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EDUCATIONAL INTERVENTION TO IMPROVE SELF-EFFICACY AND

SELF-CARE IN PATIENTS WITH HEART FAILURE

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Abstract

Heart failure is a high mortality, chronic disease that is economically and physiologically costly for patients, caregivers, and society. Heart failure teaching alone is insufficient in meeting the complex self-care needs of the heart failure patient. This project implemented evidence-based teaching methods that are skill-based and problem-solving based to educate heart failure patients in an outpatient setting. The theoretical foundation of this project was Bandura's theory of self-efficacy and Orem's theory of self-care. The level of self-care and self-efficacy was assessed before and after the multi-sensory teaching intervention. Self-care and self-efficacy have been studied and shown to be major components of improved clinical outcomes in heart failure patients. This project assessed the impact of the chosen evidence-based teaching methods on patient self-care and self-efficacy behaviors.

Keywords: heart failure, self-care, self-efficacy, patient education, tactile and problem-solving teaching methods.

EDUCATIONAL INTERVENTION TO IMPROVE SELF-EFFICACY AND

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List of Abbreviations

Acute decompensated heart failure (ADHF)

Agency for Health Care Research and Quality (AHRQ)

American Association of Nurse Practitioners (AANP)

American College of Cardiology (ACC)

American College of Cardiology Foundation (ACCF)

American Heart Association (AHA)

American Stroke Association (ASA)

Body Mass Index (BMI)

Centers for Disease Control (CDC)

Centers for Medicare and Medicaid (CMS)

Collaborative Institutional Training Initiative (CITI)

Community Clinic of Project (CAN)

Doctor of Nursing Practice (DNP)

Emergency Department (ED)

European Heart Failure Self-Care Behavior Scale (EHFScBS)

Heart failure (HF)

Heart failure preserved ejection faction (HFpEF)

Heart failure reduced ejection faction (HFrEF)

Heart Failure Society of America (HFSA)

Health Insurance Portability and Accountability Act (HIPAA)

Hospital Readmissions and Reduction Plan (HRRP, 2012)

International Classification of Diseases, Tenth Revision (ICD-10)

International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-

CM)

Institutional Review Board (IRB)

Family Nurse Practitioner (FNP)

Master of Science in Nursing (MSN)

Medical Doctor (MD)

Portable Document Format (PDF)

Registered Nurse (RN)

Self-Care Heart Failure Index (SCHFI)

Statistical Package for the Social Sciences (SPSS)

United States Department of Agriculture (USDA)

Self-efficacy and Self-care in Heart Failure

Introduction

Heart failure is a chronic disease that affects 5.7 million Americans (Mozaffarian et al., 2016). Heart failure is on the rise in the US. The most recent estimates of heart failure (HF) show that the number of new HF cases diagnosed per year is approximately 650,000 (Go et al., 2014), and there will be an increase of 46% from 2012-2030 in the incidence of newly diagnosed patients (Mozaffarian et al., 2016). The chances of developing HF carry a lifetime risk greater than 20% for individuals over the age of 40 (Yancy et al., 2013). HF is progressive, shortening life expectancy. It is estimated that there is 50% mortality within five years of diagnosis (Mozaffarian et al., 2016; Yancy et al., 2013). HF is prevalent, debilitating, and accounts for $32.4 billion a year in healthcare costs (Heidenreich et al., 2011). To reduce HF costs, the focus for providers and hospitals has been on patient education to improve clinical outcomes (Heidenreich et al., 2011). HF education has been supported in the literature to show improved patient outcomes (Barnason, Zimmerman, & Young, 2011; Boren, Wakefield, Gunlock, & Wakefield, 2009; Cameron, Warrall-Carter, Driscoll & Stewart, 2009). Evidence-based standards in HF patient education has been outlined in guidelines set forth by the American College of Cardiology (ACC), the American Heart Association (AHA), and the Heart Failure Society of America (HFSA). Each of these guidelines list specific criteria HF patients must be educated on to ensure self-efficacy and self-care to realize better clinical outcomes (Yancy et al., 2013; Lindenfeld et al., 2010). The purpose of this project is to implement an evidence-based practice cognitive and skill-based education

program in primary care aimed at improving self-efficacy and self-care in patients with

heart failure.

Background

Defining Heart Failure

HF is a clinical syndrome caused by a decrease in cardiac output due to filling or

ejecting problems which are caused by a structural or functional loss in the heart (Yancy

et al., 2013). Failure occurs when the cardiac output is insufficient to meet the body's

demands due to an increase in sustained venous pressure leading to a chronic progressive

deterioration of the heart musculature (Murphy & Anderson, 2016). Clinical

manifestations of HF include dyspnea, fatigue, exercise intolerance, fluid retention that

either leads to pulmonary congestion, and/or peripheral edema (Yancy et al., 2013).

The American College of Cardiology Foundation/American Heart Association

(ACC/AHA) Task Force (Yancy et al., 2013) describes HF as a wide range of left

ventricular dysfunction or cardiomyopathies with ejection fractions that can be normal or

reduced due to severe dilation of the heart. Diastolic HF is a clinical syndrome defined as

a preserved ejection fraction of greater than or equal to 50%, having clinical signs of

heart failure, and evidence of left ventricular diastolic dysfunction that is verified by echo

Doppler or cardiac catheterization (Yancey et al., 2013). Heart failure reduced ejection

fraction (HFrEF) or systolic HF is a diagnosis of first excluding other non-cardiac causes

of the symptoms of HF and an ejection fraction less than or equal to 40% (Yancy et al.,

2013).

Heart failure with preserved ejection fraction (HFpEF) as well as heart failure

reduced ejection fraction (HFrEF) was included in this study. Both types of heart failure

were seen and managed in the outpatient family clinic. Heart failure that presents with

reduced ejection fraction (HFrEF) represents approximately 45% of all HF cases in the

outpatient setting while 55% of the cases are HFpEF (Bursi et al., 2006). The HFpEF is a

population that is (a) increasing in numbers and (b) a greater portion of the cases being

admitted to the hospital (Yancy et.al., 2013).

Heart Failure Burden

The 28 day-age adjusted mortality is 10.4% after discharge for acute

decompensated heart failure (ADHF). The one year mortality is 29.5% post

hospitalization for ADHF (Chang et al., 2014). Black men had the highest annual

incidence of ADHF at 15.7 per 1,000 persons followed by Black women at 13.3 per

1,000 persons, making them the greatest risk population for adverse HF outcomes.

Huffman et al. (2013) also found similar statistics for the prevalence of HF among men

and women and Blacks and Whites in the data they combined from several major heart

studies.

HF will continue to be an issue that is on the rise, as the number of new cases is

expected to increase through 2030 based on the aging population and other factors

(Heidenreich et al., 2013). If rates and costs remain the same, more than 8 million people

in the US will have HF by 2030, affecting approximately 1 in every 33 people

(Heidenreich et al., 2013). The estimated cost of HF is projected to increase from $21

billion to $53 billion by 2030 in the United States (Heidenreich et al., 2013).

Heart Failure Risk Factors

Djoussé, Driver, and Gaziano (2009) evaluated the relationship between

modifiable risk factors and the lifetime risk of developing heart failure. This prospective

cohort study used data from the Physician's Health Study I and found there was a 13.8%

lifetime risk of developing HF. Importantly, it was identified that HF developed at a

higher rate for men with hypertension than men without hypertension, making

hypertension a modifiable risk factor. The six healthy lifestyle markers included normal

body weight, not smoking, regular exercise, moderate alcohol intake, consumption of

breakfast cereals, and consumption of fruits and vegetables. Men who had adhered to

four or more of these healthy lifestyle factors had the lowest incidence of heart failure

whereas the highest incidence of HF was with those men who followed none of the

healthy lifestyle choices (Djoussé, Driver, & Gaziano, 2009). In a very large sample

study combining other major HF studies, Huffman et al. (2013) also confirmed that high

blood pressure and an increased body mass were associated with higher risk of HF in all

ages and races. The modifiable risk factors are the aim of this study to promote better

outcomes for HF patients among a very high-risk population.

Hospital Readmission Reduction Issues

   HF is the most common reason for patients over 65 to be admitted to the hospital

(American Heart Association, 2015), so it is important to understand the implications of

the Centers for Medicare and Medicaid Hospital Readmissions and Reduction Plan

(HRRP, 2012). The direct cost of HF in the United States was projected to be

approximately $32.4 billion dollars in 2015 and $42.9 billion by 2020 (Heidenreich et al.,

2013). In attempt to contain escalating costs related to HF, the Centers for Medicaid and

Medicare (CMS) created the Hospital Readmission Reduction Plan and started penalizing

hospitals in 2013 for not meeting the 30-day non-readmission benchmark (Centers for

Medicare & Medicaid Services, 2016). This program has shown progress toward

improving quality care for HF patients and lowering healthcare costs (American Hospital

Association, 2015). According to the U.S. Department of Health and Human Services

(2014), there was only an 8% reduction in all cause 30-day readmissions in 2013. Even

so, few hospitals in the nation were able to meet the CMS benchmark standards of heart

failure readmissions to avoid penalties (Jha, 2015; Trent, 2016). In the state of Virginia,

72 hospitals have been penalized every year for the last five years for not meeting the

federal standards of 30-day readmission rates after hospitalization for certain disease

processes including heart failure (Trent, 2016). In 2015, 80% of US hospitals were

penalized by CMS for 30-day readmissions, and 56% of hospitals were penalized all

three years for 30-day readmissions (Jha, 2015).

Readmission Reduction Efforts

The primary resources that outline the foundation for key aspects of quality

patient care and benchmarking criteria for HF patient care include the Patient Protection

Affordable Care Act (Social Security, 2010) and the CMS Hospital Readmissions and

Reduction Plan (HRRP) (2012). The Centers for Medicare & Medicaid Services (2016)

(level 1) also outlined the HRRP and included their quality metrics to be evaluated. The

American Hospital Association (2015) described the effectiveness of the current HF

program, with a reduction in HF readmission in 2013 from 19.5% to 17.5 %. However, to

counteract the projected rising numbers of HF patients and HF medical costs

(Heidenreich et al., 2013), more needs to be done to reduce HF readmissions and the

costs associated with HF care. The Agency for Healthcare Research and Quality (AHRQ)

(2016) also made recommendations on HF management. AHRQ compiles and

disseminates the latest evidence-based research and provides quality improvement

indicators for benchmarking current trends in HF management. Most efforts to decrease

HF readmission have focused on in-patient HF teaching programs (Manning, 2011;

Vesterlund et al., 2015). Murphy (2015) evaluated provider delivery of HF education.

The intervention was to educate providers using current HF education guidelines and then

re-measure the provider delivery of evidenced-based education. The purpose of this

project was to implement an evidenced-based cognitive and skill-based education

program to patients in primary care aimed at improving heart failure with both preserved

and reduced ejection fraction (HFpEF and HFrEF) by promoting self-efficacy and self-

care. The benchmark reports have guided the self-efficacy and self-care HF plan of this

project, and the aim was to measure the self-efficacy and self-care ability of patients,

which translates to favorable patient outcomes.

HF Self-care Knowledge

Educating patients about HF self-care has been shown in an integrative review (19

studies) and a systematic review (35 studies) to improve patient outcomes (Barnason,

Zimmerman, & Young, 2011; Boren, Wakefield, Gunlock, & Wakefield, 2009). In a

meta-analysis of 19 studies, Barnason, Zimmerman, and Young (2011) found that when a

patient education program was implemented, there was improvement of self-care

behaviors. Cameron, Warral-Carter, Driscoll, and Stewart (2009), in a meta-analysis of

14 self-care instruments, found that only two tools were reliable and valid: the Self-Care

Heart Failure Index (SCHFI) and the European Heart Failure Self-care Behavior Scale

(EHFScBS). In their study, programs that promoted self-care behaviors showed a 15%

reduction in all-cause hospitalizations and 25% reduction in HF-related hospitalizations

(Cameron, Warral-Carter, Driscoll, & Stewart, 2009).

A recent study by Engle et al. (2012) found that the instructions patients receive at the time of discharge are very poorly recalled 24-36 hours after discharge. When asked about the key topics for self-care related to their hospital visit, 80% percent of the patients had knowledge deficits related to their home care instructions. Almost 79% were not able to verbalize the instructions about when they should return to the hospital. The findings also showed that 39% did not know what their follow up instructions were, 22% did not understand their medications, and 14% did not know their diagnosis. In this study, two thirds of the patients had no understanding or minimal understanding in at least one of the following domains: diagnosis, medications, home care, follow-up, and return instructions (Engel et al., 2012). The local and national focus has been on inpatient education for the HF patient to prevent readmissions. For this project, the focus was outpatient HF education but with a very different emphasis on a skill-based and cognitive method style of teaching. Orem's theoretical framework (2001) provided the basis for the patient's self-care aspect of the project and Bandura's theory of self-efficacy (1977; 1991; 1986) provided the foundation for building confidence in patients in the management of their HF.

<div align="center">**Problem Statement**</div>

Heart failure is a costly problem that requires complex evidence-based management by the provider and demands self-efficacy and self-care by the patient (Barnson, Zimmerman, & Young, 2011). Both self-care and self-efficacy are essential components known to improve patient outcomes. The current clinic setting does not have a standing method for educating patients with HF on self-care to promote self-efficacy.

Project Rationale

It has been proposed that the most effective education for the management of HF patients is to provide appropriate education and frequent follow-up in the outpatient setting soon after discharge (Lindenfeld et al., 2010). According to reports complied by Perri et al. (2015), the Agency for Healthcare Research and Quality (AHRQ) reported in 2012 that within three weeks following hospital discharge, 20% of patients had an adverse event. In addition, 20% of Medicare patients were readmitted within 30 days of discharge (Perri et al., 2015). The guidelines for heart failure management published by American Heart Association (AHA), the American Stroke Association (ASA), and the Centers for Disease Control (CDC) have recommended providing ongoing, reinforced HF education to promote healthy habits and appropriate HF management (AHA/ASA, 2016; AHA, 2015; CDC, 2016). The education led by the team leader followed evidenced-based practice (EBP) guidelines (AHA/ASA, 2016; AHA, 2015; CDC, 2016) and utilized methods of teaching aimed at the following: (a) meeting health literacy needs (Institute of Medicine, 2004), (b) meeting the demands of self-management of a complex clinical syndrome (Murphy & Anderson, 2016) and (c) promoting self-efficacy to make healthy living choices (Bandura, 1991; Resnick, 2016). The purpose of this project was to implement evidence-based HF education that uses skill-based and problem-solving methods to promote self-efficacy and self-care behaviors.

