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Nurses' Knowledge of Heart Failure Education Topics at a Regional Midwestern Hospital

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by

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Abstract

The purpose of this capstone project was to better understand Registered Nurses' knowledge level of commonly taught heart failure education topics. Heart failure is a large reason for hospital readmissions, and subsequently, a major contributor to rising health care costs. Research for this project was completed at a Regional Midwestern hospital using a questionnaire consisting of 20 knowledge questions. Registered nurses working on three separate units with high volumes of heart failure patients were invited to participate. Sixty-nine nurses responded to the survey and obtained an average score of 16.67 out of a possible 20, or 83%. Nurses work in a culture where information is at their fingertips; however, this score indicates a possible identified learning need. Meeting the learning needs of nurses will advance their teaching competence, ultimately improving outcomes for patients.

Chapter 1 – Introduction

Heart failure is a condition that affects roughly 5.7 million Americans annually

and results in about 300,000 deaths each year according to the National Heart, Blood and

Lung Institute (U.S. Department of Health and Human Services, 2010). Despite

advances in medical technology, the number of patients with heart failure dying each year

is steadily increasing (Hunt et al., 2009, p.6). In fact, hospitalization due to heart failure

has been cited as a predictor of shortened survival in patients diagnosed with heart failure

(Jessup et al., 2009, p. 27). After a patient with heart failure experiences a hospital

admission, the rate of readmission for this patient is nearly 50% at the 6-month mark,

with an estimated 25% to 35% incidence of death at the 12-month mark (Hunt et al.,

2009, p. 48).   Clearly these numbers indicate a need for medical and nursing staff to

demonstrate the importance of providing the highest quality of care possible to ensure the

best quality of life for these patients with heart failure.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

and American Heart Association (AHA)/American College of Cardiology (ACC) have

developed guidelines for the care of the patient with heart failure, which can be applied to

the heart failure patient at both the inpatient and outpatient level. One particular

guideline emphasized strongly by both the Joint Commission and the AHA/ACC is the

process of providing heart failure education to patients prior to discharge from the

hospital (Hunt et al., 2009). Most often, the primary provider of this information is the

registered nurse (RN), who verbally reviews this information with the patient and family

prior to discharge, as well as providing a written copy. Lack of adherence to these

guidelines is often cited as a reason for hospital readmission of the heart failure patient;

however, noncompliance has also been attributed to a lack of patient understanding of the

provided information (Jessup et al., 2009, p. 21). For patients to be successful in their

home management of heart failure, they need to be well-educated on various aspects of

heart failure so that they may effectively manage their disease in their home environment.

Additionally, for quality education to be provided to patients, it is integral that RNs

teaching heart failure education also display competence in understanding these key

teaching points.

   This chapter focuses on the importance of ensuring that nurses understand the

guidance they impart to patients about their heart failure management, as well as

exploring the overarching purpose of this research. The purpose of the research will be

stated, as well as the corresponding questions that will be the focus of the research.

Finally, some background on heart failure standards and education will be reviewed, as

well as an overview of the major topics covered during the education process of the

patient living with heart failure.

Problem Statement

   Nurses play a key role in educating patients on the fundamentals of heart failure

management. This education empowers patients to effectively manage their heart failure

at home and ultimately prevents hospital readmission. High hospital readmission rates

may be a preventable cost if the patients fully understand and adhere to heart failure

principles (Krumholz et al., 2002, p. 83). Much research exists examining the patients'

overall understanding of heart failure management, however there is only minimal

research investigating how well nurses understand the exact information they are

teaching to patients (Albert et al., 2002, p. 103). Understanding more clearly the competence that nurses possess for teaching patients this crucial information may help identify a need for staff education, if one exists. Meeting the learning needs of nurses will advance their teaching competence, ultimately improving outcomes for patients.

Purpose of the Study

The purpose of this study was to investigate nurses' understanding of heart failure education that is routinely taught to patients for self-management of their disease. The study was a descriptive study of nurses who work in a regional Midwestern hospital on a telemetry unit and two separate medical units where the majority of non-critical heart failure patient education is completed.

Research Questions

Five primary research questions were explored during the course of this research:

1) Do nurses who care for and educate patients diagnosed with heart failure have a strong knowledge base about key heart failure education topics as measured by total correct score on a true or false questionnaire?

2) In what specific areas of heart failure education do nurses demonstrate a lack of knowledge?

3) What is the relationship between nurses' actual knowledge of heart failure education and their perceptions of their scope of knowledge related to heart failure as measured by self-assessment?

4) Is there a difference in heart failure knowledge between nurses with an associate or diploma degree and those with a baccalaureate or masters degree?

5) What is the relationship between the number of years worked with heart

failure patients and nurses' heart failure knowledge?

Definition of Terms

Heart failure. Heart failure is a complex condition which results from any cardiac disorder that impairs the heart ventricles' ability to fill with or pump blood. The cardinal symptoms of heart failure are dyspnea, fatigue, and fluid retention, which greatly affect a person's quality of life (Hunt et al., 2009, p. 8).

Heart failure education. The care and education of patients with heart failure is based largely on core measures that were developed by the Joint Commission and guidelines from the AHA/ACC (Bonow et al., 2005; Joint Commission, 2010). The rationale provided by the ACC/AHA (Bonow et al., 2005, p. 1858) for teaching these principles is as follows:

> Education of heart failure patients and their families is critical. Failure of these patients to comply with physician's and other healthcare providers' instructions is sometimes a cause of heart failure exacerbation. A significant cause of patient's failure to comply is lack of understanding…. Thorough discharge planning is associated with improved patient outcomes.

There are six major teaching points the Joint Commission Core Measures and AHA/ACC Guidelines recommend (Bonow et al., 2005; Joint Comission, 2010). These concepts must be reviewed with heart failure patients and/or their families prior to an inpatient discharge and include the following topics.

