patient and their family in care. Assessment of quality of life for patients with HF is also an important predictor of readmission. Quality of life screening prior to discharge may prove an invaluable tool for predicting readmission (Ryan, Bierle, & Vuckovic, 2019).

Patients are not the only individuals who contribute to HF readmission because of lack of knowledge. In a 2014 study by Sterne, Grossman, Migliardi, & Swallow, nurses at a hospital in the northeast participated in a pre- and post- educational intervention to determine their baseline knowledge of heart failure, improve their knowledge of HF related topics, and decrease 30-day readmission rates for patients with HF. A total of 45 nurses participated in the study. Results showed improved knowledge of HF post-educational intervention with a statistical significance of $p<0.001$. Thirty-day readmission rates also decreased from 25.4% before the interventional program to nine percent after the intervention (Sterne, Grossman, Migliardi, & Swallow, 2014).

Discharge instructions may seem simple for healthcare providers however, patients often have more difficulty understanding. Patients in the acute care setting are under stress from hospitalization and may not be able to comprehend education easily. Nonetheless, discharge teaching must take place prior to discharge. The teach-back method is an acceptable and evidence-based method to ensure patients and family have understood discharge instructions. In this method of active learning, health care providers can refocus teaching points in an environment that is patient centered. According to Haney and Shepherd (2014), an ideal amount of time for discharge instructions for HF is one hour. Providing discharge teaching with the teach-back method and following up with a phone call after discharge have been identified as methods to improve self-care and decrease readmission rates (Haney & Shepherd, 2014).

Discharge teaching for HF patients must include medication adherence, follow-up appointments, dietary management, physical activity, daily weights, and recognition of worsening symptoms (Yancy, et al., 2013). Discharge planning is described as a collaboration among the patient, family, and healthcare providers for a plan of care after hospitalization. The goal for the discharge process is to begin upon admission, allowing families and patients to ask questions and allotting time for adaption of plan of care changes. In a study of readmission for myocardial infarction, HF, pneumonia, and knee or hip arthroplasty, the relationship between quality discharge planning and hospital readmission had a significance of $p=.05$ for a decreased 30-day readmission rate for all groups except myocardial infarction (Henke, Karaca, Jackson, Marder, & Wong, 2017). Quality discharge planning also correlated with patient preference to return to the same hospital if a readmission was required (Henke, Karaca, Jackson, Marder, & Wong, 2017).

Synthesis of Literature

The literature defines self-care measures of maintenance, management, and confidence as essential behaviors that greatly influence how well a patient will understand and adhere to HF instructions (Liou et al, 2015). HF complexities attribute to decreased quality of life, depressive symptoms, and increased readmission rates. For HF educational interventions to be effective, they must be evidence-based and patient-centered. Patients are active participants in their plan of care and should be encouraged to engage in behaviors that promote effective self-care. Many of the studies in the literature involve an intervention that focused on HF self-care or self-care management and how these factors gave way for improving patient outcomes (Goodman et al., 2013; Ryan et al., 2019; Young et al., 2016; Musekamp et al., 2017; Lee et al., 2017; Henke et al., 2017, Ptoka et al., 2017).

Limitation of Current Evidence

The most recurrent theme in the literature is that of a small sample size. This did not diminish the level of significance in the studies; however, this limits the generalizability of the studies (Sterne et al., 2014; Ptoka et al., 2017; Lee et al., 2017; Matthew et al., 2017; Graftan et al., 2017; Dickson et l., 2013; Boyde et al., 2017). The number of randomized clinical trials were limited in the literature, with an overwhelming number of convenience sampling studies.

Strength of Current Evidence

Use of the SCHFI or other measures to assess patient self-care was utilized in all pre- and post- patient educational intervention studies. This allowed for significance to be compared. Educational interventions were also based on evidence-based practice guidelines. These guidelines emphasize the need for patient-centered educational interventions to promote active patient and family interaction. The evidence also provides measures to decrease the financial burdens associated with HF, a common cause of hospital admission and readmissions.

Chapter III

Methodology

To improve self-care efficacy in heart failure patients, a quality improvement project was developed. Millions of Americans annually are diagnosed with or live with heart failure. Factors associated with poorly managed heart failure include recurrent hospitalization, medication nonadherence, and mortality (Marti et al., 2013). This project used evidence-based research, best practice guidelines, data from the literature, and community-based research to improve outcomes associated with self- care in heart failure patients during hospitalization with a one-week telephone follow-up. The discharge process for heart failure patients at a facility was addressed to improve the care transition process from hospital to home. This translational project focused on the implementation of a heart failure discharge guide and its effects on patient self-care. The project answers the following clinical questions: Does a heart failure discharge educational intervention improve self-care management, maintenance, and confidence in heart failure patients one week after discharge using a telephone follow-up? What patient demographic or characteristics are identified as being more at risk for decreased self-care of HF? The design for the project will be outlined below.

Plan -Do- Study- Act

Plan-do-study-act (PDSA) is a strategy used to implement and evaluate quality improvement projects. For the implementation of this project, PDSA outlines the discharge process change as it relates to HF patients. The plan portion focuses on improving self-care of heart HF patients through a discharge guide. Data was collected from the EHR prior to initiation of the intervention and via surveys during initiation and after patient discharge. The Do portion of the intervention is the focused of this translational project and was instituted on a designated unit of the chosen healthcare facility. Data was gathered and organized during this stage of the study. The analysis of data and assessment of significance occurred during the study portion of the project. The population, intervention, comparison, outcome, time (PICOT) question and subsequent clinical questions were answered at this time. During the last process step of Act, recommendations and strengths were analyzed and sustainability and usability of the guide was addressed. (See Figure 2)

Setting & Sampling

Project Setting

The setting for this quality improvement translational project is an acute care hospital in Columbus, Georgia. The facility serves individuals in west Georgia, east Alabama, and surrounding counties. The setting also manages the adult, pediatric, and neonatal population. The intervention took place on a telemetry, medical-surgical, and progressive care unit. This unit has a 33-bed capacity with a focus specifically on cardiac- related illnesses.