Clinical Question

Does a team leader-led evidence-based HF education intervention that uses skill-based and problem-solving methods to promote self-efficacy and self-care improve self-efficacy and self-care behaviors in patients with HF?

Literature Review and Synthesis

Self-efficacy and Self-care

Dickson and Riegel (2009) found that skill-building techniques in HF were lacking and necessary to improve self-care and did not come through traditional patient education but rather from skills learned over time as the patient adapted to daily lifestyle changes. A list of skills that heart failure patients need to attain was included in this review and was the basis for developing patient education material for this project (see Appendix A). Riegel, Dickson, and Carlson (2009) developed a tool to measure self-care skills, which was used in this study to determine the level of individual patient understanding of HF. The Self-Care of Heart Failure Index (SCHFI) V6.2 was the main evaluation tool used in this study.

In a recent study by Vellone et al. (2016), self-care confidence was a greater predictor than impaired cognition (except for short term memory) when evaluating self-care behaviors in patients with HF. This study was included because it addresses the issue of cognition and its effect on HF self-care. Also, when choosing or designing a HF education plan, self-care confidence should be an element of consideration. Self-care confidence is the basic tenant of self-efficacy, which is described below in the Theoretical Framework section.

The relationship of self-care to self-efficacy is defined for this project as the belief or certainty that one can perform or act on specific tasks of self-management and endure even if he or she is facing difficulties (Riegel, Dickson, & Faulkner, 2016). With this definition, self-management is a component of self-care (Riegel, Dickson, & Faulkner, 2016). A recent study was completed by the directors of the National Institute of Nursing

Research on the common data elements of self-management of chronic conditions

(Moore et al., 2016). This study compiled the efforts of ten Centers of Excellence on the

common constructs of current self-management frameworks and identification of

variables commonly used in research (Moore et al., 2016). They identified three self-

management processes: activation, self- regulation, and self-efficacy for managing

chronic conditions (Moore et al., 2016). Activation was defined as a "broad range of

elements involving self-management, including the knowledge, skills, beliefs and

behaviors that a person needs to manage chronic illness" (Moore et al., 2016, p. 442).

Self-regulation was defined as "an individual's effort to make behavioral changes and

modulate thoughts, emotions, and behaviors to achieve goals" (Moore et al., 2016, p.

443). These three elements—activation, self-management, and self-efficacy—are part of

the Self-Care of Heart Failure Index (SCHFI) tool that was used to evaluate how well a

patient can engage in self-efficacy and self-care.

Current Heart Failure Patient Education Guidelines

The American College of Cardiology Foundation (ACCF) and the American Heart

Association (AHA) task force updated the clinical guidelines in 2013, which included

non-pharmacological therapies (Yancy et al., 2013). Also, the Heart Failure Society of

America (HFSA) last updated their heart failure guidelines in 2010. Both the

ACCF/AHA and HFSA guidelines are evidenced-based and follow the levels of evidence

listed in Appendix B. The HFSA task force outlined seven key topics to address with HF

patients (Lindenfeld et al., 2010). Theses seven topics include defining heart failure,

recognizing symptoms and knowing how to respond to them, indication and use of each

medicine, modify risks for HF progression, low sodium diet and limiting alcohol, specific

activity and exercise recommendations, and importance of treatment adherence

(Lindenfeld et al., 2010). According to the guideline, HF teaching methods alone are not

effective and must include a set of skills learned about self-efficacy and self-care

(Lindenfeld et al., 2010).

Modules for Instruction in Self-care for Heart Failure

The first module involves learning to verbalize the definition of heart failure, the

causes of heart failure, and heart failure basics. The second module is used to teach

patients how to recognize when HF symptoms increase and help them to develop a plan

to manage symptoms. In this module, the patient must identify specific symptoms such as

increasing shortness of breath, increasing ankle edema, increasing fatigue, dyspnea at

rest, nocturnal dyspnea, and orthopnea. Patients are taught how to assess and record

symptoms of heart failure and how they are different from other disease processes such as

asthma, chronic obstructive pulmonary disease, and other cardiac conditions. Other skills

include assessing ankle swelling, verbalizing the importance of keeping medical

appointments, and correctly differentiating scenarios based on the heart failure zones. For

example, patients are able to verbalize symptoms for a normal day (green zone),

symptoms for caution or close monitoring (yellow zone), and symptoms that may require

medical help (the red zone).

The third module involves identifying and using medications properly. Skills for

the patients to master in this module include understanding and using a dosing schedule,

verbalizing the reason for taking each medication, and verbalizing what to do if a dose is

missed. The patient describes how to follow and plan a medication schedule and also

verbalizes how to plan for refilling of their medications (Lindenfeld et al., 2010, p. 493).

The fourth module assists the patient in modifying risk factors they can control. One of the skills the patient can choose in this module includes developing a plan for smoking cessation at every visit. Management of the other risk factors may require maintaining or obtaining a target blood pressure within normal limits, a normal HgA1c if diabetic, or a healthy body weight.

The fifth module assists the patient in following diet restrictions necessary to manage heart failure symptoms. This includes learning how to manage and follow a low sodium diet, knowing how to read labels for sodium content and choose appropriately, knowing and verbalizing alcohol limits, and knowing and verbalizing the interaction with medications.

The sixth module teaches skills for developing and following an exercise plan by participating in regular activity on a weekly schedule. This includes assisting the patients with enrollment in a cardiac rehabilitation program when appropriate. Skills include learning when and how to exercise, identifying the symptoms that would preclude them from doing exercise, and learning about symptoms that would require them to seek medical help.

The seventh module teaches skills for fluid and weight monitoring. The skills to be mastered include performing and recording daily weights and knowing what to do for volume overload. This is done by working with the patient to develop an action plan. Other skills include knowing when to call a care provider, knowing how to make changes in diet, knowing how to make changes in fluid intake based on the weather and symptoms, and knowing how to regulate diuretics.

Barriers to Heart Failure Self-efficacy and Self-care

The 2010 HFSA guidelines address factors that are potential barriers for patients when receiving self-care education (Lindenfeld et al., 2010). Barriers include health literacy, cognition, cultural factors, and access to social and financial resources (Berkman et al., 2011; Davis et al., 2015; Lindenfeld et al., 2010). The guidelines stress the importance of assessing the patient's baseline HF knowledge and management techniques already incorporated into the patient's self-care routine (Lindenfeld et al., 2010). Part of the recommended assessment is determining the patient's perceived barriers to following the evidence-based program. This includes monitoring how often the patient forgets HF self-care tasks and assessing if there is any lack of knowledge regarding their care. Other barriers to self-care that need to be evaluated include (a) the patient's ability to afford the cost of their care including medications, (b) the ability to attend follow up appointments, and (c) the ability to obtain or purchase the proper food and supplies to comply with diet restrictions (Lindenfeld et al., 2010). The guidelines also recommend education to begin in the hospital and that patients follow up in one to two weeks after discharge. At follow-up visits, HF education is to be continued until all the recommended skills have been attained and the patient and or caregiver can perform them independently.

Cognitive and Skill-based HF Education

Barnason, Zimmerman, and Young (2011) conducted an integrative review that assessed the promotion of self-care in patients with heart failure. In this review of the self-care HF literature, it was found that cognitive-behavioral intervention was effective in improving patient outcomes (Barnason, Zimmerman, & Young, 2011). The researchers also concluded that self-efficacy was an intermediate step to implementing self-care and

that increased knowledge alone was not sufficient alone for changing behavior

(Barnason, Zimmerman, & Young, 2011). However, this integrative review was limited

as it could not determine the sustainability of the self-care behaviors beyond what was

studied in these selected research articles. Some of the recommendations for future study

to promote self-care behaviors included developing tactical skills, which show the patient

how to adhere to a HF care plan, and situational skills, which help the patient know when

to seek professional help versus when they can manage their symptoms on their own

(Barnason, Zimmerman, & Young, 2011; Dickson & Riegel, 2009).

Dickson and Riegel (2009) conducted a qualitative meta-analysis on three

previous studies and evaluated skills needed for heart failure self-care (Dickson,

Deatrick, & Riegel, 2008; Riegel et al., 2006; Riegel, Vaughan, Dickson, Goldberg, &

Deatrick, 2007). Their findings identified 14 maintenance skills and four management

skills (Dickson & Riegel, 2009; see Appendix A). According to their findings, both

tactile and situational skills are needed to adhere to HF medications, diet, activities, and

symptom monitoring (Dickson & Riegel, 2009).

Low Health Literacy Education Material

In an important study by Chen et al. (2013), it was found that having an adequate

level of health literacy correlated with higher levels of HF knowledge. That study also

showed that both self-efficacy and self-care skills did not correlate with the patent's level

of health literacy (Chen et al., 2013). This is important when considering teaching tactile

and situational skills to patients with low health literacy. Low health literacy is a well-

substantiated barrier to quality patient outcomes (Institute of Medicine, 2004; The

National Academies of Sciences, Engineering, and Medicine, 2015). Additionally, self-

efficacy and self-care interventions are possibly a separate entity when considering how

to approach the patient with HF education. Health literacy, self-efficacy, and self-care

must be addressed when deciding on methods to educate patients with HF.

For the current project, a visual handout was made to introduce the seven modules (see

Appendix C). One handout was made on fluid balance that provided pictures and text so

that verbal instruction could be visualized (see Appendix D). Also, an info graph was

used with Module 1 which had pictures that matched the content of the verbal teaching

(see Appendix E).

Conceptual Framework

A conceptual framework is necessary to define and organize concepts so that

outcomes can be evaluated, interpreted, and then integrated into quality improvement and

better patient outcomes (Moran, 2014). The conceptual framework that was followed for

this project was the Iowa Model Revised: Evidence-Based Practice to Promote

Excellence in Heath Care (2015) (Appendix F).

The first step in the Iowa Model is to identifying triggers, issues, and

opportunities. For this project, the identified patient issue is that HF patients seen in free

outpatient clinics are at high risk for poor health outcomes and hospitalization (Calvillo-

King, 2013). Evidence-based practice shows that self-efficacy and self-care are key

factors for HF patients to develop the skills they need to have optimal clinical outcomes

(Cameron, Worrall-Carter, Driscoll, & Stewart, 2009; Dickson, & Riegel, 2009). The

next step is to state the purpose. The purpose of this project was to deliver an evidence-

based HF patient education program that is skill-based and uses problem-solving

methods. The next step is to ask the question "Is this topic a priority?" (Iowa Model,

2015). The institution has determined that HF education is a priority and has given a

letter of support to proceed with the project. The HF education intervention focused on

developing skills in HF patients that aim to improve self-efficacy and self-care. An

outpatient HF education program is a noted priority in primary care to support and

improve quality care and patient outcomes. The next step of the Iowa Model (2015) is to

form a team. The team consisted of the project leader's committee, a statistician, two

clinical supervisors, clinic staff, and providers at the clinic that serves the homeless,

uninsured, and underserved in the community. The next step is then to assemble,

appraise, and synthesize the body of evidence and to weigh the quality, quantity, and

consistency through a systematic search of the literature (Iowa Model, 2015). The review

of current literature was described above in the Literature Review and Synthesis section.

The next step in the Iowa Model (2015) is to ask if there is sufficient evidence to proceed.

Based on the literature review, it was determined there were sufficient gaps in research;

therefore, the project moved into the design and pilot proposal phase. The design and

pilot of the project was a quasi-experimental methodology to collect and analyze data

with a pre- and post-intervention design utilizing the Self-Care Heart Failure Index

(SCHFI) tool (Riegel, Lee, Dickson, & Carlson, 2009, 2016; see Appendices B, F, and

G). The next step is to ask, "Is change appropriate for adoption in practice?" (Iowa

Model, 2016). The intended practice change is to educate staff and providers about the

pilot study and methods. When this study is finalized, a report of the outcomes will be

given to the staff and providers with a discussion of the sustainability of the education

program. The final step is dissemination. The dissemination section includes a post-study

result presentation to staff and providers, submission of project to the Digital Commons

at Liberty University, a poster presentation, and publication in a healthcare appropriate

journal.

Theoretical Framework

The theory of self-efficacy (Bandura, 1977; 1991; 1986) describes the very

complex relationships between behavior, the person, and the environment. One working

definition that embodies the aims of Bandura's theory is that self-efficacy is the degree to

which people believe they can perform specific behaviors or tasks to attain their set goals

(Bandura, 1986; Consumer Health Informatics Research Source, n.d., p. 1). Self-efficacy

is influenced by enactive mastery (performance expectations), vicarious experiences,

verbal persuasion (verbal encouragement), and physiological and emotional feedback

(Bandura, 1986). Self-efficacy can be defined as having confidence when there is mastery

of one's experiences to promote self-care. These are core components of the skill-based

and problem-solving HF education methods used in this project. The definition of self-

efficacy for this study was a belief or certainty that one can perform or act on specific

tasks of self-care and endure even if they are facing other difficulties (Riegel, Dickson, &

Faulkner, 2016). Bandura's (1986; 1991; 1977) theory of self-efficacy as well as Riegel,

Dickson, and Faulkner's (2016) situation-specific theory of heart failure self-care was

used to define and guide variables in the project, demonstrate relationships between

variables, and provide a framework for evaluating self-efficacy and self-care in HF

patients (Goodrich, 2016). Bandura's theory of self-efficacy will also help explain or

predict relationships around the phenomenon of interest, which is to ascertain the self-

efficacy and self-care in heart failure patients in an outpatient setting. Several studies

support the theoretical underpinning of both self-efficacy and self-care as the theoretical

basis for teaching and motivating patients to adopt healthy choices and disease specific

self-care activities (Dickson, & Riegel, 2009; Riegel, Lee, Dickson, & Carlson, 2009;

Vellone, Pancani, Greco, Steca, & Riegel, 2016).

Orem's self-care deficit theoretical framework (2001) also describes the self-care

needs of patients and can be used in this project to define and guide variables,

demonstrate relationships between variables, and provide a framework for evaluating

outcomes. Some of the vital precepts to this model include these elements:

1. People should be able to be self-reliant and responsible for their care.

2. Self-care is fundamental to primary care prevention and illness.

3. Persons knowledge of potential health problems is needed for promoting self-
    care behaviors.

4. Self-care and dependent care and behaviors learned within a socio-cultural
    context. (Nursing Theory, 2016, p.1)

The concept of patient autonomy linked to self-care is not new to nursing theory

or study (Henderson, 1966; Orem, 2001). Patient autonomy is the key to Orem's theory

of self-care (Orem, 2001). For a patient to achieve self-care, according to Orem's theory,

he or she must be able to choose what needs to be done for their own care (Moser,

Houtepen, & Widdershoven, 2007). Autonomy is the ability to choose for oneself. Self-

care is divided into two phases: the decision phase and the action phase (Orem, 2001).