Diet. The Heart Failure Society of America (HFSoA) recommends a diet low in sodium for the patient with heart failure, since a diet too rich in sodium causes extra fluid to be retained, which in turn makes the heart work harder and can cause symptoms such

as shortness of breath, weight gain, or swelling of the feet and ankles (HFSoA, 2006).

Methods frequently recommended to decrease sodium intake include cooking without

adding any salt, using salt substitutes (a common example is Mrs. Dash), using low-

sodium versions of common foods, cooking with naturally low-sodium foods, and

understanding food labels to determine sodium content (HFSoA, 2006).

Weight monitoring. Patients are instructed to monitor signs of fluid buildup or

edema in their body after they are discharged from the hospital. Most often, patients are

told their weight the day of their discharge, and this weight is referred to as their "dry

weight," or weight without any extra fluid in their body due to heart failure (HFSoA,

2006). Patients are encouraged to weigh themselves daily, ideally at the same time each

day so they are able to keep track of any weight gain. If patients gain more than two

pounds in a day, or four pounds in a week, or they notice more swelling than usual they

are instructed to call their provider for further instructions or evaluation (HFSoA, 2006).

Activity level. A common misconception among patients with heart failure is that

any sort of physical activity may worsen their symptoms; however, research from the

AHA reveals that physical exercise may not only decrease symptoms, but it may also

improve exercise tolerance and quality of life to an effect comparable to pharmacological

methods (Hunt et al., 2001, p. 25). The AHA recommends that adults living with heart

failure build endurance to exercise for 25 to 40 minutes at least three to five times each

week (Hunt et al., 2001, p. 25).

Discharge medications. Although the medication regime of a patient with heart

failure is very important to overall management, specific medications related to heart

failure are not the focus of this research and will not be discussed further. Rather, the

focus is placed on adherence to a patient's prescribed medications and overall self-care

regime.

What to do if symptoms worsen. Patients with heart failure are instructed to call

911 if they experience chest pain that lasts longer than 15 minutes and is not relieved by

rest or Nitroglycerin, if they experience severe or persistent shortness of breath, or if they

have fainted or passed out (HFSoA, 2006). Patients are also instructed to call their

provider for further instructions if they experience new symptoms of shortness of breath,

if they have difficulty sleeping during the night due to shortness of breath, if they

experience a need to sleep sitting up, or if they develop a persistent fast or irregular heart

beat (HFSoA, 2006).

Follow-up appointment. Patients are encouraged to follow-up with their primary

provider if indicated by the attending provider at time of discharge from the hospital to

discuss any changes in their health maintenance routine or any concerns they may have

about management of heart failure.

In addition to the Joint Commission Core Measures and ACC/AHA Guidelines

listed above, any patient who is hospitalized with a diagnosis of heart failure and has

smoked within the last year should receive smoking cessation advice or counseling

during their hospital stay (Bonow et al., 2005). Since smoking is associated with an

increased risk of heart failure, patients admitted to the hospital should ideally receive

nicotine replacement therapy or smoking cessation pharmacotherapy during their

hospitalization as well as referrals to smoking cessation counselors and support groups

(Bonow et al., 2005).

Assumptions

It was assumed that during this research nurses would answer the "Nurse's Heart Failure Survey" (Appendix A) independently, only once, and to the best of their ability. It was also assumed that nurses would not collude with others or research answers by use of external resources. Finally, it was assumed that nurses would answer the demographic-type questions on the survey honestly.

Summary

This chapter has described the need for accurate patient understanding of heart failure in order to optimize outcomes for patients with heart failure. In addition to describing the burden heart failure places on the healthcare systems, there is also a large decrease in quality of life for patients who are living with heart failure due to hospital readmission rates and harmful symptoms related to heart failure. Understanding that nurses play a huge role in the education of patients with heart failure, this chapter has outlined the need for quality research to examine nurses' true understanding of heart failure patient education concepts. Finally, this chapter has also provided some background on common topics related to heart failure that are taught to all patients on a nationwide level.

Chapter 2 – Review of the Literature

This chapter will discuss the literature surrounding heart failure education, as well as highlight the significance of a nurse's ability to understand integral heart failure principles. The impact of heart failure will be discussed, as well as the economic burden it places not only on patients, but on the United States healthcare system as well. The role that RNs play in educating patients will be explored, as well as difficulties that patients face with understanding and mastering heart failure principles. Next, a brief discussion of pertinent literature that explores nurses' understanding of heart failure principles will be reviewed. Finally, the theoretical framework that was used in this research will be discussed, as well as its relevance to the topic.

Significance of Heart Failure

Heart failure is a chronic, irreversible process that primarily affects older populations, with incidence growing at an alarming rate due to the accelerating age of the United States population (Albert et al., 2002). An estimated 5.8 million people in the United States are living with heart failure, with an additional 670,000 people diagnosed each year (Centers for Disease Control (CDC), 2010). In industrialized nations worldwide, it is estimated that 1% to 2% of the total population is living with heart failure, and that treating heart failure consumes nearly 1% to 2% of total health care resources, and these figures are only expected to increase as time goes on (Ferguson, 2010). Possibly contributing to the increased incidence of heart failure is the decreased mortality associated with coronary artery disease (CAD); (Massie & Shaw, 1997). Additionally, the increased survival of patients with CAD as well as hypertension is

thought to contribute to the increase in heart failure occurrence (Massie & Shaw, 1997).

Persons with CAD are also becoming more likely to survive a myocardial infarction (MI)

with resulting impaired ventricular function, which has also been speculated to contribute

to future diagnosis of heart failure (Hagenhoff, Feutz, Conn, Sagehorn & Moranville-

Hunziker, 1994). In short, the improved treatment of other various cardiac problems has

left a wider population open to developing conditions such as heart failure in the future.