Population Sampling

Data gathered over a three- month time period revealed that on average, 135-142 patients with a diagnosis of primary or secondary heart failure were admitted to this facility. Considering this, a sample size of at least 100 subjects was determined to be needed for the project to be considered significant. This was calculated with a sample size calculator. The confidence level was set at 95% and the confidence interval at 5.35. Using a population of 142, 100 subjects were determined to be needed. Inclusion criteria was age 18 or older with a primary or secondary diagnosis of HF on admission and access to a functioning telephone. Exclusion criteria included patients on home inotropic infusion, end stage disease process, dementia and/or Alzheimers diagnosis, or no access to a telephone. These were chosen as exclusion due to possible decreased patient cognition and to decrease the complexities of end-stage heart failure. Subjects were recruited via convenience sampling within the first 24 hours of admission to the unit. The only compensation offered was the heart failure discharge booklet.

Protection of Human Subjects

To maintain protection of human subjects, institutional review board (IRB) approval from Georgia College and State University, and the integrity panel at the hospital in Columbus, Georgia was obtained prior to the initiation of patient specific interventions or data collection. Once IRB approval was obtained, patients were informed of the goals and aims of the study and consent was obtained. It was stressed to the subjects involved that their participation was voluntary and at any point they could withdraw from the study without prejudice or punitive actions. All surveys were stored in a three-ring binder in a locked combination locker on the unit that only the primary investigator had access to. Data was gathered and analyzed to answer the clinical questions for this project. All patient names were coded with an identifier number to ensure confidentiality. Raw data was placed into the appropriate version of SPSS on the investigator's private, secure computer. Data was aggregated. Data and records will be reserved for a minimum of three years and later destroyed per Georgia College research policy and standards.

Type of Data and Sources

Most data gathered from the study was primary data as the primary investigator was obtaining, analyzing, and interpreting the data. Primary data also originated from the subjects participating in the study. The demographic survey served as primary data. The Self-Care of Heart Failure tool used pre-and post-intervention served as a secondary source of data. Data was obtained from the electronical medical record under the admitting diagnosis tab or the patient's history and physical.

Data Collection and Intervention

Prior to Patient Implementation

After IRB approval was granted, the primary investigator notified the unit manager and unit director. Subsequently, staff on the unit were made aware of project implementation by the primary investigator during the night shift and day shift staffing huddle. An email was also sent to the charge nurses on the unit with a copy sent to the unit director and manager along with a reminder of the study implementation.

Data Collection Pre-intervention

The expected time for the intervention was eight weeks. The primary investigator with the assistance of the charge nurse assessed the daily census on the unit for patients with primary or secondary diagnosis of HF via the electronic health record (EHR). Diagnosis was confirmed from the subject's history and physical and the international classification of disease code (ICD) or diagnosis related group (DRG) code found in the active problems list of the patient's summary in the EHR (See Figure 4). Once eligible patients were identified and inclusion criteria met, the primary investigator approached the subject within 24 hours of admission to recruit the individual for the study. During this face-to-face session, the primary investigator explained the goals and aims of the project. Potential subjects were advised that the study was completely voluntary, and they may withdraw at any time.

Implementation of Intervention

Once informed consent was obtained and prior to the implementation of the discharge educational booklet, subjects were asked to complete two forms. The first was a demographics survey and the second was the Self-Care of Heart Failure Index which the primary investigator reviewed with the subjects. The purpose of the demographics survey was to assess subject trends or characteristics that may be similar among participating subjects. The Self-Care of Heart Failure Index served as a pre- and post-assessment for measuring self-care of the patient with heart failure. The score obtained from the SCHFI determined the subject's self-care score. The scale is divided into 3 subsets: self-care maintenance, self-care management, and self-care confidence; each of which is scored separately. The educational intervention for all patients was the same regardless of their scores on the SCHFI. The goal of the pre-and post- assessment of the survey was to improve self-care after discharge.

The primary investigator oversaw that all forms provided were completed. Once the forms were completed and deidentified accordingly, they were stored in a three-ring binder which only the primary investigator had access to. This binder remained in a locked locker which only the primary investigator had access to.

The discharge educational portion of the discharge guide was conducted over a three-day period with each educational session lasting 30 minutes. Twenty of the thirty minutes was dedicated to the primary investigator providing education and ten minutes was spent utilizing the teach-back method to assess the subject's understanding of HF teaching. The teach-back method was chosen to assess not only knowledge retention, but also understanding of heart failure concepts and management. In the teach-back method, the learner is an active participant in the learning process. Teach-back is a way for the learner to put the concepts they have learned in their own words. The primary investigator asked the subjects to explain concepts of the heart failure educational booklet as they understood it. This allowed the primary investigator to identify areas of the educational process that need more focus or rewording so the participant could manage their disease appropriately. Within the first 24 hours of admission, the primary investigator and the subject reviewed the first ten pages of the discharge booklet, *A Matter of*

Heart, which was developed by the primary investigator according to the recommendations and guidelines of the AHA, Heart Failure Society of America, and Agency for Healthcare Research and Quality. The booklet and survey forms were also available in Spanish for those unable to speak or understand English. The educational portion of the session took 30 minutes; 20 minutes allotted for the teaching and ten minutes for teach-back and review. After the first day of education, the subject was reminded of the next educational session the following day. At the end of day three's educational session, an accurate phone number was obtained from the subject and they were reminded of the one-week follow-up phone call post intervention. At the end of each day, the primary investigator checked with the charge nurse on shift to discover if the subjects who participated in the study were discharged. For participants who were admitted longer than three days and participated in the study, a follow-up phone call was made; however, the post survey was not completed until one-week post discharge.