When promoting self-care, the provider needs to avoid paternalism in exchange for

greater patient autonomy (Risjord, 2014). The HF education ensures patient autonomy by

allowing patients with HF to make choices about the necessary actions needed for their

self-care.

These three theoretical frameworks—self-efficacy, self-care, and patient autonomy—were the basis for the tool that was used to assess self-efficacy and self-care in this project as well as guide the HF teaching methods that were tested. The developers of the SCHFI tool have revised the situation-specific theory of heart failure self-care (Riegel, Dickson, & Faulkner, 2016). Riegel, Dickson, and Faulkner (2016) defined self-care as "a naturalistic decision-making process that influences actions that maintain physiologic stability, facilitate the perception of symptoms, and direct the management of those symptoms" (p.226). The ability of person to engage in self-care is based on his or her level of self-efficacy (Barnason, Zimmerman, & Young, 2011; Riegel, Dickson, & Faulkner, 2016).

Project

Description

This is an evidence-based practice project that uses skill-based and problem-solving methods to promote self-efficacy and self-care.

Population

The primary population was patients with HF, both preserved and reduced ejection fraction, in a healthcare clinic that serves homeless, underinsured, and uninsured patients.

Intervention

The intervention was the delivery of the evidence-based HF education program that uses skill-based and problem-solving methods to promote self-efficacy and self-care in patients who present with HFpEF and HFrEF to an outpatient clinic serving the homeless, uninsured, and underinsured.

Comparison

Current self-care practices and perceptions of self-efficacy of the HF patient were compared with standard AHA/HFSA and ACC guidelines for outpatient HF education.

Outcomes

The outcomes evaluated pertain to the level of self-efficacy and self-care that patients with HF achieve after the evidence-based HF education intervention. The patient's self-care and self-efficacy is divided into the following three domains: (a) self-care maintenance, (b) self-care management, and (c) self-care confidence (Riegel & Dickson, 2008).

Objectives and Outcomes

The following are the objectives of the study:

1. Implement a skill-based HF educational intervention pilot study aimed at improving HF self-care knowledge and self-efficacy in patients with HF who receive primary care in an outpatient clinic that serves those who are homeless, uninsured, and underinsured.

2. Evaluate patient self-care and self-efficacy before and after the educational intervention.

3. Disseminate the HF education intervention pilot study outcomes to key stakeholders for consideration to adopt to standard practice.

Cultural Considerations

The population served by this clinic must be considered for vulnerability and care taken to respect these needs. The patients who present to the clinic that serves homeless, uninsured, and underinsured are a mixture of genders, ages, and ethnic and racial mixes

with many minority populations. This clinic is the source of primary care for individuals

without a primary care provider. The urban population of the surrounding city is 79,049,

and the metro area has a population of 252,634 (City of ████████, 2014; Opportunity

███████, 2017). The percentage of people over 65 is 14%. The racial and ethnic

makeup is 64.4% White, 29.3% Black or African American, 3% Hispanic or Latino,

2.3% Asian, 2.2% two or more races, and 0.3% American Indian or Native Alaskan

(Census, 2010). Just over 5% of the population is foreign born, and there are 5,241

Veterans (Census, 2010).

The religious overview of the city where the clinic is located shows that 45.7% of

the population affiliate with a religion. Religious affiliation includes 19.2% Baptist,

21.5% other Christian faiths, 2.7% Catholic, 2.16% Islamic, and 0.14% Jewish (Best

Places, 2017).

This clinic serves a subpopulation of the city (25% of the entire population of this

city) that has a higher rate of unemployment than do other areas of the city (███████

███████████ [CAN], 2016). This subpopulation has a higher poverty rate of 62.8%

among African Americans. In one of the census tracts that this clinic serves, 96.3% of

African Americans live below 100% of federal poverty, and in that same tract, 3.0% of

Whites live below the federal poverty line. The residents that are served by this clinic

have an 18.5% uninsured rate. The total number of residents in the service area without

insurance is approximately 3,594 (CAN, 2016). The ratio for primary care providers for

this population is 8,171 residents per provider in comparison to 1,344 per provider in the

state of this project (CAN, 2016). The unemployment rate for this clinic service area is

16.3% compared to the city's unemployment rate of 7.0% and the state's rate of 5.8%

(CAN, 2016). In the service area, 22% of the population has less than a 12th grade

education compared to 12.7% in the city and 12.1% in the state of the project (CAN,

2016). Heart disease is higher in this population at 213.3 cases per 100,000 compared to

the state average of 163.5 per 100,000 (CAN, 2016). The rate of hypertension is 31.8%

for the city compared to the national rate of 28.7% (CAN, 2016). The zip codes served by

this clinic account for 25% of the hospital admissions and emergency room visits to the

main hospital in the city of this project (CAN, 2016).

Ethical Considerations

This is an evidence-based educational intervention aimed at improving self-care,

self-efficacy, and clinical outcomes in patients with HF. The team leader and committee

have completed Collaborative Institutional Training Initiative's (CITI) training in the

ethical treatment of human subjects (see Appendix G). Guidelines for proper procedures

for ethical and cultural considerations was followed by recommendations of two

Institutional Review Boards (IRB) processes and the CITI guidelines for populations

requiring special protection, and additional consideration was followed to include cultural

considerations, students in research, informed consent, protection of privacy and

confidentiality, and others listed in the CITI training modules (see Appendix G).

The team leader created a master list that contained each eligible participating

patient name. The patient was assigned a patient identification code, chart record number,

and chart identification code placed on a hidden tab (the tab is not visible when the Excel

document is opened). The master list was created in an Excel spreadsheet and saved as a

password-protected portable document format (PDF). The data was stored on PDF

password-protected files on a personal password-protected computer. Results were

displayed on separate tables from the key table. Data documentation on the patient tool

and data analysis documents were conducted using de-identified patient information. The

team leader will maintain the master list as a password protected Excel file on a password

protected 256 bit encrypted flashdrive. These records will be maintained for three years

after completion of the project. There will be no copies made of the master list, and the

master list will be purged from the computer after three years using commerical software

to permanently delete data. There will be no patient identifying information associated

with any presentation or publication of this project.

Protection of Human Subjects

        The first institutional board was through Liberty University. The project was

accepted as an exempt status and did not classify as human subjects research (see

Appendix H). Informed consent was part of the process and followed the Collaborative

Institutional Training Initiative recommendations (Hicks, 2014) as well as

recommendations from the Centra Institutional Review Board (IRB; see Appendix I). A

second IRB was needed from the hospital, which is currently funding the clinic that

serves the homeless, uninsured, and underinsured. They also exempted this study as not

classifying as human subject research (see Appendix J). The IRB required consent, so

each patient signed an informed consent prior to the pretest. Provision for privacy

followed the Collaborative Institutional Training Initiative recommendations (Hicks,

2014) as well as the Liberty University IRB and hospital review board. Patients were

recruited by assigning heart failure patients based on international classification of

diseases, tenth revision, clinical modification (ICD-10-CM) codes to the project team

members who were providers in the clinic.

Setting

The setting was a healthcare clinic serving homeless, underinsured, and uninsured patients. Key site support came from a supervising provider currently working at the clinic as well as a provider who is a doctorally prepared nurse practitioner (See Appendix K). The aim of the clinic is to "Provide accessible, accountable, coordinated and comprehensive healthcare services to medically underserved by bringing together community resources" (CAN, 2016). The values of this clinic also include providing culturally competent care, respecting the dignity of the people served in the clinic, providing access to health-related social services, empowering patients to value healthy living, and providing sustainability of services (CAN, 2016). The clinic offers both primary and urgent care and access to specialists (Trent, 2015). Part of the clinic's mission is also to provide assistance with social issues that affect health care such as inadequate housing, transportation, or lack of financial resources. This is done through connecting with more than 180 safety-net providers and social service agencies (Trent, 2015). The clinic was created to provide access to care for patients without primary care providers as an alternative to using the emergency department at the hospital (CAN, 2016). The project's aim to promote self-care and self-efficacy for heart failure patients in this population aligns with the clinic's mission and values, which are stated above.

Assessment Tool

The instrument used to evaluate the phenomenon of self-care and self-efficacy was the Self-Care Heart Failure Index (SCHFI; Riegel, Lee, Dickson, & Carlson, 2009; see Appendices L and M). Creators of the assessment granted permission to use (Appendix N). This assessment was given before and following intervention. The tool

assesses the patient's self-care and self-efficacy in the following three domains: self-care

maintenance, self-care management, and self-care confidence (Riegel & Dickson, 2008).

The tool has noted reliability in all three domains. The weakest reliability is in the area of

self-care maintenance, and the strongest reliability is in self-care confidence (Riegel, Lee,

Dickson, & Carlson, 2009). A noted limitation with the tool is the validity, which has not

been achieved due to insufficient sampling (Riegel, Lee, Dickson, & Carlson, 2009). The

team leader collected data prior to intervention, then conducted the patient teaching

intervention followed by post-intervention data collection. Inter-rater reliability was not

needed because only the team leader did the teaching. The data was scored as directed in

Appendix O. A design feature of the SCHFI V6.2 tool management section is that only

participants that responded "1" on question 11a was analyzed (items 11a-16). Question

11a asked if the patient had experienced shortness of breath or ankle swelling in the last

month. If the patient responded no, then then questions 11b -16 were not analyzed. The

tool questions were read to patients while they had a copy of the questions in front of

them, and patients recorded their own answers.

Intervention

Once informed consent was obtained, patients were enrolled in the patient

education intervention. The education intervention took place in the exam room

immediately after the patient was seen by the provider. The pre-intervention using the

SCHFI version 6.2 was first administered. Then, the patient was given a choice of seven

heart failure self-care and self-management topics to select for education during each

session (Appendix C). Then, the patient selected the topic he or she was most interested

in learning about. Skills discussed on the chosen topic were under each subject heading

(Appendix C). A five- to 15-minute education session was given on the selected topic.

After each module, patients were prompted to recall or perform knowledge or skills that

were taught in that session. However, the patient's performance on these tasks was not

recorded and is considered beyond the scope of this study. The purpose of these

performance tasks was to reinforce the self-efficacy and self-care but not for assessment

of the individual skills.

Patient education used two of the current HF materials provided by the hospital

(which supports the clinic), including the weight tracker and the *In The Zone* handout

(Appendix P). Supplemental exercise tip sheets were given to provide simple, evidence-

based ways to increase activity; these were created by the United States Department of

Agriculture's (USDA) Eat Smart, Live Strong activity kit (Appendix Q). The skill of

reading food labels used the American Association of Heart Failure Nurses (AAHFN,

2016) teaching sheets (Appendix R).

Follow-up was within two weeks during the intervention phase. The patients

returned for HF follow up and skill teaching, each time learning about a new topic of

their choice. The objective was for patients to demonstrate mastery of four out of the

seven topics during the 12-week project. Due to time constraints, the full education

program could not be implemented with every patient. Also, the staggering number of

patients over the 12-week intervention limited the number of teaching topics the

participant was able to receive in that time frame. The recommended use of the tool for

pre- and post-intervention is three months due to recall issues beyond that time (Riegel,

n.d. b).

As stated above, Dickson and Riegel (2009) found that new patient strategies need to be incorporated into regular teaching about HF to include activities that promote tactile and situational skill building and role playing. The teaching utilizes tactile learning like reading can labels for sodium content and evaluating fluid level scenarios based on the Red-Yellow-Green Congestive Heart Failure tool (Improving Chronic Illness Care, 2007; see Appendix P). At the patient's final appointment, the post-intervention SCHFI version 6.2 was given to assess any changes in self-care and self-efficacy.

Data Collection

The SCHFI tool was used before and after intervention as described above (Appendices L and M). The Intervention section describes how data was collected and the tool administered. The Statistical Analysis section discusses the relationships of self-care maintenance, management, and self-efficacy.

The time interval from the pre-intervention using the SCHFI to the final post-intervention was the recommended 12 weeks (Riegel, n.d. b). The HF education intervention took place in the follow-up visits during that 12-week time frame. Before the post-intervention assessment, the team leader began by stating, "Think about how you have been feeling over the last three months" (Riegel, n.d. b, p. 1).

The data collected on each participant included gender, date of birth, and age. The rationale is that gender and age can impact self-efficacy and self-care behaviors. Zip codes were collected to assist the clinic in matching high-risk populations to target for follow-up and intervention based on the community needs assessment (CAN, 2016). New York HF class and ICD-10 codes were collected as data points. The rationale is that the level of HF class and the ICD-10 codes determine the type and extent of HF the

participant has, and the type and extent of HF affects self-efficacy and self-care scores.

Ethnicity and race were collected as data points with the rational that different

populations differ in their perceptions of self-efficacy and self-care. Certain populations

of the clinic service area have been identified as higher risk based on ethnic and racial

background. The ethnic and racial data that were collected are as follows: American

Indian or Alaska Native, Arab, Asian, African American, Hispanic/Latino, Native

Hawaiian or other Pacific Islander, Multiracial, White.

Height and weight before and after intervention were used to calculate the

participant's body mass index (BMI) both pre- and post-intervention. The scale that was

used is a Decto 6127 model located in the clinic. The rationale is that certain modules

such as "Risk Factors that can be controlled," "Diet and Salt," and "Staying Fit" could

lead to changes in weight because of the knowledge and skills learned from the

intervention. Smoking and alcohol consumption were collected with the rational that both

can have an impact on self-efficacy and self-care with HF management. Two smoking

questions were included:

1. Do you smoke every day, some days, or not at all?

    Choices: (a) every day, (b) some days, or (c) not at all.

2. Are you currently a smoker?

    Choices: (a.) Yes, I currently smoke. (b.) No, I quit with in the last six months.

    (c.) No, I quit more than six months ago, and (d.) No, I never smoked. (Global

    Adult Tobacco Survey Collaborative Group, 2011)

The rationale is that these two questions will identify both non-smokers and smokers and

whether the participant has successfully quit recently or quit smoking more than six

months ago. Two alcohol questions were included: How often do you drink in a week?

Record number. How many drinks in a two-hour period when you drink? Record number.

The rationale is that the National Institute on Alcohol Abuse and Alcoholism (n.d.)

recommends assessing both frequency and patterns of alcohol use. The module on "Risk

factors that can be controlled" could impact the amount of tobacco and alcohol consumed

because of knowledge and skills learned from the intervention. Finally, each answer to

each question on the SCHFI tool were listed both pre- and post-intervention. The

rationale is that the skill-based and problem-solving methods of the intervention could

improve the self-efficacy and self-care of the participant and may relate to the topics the

participant chooses to engage in.