Heart failure is a large economical burden on the United States due to the frequent

hospitalizations that these patients endure (Stromberg, 2002). Hospitalization has been

estimated to be the largest cost burden on patients with heart failure, as well as a large

societal economic burden (Linné, Liedholm, Jendteg & Israelsson, 2000). Heart failure

accounts for 2% of all hospitalizations annually in the United States (Ferguson, 2010). It

was estimated that heart failure cost the United States nearly $39.2 billion dollars in the

year 2010, most of which will be spent on health care services, medications, and lost

productivity (CDC, 2010). It has also been reported that Medicare spends more money

on heart failure treatment than it does on MIs and all forms of cancer combined (Massie

& Shaw, 1997, p. 710). These statistics underscore the need for quality care for all

patients who are diagnosed with heart failure, as well as highlight the economic burden

that will continue to plague the United States should effective means of managing heart

failure not be established.

Registered Nurse Role in Heart Failure Education

A multidisciplinary approach to heart failure teaching is the most efficacious

method and ensures that patients receive the best possible education available (Albert et

al., 2002, p. 103; Philbin, 1999; Stromberg, 2002). Multidisciplinary teams may include

members such as the attending physician, case manager, clinical nurse specialist, and

registered nurse. A multidisciplinary teaching approach may improve outcomes, prevent

hospital readmission, and lower medical costs to heart failure patients (Philbin, 1999, p.

130). In recent years, hospital stays have become shorter for patients admitted with heart

failure, so the time that the multidisciplinary team is able to educate patients is also

shortened (Albert et al., 2002, p. 103; Hagenhoff et al., 1994, p. 686). In an inpatient

hospital setting, bedside RNs frequently play the greatest role in educating patients and

clarifying any confusion related to discharge education, as they are generally the last

contact the patient has with a healthcare provider before returning home. RNs have

reported themselves to have an important role in detecting misunderstandings that

patients may have about self-management of heart failure, and report a responsibility in

providing correct information to patients and family members (Stromberg, 2002, p. 34).

Impact of Successful Heart Failure Education

Heart failure is an irreversible and progressive condition. Most commonly,

patients who are diagnosed with heart failure return to their own homes and manage their

symptoms independently (Hagenhoff et al., 1994). This independence does not come at a

small price, as every patient that is diagnosed with heart failure must learn to adapt and

cope with needed lifestyle changes that result from heart failure. Most of these changes

are related to a patient's self-care routine and include many aspects of heart failure

education described in Chapter 1 such as a low-sodium diet, weight monitoring, and

activity level. There is a large amount of literature that indicates the difficulty of

providing quality heart failure education; some research shows that heart failure

education is less effective in an inpatient setting and requires frequent reinforcement

(Stromberg, 2002, p. 35). Other literature suggests that heart failure patients may suffer from learning barriers such as short-term memory loss, confusion, and difficulties with mobility (Rogers et al., 2000, p.607).

Aside from the difficulties that patients face understanding and integrating heart failure principles into their self-care routine, patients diagnosed with heart failure often face intangible changes that may also be related to diagnosis of heart failure. Some patients with heart failure reported that the unpredictability of heart failure leads to anxiety, depression, and fear, and these patients often feared becoming a burden on their families (Bosworth, Steinhauser, Orr, Lindquist, Grambow & Oddone, 2004, p. 88). Although dated, research conducted in 1989 by examining patients with a variety of chronic conditions reported that patients with heart failure perceived the most changes in role functioning (Stewart et al., p. 910). Many patients also report changes in self-esteem after being diagnosed with heart failure, and report that their self-esteem is heavily influenced by their perception of self-efficacy and independence (Bosworth et al, 2004, p. 88).

There is limited research that measures nurses' understanding of key heart failure principles taught to patients. In the original research that this present study replicates, nurses demonstrated an overall lack of knowledge regarding heart failure principles (Albert et al., 2002). Some areas that were identified as needing improvement were related to understanding weight monitoring, symptom monitoring, and when to contact a heart failure provider (Albert et al., 2002, p. 105). Similar research published 3 years later in 2005 showed that nurses' knowledge deficits were similar to those previously discussed, with the addition of understanding of nonsteroidal anti-inflammatory use and

salt substitute use as identified areas of concern (Washburn, Hornberger, Klutman & Skinner, 2005, p. 218). A comparable research study was conducted on baccalaureate nursing students and also reported a lack of knowledge regarding heart failure principles, even after these nursing students had completed a computerized learning module (Yehle & Chang, 2009).

Although these three studies only show a small glimpse of a nurse's role in educating and rehabilitating patients diagnosed with heart failure, the question is clear: Do nurses lack an understanding of basic heart failure principles that are taught to patients on a regular basis? If nurses had a greater understanding of heart failure principles, perhaps the amount of hospital readmissions for patients with heart failure would be lessened, and patients would report a higher perception of self-esteem and efficacy in self-care. But first, a clear understanding of nurses' knowledge of heart failure principles should be made evident, as well as identification of specific areas of improvement needed in nurses' knowledge base.

Theoretical Framework to Understand Heart Failure Education

Self-efficacy theory was the theoretical framework selected to guide this research. Self-efficacy theory was first developed by Albert Bandura in the 1970s and explores a person's awareness of their abilities (Bandura, 1982). Ultimately, an individual's ability to learn and master objectives may largely influence their aspirations, level of motivation, and overall accomplishments (Bandura, 1993). Applying this concept to heart failure principles, a nurse's overall perception of their knowledge related to heart failure may influence their willingness to teach these principles to the patient, leading to either a better or poorer outcome for patients. In the most simple form, if a nurse believes him-

or herself to have mastery of heart failure principles, they will be more willing to share and explore this knowledge with a patient, ultimately resulting in a better outcome for the patient.

Summary

This chapter has explored the literature surrounding heart failure education and emphasized the importance of nurses' ability to understand important heart failure principles. Patients clearly suffer not only from the physical symptoms that arise from heart failure, but from the emotional and psychological symptoms that are also present, such as changes in their role functioning, to anxiety and fear related to the volatility of heart failure. Also, heart failure places a huge economical burden on the United States annually from hospital admission costs. It seems clear that patients should be given every advantage possible when it comes to self-management of heart failure. Nurses assume a unique position in educating patients regarding heart failure and continue to be a large component in the overall multidisciplinary team approach in heart failure management. Since it is known that patients often face barriers to understanding heart failure education, every attempt should be made to correct the knowledge gap that has been identified relating to nurses understanding of heart failure principles, so that patients can be properly equipped to manage their heart failure effectively.