After Discharge

Follow up phone calls were made to the participants in the study one week after discharge. Participants were re-asked questions from the SCHFI survey tool. Participants were also given an opportunity to comment on their experience in the study. Total amount of time allotted for this portion of the project was approximately 5-10 minutes. Follow-up phone calls took place in the discharge lounge of the facility and were conducted by the primary investigator.

Instruments

Self-Care of Heart Failure Index

The Self-Care of Heart Failure Index version 6.2 (SCHFI) is a 22-item Likert scale that assesses an individual's naturalistic process regarding self-maintenance, self-management, and confidence as it relates to heart failure. It is considered an ordinal level of measurement with the potential for interval levels of measurements depending on other variables used. The three subsections that make up the scale are to be analyzed and calculated separately. A total score of greater than or equal to 70 in each section is counted as good judgement for self-care. It is recommended that the tool not be used beyond three months for follow-up questioning. Validity for the 6.2 version of the index was confirmed by a confirmatory factor analysis followed by an exploratory factor analysis that revealed a comparative fit index for self-care maintenance, management, and confidence of .92, .95, and .99 respectively. To test for reliability, test-retest reliability was used. Measurement for reliability ranged from an interclass coefficient of .64-.89 (Vellone et al., 2013). A Spanish version of this survey was also available for participants needing a Spanish version. (See Figure 5).

Demographic/Patient Characteristic Survey

A demographic and patient characteristic tool was used by the primary investigator to gather subject data prior to the initial SCHFI survey. This survey was developed by the primary investigator. Demographics included age, gender, race, number of years with heart failure, highest grade level achieved, any other health problems other than heart failure, currently taking medications for heart failure, and number of years in Columbus, Georgia (See Figure 6).

A Matter of Heart

The discharge booklet was created by the primary investigator and guided by recommendations from the AHA, HFSA, and AHRQ. The booklet was created to review with participants and their families in a daily teaching session for 30 minutes over a three-day period. The booklet is presented as 31 easy to read, in color, large font front and back pages. Areas are provided for subjects to place their medication list, current weight, primary and cardiovascular provider, and both dietary and fluid restrictions. A notes section is also available in the back of the booklet. Additional resources are posted in the back of the booklet. Approval to use the booklet as a discharge educational tool was granted by the unit manager and director of the project setting.

Descriptive Analysis

Analyzing Data

For this portion of the correlational project, the independent and outcome/dependent variables were analyzed using the statistical package for social sciences 25 (SPSS) software. Factors from the demographic survey such as age, race, and gender were measured at ordinal and nominal levels of measurement using measures of central tendency. Additional variables were measured and analyzed according to their descriptive statistic. Variables were identified, analyzed, and tested for significance or covariance.

The following clinical questions were analyzed as follows:

Clinical Question 1

What relationship exists between patient characteristics and their self-care?

This question was answered using both a Pearson’s correlation and chi-square analysis test.

Clinical Question 2

Does a HF discharge educational intervention improve self-care management, maintenance, and confidence in HF patients one week after discharge? This question was answered using a paired-samples t-test.

Chapter IV

Results

This chapter will discuss the results of both correlational and parametric statistical analysis used to evaluate the translational project. Reported findings include the relationship between patient characteristics and aspects of self-care. Findings will also discuss the impact of an educational intervention on self-care maintenance, management, and confidence at baseline and after one-week.

Data analysis for the project began with data cleansing and evaluating for missing data. Frequencies and descriptives were assessed for all variables according to their levels of measurement. Data was analyzed for normal distribution and multicollinearity. Parametric and nonparametric analysis was conducted on entered data. Interval/ratio variables were normally distributed except for age, gender, number of years with heart failure, number of years lived in Columbus, and health conditions other than heart failure.

Sample Description

Of the thirty-four participants recruited, 22 (65%) agreed to participate in both the pre- and post- interventions of the study. The sample population was comprised of varying levels of education, age, race, gender, and health status. The largest percent of participants acquired at least a high school diploma or general education diploma (GED) (40.9%) followed by some college (31.8%), less than high school (18.2%), and beyond college (9.1%).

Most participants were female (59.1%) and Black American (63.6%). The majority of participants were in the age range of 51-80 years old (68.2%). The mean number of years lived in Columbus was 41.1 (SD 20.31) with a range of 1-76 years. The mean number of years known to have heart failure was 4.95 (SD 8.39) with a range of 1-36 years. Almost all participants answered yes to having a health condition other than heart failure (95.5%) and 77.3% admitted to taking medications for HF.