Team Members

The project team consists of the team leader, project committee, chair, first reader,

and second reader, who are all doctorally prepared nurses at Liberty University, and the

practicum preceptor. The director of population health is the team leader's preceptor and

is also a provider in the clinic. She provided input into the proposed project at the clinic

that serves the homeless, uninsured, and underinsured. This site had the appropriate staff

to support this undertaking. A measurement consultant and editor were hired. The

measurement consultant gave input into the design and data collection statistics that were

used in the final analysis.

<center>**Feasibility Analysis**</center>

Resources

The project was cost neutral (Appendix S). Resources were needed to print the

educational materials and tools, which the team leader donated. The cost of an RN was

factored into the cost of providing the teaching for this project. The team leader, who is

an RN, provided this service without cost as part of the doctoral scholarly project

requirements. A complete budget and expenditures for the project are provided in

Appendix S. Resources of the clinic used in the study included office staff for scheduling

the patients and the clinic RN, who assisted with searching the Electronic Medical

Record. Time was needed for discussion of the proposal and the teaching plan for the

project.

Personnel

For general information about personnel, see Team Members section. The clinic

support staff assisted in scheduling patients for follow up clinic visits in the 12-week time

frame. The RN of the clinic assisted the team leader in searching the electronic medical

records for demographic data, ICD 10 codes for HF, and patient outcomes such as

tracking hospitalizations and illnesses requiring emergency room visits. The team leader,

the RN, and the provider assisted in the proper handling of data collected, HIPPA

requirements, passcodes, and computers used to collect and store data.

Technology

The team leader utilized a passcode-protected computer for data collection and

clinic passcode-protected computers that are HIPPA compliant to access important

patient information and demographics from the electronic health record. SPSS version 24

software was utilized to analyze data. A special thumb drive made by Kingston was used

for encryption and storing of the data as well as special wiping software for destroying

data after three years per federal law.

Budget

This is a budget neutral project (Appendix S). The hospital that supports the clinic

that serves the homeless, uninsured, and underinsured will provide HIPPA compliant

computers and some copies of the HF handouts used for HF patients (Appendix P).

Cost/Benefit Analysis

Studies support that the benefit of self-care education translates into improved

patient outcomes and reduction in healthcare costs (Barnason, Zimmerman, & Young,

2011; Boren, Wakefield, Gunlock, & Wakefield, 2009).

Raghavan (2012) described a cost effectiveness ratio that was utilized in this

study (see *Figure 1*). Before and after implementation of this project, the value of HF

education intervention was projected and evaluated to compare with usual care utilizing

this ratio:

$$\text{Cost-effectiveness ratio} = \frac{\text{Cost}_{\text{Intervention A}} - \text{Cost}_{\text{Intervention B}}}{\text{Outcome}_{\text{Intervention A}} - \text{Outcome}_{\text{Intervention B}}}$$

Figure 1. Cost effectiveness ratio comparing the costs of two interventions to the cost

comparisons of the two outcomes measured (Raghavan, 2012, p. 96).

This project took place in a small clinic with limited resources; therefore, funding

was limited. Biggs (1989) demonstrated that groups with limited resources can contribute

to meaningful research, and it was on this premise that this investigation was conducted.

The COO of the clinic agreed to assist with this task and provide some of the data

to evaluate the community health worker as a cost-effective means to provide ongoing

self-care and self-efficacy follow-up once the patient has seen the provider. The focused

outcome will compare fall 2016 avoidable HF readmission data, where benchmarks were

not met, with HF patient readmissions for the fall of 2017 to see if the current teaching

intervention had an impact on HF avoidable readmissions.

Evaluation and Analysis

Design

This project is an EBP project utilizing a quasi-experimental methodology to

evaluate project outcomes. Self-care and self-efficacy were evaluated in the following

three domains: self-care maintenance, self-care management, and self-care confidence

(Riegel & Dickson, 2008). The data analysis was compiled using the Statistical Package

for the Social Sciences (SPSS) 24 software. The test performed on the data was the paired

t-test.

Sample

The research sample was a sample of convenience of patients who presented with

heart failure from a clinic that serves homeless, uninsured, and underinsured. The

recruitment of patients came from three methods:

1. Those who have been referred to the clinic who had the diagnosis code for HF,

   and that the provider felt would be a good candidate (can speak English,

   without cognitive deficit and are not hearing or visually impaired) for the

   education program were invited to participate.

2. The provider also assisted the team leader in identifying patients who had

   already received care in the clinic.

3. HF nurse navigators, emergency department (ED) nurse navigators, and case

   managers assigned to HF patients in the hospital setting helped recruit

   participants.

Staff members who referred patients included four providers, hospital HF nurse

navigators, one emergency department patient navigator, and one case manager

supervisor who oversees case managers throughout the hospital. The providers identified

key participants in this study. The rationale was to coordinate with providers, navigators,

and case managers to identify HF patients who were referred to the clinic that serves the

homeless, uninsured, and underserved in the community. This allowed for coordinating

candidates for the intervention.

Patients were identified in the clinic setting by searching the provider patient

portal which identified patients under their service with the diagnosis codes which the

provider recommended for education. An audit of the EMR was conducted, which

searched for ICD 10 codes listed in Appendix T. The patients were seen as they were

scheduled in the clinic and followed up by normal appointments to the clinic, a phone

call, or visitation where community health workers observed the interaction and skill

teaching sessions. Patients were told at the first visit to the clinic of the educational

project option, and the patients were given a choice to participate in the doctoral student's

project. Patients were seen by the provider first and billed as a normal outpatient visit.

Follow-up visits that involved the project were not billed unless the patient was seen by

the provider. The teaching was included during the normal scheduled outpatient follow-

up visits. Neither the clinic nor the patient was billed for the education portion of the visit

provided by the team leader.

The sample size was set at 20 patients. This number was chosen because four of

the providers chose to participate in this study and offered their patients this teaching

opportunity. Since the sample was small, and this was just one sample from a single site,

the study results will not be generalizable. No other statistical measures were needed to determine sample size since this was a pilot study.

Inclusion and Exclusion Criteria

The gender mix for this study should match the population, ethnicity, race, and age, and this was a sample of convenience.

Rationale: Certain groups of people behave differently from the rest of the sample in a systematic manner.

The age range included adults over 18 and younger than 90. Exclusion criteria was children under the age of 18 and adults greater than 90 years of age.

Rationale: These demographics are outside of the scope of inference.

To be included in the pilot, participants must be able speak English, be without cognitive deficit, and not be hearing or visually impaired.

Rationale: The tool is in English; the interventions were taught verbally and visually in English, and cognitive ability was necessary to retain the knowledge from the intervention. The project leader does not speak other languages, and translation services were not available for this project.

The focus was on patients with both HFpEF and HFrEF identified by the ICD-10 codes in Appendix T. HF was confirmed by physician note or referral, hospital note or referral, echocardiogram, or cardiac catheterization report.

Rationale: The ICD-10 codes specific to HF identified patients that qualified for the project intervention. Cardiac catheterization and echocardiograms properly diagnose HF, the type of HF and the ejection fraction the patient (Buckholtz, 2016; Yancy et al., 2013).

Other exclusions included those patients who declined to participate in the

intervention.

List of Inclusion and Exclusion Criteria

	Include	**Exclude**
Population	Adults over 18 and less than 90	Children under 18 and adults over 90
	English speakers	Non-English speakers
	Without cognitive deficit	With cognitive deficit
	Not hearing impaired	Hearing impaired
	Not visually impaired	Visually impaired
Heart Failure Type	HFpEF EF, HFrEF, all New York HF classes	People without HF
	All HF ICD-10 codes	
Timing	12 weeks of treatment	People who did not complete the final SCHFI post test
	May 15, 2017-August 4, 2017	
Setting	Clinic that serves the homeless, uninsured, and underserved in the community	People not in the clinic that serves the homeless, uninsured and underserved in the community

Figure 2. List of inclusion and exclusion criteria for the project.

Statistical Analysis

The dependent variables are self-efficacy and self-care in the following three

domains: self-care maintenance, self-care management, and self-care confidence (Riegel

& Dickson, 2008). The independent variable is the patient teaching done by the team

leader who is a RN, MSN, and DNP/FNP student.

The data analysis was compiled using the Statistical Package for the Social

Sciences (SPSS) version 24 software. The test performed on the data is the paired *t*-test.

The alpha value was set at 0.05. Coding followed the instructions in Appendix O. Each of

the three scales was scored separately: self-care maintenance, management, and

confidence (self-efficacy). Self-care was evaluated by comparing the scores of the

maintenance and management domains before and after intervention. Confidence scores

evaluated self-efficacy and its relationship to outcomes. The measurement consultant for

this project assisted in coding and drawing relationships from the results. Outcomes were

also evaluated to ensure proper collection methods and data analysis, and the

recommended coding was used with a few added commands to meet the updated needs of

SPSS software 24.

Results

This section describes the results of the data analysis, including the quantitative

results. Demographics are described, and then missing data, assumptions, and tool design

are addressed before evaluating key findings.

Demographics

Sample size. Data was collected on 23 patients; however, only 20 completed the

post-intervention assessment. Therefore, the final sample size for the maintenance and

confidence subsections was $n = 20$. For the management subsection, only 15 patients are

analyzed due to a feature of subscale computation mentioned in the Tool section.

Participants were selected from the clinic that serves the homeless, uninsured, and

underserved in the community.

Age. The average age was 55, ranging from 25 to 74 with a standard deviation

(SD) of 11.98.

Weight and BMI. There was an overall reduction in weight post-intervention except for one participant who had a desirable increase in weight due to connecting the patient with community resources to improve healthcare outcomes. The median weight of the pre-intervention was 231.6 pounds, and the post-intervention median was 230 pounds. The BMI pre-intervention was 37.3 and the post-intervention BMI was 38.3. A BMI greater than 30 is considered obese ($n = 17$), which describes this population. Four participants were in the overweight range while only two participants were in the normal weight range.

Gender. There was an even distribution of males to females in the sample, with female participants n = 12 and male n = 11.

Ethnicity and Race. There was a fairly even distribution of ethnicity of African Americans to Caucasians with all non-Hispanic race reported. There were 13 African Americans and 10 Caucasians enrolled in the study.

Smoking. As listed above in Data Collection, three questions addressed smoking habits. The results for the first smoking question, "Do you smoke every day, some days, or not at all?" 7 participants chose "every day,"1 chose "some days," and 14 chose "not at all." For the question, "Are you currently a smoker?" 8 participants answered "Yes, I currently smoke," 1 answered "No, I quit with in the last six months" 8 answered "No, I quit more than six months ago," and 5 answered "No, I never smoked." Smoking was addressed at every visit with those who smoked and was part of the teaching in Module 4. The team leader is unaware of anyone in the study who quit smoking completely during the study. Several reported cutting back the number of cigarettes in a day and several had a contemplation phase quitting plan.

Alcohol. As listed above in the Data Collection section, two questions addressed the frequency and pattern of drinking. For the frequency question, "How often do you drink in a week?" the numbers recorded were as follows: 17 answered zero beverages, 2 answered one beverage, 1 answered three beverages, and 1 answered six beverages. For the pattern drinking question, "How many drinks in a two-hour period when you drink?" the results are as follows: 16 answered zero beverages, 4 answered one beverage, 1 answered two beverages, and an *n* of 1 answered three beverages.

Zip code. Since this clinic is new to the local healthcare system and was designed to create better access to care for those who are homeless, uninsured, and underserved in the community, it was beneficial to see what neighborhoods the patients with heart failure reside.

Missing data

Pre-intervention assessment. There were two participants who did not answer questions 11b and 14. Only one participant did not answer questions 12 and 15.

Post-intervention assessment. A total of three participants did not complete the final assessment. Additionally, the following questions were missing answers on the post assessment: one on questions 9, 12, and 13; two on questions 14 and 15; and three on question 11b.

Smoking and alcohol. There was only one participant that smoking and alcohol information was not collected on.

Assumptions

Two assumptions were made for the statistical analysis which were (a) the assumption of independent observation and (b) the assumption of normality. For the

independent observations, it was assumed that the patients did not discuss the material of

the SCHFI tool or the educational interventions with each other during the study period

This implies a lack of contamination; item responses were not influenced by other

participants. The team leader did not observe any patient to patient contact in this study

except those who attended a weekly diabetes class where the team leader was present. No

discussion of the project was made before, during, or after the class, except individually

with each patient in a private area. It was assumed that the other patients in the study did

not know what was being discussed individually to each patient by the team leader.

For the normality assumption, histograms that were generated by SPSS did not

show normal distribution (see Appendix U). This is to be expected because the sample

was too small, and the purpose of the intervention was to increase the score on the SCHFI

tool after the intervention. Ideally a left-skewed distribution is more desirable in this

project as participants should score higher on the three subscales. Therefore, normal

distribution would not be expected for this project. Since subscale responses were not

normally distributed, it was still beneficial to evaluate paired *t*-test results to determine

the differences between the pre-intervention and post-intervention assessments.

Tool Design

As mentioned in the Assessment Tool section, only participants that responded

"1" on question 11a, which addressed ankle swelling and shortness of breath, were

analyzed. Five of the 20 patients reported that at the end of the study, they had not had

any ankle swelling or shortness of breath in the last month (answered 'no' to 11a

question). Therefore, the data from this section on those five patients were eliminated

from the statistical evaluation.

Key Findings

Paired *t*-tests were conducted to evaluate whether post-intervention SCHIFI

subscale scores were statistically different from pre-intervention scores. The results of the

data analysis are that the means of the post-intervention SCHFI revealed a statistically

significant difference in a positive direction in all domains of self-care and self-efficacy

when compared to the means of the pre-intervention SCHFI (see Table 1). As such, the

post-intervention means were higher than the pre-intervention means across all three

subscales (see Table 1).

Table 1

Descriptive Statistics for SCHIFI Subscales

	Pre-Intervention			Post-Intervention		
	M	*SD*	*n*	*M*	*SD*	*n*
Maintenance	58.83	17.94	20	69.49	15.90	20
Management	47.67	22.75	15	66.67	16.44	15
Confidence	64.50	17.34	20	80.34	18.17	20

Paired *t*-test. In the statistical paired *t*-test, mean scores in the

negative represent that the post-intervention scores are generally higher

than the pre-intervention scores (see Table 2).

Cohen's *d*. To evaluate the clinical and practical significance of the

project, Cohen's ds were calculated. For the Maintenance subscale, the

clinical significance is 0.63. This suggests a medium effect size. For the

Management subscale, the clinical significance is 0.91 and suggests a large

effect size. For the Confidence subscale, the clinical significance is 0.89,

which suggests a large effect size. Therefore, the intervention seems to have

a meaningful impact on SCHIFI subscale scores both statistically and

practically.