Chapter 3 – Research Methodology

The delivery of efficient heart failure education is integral to their ability to manage their disease independently. Exceptional heart failure education has been shown to increase quality of life as well as decrease costs related to hospitalization and re-admission. Nurses play a major role in the education of patients with heart failure regarding self-management of their symptoms, so it is imperative that nurses have an equally strong grasp of key educational concepts that are routinely taught. This chapter describes the research methodology that was used during the investigation of nurses' knowledge of heart failure principles. The basic design of the study will be described, as well as the setting of the research and the sample. Ethical considerations will be addressed.   The instruments will be described, as well as how these instruments were used to collect data. Methods used to collect data will be provided, and limitations will be discussed.

Design

This study was a descriptive, exploratory study into nurses' knowledge of heart failure principles, and was conducted during a two-week period in July 2011 at a regional Midwestern hospital. The research design replicated the research published by Albert et al. (2002); it was decided to maintain the original research procedures since content and face validity of the instrument were addressed; however, the drawback remains that reliability had yet to be tested (p. 104). This research had been replicated twice since its original publication without any changes to the survey instrument, and yielded results

that very closely mirrored those of the original research (Washburn et al, 2005; Yehle &

Chang, 2009).

Results from all three studies indicated that nurses do exhibit a lack of

understanding of some topics related to heart failure; however, as there have been only

three studies to date that measure nurses' understanding of heart failure education topics,

the results were not generalizeable to the entire population of nurses and indicated a need

for more research in this area to be completed. A drawback to this past design was that it

only measured nurses knowledge of topics related to heart failure and did not measure

their perception of knowledge, which may also have helped identify whether a need for

further education was warranted.   If nurses demonstrated a lack of knowledge related to

heart failure education topics but perceived their knowledge in these areas to be adequate,

this could serve as a potential barrier to educating nurses in the future. Nurses'

perceptions of their own understanding of heart failure education was assessed during this

study by a self-assessment question on the Nurses Heart Failure Survey.

Sample and Setting

Data was collected from a population of 181 nurses working on three separate

medical units at a Midwestern regional hospital. These particular units see high volumes

of patients with heart failure throughout the year. Permission to survey the nurses was

obtained from unit managers on Medical Unit 1, Medical Unit 2, and the Telemetry unit,

as well as the Institutional Review Board at the hospital prior to the study start date (See

Appendix D). Each nurse on the unit was given the opportunity to complete "Nurses

Heart Failure Survey" (see Appendix A) regardless of employment status (full-time

versus part-time). Subjects included 69 registered rurses (RNs) working in direct patient

care on these units. This was determined to be adequate since the previously conducted

research used sample sizes of comparable numbers (Albert et al., 2002; Washburn et al.,

2005; Yehle et al., 2009).

Instruments

"Nurses Heart Failure Survey" was a 24-question survey uploaded into Survey

Monkey that was e-mailed to nurses via the intrahospital e-mail system (see Appendix

A). The first question was a Likert-type self-assessment of the nurses' knowledge of

heart failure. Questions 2 through 21 included 20 true or false questions which measured

nurses' knowledge of heart failure topics, as designed by Albert et al. (2002) and

reproduced with their permission (see Appendix C). Questions on each topic include

self-management of diet (3 questions), fluid or weight monitoring (7 questions), signs and

symptoms of worsening heart failure (6 questions), medications (2 questions), and

exercise (2 questions). Questions 22 and 23 were demographic-type questions which

sought to identify the level of education by the highest nursing degree obtained and the

number of years the nurse has been working with heart failure patients. The final

question was an open-ended question to explore topics related to heart failure for which

nurses desired more education.

For questions 2 through 21 on the survey, content and face validity were

addressed during the original research by having heart failure nursing experts evaluate the

survey. For the construct, knowledge of heart failure education principles, the overall

true score was expected to be 87.5% or greater for nurses who regularly cared for heart

failure patients—this means 17 to 18 correct answers out of 20 possible (Albert et al., p.

104). Reliability was not established during the original research and was not addressed

in subsequent replications (Albert et al., 2002; Washburn et al., 2005; Yehle et al., 2009).

Data Collection Procedure

The proposed research project was introduced in the participating units by the

primary researcher by means of a recruitment letter through e-mail, which was sent at the

start of the data collection period (see Appendix B). Benefits as well as risks of

participating in the research were explained to the staff nurses in this letter. A total of

181 nurses were eligible to participate including 44 registered nurses working on Medical

Unit 1, 72 registered nurses on Medical Unit 2, and 65 registered nurses on the Telemetry

unit. A link to the survey was included within the recruitment letter sent to each

participant's hospital e-mail account on the study start date. The nurses were able to

access the survey by clicking on the link provided in the e-mail, which then prompted the

survey to begin. The nurses were asked to complete the survey at their convenience

between the study start date of July 11, 2011, and July 24, 2011, the study end date.

Informed consent was presumed by completion of the survey. The researcher left candy

on all three participating units on two separate occasions during the data collection period

for all staff members to enjoy as incentive as well as gratitude for their participation.

Data Analysis

The survey data was analyzed by using descriptive statistics in Survey Monkey;

additional data was entered into Statistical Package for the Social Sciences (SPSS) by the

primary researcher, and a statistician was consulted to complete the data analysis. To

determine nurses' overall knowledge of heart failure education topics, the mean score of

all nurses' total correct responses was calculated. To determine in what specific areas

nurses may lack knowledge, the frequency of correct answers for each question was determined. One-way Analysis of Variance (ANOVA) was planned to determine whether years of experience working with heart failure patients lead to differences in scores. Student *t* test was used to determine whether knowledge differences existed between nurses holding different nursing degrees (Diploma or Associates versus Bachelors or Masters).