Table 1

Sample Characteristics

Characteristic N=22	***x*** (SD)	Range
Years lived in Columbus	41 (20.31)	1-76
Years with HF	5 (8.39)	1-36

Characteristic	n	%
Gender		
Male	9	40.9
Female	13	59.1
Age Range		
18-35	3	13.6
36-50	2	9.1
51-80	15	68.2
81+	2	9.1
Level of Education		
Less than high school	4	18.2
High school/GED	9	40.9
Some College	7	31.8
Beyond College	2	9.1
Race		
Caucasian	8	36.4

Black American	14	63.6
Taking Medications		
Yes	17	77.3
No	5	22.7
Other Health Conditions		
Yes	21	95.5
No	1	4.5

Clinical Questions

Clinical Question 1: What relationship exists between patient characteristics and their self-care?

In order to assess the relationship between dichotomous interval/ratio variables and self-care maintenance, management, and confidence, a Pearson's correlation was conducted. A correlational analysis was utilized to test the research hypothesis that a relationship does exist between the variables of gender, number of years with HF, number of years lived in the Columbus area, health conditions other than HF, and taking medications for HF as related to self-care scores. Not all variables at the scale level were normally distributed; however, correlational studies were still conducted. Level of significance was determined with a Cronbach's alpha of 0.95. There was a moderate negative relationship in the pre-intervention score between self-care management and taking medications for HF, *r* (20) = -.425, *p* = .049. Individuals taking medications for HF reported significantly lower self-care management scores pre-intervention than those not taking medications for HF. There was also a strong negative relationship post-intervention between self-care maintenance total scores and health conditions other than HF, *r* (20) = -.507, *p* = .016. Those with additional health conditions other than HF reported a significantly stronger decrease in self-care maintenance post-intervention than those who did not have other health conditions.

Pearson's correlation indicated no significance between self-care maintenance, management, or confidence pre-intervention for the following variables: gender *r* (20) = -.321, *p* = .145, *r* (20) = .166, *p* = .461, and *r* (20) = .136, *p* = .546, number of years lived in Columbus *r* (20) = .246, *p* = .311, *r* (20) = -.095, *p* = .699, and *r* (20) = -.029, *p* = .906, and number of years known to have HF *r* (20) = .070, *p* = .758, *r* (20) = .225, *p* = .315, *r* (20) = .006, *p* = .977. There was no significant Pearson's correlation between self-care maintenance, management, or confidence post-intervention for the following variables: gender *r* (20) = .004, *p* = .987, *r* (20) = -.170, *p* = 450, and *r* (20) = -.075, *p* = .742, number of years lived in Columbus *r* (20) = .255, *p* = .293, *r* (20) = .139, *p* = .571, and *r* (20) = -.281, *p* = .244, and number of years known to have HF *r* (20) = -.074, *p* = .742, *r* (20) = .173, *p* = .441, and *r* (20) = .158, *p* = .482.

Table 2
Pearson Product-Moment Correlation of Participant Demographic and SCHFI

Characteristic N=22	Self-Care Maintenance Pre	Self-Care Management Pre	Self-care Confidence Pre	Self-care Maintenance Post	Self-care Management Post	Self-care Confidence Post
Gender	-.321	.166	.136	.004	-.170	-.075
Number of Years in Columbus	.246	-.095	-.029	.255	.139	-.281
Number of Years with HF	-.070	-.225	.006	-.074	.173	.158
Taking Other Medications	-.175	-.425*	.215	-.049	-.102	.137

Other Health Conditions	.092	-.043	-.345	-.507*	-.060	.000

Note. SCHFI= Self-Care of Heart Failure Index

* $p < .05$

To assess for a relationship in ordinal level variables, a Pearson's chi-square analysis was used. The chi-square analysis was conducted on the variables age range, level of education, and race. Cell assumptions were not met on all variables due to low sample size. Variables were not collapsed. There was a statistically significant association between race and post-intervention self-care confidence scores, X^2 (19.119), $p = .039$. No other significance was noted in the Chi-square analysis.

Clinical Question 2: What impact does a HF discharge educational intervention have on self-care in HF patients from baseline to one week after discharge?

Descriptive statistics were used to assess participant's improvement on the SCHFI score. Scores were calculated for self-care maintenance, management, and confidence pre- and post-discharge educational intervention. A calculated score of at least 70 in each subsection indicates adequate self-care. Each question was evaluated pre- and post- intervention.

A dependent samples *t*-test was conducted to test the hypothesis that HF participants in an educational intervention would increase self-care maintenance, management, and confidence scores from baseline to one week. The research hypothesis was only partially supported. Self-care management scores increased from baseline (*M*=50.45, *SD*=28.02) and one week after intervention, *M*=63.18, 95% CI [-24.230, -1.223], t (21) = -2.301, $p = .032$. The mean difference was statistically significant from zero. Therefore, the null hypothesis is rejected for self-care management and the research hypothesis that there is a statistical significance in self-care management from baseline to one-week after discharge with the use of a HF educational intervention was accepted. No other statistical significance was identified in self-care scores from baseline to one-week post intervention for self-care maintenance, *t* (21) = -1.858, *p* = .077, (CI -15.41- .86), or self-care confidence, *t* (21) = -1.699, *p* = .104, (CI -18.09-1.82).