G*Power. The post-hoc statistical power for SCHIFI maintenance,

management, and confidence are .76, .91, and .97 respectively. These

values indicate that the probability of correctly rejecting the null hypothesis

is fairly high. Ideally, the statsistical power should be above .80.

The *p* values. The *p* values indicate statistical significance across all

three subscales ($p < .05$) (see Table 2). Although it is uncertain whether the

95% confidence interval of this sample contains values that are close to the

population mean difference, it does provide an idea as to what values are

plausible for this population (see Table 2). Thus, it is uncertain that the

values of the population mean difference for the pre- and post-intervention

are between the values of the lower bound and upper bound range for

demonstrating self-care and self-efficacy.

Table 2
Paired t-Test for SCHIFI Subscales

	Mean Differences	*df*	*t*	*p*	95% CI
Maintenance	-10.67	19.00	-2.82	0.01	[-18.58, -2.75]
Management	-19.00	14.00	-4.52	0.00	[-28.01, -9.99]
Confidence	-15.85	19.00	-3.64	0.00	[-24.95, -6.74]

The summarization of overall findings of this project show there was improvement in self-care and self-efficacy across the three domains of self-care management, self-care maintenance, and self-care confidence (see *Figure 3*).
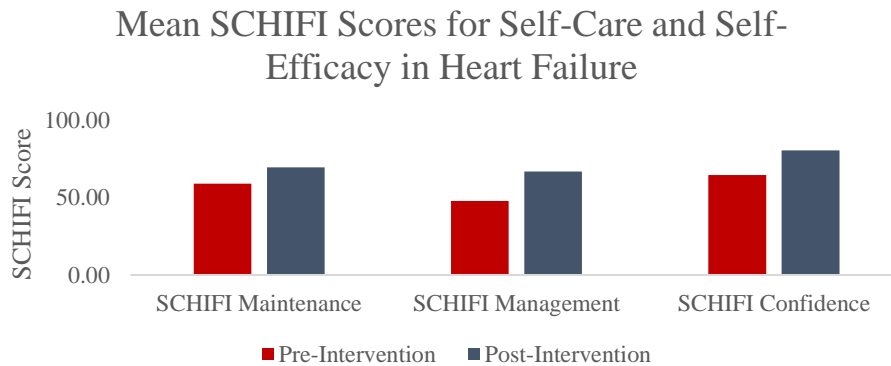
Figure 3. Mean SCHIFI scores for self-care and self-efficacy in heart failure.

Discussion

Review of the Purpose

The goal of this evidence-based project was to implement a cognitive and skill-based education program in a clinic that serves homeless, uninsured, and underserved populations in the community to promote self-efficacy and self-care in patients with heart failure. One of the reasons for this project was to explore ways to reduce HF readmissions at the local hospital. This is consistent with one of the purposes of the clinic being used in the study, which is to reduce the number of people who use the emergency room as a primary care facility (CAN, 2016). A major reason for this is patients were lacking both primary care providers and insurance to cover routine clinic visits (CAN, 2016). The data provided by the hospital nurse navigators prior to the study demonstrated the recent need to decrease avoidable readmissions of patients with HF (see Appendix V). Many of the reasons listed as avoidable causes in the data collected by the navigators

were addressed as teaching points in the modules of this study, such as avoiding

infections, medication management, and self-care support.

The first objective of this study was to implement a teaching plan for patients with

HF, which takes a skill-based teaching approach aimed at improving HF self-care

knowledge and self-efficacy, and this was accomplished. The second objective was to

evaluate patient self-care and self-efficacy before and after the educational intervention

(see Results*).* Finally, plans are already projected for fall of 2017 and spring of 2018 to

disseminate the HF education intervention pilot study outcomes to key stakeholders for

consideration to adopt as standard practice. The clinic embraced this project as a

sustainable teaching method for patients and is looking for ways to expand this method of

teaching to other chronic diseases such as diabetes, hypertension and Chronic Obstructive

Pulmonary Disease (COPD). The clinic is also exploring skill-based teaching methods to

assist with smoking cessation.

Summary of Key Findings

The statistical and practical significance of pre- and post-intervention SCHFI

subscale scores suggested that the modules guided by the recommendations of

ACCF/AHA and HFSA would promote behavioral changes in self-care and self-efficacy,

which in turn, could reduce readmission rates at a later date. Important information about

readmission for patients with HF will not be collected until after the project has

concluded. The clinical question was as follows: Does a team leader-led evidence-based

HF education intervention that uses skill-based and problem-solving methods to promote

self-efficacy and self-care improve self-efficacy and self-care behaviors in patients with

HF? Results of this project support that there is a positive trend to satisfy this clinical question.

Theoretical Frameworks and Associated Findings

Several findings in this study impacted Orem's therapeutic self-care demands. Therapeutic self-care demand can be defined as all of the self-care measures that are needed to carry out the activities of self-care (Orem, 2001; Current Nursing, 2011).

The self-care demand measures that were found to be lacking in this population included (a) not having a scale for daily weight measuring, (b) computer access and computer knowledge, (c) the ability to afford food that is necessary for HF and weight loss, (d) reliable transportation, (e) stable living arrangements, and (f) consistent and available communication by phone.

Many patients in the study reported not having the resources to purchase a scale to measure their weight. For the patients larger than 350 pounds, it was not only financially infeasible, but there was a limited availability of scales for purchase locally that could accommodate greater than 350 pounds. Many reported not having access to a computer and lacked skills or resources required to navigate computer purchases.

Another demand on a self-care measure was that many participants in this study reported difficulty affording and having access to purchase low sodium food necessary to follow a low salt diet. The same was true for those who desired to lose weight and eat healthy meals. Patients reported limited resources especially toward the end of a paycheck period as well as reliable transportation to make regular purchases of these items. Transportation was a barrier for many to make regular appointment follow-ups. Some of the follow-ups for skill-based teaching required home visits for those without

transportation where the team leader went with the community health workers to provide the intervention.

Another measure that was lacking was having access to a stable living environment. For some, living conditions changed over the course of the study, which made access to follow up of the skill-based education intervention more challenging. Finally, although most patients had a phone, many worked off of pre-paid minute plans creating gaps in care and communication about follow-up sessions. These many demands on therapeutic self-care measures demonstrate a need for necessary resources for this population to achieve all the activities of self-care. Further evaluation of how to meet these lacking resources needs to be addressed to promote better health outcomes.

The confidence subscale of the SCHFI tool evaluated the patient's self-efficacy with HF. The four sources of self-efficacy as described by Bandura include (a) enactive mastery (performance outcome), (b) vicarious experience or self-modeling, (c) verbal persuasion or encouragement, and (d) physiological arousal or emotional state (Bandura, 1977, 1991). Mastery of the skills required for self-care and self-efficacy are acquired over time and with practice. This project was designed to create opportunities for mastery of skills. However, these activities could not be reinforced after the conclusion of the study. Visual info-graphics and live demonstration by the team leader provided a vicarious experience for the patients to improve self-efficacy. Verbal persuasion was embedded into the modules to encourage behavioral changes. The team leader tailored buy-in by incorporating individual circumstances to heighten emotional arousal that further motivated participants in the project. At post-intervention, confidence levels are higher, suggesting that self-efficacy increased.

Implications for Practice, Education, Policy, and Research

      Application to practice. This evidence-based multi-session teaching program is especially designed to incorporate the three domains: self-care maintenance, self-care management, and self-care confidence (Riegel & Dickson, 2008). The emphasis was on providing tactile learning opportunities and cognitive decision-making scenarios that aimed to promote a better adoption of self-care and self-efficacy behaviors. The approach to studying this problem was to determine if self-care and self-efficacy can be affected by tactile, cognitive teaching methods to assist patients in making necessary lifestyle changes for better clinical outcomes (Creswell & Planco Clark, 2011).

      Nurse leader role. Nurse navigators and community health workers could be trained to reinforce and practice the skills learned in these modules with patients to achieve a level of mastery that will ensure self-efficacy and self-care behaviors beyond what the provider can do in a typical clinic visit. The role of the nurse leader is to promote patient self-efficacy and self-care through methods that are tactile, cognitive, promote autonomy, and are mindful of health literacy needs. These same evidence-based skills need to be taught to the healthcare team so that continuity of care can be achieved.

      When working with a high-risk population such as the one in this project, there are many factors that the nurse leader must consider when trying to achieve a successful self-care teaching program. The nurse leader needs to assess the many potential barriers to patients achieving self-care. This includes timely access to specialty care, affording basic care equipment such as a blood pressure cuff or bathroom scale, and having reliable transportation to medical appointments. The nurse leader needs to engage the whole

healthcare team to come together to find creative ways to meet the self-care needs of the patients they serve.

Education. Orem's self-care deficit theory is used in many nursing programs and is a part of many nursing curriculums on all levels from bachelors to doctorate. It is important to continue teaching students that achieving self-care care behaviors in patients is supported by the literature and a key evidence-based practice that needs to be part of the therapeutic relationship.

Policy. Policy needs to be developed to have this type of teaching be billable by the clinic to acquire CMS reimbursement specifically for heart failure patients as well as other chronic diseases. Federally Qualified Health Centers such as this clinic that serve the homeless, uninsured, and underserved in the community also need to be covered for reimbursement of services for on-going teaching to patients under the Chronic Care Management services already established.

Research. Currently the SCHFI tool is being validated in other languages as well as the cultural context. Future research should include non-English speaking participants in the study utilizing certified interpreters. More in-depth research is needed for each module. This could be achieved by breaking down the whole teaching project by modules and then individually studying each module. This can be better designed by breaking down the modules for individual study and adding more direct measures to monitor patient outcomes. Direct measures are better at determining the effectiveness of skill-based teaching and will better evaluate if the skills needed for self-care and self-efficacy are learned. Future studies also need to evaluate the role of the community health worker and nurse navigator to continue to reinforce the self-care skills. Community health

workers and nurse navigators can assist patients in mastering the skills necessary to manage their HF symptoms that are first taught by the provider.

Limitations

This is a pilot study performed on a small sample at a single site. Therefore, the results are not generalizable. The specific population in this study presents with very limited resources, transient living conditions, lower health literacy, higher unemployment, limited access to transportation, and limited access to timely specialty care which creates greater challenges to compliance with a heart failure self-care self-efficacy plan.

Indirect measures as a limitation. Since this was a self-reported tool, this reflects the indirect measures of self-care and self-efficacy under study. As such, the conclusions do not reflect true self-care and self-efficacy of the patients, only what the patient reported about their self-care behaviors. Because the behaviors could not be observed, only demonstrations by the team leader and teach-back from the patient, this project is considered an indirect evaluation of self-care and self-efficacy.

Demographic limitations. The demographic information that was not controlled for in this study included weight, literacy level, co-morbidities, and smoking and alcohol use. The order in which the modules were experienced was a choice of the participant and may have practice effect. It was beyond the scope of this project to evaluate how long a patient had been diagnosed with HF. This may have an impact on how well they were able to achieve higher levels of self-care and self-efficacy. Due to time and logistical constraints, a longer period is needed to evaluate the retention of module content.

Bias. The team leader was the only educator in this project which could create a pedagogical variation among future studies. Patients who do not speak English were not included because a certified translator was not available. Patients who do not have updated phone minutes or working phone numbers, or have relatives or agencies that relay messages to them created a limitation in being part of the study. This became problematic to follow patients, and several were lost to follow up in the study because they could not be reached by phone and did not return to the clinic for follow up as scheduled. Patients who could not afford a scale to check their weight daily were not able to score higher on the post-intervention assessment questions that related to weighing daily due to lack of resources. Patients who had reliable transportation were able to come to the clinic more often for weighing and follow-up sessions, which created a limitation to those without reliable transportation (see Exclusion Criteria).

Reliability and validity. The other two subscales, maintenance and confidence, were fairly internally consistent. The pre-post intervention Cronbach's alphas for maintenance were .68 and .66, which is slightly less than the conventional .7 cut-off value. On the other hand, the pre-post intervention Cronbach's alphas for confidence were .78 and .90, which suggest that the items within the confidence subscales are highly internally consistent. For the management subscale, when the Cronbach's alphas were evaluated, the internal consistency of the management subscale decreased in the post-intervention from .61 to .37. This may be due to the small sample size. Therefore, reliability for this subscale is questionable and may not be as useful as the other two subscales. Other research using this tool has shown that the management section had higher levels of internal consistency (Riegel, Lee, Dickson, & Carlson, 2009).

Patient experience. Since the design of the project was to allow the patients to choose the starting point of the teaching intervention based on their preference, it is not known if teaching the modules 1-7 out of order has any effect on the how the patients retain or use the knowledge gained in the project. Further study is needed in this area to determine these effects of teaching order and differing patient experience. Some patients required the team leader to read the SCHFI assessment, and others were able to complete the tool on their own. This may have influenced how the questions were answered due to different assessment experiences.

Content Mapping

The project was designed to align each teaching point from each module with a question on the SCHFI assessment. Care was taken to select a tool that would measure self-care and self-efficacy in patients with HF and demonstrate that the teaching modules impacted the self-care knowledge of patients with HF. The table mapping of each module with the items can be found in Appendix W. The results from the content mapping can also be found in Appendix W. The rationale for content mapping provides justification for what is possibly evidence that the intervention worked as intended. After patients went through the modules in the project, the paired *t*-tests suggest there were changes in the patient's knowledge of self-care and self-efficacy in a positive direction. The confidence intervals (CI) represent the lower and upper limits of the mean differences in each of the modules taught. The content mapping was found to have statistical significance as zero is outside the CI bounds in several modules. Statistical significance was found in Module 1 (Heart failure: What is it?), Module 2 (Signs and symptoms of heart failure), Module 3 (Medications) and Module 7 (Fluid and Weight Monitoring).

Modules 4 (Risk factors that can be controlled), 5 (Diet and Salt) and 6 (Staying fit) were

not found to be significant in the CI. This may be attributed to fewer items that align to

the SCHFI in each of these module sections. For the future, more items need to be added

to the tool to evaluate these three areas to reduce measurement error and give more input

to evaluate the effectiveness of the skill-based teaching methods.

Dissemination

The project results will be disseminated to the providers and staff of the clinic that

serves the homeless, uninsured, and underserved in the community. The team leader has

already sought opportunities to disseminate the results of the project to key stakeholders

at the hospital, other clinics in the hospital system, and the heart failure clinic (September

14, 2017). The results of this project will be displayed in a poster presentation for

participation in Virginia Council of Nurse Practitioners on March 9-11, 2018. The

primary journal that will be sought for publication is the Journal of Cardiovascular

Nursing. One of the chief editors of this journal is Dr. Riegel, the author of the SCHFI

tool. Online dissemination including the American Association of Nurse Practitioners

(AANP) Smart briefs will be utilized. The project will be submitted to Liberty

University's Digital Commons, which is directly linked to Google Scholar.