Limitations

The major limitations of this study included the possibility of nurses using internet and textbook resources to determine the correct answers on the questionnaire. Also, although the questionnaire was intended to be completed individually, it is possible that nurses may have worked together to select responses on the true or false survey. Finally, as participation in this study was voluntary, it is possible that nurses who felt they may do poorly on the survey may not have participated at all, which may have led to higher mean scores than would otherwise be obtained and may not reflect the true knowledge of nurses on average.

Ethical Considerations

This study was approved for human subjects research by the Institutional Review Board (IRB) at Minnesota State University, Mankato (see Appendix E). Approval of research was also obtained by the St. Cloud Hospital IRB (see Appendix D). Security of research participants data was ensured by the use of a password-protected Survey Monkey account by the primary investigator. Subjects were informed in the recruitment letter that they could withhold any information they did not wish to share. Results from

the survey were published in aggregate. Participation in the study was completely

voluntary.

A recruitment letter was provided along with the survey which described the risks

and benefits of participating in the research. Direct benefits of participating in the

research included a self-assessment of knowledge related to heart failure. Indirect

benefits of participating in research included contributing to the assessment of a

collective group of nurses' knowledge of heart failure, as well as identifying the possible

need for focused nursing education on topics surrounding heart failure. Risks of

participating in the research included the amount of time needed to complete the survey

(approximately 10 to 15 minutes). It is also possible that nurses may have experienced

discomfort if they became aware of a lack of knowledge while completing the survey.

The informational e-mail informed participants that they could choose to omit answering

any question with which they felt uncomfortable, or stop the survey at any time. The

recruitment letter also explained to participants that participation was anonymous,

meaning that there would be no way for the researcher to determine the source of the

individual questionnaires.

Summary

Heart failure is a very devastating condition with many wide ranging effects on

patients. Nurses are in a key position to educate patients to effectively manage their heart

failure independently so they may live their life with the best quality possible. This

chapter provided a summary of the research methods, including the design of the study,

as well as a description of the setting and sample. Ethical considerations were addressed.

An overview of the research instrument was provided, as well as how this instrument was

implemented to collect data, and how the collected data was analyzed. Finally,

limitations to the research were explored.

Chapter 4 – Results of Analysis

This chapter will focus on a description of the study findings as well as the sample.

Description of Sample

The population used in the study included registered nurses who worked Medical Unit 1, Medical Unit 2, or the Telemetry Unit. These units were selected due to the high volumes of HF patients seen annually. All registered nurses were included regardless of employment status (full-time versus part-time). Of a possible 181 respondents, 69 registered nurses participated in the research, for a respondent rate of 38%. This sample size and response rate was determined to be sufficient prior to data analysis.

Data Analysis and Findings

Research question 1. Do nurses who care for and educate patients diagnosed with heart failure have a strong knowledge base about key heart failure education topics as measured by total correct score on a true or false questionnaire?

Descriptive statistics (mean, standard deviation, frequency) were used to describe the results from the survey. No nurse achieved a perfect score on the questionnaire; 6 nurses (8.7%) answered 19 out of 20 correct. Two nurses (2.9%) answered 13 questions correct, the lowest score achieved. The average score of all Registered Nurses responding was 16.67 ($\pm$ 1.584), or 83% correct, reflecting a good overall knowledge base (see Figure 1).

Total Number of Correct Responses (out of a possible 20)
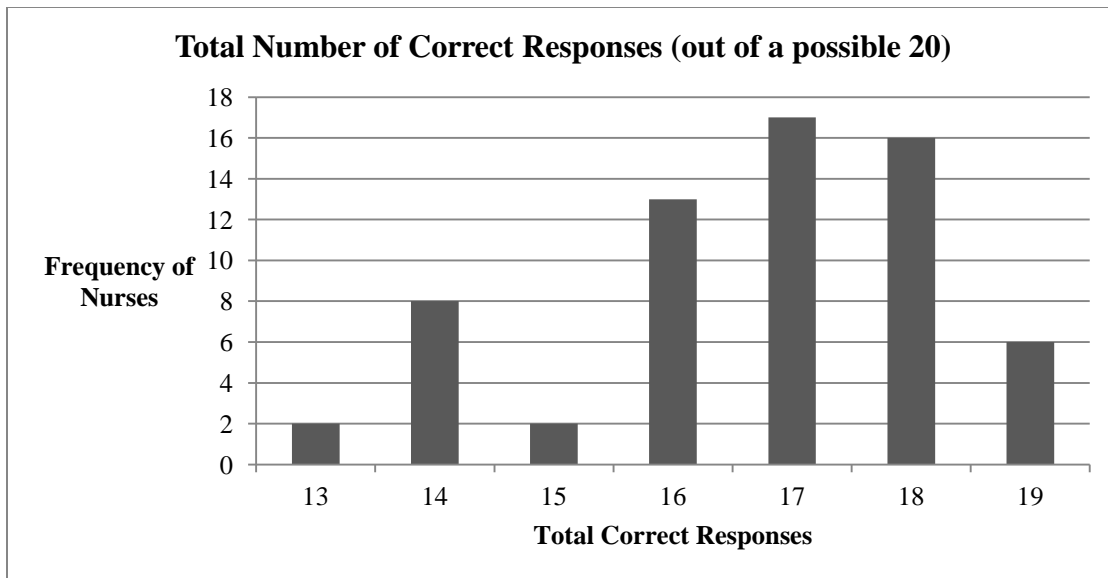
Figure 1. Total number of correct responses (out of a possible 20).

Research question 2. In what specific areas of heart failure education do nurses demonstrate a lack of knowledge?