Table 3

Self-Care of Heart Failure Index Tool

Question	***x*** (SD) Pre-Intervention	***x*** (SD) Post-Intervention
Self-Care Maintenance		
1. Weigh yourself?	2.05 (.950)	2.45 (1.143)
2. Check your ankles for swelling?	3.32 (1.041)	3.82 (.501)
3. Try to avoid getting sick (e.g., flu shot, avoid ill people)?	3.68 (.780)	3.91 (.294)
4. Do some physical activity?	2.05 (.844)	2.09 (.750)
5. Keep doctor or nurse appointments?	3.32 (.780)	3.18 (.588)
6. Eat a low salt diet?	2.55 (.963)	2.86 (.710)
7. Exercise for 30 minutes?	1.91 (1.065)	2.14 (.774)
8. Forget to take one of your medicines?	2.45 (1.184)	2.50 (1.102)
9. Ask for low salt items when eating out or visiting others?	1.91 (1.151)	2.73 (.827)
10. Use a system (pill box, reminders) to help you remember your medicines?	3.14 (.889)	3.32 (.477)
Self-Care Management		

0. In the past month, have you had trouble breathing or ankle swelling? Circle one.	1.00 (0.000)	1.00 (0.000)
11. How quickly did you recognize it as a symptom of heart failure?	2.14 (1.754)	2.73 (.767)
Listed below are remedies that people with heart failure use. If you have trouble breathing or ankle swelling, how likely are you to try one of these remedies?		
12. Reduce the salt in your diet	2.50 (1.263)	2.77 (.612)
13. Reduce your fluid intake	2.36 (1.002)	2.64 (.581)
14. Take an extra water pill	2.23 (1.110)	2.41 (.796)
15. Call your doctor or nurse for guidance	2.68 (1.086)	3.23 (.612)
Think of a remedy you tried the last time you had trouble breathing or ankle swelling,		
16. How sure were you that the remedy helped or did not help?	2.18 (1.053)	2.86 (.468)
Self-Care Confidence		
17. Keep yourself free of heart failure symptoms?	2.32 (.995)	2.73 (.767)
18. Follow the treatment advice you have been given?	2.91 (.750)	3.05 (.653)
19. Evaluate the importance of your symptoms?	3.05 (.653)	3.27 (.631)

20. Recognize changes in your health if they occur?	3.23 (.752)	3.27 (.550)
21. Do something that will relieve your symptoms?	2.50 (.802)	2.68 (.568)
22. Evaluate how well a remedy works	2.59 (.854)	3.05 (.785)

Table 4

Dependent Samples t-test for self-care scores

Variable	***x*(SD)**	**Possible Range**	**Actual Range**	***p***
Self-Care Maintenance Pre-intervention	54.68 (12.93)	0-100	30-83	.077
Self-Care Maintenance Post-intervention	61.95 (15.39)	0-100	27-100	
Self-Care Management Pre-intervention	50.45 (28.02)	0-100	0-95	*.032
Self-Care Management Post-intervention	63.18 (11.90)	0-100	35-85	

Self-Care Confidence Pre-intervention	58.86 (19.99)	0-100	28-100	.104
Self-Care Confidence Post-intervention	67.00 (17.78)	0-100	33-100	

*p < .05

Chapter V

Conclusions

This chapter will discuss the findings and conclusions of this correlational study which assessed the effects of a discharge educational intervention on the self-care of HF patients from baseline to one week. Demographic results will also discussed and compared to additional research findings. Strengths, limitations, and future implications will also be discussed in this chapter.

The majority of participants in this study ranged in age from 51-80 years old (62.8%), were female (59.1%), Black American (63.6%), and held at least a high school diploma (40.9%). Data from the 2019 America’s Health Ranking Annual Report for the state of Georgia illustrated that heart disease in general for individuals in Georgia affected men more than women with 5.5% versus 3.7% affected. Most individuals had less than a high school diploma (7.6%) were white American (5.5%), and older than 65 years (13.3%) (United Health Foundation, 2019).

Clinical Question 1: Patient Demographics and Self-Care

The current study identified significant relationships in certain patient characteristics and aspects of self-care. Self-care management scores were lower pre-intervention for individuals taking medications for HF and post- intervention for those with comorbidities other than HF. Other studies have shown a significance in self-care management skills for HF subjects related to age, socioeconomic factors, living in rural and southern states, and education level (Young, Hertzog & Barnason, 2016; CDC 2016; Professional Research Consultants 2015; Dickson, Buck, & Riegal 2013). This indicates that certain patient demographic factors can have significant outcomes for self-care management, maintenance, and confidence. Though this current study did not have significant results for all demographic data, it continues to be important for demographic factors to be considered when assessing self-care maintenance, management, and confidence for heart failure patients.

Clinical Question 2: Impact of HF Educational Intervention

In the current study, there were significant relationships in self-care management from pre-intervention to post-intervention. No statistical significance was noted in self-care maintenance or confidence from pre- to post-intervention. Current research supports the use of a discharge educational intervention for HF patients followed by a follow-up phone call. Gonzaga, (2018), using the SCHFI tool, identified that spending 15-20 minutes with HF patients and their families while in the hospital had a significant outcome on the patient's self-care maintenance, management, and confidence skills post hospitalization. Other studies have indicated that patient-centered educational intervention for HF patients has significance in one or all three aspects of self-care maintenance, management, and confidence (Goodman et al., 2013; Ryan et al., 2019; Young et al., 2016; Musekamp et al., 2017; Lee et al., 2017; Henke et al., 2017, Ptoka et al., 2017; Haney & Shepherd, 2014; Yancy, et al., 2013).