Conclusion

The positive outcomes from this project support that this type of teaching method

is meaningful and useful in promoting self-care and self-efficacy in patients with heart

failure. By allowing the patient to choose the health topic that is most important to them,

a meaningful experience is created, which promotes changes in behavior that will affect

better health outcomes. Through individualizing the teaching sessions, the focus was on

the skills the patient wanted to master for developing his or her own self-care and self-efficacy. The sustainability of cognitive teaching methods at this project site is already being explored for other chronic disease processes. Community health workers could be trained to reinforce and practice the skills learned in these modules. Providers can deliver the initial skill-based teaching with patients, and the community health workers and nurse navigators can help patients to achieve a level of mastery that will increase self-efficacy and self-care behaviors and improve health outcomes. The fall 2017 readmission data will assist the project site in determining the long-term effects of this method of teaching with HF patients. Having data from the nurse navigators for the HF hospital readmissions prior to the beginning of the study impacted how the modules were designed to include teaching points on medication, infection, and supportive care. With the cyclical surge of HF admissions in the fall, it will be interesting to see if those topics included in the teaching modules sufficiently addressed the problems identified for avoidable readmissions. The hope is that the positive results from this study will decrease avoidable HF readmissions this fall in this very challenging population. One new and important discovery from this project is that even with limited resources, by gaining skills that promote self-care and self-efficacy that are meaningful to them, patients feel that they are better able to manage and understand their heart failure symptoms.

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Appendix A

Skills needed by patients to perform heart failure self-care
(Dickson & Riegel, 2009, p. 257)

Self-care category	Specific skills needed by patients
Maintenance	How to obtain a reliable measure of body weight that can be compared over time
	How to assess one's own ankles for swelling, taking into account the patient's flexibility, body weight, age, blood pressure, and availability of assistance
	How to assess one's fatigue or shortness of breath
	How to read food labels
	How to compensate for coveted high-salt foods in the diet
	How to prepare low-salt foods (note: substitution, portions, alternative cooking methods)
	How to follow a fluid restriction
	How to build a program of physical activity
	How to decide when to forego physical activity based on signs and symptoms
	How to avoid getting ill
	How to talk to your provider
	How to compensate if a medication dose is missed
	How to order low-salt foods in a restaurant
	How to manage a complex medication regimen
Management	How to differentiate HF symptoms from those of other illnesses (specific to a patient's other illnesses)
	To judge how much liquid to drink on a given day, based on the ambient temperature
	How to decide whether or not to take an extra diuretic dose
	How to know if the treatment was effective

Appendix B

For levels of evidence used for this project refer to the levels of evidence in this

reference:

Yancy, C. W., Jessup, M. Bozkurt, B., Masoudi, F. A., Butler, J., Casey, D. E.,

…Wilkoff, B. L. (2013). 2013 ACCF/AHA guideline for the management of heart

failure. *Journal of the American College of Cardiology.*

doi:10.1016/j.jacc.2013.05019

Appendix C

Heart Failure Skill Education Topics. For the visual handout please contact the author.

Heart Failure: What is it?

Patients and caregivers can link heart failure symptoms to health status.

M 1.1 Recall in your own words the definition of heart failure.

Heart failure is when the heart can't pump blood through the body very well.

As the heart pump gets weaker, blood backs up into the lungs leaking fluid into

the lungs.

The fluid build-up makes it hard to breathe.

If the heart pumps normal there still can be pressure build up in the heart

Pressure build up can cause shortness of breath too.

Many people have swollen feet and legs with heart failure (HFSA Module 1).

M 1.2 Recall in your own words the possible causes of your heart failure.

Heart attack

High blood pressure

Heart infection

Lung disease

Diabetes

Heart valve problems

Blocked vessels in the heart (coronary arteries)

Long term alcohol use

Hereditary and other conditions you describe

Signs and Symptoms of Heart Failure

M 2.1 Recognize when HF symptoms increase and recall possible actions to manage HF

symptoms (HFS Module 4).

M 2.2 Recall specific symptoms:

Increasing Shortness of breath p. 17, 18

Increasing Ankle edema p.22

Increasing Fatigue p. 27

Shortness of breath at rest

Shortness of breath at night

Shortness of breath when lying down

M 2.3 Skill: Assess one's fatigue or shortness of breath:

Using the information on page 20 and 21 in HFS Module 4 to track symptoms.

Using page p. 24, 25 and use ▬▬▬ calendar to record weight and swelling.

M 2.4 Identify one's own ankles for swelling.

Categorize the pictures of ankle swelling with the correct level of edema (Normal,

mild swelling and pitting edema)

M 2.5 Correctly differentiate the three provided scenarios using the Red, Yellow, and

Green "In the Zone" chart provided by ▬▬▬ and give the proper zone for the

scenario described.

Yellow zone scenario

"Looking over your weight chart, you have gained 3 pounds this week. You notice that you are coughing more during the day. Your coughing is worse at night. You are using one more pillow at night because of the coughing and getting short of breath. You are using your slippers because your shoes are uncomfortable. What zone are you in? Red? Yellow? Green?"

Green zone scenario

"This week your weight has only gone up or down 1-2 pounds. You can wear your regular shoes most days. You can do your daily activities as you usually do, if you don't overdo. There has been no chest pain. What zone are you in? Red? Yellow? Green?"

Red zone scenario

"You can't remember simple things. Even doing your daily activities wears you out. You need to sit down more than usual. You feel more tired than usual. You can't catch your breath even when sitting. Your chest feels full. Sometimes it is tight when trying to breath. What zone are you in? Red? Yellow? Green?"

M 2.6 Verbalize the importance of keeping your nurse or doctor appointment.

Medications

M 3.1 Create a card detailing the name, dose and purpose of their medication. The card

will contain the following information for all of their medications (HFSA Module

3, page 29):

Name:

Dose:

Purpose of medication:

M 3.2 Recall dosing schedule.

M 3.3 Recall reason for taking medication.

M 3.4 Describe what to do if a dose is missed (HFSA Module 4, p. 10).

M 3.5 Verbalize the plan detailing the steps for refilling medications.

M 3.6 Verbalize the conditions for taking an extra water pill.

M 3.7 Identify their preferred method of sorting medication for administration.

M 3.8 Describe how to use a pill box or sorting method for pill administration will be

used.

Risk factors that can be controlled

Modify risk factors:

M 4.1 Verbalize their willingness and rationale to adhere or not adhere to a

smoking cessation process at every visit.

M 4.2 State their target blood pressure.

M 4.3 Describe the necessary actions to achieve the target blood pressure goal.

M 4.4 State their target Hg A1C values if diabetic.

M 4.5 Describe the necessary actions to achieve the target HgA1c values if

    diabetic.

M 4.6 State their target healthy body weight in BMI u nits.

M 4.7 Describe the necessary actions to achieve the target BMI.

M 4.8 State the actions necessary to avoid getting ill.

    Avoid sick contacts

    Get Flu shot and pnumovac

    Wash hands

    Get plenty of rest

Diet and Salt

M 5.1 Sort foods into high- and low-sodium categories based nutrition label.

M 5.2 Verbalize the importance of choosing a low-sodium content food.

M 5.3 Verbalize elements of a low sodium diet:

M 5.4 Verbalize the coveted high-salt foods in their diet.

M 5.5 Verbalize the compensatory strategies to account for their coveted high-salt food.

M 5.6 Reduction in portion of coveted high-salt food.

M 5.7 Reduction in frequency of coveted high-salt food.

M 5.8 If patient consumes alcohol, they will state the alcohol limits (Page 27 Module 4)

M 5.9 State the interaction and the consequences with consuming alcohol with current

medications.

M 5.10 List healthy food choices:

> When on limited a budget

> When in their favorite restaurant

> When visiting others

M 5.11 Verbalize ways to order low-salt foods in their favorite restaurant

> Dressing on side.

> Food without high salt sauces or sauces on the side.

> Asking their server for low-sodium choices.

M 5.12 Verbalize methods of low salt cooking at home

> Substitution

> Portions

> Alternative cooking methods

Staying fit

M 6.1 Verbalize ways to be more active from USDA Eat Smart, Live Strong Activity Kit.

M 6.2 Write out a weekly exercise plan on a calendar to participate in regular activity.

M 6.3 Verbalize when to forego physical activity based on signs and symptoms.

Fluid and Weight Monitoring

M 7.1 Perform daily weights and record on chart provided according to HFSA Module 4

  page 22.

M 7.2 List the actions to do for volume overload.

M 7.3 Describe the situation when it is necessary to take an extra diuretic dose.

M 7.4 Articulate how you know if a treatment was effective.

M 7.5 Describe how to obtain a reliable measure of body weight that can be compared

  over time.

M 7.6 List specific fluid restriction actions in HFSA Module 4 page 23.

M 7.7 Calculate how much liquid to drink on a given day, based on the ambient

   temperature.

Appendix D

Info graph created to have a visual for teaching Module 7 (Heart failure Matters, 2017; Heart Failure Society of America, 2014; Web MD, 2017). Please contact the author for this handout.

Appendix E

Info graph used for Module 1 teaching points (American College of Cardiology, 2017).

Access this info graph at: CardioSmart.org/HeartFailure

Reference

American College of Cardiology. (2017). *What is heart failure?* [Info graph]. Retrieved from

https://www.cardiosmart.org/Heart-Conditions/Heart-Failure

Appendix F

This is the permission to use the updated Iowa model for this project:

Reference

University of Iowa Hospitals and Clinics. (2015). *Iowa model revised: Evidence-based*

practice to promote excellence in health care. Retrieved from

https://uihc.org/nursing-research-and-evidence-based-practice

Appendix G

CITI training Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details.
See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Helen Parke
- **Email:**
- **Institution Affiliation:** Liberty University
- **Institution Unit:** DNP program (Nursing)
- **Phone:**

- **Curriculum Group:** Human subject - Basic
- **Course Learner Group:** Nursing
- **Stage:** Stage 1 - Basic Course
- **Description:** This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

- **Report ID:**
- **Completion Date:** 07-Oct-2015
- **Expiration Date:** 06-Oct-2018
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	26-Jun-2015	5/5 (100%)
Liberty University (ID: 15111)	02-Oct-2014	No Quiz
Belmont Report and CITI Course Introduction (ID: 1127)	02-Oct-2014	3/3 (100%)
Students in Research (ID: 1321)	21-Sep-2015	10/10 (100%)
History and Ethical Principles - SBE (ID: 490)	02-Oct-2014	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	26-Jun-2015	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	26-Jun-2015	5/5 (100%)
Assessing Risk - SBE (ID: 503)	27-Jun-2015	5/5 (100%)
Informed Consent - SBE (ID: 504)	27-Jun-2015	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	27-Jun-2015	5/5 (100%)
Records-Based Research (ID: 5)	22-Sep-2015	3/3 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	22-Sep-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	22-Sep-2015	4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	23-Sep-2015	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	23-Sep-2015	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	07-Oct-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	07-Oct-2015	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	07-Oct-2015	5/5 (100%)
Cultural Competence in Research (ID: 15166)	07-Oct-2015	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?fcee6442-5a6c-42ec-8749-a20326a86e91

CITI Program
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:**
- **Email:**
- **Institution Affiliation:**
- **Institution Unit:** DNP program (Nursing)
- **Phone:**

- **Curriculum Group:** Human subject - Basic
- **Course Learner Group:** Nursing
- **Stage:** Stage 1 - Basic Course
- **Description:** This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

- **Report ID:**
- **Report Date:** 29-Sep-2016
- **Current Score**:** 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Students in Research (ID: 1321)	21-Sep-2015	10/10 (100%)
Liberty University (ID: 15111)	02-Oct-2014	No Quiz
History and Ethical Principles - SBE (ID: 490)	02-Oct-2014	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	26-Jun-2015	5/5 (100%)
Belmont Report and CITI Course Introduction (ID: 1127)	02-Oct-2014	3/3 (100%)
Records-Based Research (ID: 5)	22-Sep-2015	3/3 (100%)
The Federal Regulations - SBE (ID: 502)	26-Jun-2015	5/5 (100%)
Assessing Risk - SBE (ID: 503)	27-Jun-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	22-Sep-2015	4/4 (100%)
Informed Consent - SBE (ID: 504)	27-Jun-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	23-Sep-2015	3/3 (100%)
Privacy and Confidentiality - SBE (ID: 505)	27-Jun-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	23-Sep-2015	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	07-Oct-2015	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	07-Oct-2015	4/4 (100%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	26-Jun-2015	5/5 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	07-Oct-2015	5/5 (100%)
Cultural Competence in Research (ID: 15166)	07-Oct-2015	5/5 (100%)
Avoiding Group Harms - International Research Perspectives (ID: 14081)	21-Sep-2015	3/3 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	22-Sep-2015	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?fcee6442-5a6c-42ec-8749-a20326a86e91

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix H

Liberty University Institutional Review Board exemption letter (2017).

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

April 14, 2017

Helen Parke
IRB Application 2841: Educational Intervention to Improve Self-Efficacy and Self-Care in Heart Failure Patients

Dear Helen Parke,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because evidence-based practice projects are considered quality improvement activities, which are not considered "research" according to 45 CFR 46.102(d).

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

Administrative Chair of Institutional Research
The Graduate School

LIBERTY
UNIVERSITY.
Liberty University | Training Champions for Christ since 1971

Appendix I

Informed consent form for the Educational Intervention to Improve Self-care and Self-

efficacy in Heart Failure Patients.

CONSENT FORM
Educational Intervention to Improve Self-Efficacy and Self-Care in Heart Failure Patients
Helen Parke
Liberty University
Doctor of Nursing Practice Program, School of Nursing

You are invited to be in a research study of improving your self-care for heart failure management. You were selected as a possible participant because you have been recently diagnosed with heart failure or have been hospitalized for heart failure. Please read this form and ask any questions you may have before agreeing to be in the study.

Helen Parke, a doctoral candidate in the Doctor of Nursing Practice Program School of Nursing at Liberty University, is conducting this study.

Background Information: The purpose of this study is to teach patients with heart failure the skills and problem solving to better identify and manage their heart failure symptoms. The goal is to improve self-care through mastering important disease management skills.