Questions 16, 17 and 19 were identified as having the most incorrect responses from the nurses who took the survey. Question 19, "Dizziness or lightheadedness when arising that disappears within 10-15 minutes" yielded 15 correct and 54 incorrect responses, with an incorrect response rate of 78.3%. Question 17, "BP recording of 80/56 without any HF symptoms" had 28 correct responses and 41 incorrect responses, with an incorrect response rate of 59.4%. Question 16, "When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight" also yielded a large percentage of incorrect responses; 35 nurses answered correctly and 34 nurses answered incorrectly, with an incorrect response rate of 49.3% (see Figure 2).
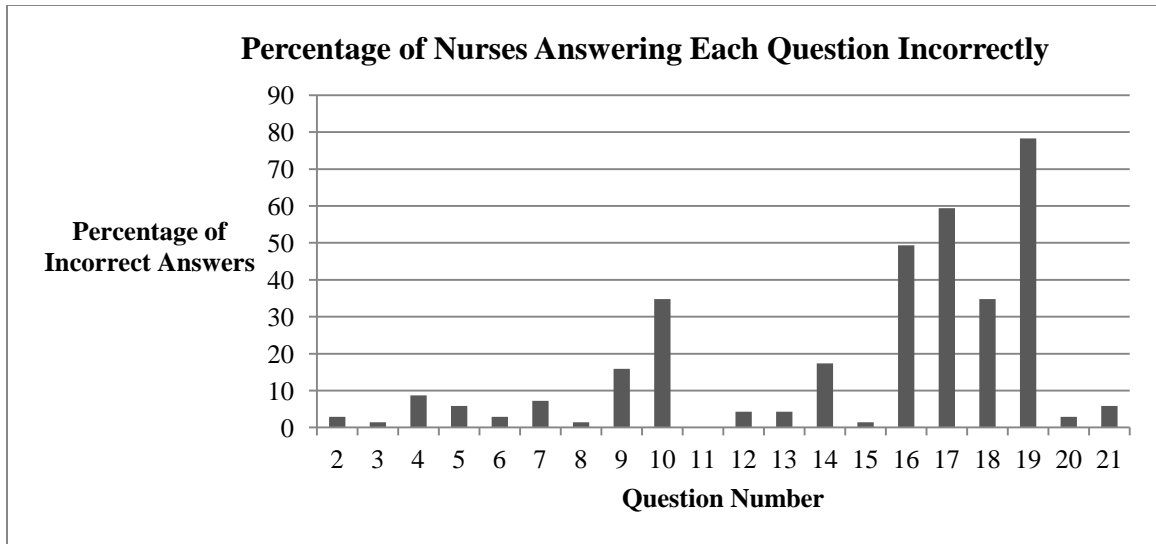
Figure 2. Percentage of nurses answering each question incorrectly.

Research Question 3. What is the relationship between nurses' actual knowledge base of heart failure education and their perceptions of their scope of knowledge related to heart failure as measured by self-assessment?

Nurses were asked to rank the extent of their agreement as to whether they perceived their heart failure knowledge as "good" with either "strongly agree," "slightly agree," "slightly disagree," or "strongly disagree." There were no nurses who answered "slightly disagree" or "strongly disagree." One nurse did not choose a response. Of the nurses who responded, 48 answered "slightly agree," and 20 answered "strongly agree." Because there were only two categories and a relationship could not be determined, a student-*t* test was done to compare the two groups and determined that there was no statistically significant difference between mean survey scores of nurses strongly agreeing ($\bar{x} = 17.20$) and nurses slightly agreeing ($\bar{x} = 16.43$) that their knowledge was good (t = -1.862, p = 0.070) at a significance level of 0.05 (see Table 1). A *P* value of

<0.05 was considered statistically significant (see Table 1).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Number Correct for All Responses	Equal variances assumed	.117	.733	-1.831	62	.072	-.768
	Equal variances not assumed			-1.862	38.372	.070	-.768

Table 1. Statistical analysis comparing nurses' perception of knowledge to overall correct number of responses on questionnaire.

Research Question 4. Is there a difference in heart failure knowledge between nurses with an associate or diploma degree and those with a baccalaureate or masters degree?

Of the nurses responding, 23 nurses had either an associate or diploma degree, and 45 had either a bachelors or masters degree. One nurse did not respond to the question. A student-*t* test was used to compare the two groups ($\bar{x} = 16.76$ for Associate/Diploma and $\bar{x} = 16.69$ for Bachelor/Master); no statistically significant difference was found between educational groups in overall mean score (t = 0.157, p = 0.876) at a 0.05 level of significance (see Table 2).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Number Correct for All Responses	Equal variances assumed	.804	.373	.170	61	.866	.071
	Equal variances not assumed			.157	32.985	.876	.071

Table 2. Statistical analysis comparing nurses' highest degree obtained with overall score obtained on questionnaire.

Research Question 5. What is the relationship between number of years worked with heart failure patients and nurses' heart failure knowledge?

For the question regarding years of experience working with heart failure patients, seven nurses had worked with heart failure patients 0-2 years, 28 had worked 3-5 years, eight had worked 6-8 years, 12 had worked 9-11 years, and nine had worked greater than 12 years. Due to the small group sizes, the nurses were further grouped into two large groups: those that had worked with heart failure patients 0-5 years (35 nurses), and those that had worked with heart failure patients greater than 6 years (29 nurses). Due to the small groups of data a relationship was unable to be determined, but instead differences were explored between the two groups. A student-*t* test was then used to compare these two groups ($\bar{x} = 16.63$ for 0-5 years experience and $\bar{x} = 16.72$ for 6 or more years experience), and showed no statistically significant difference between nurses with five or fewer years of experience working with heart failure patients and nurses with more than five years of experience in their overall correct responses on the survey ($t = -0.232$, $p = 0.818$) at a 0.05 level of significance (see Table 3).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Number Correct for All Responses	Equal variances assumed	3.741	.058	-.238	62	.812	-.096
	Equal variances not assumed			-.232	50.186	.818	-.096

Table 3. Statistical analysis comparing nurses total number of years worked with heart failure patients and overall score obtained on questionnaire.