Strengths and Limitations

This study allowed for HF patients and their families to be active learners in their HF plan of care. The unit where the study was conducted does not have a current HF educational standard; this allowed for the HF project to identify gaps in the standard of practice for HF patients and identify self-care habits subjects found difficult to maintain. The study also revealed that though subjects were educated regarding HF in the hospital setting, one week after discharge there were varying degrees of confidence. This may be attributed to a fuller understanding of HF and the complexity and management of the disease process (Riegal et. al, 2013). Another noteworthy strength is the subjective data gathered from the study. Common responses included: “I wish I would have known this stuff before I came to the hospital,” “Is this something that you all are starting to offer now?”, and “This has helped me so much, thank you.”

It was noted from the study that participants had a significantly lower rate of readmission. Length of stay (LOS) and 30-day readmission rates were also analyzed. According to a previous needs assessment conducted by the primary investigator, the average LOS for this facility was 4.63 days at the time of the assessment. The length of stay for the participants in this study decreased to 3.91 days. Of those in the study, only 2 of 22 or 9.1% were readmitted within 30 days after discharge. There was a statistically significant, moderately positive correlation noted between participant self-care management pre-intervention and self-care maintenance post-intervention, $r(20) = .46$, $p = .028$. Pearson Correlation revealed a statistically significant, moderately positive correlation between participant self-care maintenance pre-intervention and self-care maintenance post intervention, $r(20) = .47$, $p = .027$. These results support existing research that an educational intervention for HF does decrease readmission rates (Sterne, Grossman, Migliardi, & Swallow, 2014).

Limitations

Beyond the strengths mentioned above, the study had several weaknesses. A primary limitation in the study to note was the small sample size. This smaller sample size did allow for areas of significance; however, generalizability cannot be determined. Another limitation in the study was the use of convenience sampling. HF patients were selected on the basis of ease of availability. Subjects were identified from only one unit of the facility; a larger sample size may have been attainable if subjects were selected hospital wide.

Subjects completed the pre- and post- surveys, however, there was no way to assess retention or understanding of education in the facility. Participants may have benefited from a test or quiz to identify areas of weakness. A more patient-centered teaching approach would emphasize specific self-care skills. This factor may have contributed to a lack of statistical significance of self-care from the pre- and post- intervention period. Demographic questions were mostly nominal or ordinal in levels of measurement. Allowing for more interval/ratio data may have allowed richer data points to be analyzed.

A minimum total score of at least 70 out of 100 is required on each section of the SCHFI tool to determine if a patient has adequate self-care skills. The mean total score pre-and – post intervention for self-care maintenance, management, and confidence did not total 70. Future studies should focus on each section of the SCHFI tool and hone in on educational interventions specific to self-care maintenance, management, confidence, and assess SCHFI scores pre- and post- intervention.

Future Implications

Individuals admitted with HF must have HF specific education while in the hospital that is emphasized at least one week after discharge. Participants benefited in knowledge in all aspects of self-care from an educational intervention for HF. However, knowledge acquisition is not enough for HF patients, these individuals must possess the skills to manage HF out of the hospital. This study indicates an educational intervention is the start of HF education, but it cannot be the sole aspect.

The future of HF education interventions should be patient-centered. At this facility and due to the prevalence of HF in this area, a HF educator would emphasize the importance of patient-centered learning. Educational sessions must be part of the HF patient's daily care and allowing for the patient to be an active participant is mandatory (Riegal, et. al, 2013).

Conclusions

The study identifies that an educational intervention for HF participants has a significant impact on self-care management, maintenance, and confidence. Future research should focus on educational interventions that are sustainable and patient centered. As HF financial and medical demands increase in the United States, self-care skills become more important. Further studies should also focus on the time commitment of hospital staff to provide HF specific patient education.