Procedures: If you agree to be in this study, I would ask you to do the following things:
1. I will first give you an explanation of the seven heart failure teaching sessions covering seven different topics you can learn about self-care and heart failure. This will take two minutes. There will be no audio or video recordings made in any of the sessions.
2. You will answer some questions about your current heart failure self-care skills. This is to see how you are currently caring for your heart failure. This will take five minutes. No Audio or video will be taken.
3. I will give more explanation on the seven topics you can choose from and you pick the topic that is most interesting or useful to you. This will take three minutes. No Audio or video will be taken.
4. I will provide you with hands-on learning and activities to help you with your heart failure self-care on the topic you choose. This will take five to fifteen minutes. No Audio or video will be taken.
5. After each teaching session, I will ask you to recall some of the things we talked about. This will take three to five minutes. No Audio or video will be taken.
6. Over 12 weeks, you will be offered your choice of teaching sessions at each provider follow-up visit. The goal is to have at least four of the seven teaching sessions in 12 weeks.
7. At the end of 12 weeks, at your normal follow-up appointment, you will be asked the same questions about your heart failure self-care skills. This will take five minutes. No Audio or video will be taken.

 Risks and Benefits of Participation: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

The direct benefits you should expect to receive from taking part in this study are improving your self-care skills for managing heart failure. You will be learning ways to keep yourself healthy and out of the hospital. The goal will be to manage your symptoms of heart failure at home.

Benefits to society include learning ways we can help other chronic diseases, not just heart failure, manage themselves through learning self-care skills.

You should not expect to receive a direct benefit simply from answering the questions in the first and last session, however, you may receive a direct benefit if you learn a new skill in the sessions or if you participate in the learning activities in each of the sessions.

Compensation: Participants will not be compensated for participating in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely with special encrypting software, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.

I will conduct the questions in a location (exam room) where others will not easily overhear the conversation. White noise machines are used in the clinic so that others cannot hear our discussion. The data collected will not relate be related to you the participant. The data will be protected on secure systems and all data collected will be destroyed after 3 years as required by Federal law.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or the Community clinic. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study:
If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Helen Parke, MSN, RN. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at ████████████████████████████████████ ████████████████████ faculty advisor ████████████████████████████

If you have any questions or concerns regarding this study and would like to talk to someone other than the researchers, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

_____

Signature of Participant   Date

_____

Signature of Investigator   Date

Appendix J

████████ Institutional Review Board exemption from human subjects research (2017).

IRB

████████ Institutional Review Board

EXEMPT RESEARCH CHECKLIST
Version 4. 15NOV2016

EXEMPT

Centra IRB #: CH IRB 0363c   IRB of Record ___   _____   Date: Date: 5/5/17

Facility: ████████

Principal Investigator: Helen Parke, MSN, RN DNP/FNP student

████████

Title of Research Project/Study Title: Educational Intervention To Improve Self-Efficacy And

Self-Care In Heart Failure Patients

Attach documents related to the study.

Checklist Statements	True	Not True
Category 1 – For Educational Settings		
1. The research will only be conducted in established or commonly-accepted educational settings including but not limited to schools and colleges. (May include other sites where educational activities regularly occur.)	x	
2. The research will involve only normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.	x	
3. The research will not involve individuals as participants who are known to be prisoners.	x	
4. The research is not subject to FDA regulations.	x	
Category 2 – For Educational Tests, Surveys, Interviews, Public Behavior Observation:		
5. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.	x	
Address statement 6 only if the research will involve children as participants. If children will NOT participate, check N/A and continue with statement 7. 6. The procedures will be limited to the use of educational tests (cognitive, diagnostic, aptitude, achievement) or observation of public behavior where the investigator will NOT participate in the activities being observed.	N/A	
7. The information obtained from educational tests, survey procedures, interview procedures or observation of public behavior will be recorded in such a manner that human subjects CANNOT be identified, directly or through identifiers linked to the subjects. *"True" to either statement 7 or 8 will qualify for exemption provided that statements 9 and 10 are true.*	x	
8. Any disclosure of the human subjects' responses outside the research could NOT reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.	x	
9. The research will not involve individuals as participants who are known to be	x	

████ Health IRB EXEMPT RESEARCH CHECKLIST Version 4, 15NOV2016   Page 1 of 3

prisoners.		
10. The research is not subject to FDA regulations.	x	
Category 3 – For Educational Tests, Surveys, Interviews, Public Behavior Observation of Public Officials:		
11. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior AND the human subjects are elected or appointed public officials or candidates for public office. (Applies to senior officials such as mayor or school superintendent rather than a police officer or teacher.) *"True" to either statement 11 or 12 will qualify for exemption provided that statements 13 and 14 are true.*	N/A	
12. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior AND federal statute(s) require without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.	x	
13. The research will not involve individuals as participants who are known to be prisoners.	x	
14. The research is not subject to FDA regulations.	x	
Category 4 – For Existing Data, Documents and Specimens:		
15. The research will involve only the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens. ("Existing" means existing before the research is proposed to the IRB to determine whether the research is exempt. All materials to be reviewed currently exist at the time of this exemption request.)		x
16. The sources of the existing data, documents, records or specimens are publicly available **OR** the information will be recorded by the investigator in such a manner that participants cannot be readily identified either directly or through identifiers (such as a code) linked to them.	x	
17. The research will not involve individuals as participants who are known to be prisoners.	x	
18. The research is not subject to FDA regulations.	x	
Category 5 – For Public Benefit or Service Programs (Federal):		
19. The project is a research or demonstration project conducted by or subject to the approval of a (federal) Department or Agency head and which is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those public benefit or service programs.		x
20. The research will not involve individuals as participants who are known to be prisoners.	x	
21. The research is not subject to FDA regulations.	x	
22. The program under study delivers a public benefit (e.g., financial or medical benefits as provided under the Social Security Act) or service (e.g., social, supportive, or nutrition services as provided under the Older Americans Act).	x	
23. The research or demonstration project will be conducted pursuant to specific federal statutory authority.		x
24. There is no statutory requirement that the project be reviewed by an IRB.	x	
25. The project does not involve significant physical invasions or intrusions upon the privacy of participants.	x	
26. The exemption has authorization or concurrence by the funding agency.	N/A	
Category 6 – For Taste and Food Quality and Consumer Acceptance Studies:		
27. The research involved only a taste and food quality evaluations or a food consumer acceptance study in which (i) wholesome foods without additives will	N/A	

be consumed **OR** (ii) food will be consumed that contains a food ingredient, agricultural chemical or environmental contaminant that is at or below the level found to be safe by the Food and Drug Administration or is approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.		
28. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	x	
Emergency Use of an Unapproved Test Article (i.e., a drug, device or biologic that is not FDA-Approved)		
The activity involves emergency use of an investigational drug, device or biologic. Such an activity is not exempt from IRB review. However, this emergency use may occur prior to IRB review and approval (see Category A and B in the Emergency Use Policy for details.) Note that such an emergency use must be reported to the IRB within five business days.		x
The activity does not meet with DHHS definition of "research."	x	
Criteria that must be met for the research to be determined to be consistent with IRB ethical standards		
The research holds out no more than minimal risk to subjects.	x	
Selection of subjects is equitable.	x	
If there is recording of identifiable information, there are adequate provisions to maintain the confidentiality of the data.	x	
If there are interactions with subjects: There will be a consent process (and maybe some type of documentation) that will disclose such information as: • That the activities involve research. • The procedures to be performed. • That participation is voluntary. • Name and contact information for the investigator.	N/A	
There are adequate provisions to maintain the privacy interests of subjects.	x	

Signature of Principal Investigator: ____Helen Parke_____
        Typing my name on the line above constitutes an electronic signature.

Printed Name _____Helen
Parke_____

Date __April 10, 2017_____

FOR THE IRB REVIEWER ONLY:

Is the activity exempt? YES [✓] NO [ ]

Does the research meet the standards of ethical conduct? YES [✓] NO [ ]

Which exemption category or categories apply to the activity? _____

Approved by IRB Exempt Committee (date):   5/5/2012 _____

Signature of IRB Reviewer ███████████████████_____
        Typing my name on the line above constitutes an electronic signature.

███ Health IRB <u>EXEMPT RESEARCH CHECKLIST</u> Version 4, 15NOV2016   Page 3 of 3

Printed Name ████████████

Date 5/5/17

Appendix K

Letter of Support for Implementation of the project.

01/31/2017

Attention: IRB

████████████████████████

IRB Members:

The ██████████████████████████████ is pleased to support Mrs. Helen
Parke Doctor of Nursing Practice Scholarly Project: Outpatient Education for Patients
with Congestive Heart Failure.

███
Project Chair (Principal Investigator) and Mrs. Helen Parke, MSN, Liberty University
Doctor of Nursing Practice Student (Co-Investigator) have proposed to conduct Mrs.
Helen Parke Doctor of Nursing Practice Scholarly Project: Outpatient Education for
Patients with Congestive Heart Failure. The clinical portion of this proposal will take
place at the ██████████████████████████ as supervising clinician.

████████████████████████████ is committed to providing the most
advanced, comprehensive care for our patients, facilitated by the pursuit of quality
improvement. Mrs. Helen Parke Doctor of Nursing Practice Scholarly Project aligns with
our commitment that every patient receives the ultimate quality health care.

Please feel free to contact me if I can be of further assistance.

Appendix L

Self-care of Heart Failure Index v.6.2 (n.d. a).

Reference

Riegel, B. (n.d. a). *SCHFI V 6.2: English.* Retrieved from http://www.self-

careofheartfailureindex.com/?page_id=6

Appendix M

SCHFI V6.2 patient handout

Reference

Riegel, B. (n.d. a). *SCHFI V 6.2.* Retrieved from http://www.self-

careofheartfailureindex.com/?page_id=52

Appendix N

SCHFI tool public domain information (Riegel, n.d. a).

Reference

Riegel, B. (n.d. a). *SCHFI V 6.2: History.* Retrieved from http://www.self-

careofheartfailureindex.com/?page_id=52

Appendix O

Directions for Scoring the SCHFI tool (Riegel, n.d. b).

Reference

Riegel, B. (n.d. b). *SCHFI V 6.2: Directions and scoring*. Retrieved from

http://www.self-careofheartfailureindex.com/?page_id=49

Appendix P

This was a hospital created hand out entitled: "In the Zone for Heart Failure". It depicted red (serious), yellow (caution) and green (goal) heart failure zone descriptions and a calendar for recoding weights, blood pressure and color zone assessment for each day with goal weight at bottom of calendar.

Appendix Q

Activity kit handouts on exercise (USDA, 2012).

Reference

United States Department of Agriculture. (2012). *Eat smart, live strong activity kit.*

Retrieved from https://snaped.fns.usda.gov/resource-library/nutrition-education-
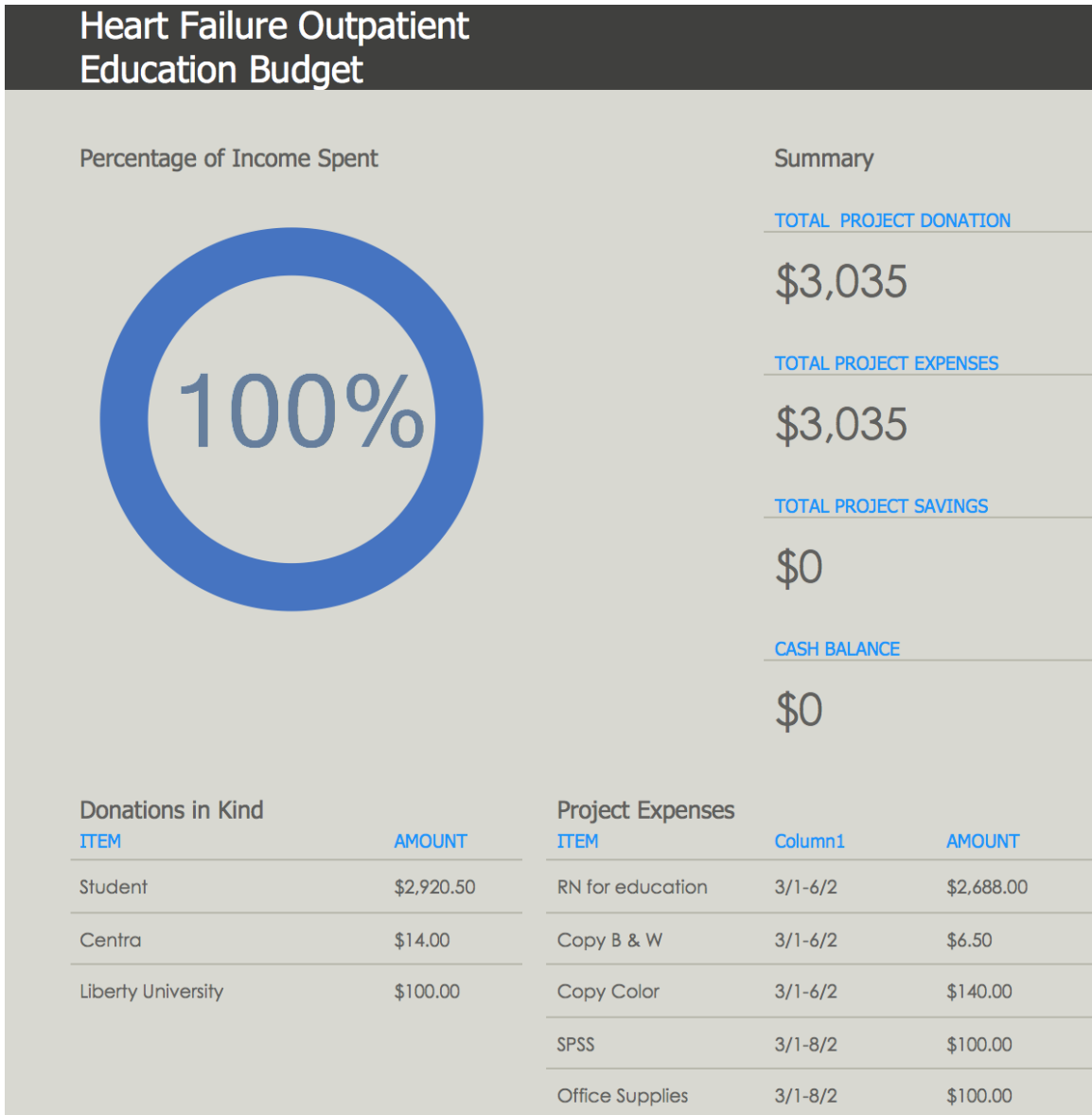
materials-fns/eat-smart-live-strong

Appendix R

Reading food labels and how to read a label (American Association of Heart Failure

Nurses, 2016).

Reference

American Association of Heart Failure Nurses. (2016). *Spices of life, healthy living with*

heart failure: Reading food labels. Retrieved from https://c.ymcdn.com/sites/

aahfn.site-ym.com/resource/resmgr/Docs/awareness/How-to-Read-a-Label.pdf

Appendix S

Budget for the Heart Failure Education Project.