The final question of the survey was an open-ended question to explore topics related to heart failure in which nurses would like more information. Fourteen nurses

wrote responses to the question. Four nurses specifically asked about medication

therapy: one asking if there were new heart failure medications, one asking for teaching

tools to use with their patients about medication therapy, and one simply wrote

"medication." Two nurses inquired about dietary restrictions. Two nurses asked for

explanations about heart failure pathophysiology; one nurse asked specifically how to

best explain to a patient what "right" versus "left" side heart failure is. Two nurses asked

about activity level and exercise. Three nurses requested more information on

biventricular pacemakers and medical devices used in heart failure. These may also

provide topics for discussion and education in the future if education seminars specific to

heart failure were planned for nurses.

Chapter 5 – Discussion and Conclusions

Chapter 5 will provide a review of the sample of the study. A discussion of the research results will follow, and these results will also be compared to the conceptual model. Limitations of the research will be discussed, and future implications for practice and research will be discussed.

Description of the Sample

The research occurred at a regional Midwestern hospital, and the sample included registered nurses who regularly worked with patients diagnosed with heart failure. Three units in the hospital were selected based on high annual volumes of heart failure patients: Medical Unit 1, Medical Unit 2, and the Telemetry Unit. All registered nurses on these units were invited to participate; out of a possible 181 respondants, 69 registered nurses completed the Nurses Heart Failure Survey.

Discussion

The average score obtained by registered nurses completing the survey was 16.67 ($\pm$ 1.584) or 83%. Average scores from previous uses of the survey were 15.2 (Albert et al., 2002) and 14.6 (Washburn et al., 2005). Registered nurses completing the present survey have obtained the highest average number of total correct answers to date; however, this still falls short of the "true score" of 87.5% that was identified by the instrument developers for nurses who regularly cared for heart failure patients. Indeed, in most university grading systems, 83% is considered a low B. Viewed in this way, one must raise the question of the adequacy of the nurses knowledge of heart failure principles. The fact that there was no significant difference between nurses' strong or

slight agreement that their knowledge was "good" and their number of overall correct

responses perhaps shows that on average they see their understanding at this level—a B

minus. While the score from this research translates to an average of 17% incorrect

responses, nurses work in a culture where unknown answers are within grasp: consulting

with resources (nursing colleagues, physicians or educators) is a mere phone call or e-

mail away, and up-to-date literature is available to nurses on the internet for reference.

As previously stated, there was no significant difference in number of overall correct

responses between nurses with slight or strong agreement that their knowledge was

good. This particular question, in hindsight, may merely have measured their overall

confidence and ability to teach, rather than an estimation of knowledge.

As identified in chapter 4, questions 16, 17 and 19 yielded the most incorrect

answers. Question 16 identified a learning need regarding the difference between ideal

weight and dry weight. Questions 17 and 19 were from the section exploring symptom

control and whether a patient should notify their provider for further recommendations.

Question 17 questions a low blood pressure reading without any other symptoms, and

question 19 asks about dizziness and lightheadedness that disappears within 10-15

minutes of rising. These identified areas could provide a good point of future education

for the nurses on Medical Units 1 and 2 and the Telemetry Unit working with heart

failure patients, or a point of emphasis in the orientation education of nurses new to the

units. As well, the responses to the open-ended questions provide some direction for

education. Several nurses requested information on medications. Other requests to

address include pathophysiology of heart failure, current medical device use, and

differences between left and right-side heart failure.

As stated in chapter 4, there was no statistical significance when comparing registered nurses' overall scores to their perceived strength of knowledge, their highest attained educational level, or their total number of years working with heart failure patients. A larger sample size may have produced a statistical significance between the aforementioned variables.

Scope and Limitations

In retrospect, a few changes could have been made to better classify the collected data. First, asking nurses their particular age versus choosing an age range would have provided a more robust description of data, and may have more clearly identified the sample. Also, asking nurses to identify specifically their highest level of education versus choosing "Diploma/Associate" or "Bachelor/Masters" may have provided a more meaningful description. It was initially decided to group these together to protect the identity of any outliers; however, nurses had the opportunity to omit questions they did not feel comfortable answering. Also, nurses were not asked which particular unit they worked on; in retrospect, if this had been done, it could have also identified if nurses on a particular unit scored lower than the other units.

On a larger scale, heart failure patients in the hospital setting do not get admitted only to these three particular units. Although it seems unlikely that nurses in the Intensive Care Unit or Cardiac Care Unit would be doing heart failure teaching in its entirety, patients or their family members may ask questions regarding their disease and how best to manage it. Therefore, conducting the study on a hospital-wide basis (and differentiating between units) may have produced the most meaningful results and may

have been useful in identifying units that excel at heart failure, or those who may need further education.

While the respondent rate of the survey was determined to be adequate for this survey, an increased respondent rate may have identified more significant areas for further research or education. Having the primary investigator come to personally invite the nurses to participate in the survey may have helped the nurses feel personally invited to participate in the survey, making a larger response rate. It is also possible that a particular unit may have had a higher or lower response rate due to personally knowing the primary investigator. The generalizability of the study results are limited to the nurses on these three units.

Implications for Practice

Nurses have an important role in educating patients with heart failure to manage their disease process independently. While the nurses' overall mean score on the survey was 16.67 (or 83 percent), a few questions were identified as areas where a lack of knowledge exists. As previously discussed, questions 16, 17 and 19 were identified as having particularly high incorrect response rates. For nursing educators, this may be an opportunity for staff nurse education. Unit leaders may determine if an overall score of 83 percent is acceptable or not, and may determine if additional education is appropriate. Providing an inservice to staff nurses to review the survey results as well as highlight the questions with a large overall incorrect response rate may be a good review for all nurses, including those who did not participate in the survey. Nurses may also respond well to an e-mail that highlights the survey results, as this is something convenient that they may

review at their leisure. However, it would not be known whether nurses reviewed the e-mail or not.