Figure 1

Plan-Do-Study-Act

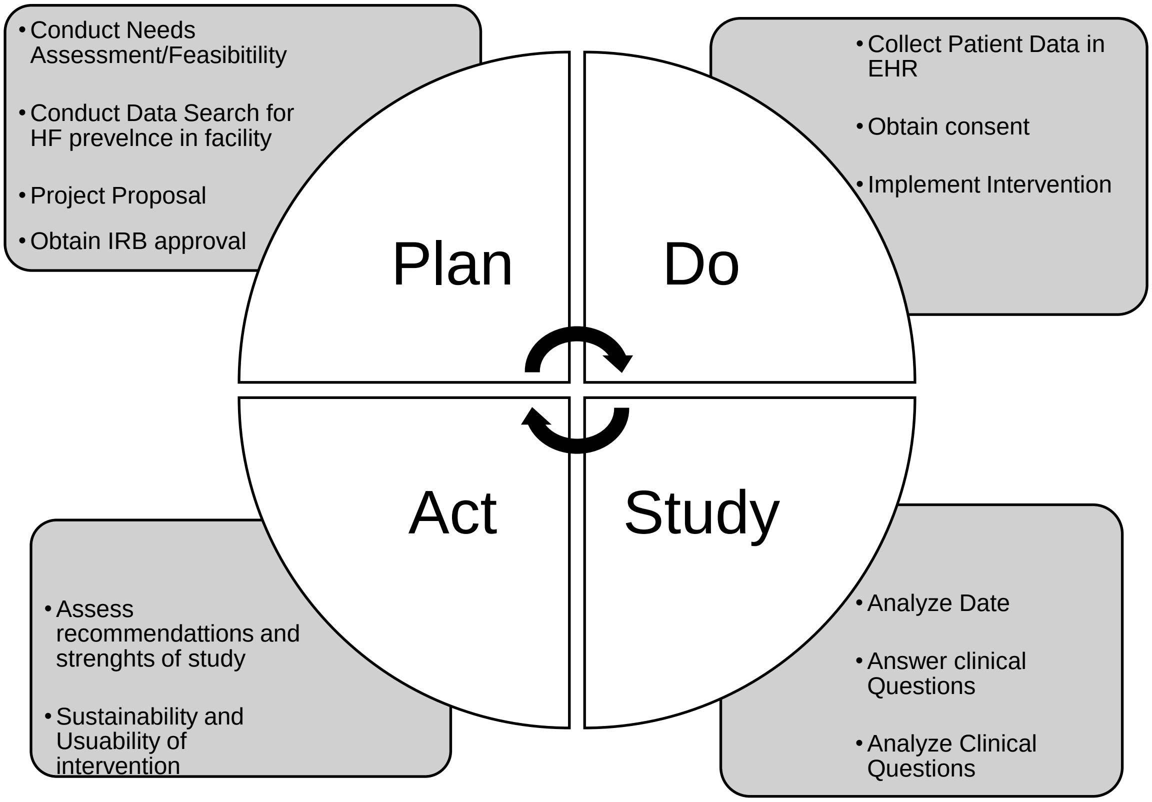
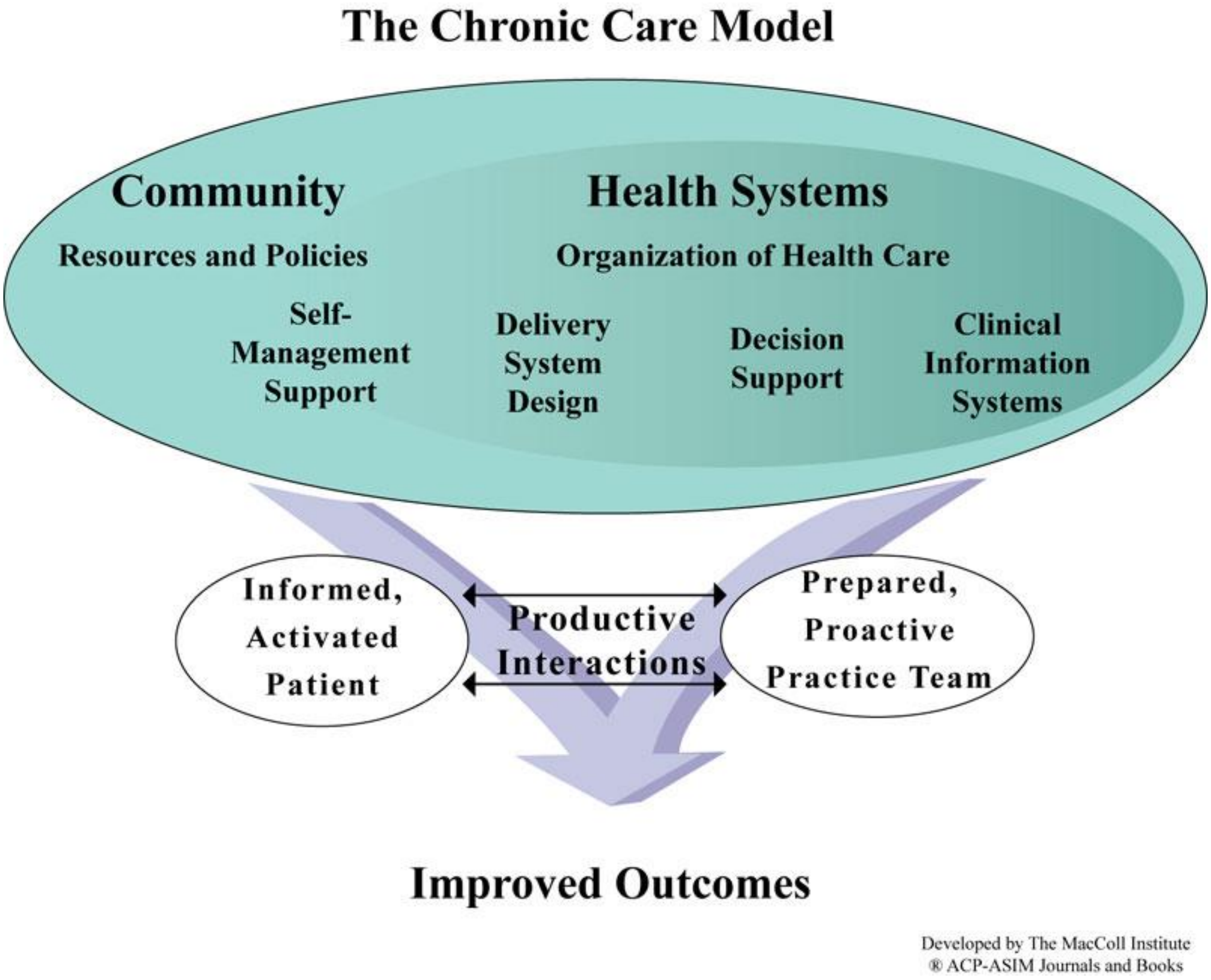


Figure 2

Chronic Care Model



Retrieved from: http://www.improvingchroniccare.org/index.php?p=Chronic+Care+Model&s=124

Figure 3

Self-Care of Heart Failure Index

SELF-CARE OF HEART FAILURE INDEX

All answers are confidential.

Think about how you have been feeling in the last month or since we last spoke as you complete these items.

SECTION A:

Listed below are common instructions given to persons with heart failure. How routinely do you do the following?