Heart Failure Outpatient Education Budget

Percentage of Income Spent

100%

Summary

TOTAL PROJECT DONATION

$3,035

TOTAL PROJECT EXPENSES

$3,035

TOTAL PROJECT SAVINGS

$0

CASH BALANCE

$0

Donations in Kind

ITEM	AMOUNT
Student	$2,920.50
Centra	$14.00
Liberty University	$100.00

Project Expenses

ITEM	Column1	AMOUNT
RN for education	3/1-6/2	$2,688.00
Copy B & W	3/1-6/2	$6.50
Copy Color	3/1-6/2	$140.00
SPSS	3/1-8/2	$100.00
Office Supplies	3/1-8/2	$100.00

Appendix T

Buckholtz, R. (2016) ICD 10 Coding for Congestive Heart Failure (p. 1).

The ICD-10-CM code range for heart failure is I50.1-I50.9:

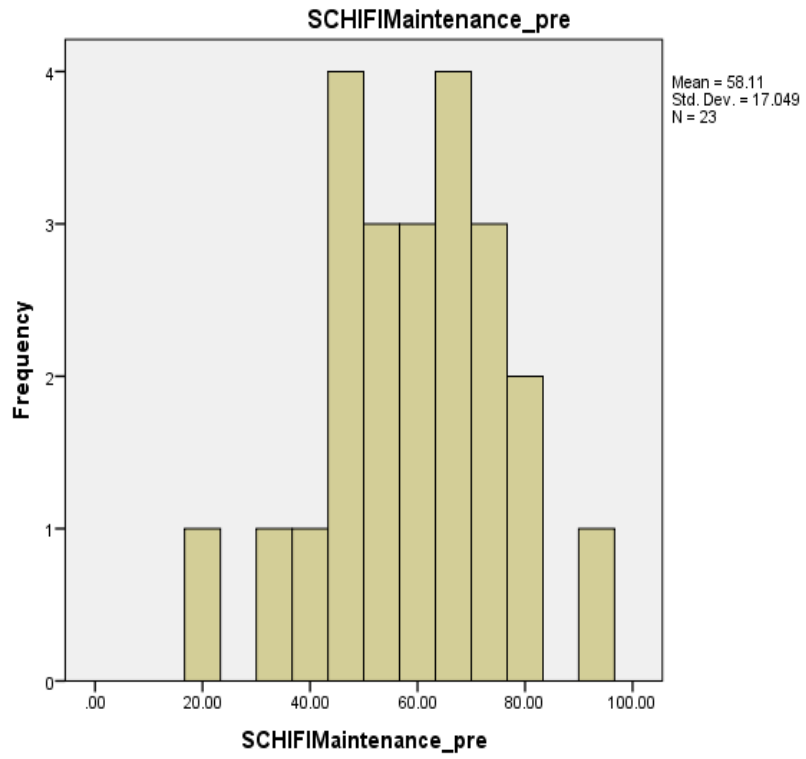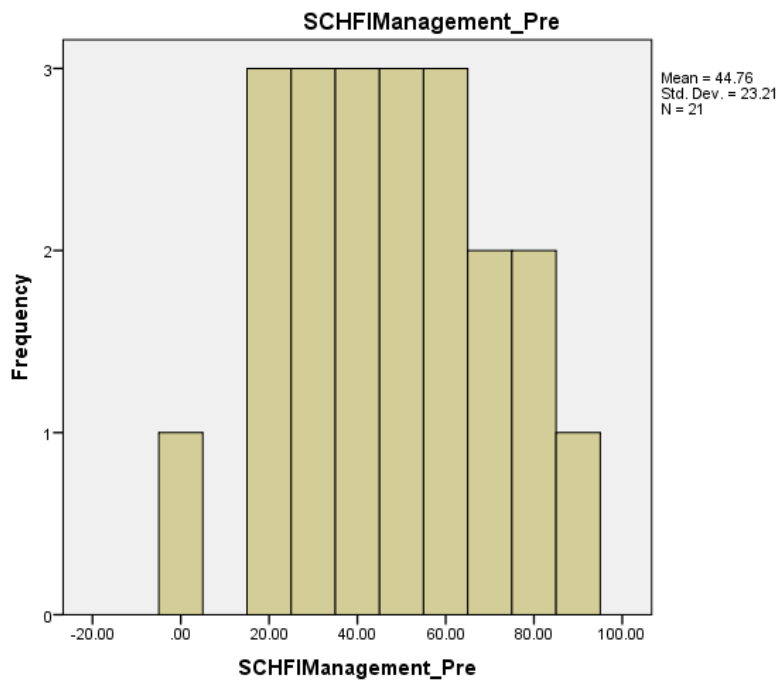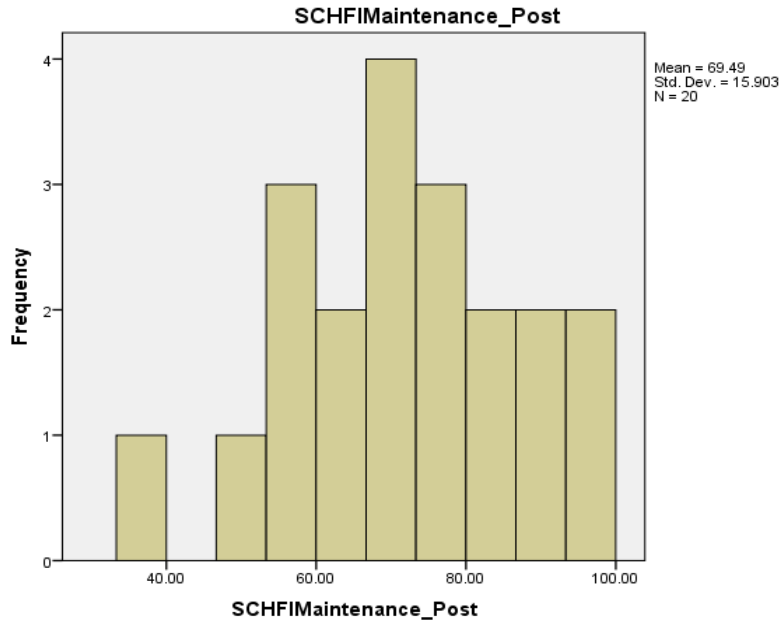|	
Left ventricular failure	I50.1
Unspecified systolic (congestive) heart failure	I50.20
Acute systolic (congestive) heart failure	I50.21
Chronic systolic (congestive) heart failure	I50.22
Acute on chronic systolic (congestive) heart failure	I50.23
Unspecified diastolic (congestive) heart failure	I50.30
Acute diastolic (congestive) heart failure	I50.31
Chronic diastolic (congestive) heart failure	I50.32
Acute on chronic diastolic (congestive) heart failure	I50.33
Unspecified combined systolic and diastolic (congestive) heart failure	I50.40
Acute combined systolic and diastolic (congestive) heart failure	I50.41
Chronic combined systolic and diastolic (congestive) heart failure	I50.42
Acute on chronic combined systolic and diastolic (congestive) heart failure	I50.43
Heart failure, unspecified	I50.9

The codes from category I50 for heart failure may or may not be first-listed depending, on instructional notes at the code level. There is an instructional note that states to code first any of the following conditions:
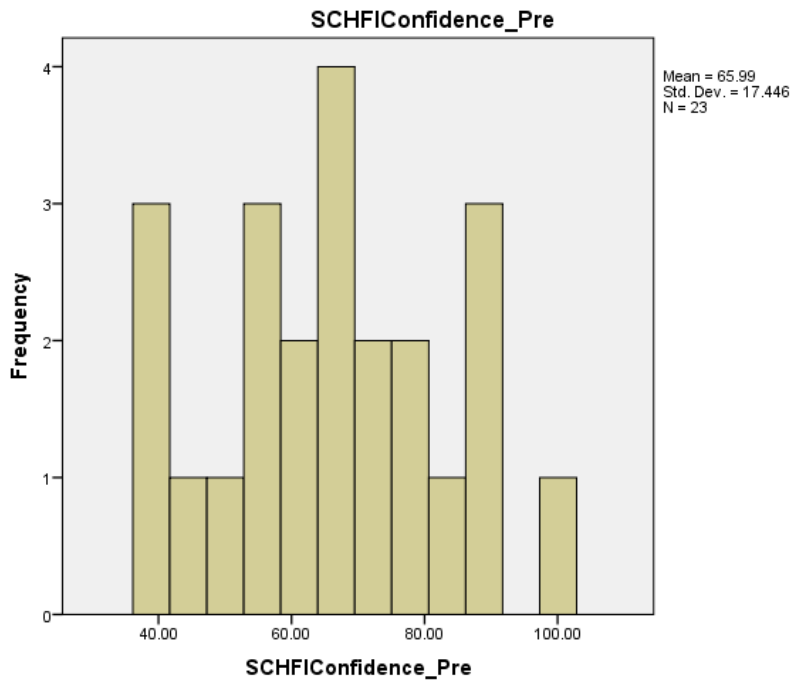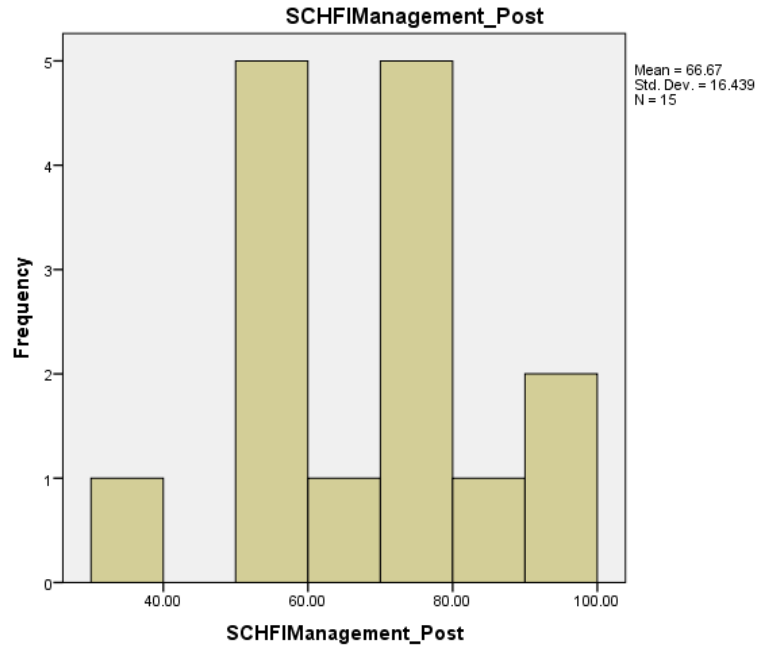
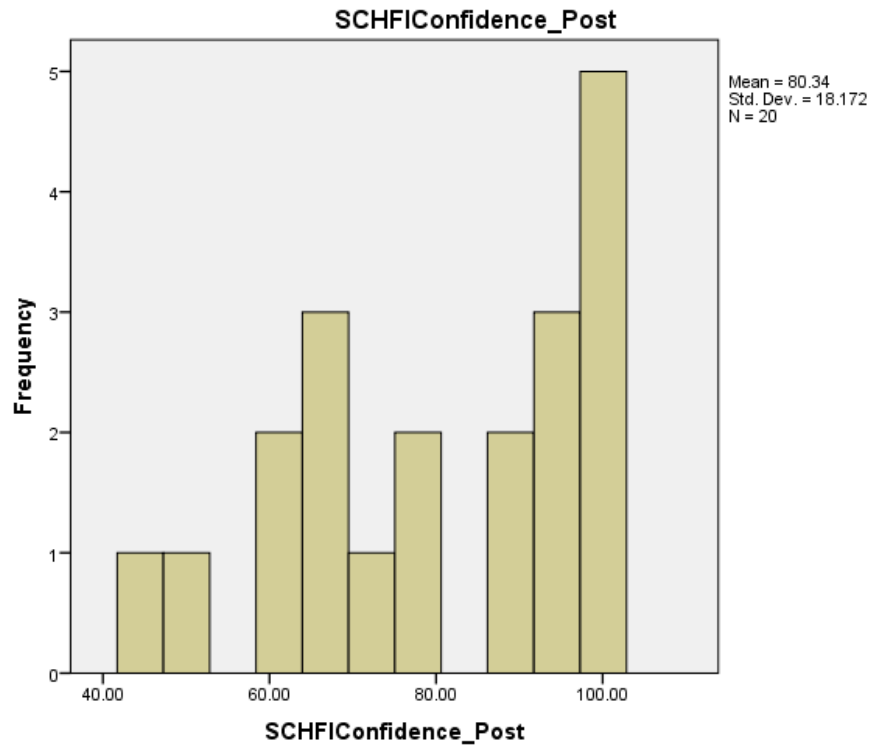|	
Heart failure following surgery	I97.13-
Heart failure due to hypertension	I11.0
Heart failure due to hypertension with chronic kidney disease	I13.-
Rheumatic heart failure	I09.81

Appendix U

Histograms showing the results of the pre and post-intervention using the SCHFI tool in all three domains: Maintenance, Management, and Confidence.

SCHFIMaintenance_Post

Mean = 69.49
Std. Dev. = 15.903
N = 20

SCHFIManagement_Pre

Mean = 44.76
Std. Dev. = 23.21
N = 21

SCHFIManagement_Post

Mean = 66.67
Std. Dev. = 16.439
N = 15

SCHFIConfidence_Pre

Mean = 65.99
Std. Dev. = 17.446
N = 23

Appendix V

██████████ (2017). Care Transitions department data report for acute myocardial infarction, HF, COPD, pneumonia, and stroke utilization and readmissions. Local data for HF readmissions and avoidable causes.

Appendix W

Component mapping of Modules 1 through 7 with the SCHFI tool.

Table 3

Component Mapping

Modules	SCHFI Items
Heart failure (M1)	5, 11, 12, 15, 17, 18, 19, 20, 21, 22
Signs and Symptoms (M2)	2, 11, 17, 19, 20, 21, 22
Medications (M3)	8, 10, 14, 15, 22
Risk factors that can be controlled (M4)	3, 5
Diet and Salt (M5)	6, 9, 12
Staying Fit (M6)	4, 7
Fluid and Weight (M7)	1, 2, 13, 14, 17, 18, 19, 20, 21, 22

Table 4

Module-SCHIFI Mapping Pre-Post Intervention Paired-t Test

	Mean Differences	SD	t	df	p
M1	-5.67	4.69	-4.68	14	<.001
M2	-4.07	3.97	-3.97	14	<.001
M3	-1.53	2.45	-2.43	14	0.03
M4	-0.65	1.39	-2.10	19	0.05
M5	-0.60	2.10	-1.11	14	0.29
M6	-0.85	2.41	-1.58	19	0.13
M7	-5.20	5.14	-3.92	14	<.001