	Never or rarely	Sometimes	Frequently	Always or daily
1. Weigh yourself?	1	2	3	4
2. Check your ankles for swelling?	1	2	3	4
3. Try to avoid getting sick (e.g., flu shot, avoid ill people)?	1	2	3	4
4. Do some physical activity?	1	2	3	4
5. Keep doctor or nurse appointments?	1	2	3	4
6. Eat a low salt diet?	1	2	3	4
7. Exercise for 30 minutes?	1	2	3	4
8. Forget to take one of your medicines?	1	2	3	4
9. Ask for low salt items when eating out or visiting others?	1	2	3	4
10. Use a system (pill box, reminders) to help you remember your medicines?	1	2	3	4

SECTION B:

Many patients have symptoms due to their heart failure. <u>Trouble breathing and ankle swelling</u> are common symptoms of heart failure.

In the past month, have you had trouble breathing or ankle swelling? Circle <u>one</u>.

0) No
1) Yes

11. If you had trouble breathing or ankle swelling in the past month…

(circle **one** number)

	Have not had these	**I did not recognize it**	**Not Quickly**	**Somewhat Quickly**	**Quickly**	**Very Quickly**
How quickly did you recognize it as a symptom of heart failure?	N/A	0	1	2	3	4

Listed below are remedies that people with heart failure use. If you have trouble breathing or ankle swelling, how likely are you to try one of these remedies?

(circle **one** number for each remedy)

	Not Likely	**Somewhat Likely**	**Likely**	**Very Likely**
12. Reduce the salt in your diet	1	2	3	4
13. Reduce your fluid intake	1	2	3	4
14. Take an extra water pill	1	2	3	4
15. Call your doctor or nurse for guidance	1	2	3	4

16. Think of a remedy you tried the last time you had trouble breathing or ankle swelling,

(circle **one** number)

	I did not try anything	**Not Sure**	**Somewhat Sure**	**Sure**	**Very Sure**
How <u>sure</u> were you that the remedy helped or did not help?	0	1	2	3	4

SECTION C:

In general, how confident are you that you can:

	Not Confident	**Somewhat Confident**	**Very Confident**	**Extremely Confident**
17. Keep yourself free of heart failure symptoms?	1	2	3	4
18. Follow the treatment advice you have been given?	1	2	3	4
19. Evaluate the importance of your symptoms?	1	2	3	4
20. Recognize changes in your health if they occur?	1	2	3	4
21. Do something that will relieve your symptoms?	1	2	3	4
22. Evaluate how well a remedy works?	1	2	3	4

Retrieved from: http://self-care-measures.com/wp-content/uploads/2018/04/SCHFI_R6.2_revised_3-09.pdf

Figure 4

Demographic/Patient Characteristic Survey

PLEASE ANSWER THE FOLLOWING QUESTIONS

Thank you for your participation in this study. Please answer the following questions below to the best of your ability.

What is your gender? Male Female

What is your age? ____________

How long have you been diagnosed with heart failure? ___________________

How long have you lived in the Columbus area? ________________________

What is your race? Caucasian Black America Hispanic Asian Other

Circle your highest-grade level completed?

0- less than high school 1- High School Degree/GED 2- Some College 3- Beyond College

Do you have any other health problems other than heart failure? Yes No

Are you currently taking any medications for heart failure? Yes No

IRB Consent Form

INFORMED CONSENT

Improving self-care in Heart Failure patients

I, ____, agree to participate in the research Does the Implementation of a standard heart failure discharge pamphlet increase patient self-care efficacy when using the Self-Care of Heart Failure Index and follow-up phone calls? which is being conducted by Nickelow Carlton, who can be reached at niceklow.carlton@bobcats.gcsu.edu. I understand that my participation is voluntary; I can withdraw my consent at any time. If I withdraw my consent, my data will not be used as part of the study and will be destroyed.

The following points have been explained to me:

1. The purpose of this study is to identify and improve patient's self-management of their heart failure at home through a heart failure specific discharge pamphlet and follow-up phone call.
2. The procedures are as follows: you will be asked to participate in a demographic and self-care survey during admission. You will be asked to participate in one- on- one heart failure education during your hospital stay and demonstrate understanding of concepts learned. You will also be asked to participate in a one-week post hospital follow-up phone call where you will be asked about your management of heart failure using the Self-Care of Heart Failure Index tool.
3. Your name will not be connected to your data. Therefore, the information gathered will be confidential.
4. You will be asked to sign two identical consent forms. You must return one form to the investigator before the study begins, and you may keep the other consent form for your records.
5. You may find that some questions are invasive or personal. If you become uncomfortable answering any questions, you may cease participation at that time.
6. This research project is being conducted because of its potential benefits, either to individuals or to humans in general. The expected benefits of this study include the opportunity to review heart failure self-care management skills with the investigator and be provided additional local community resources. One on one education will be provided and opportunities to promote an increased quality of life.
7. You are not likely to experience physical, psychological, social, or legal risks beyond those ordinarily encountered in daily life or during the performance of routine examinations or tests by participating in this study.
8. Your individual responses will be confidential and will not be released in any individually identifiable form without your prior consent unless required by law.
9. The investigator will answer any further questions about the research should you have them now or in the future (see above contact information).
10. In addition to the above, further information, including a full explanation of the purpose of this research, will be provided at the completion of the research project on request.

11. By signing and returning this form, you are acknowledging that you are 18 years of age or older.

Signature of Investigator Date

Signature of Participant Date

Research at Georgia College involving human participants is carried out under the oversight of the Institutional Review Board. Address questions or problems regarding these activities to the GC IRB Chair, email: irb@gcsu.edu.

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