Implications for Research

This survey focused heavily on nurses' overall knowledge of heart failure symptoms and concepts. While it was found that nurses have a generally good understanding of major heart failure topics, this does not give a good idea of how well a patient is taught or understands the educational topics. Future research focusing on nurses' abilities to teach heart failure concepts as well as surveying the patient's overall understanding of heart failure concepts may uncover a barrier in education if one exists. Monitoring heart failure-related hospital readmission rates and barriers in education may also be a focus in the future. Finally, a third area for research may be to re-survey nurses after a planned education module focusing on heart failure to see if overall scores improve on the questionnaire.

Summary

Nurses working with patients with heart failure have a solid understanding of heart failure concepts taught to patients before hospital discharge, obtaining a score of 16.67 (or 83%) on the Nurses' Heart Failure Survey. There was no significant relationship between nurses' years of experience working with heart failure patients and number of correct responses, highest degree obtained and number of correct responses, or overall perception of knowledge and number of correct responses. Three questions were identified on the survey as being possible areas of future education focus.

Decreasing the frequency of hospital readmissions and the overall costs of healthcare related to heart failure are perhaps some of the most important ramifications of

thorough heart failure education. Aside from this, education is one of the most crucial aspects of heart failure that will help the affected patient maintain a healthy, independent lifestyle. Nurses provide this related education in the form of diet, exercise, and lifestyle counseling, and conceivably, this may be the most efficient method of improving quality of life for the patient as well as decreasing morbidity related to heart failure sequelae. Therefore, it is crucial for nurses to take ownership of heart failure education in order to provide the most benefit to patients and society.

References

Albert, N.M., Collier, S., Sumodi, V., Wilkinson, S., Hammel, J.P., Vopat, L., … Bittel,

B. (2002). Nurses' knowledge of heart failure education principles. *Heart &

Lung, 31*(2), 102-112.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist,

37*(2), 122-147. doi: 10.1037/0003-066X.37.2.122

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning.

Educational Psychologist, 28(2), 117-148. doi:10.1207/s15326985ep2802_3

Bonow, R.O., Bennett, S., Casey, D.E., Ganiats, T.G., Hlatky, M.A., Konstam, M.A., …

Stevenson, L.W. (2005). ACC/AHA clinical performance measures for adults

with chronic heart failure. *Circulation, 112*, 1853-1887. Retrieved from

http://circ.ahajournals.org/cgi/content/full/112/12/1853

doi:10.1161/CIRCULATIONAHA.105.170072

Bosworth, H.B., Steinhauser, K.E., Orr, M., Lindquist, J.H., Grambow, S.C. & Oddone,

E.Z. (2004). Congestive heart failure patients' perceptions of quality of life: The

integration of physical and psychosocial factors. *Aging & Mental Health, 8*(1),

83-91. doi**:**10.1080/13607860310001613374

Centers for Disease Control and Prevention, Division for Heart Disease and Stroke

Prevention (2010). *Heart failure fact sheet.* Retreived from

http://www.cdc.gov/dhdsp/library/fs_heart_failure.htm

Ferguson, J. (2010). What is the cost of heart failure? *Discovery Health Online.*

> Retreived from http://health.howstuffworks.com/medicine/tests-treatment/heart-
>
> failure-cost.htm

Hagenhoff, B.D., Feutz, C., Conn, V.S., Sagehorn, K.K. & Moranville-Hunziker, M.

> (1994). Patient education needs as reported by congestive heart failure patients
>
> and their nurses. *Journal of Advanced Nursing, 19*, 685-690. doi:
>
> 10.1111/j.1365-2648.1994.tb01139.x

Heart Failure Society of America. (2006). Heart failure – education modules. Retrieved

> from http://www.abouthf.org/education_modules.htm

Hunt, S.A., Abraham, W.T., Chin, M.H., Feldman, A.M., Francis, G.S., Ganiats, T.G., …

> Yancy, C.W. (2009). 2009 focused update incorporated into the ACC/AHA 2005
>
> guidelines for the diagnosis and management of heart failure in adults.
>
> *Circulation, 119*, 391-479. Retrieved from
>
> http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.109.192065
>
> doi:10.1016/j.jacc.2008.11.013

Hunt, S.A., Baker, D.W., Chin, M.H., Cinquegrani, M.P., Feldman, A.M., Francis, G.S.,

> … Stevenson, L.W. (2001). ACC/AHA guidelines for the evaluation and
>
> management of chronic heart failure in the adult. Retrieved from
>
> http://www.americanheart.org/downloadable/heart/5360_HFGuidelineFinal.pdf

Jessup, M., Abraham, W.T., Casey, D.E., Feldman, A.M., Francis, G.S., Ganiats, T.G.,

> … Yancy, C.W. (2009). 2009 focused update: ACCF/AHA guidelines for the
>
> diagnosis and management of heart failure in adults. *Circulation, 119*, 1977-

2016. Retrieved from

http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.109.192064

doi:10.1016/j.jacc.2008.11.009

Joint Commission (2010). Specifications manual for national hospital quality measures.

Retrieved from

http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasure

ment/Current+NHQM+Manual.htm

Krumholz, H.M., Amatruda, J., Smith, G.L., Mattera, J.A., Roumanis, S.A., Radford,

M.J., … Vaccarino, V. (2002). Randomized trial of an education and support

intervention to prevent readmission of patients with heart failure. *Journal of the*

American College of Cardiology, 39(1), 83-89. doi:10.1016/S0735-

1097(01)01699-0

Linné, A.B., Liedholm, H., Jendteg, S. & Israelsson, B. (2000). Health care costs of heart

failure: Results from a randomised study of patient education. *European Journal*

of Heart Failure, 2(3), 291-297. doi:10.1016/S1388-9842(00)00089-1

Massie, B.M. & Shaw, N.B. (1997). Evolving trends in the epidemiologic factors of

heart failure: Rationale for preventative strategies and comprehensive disease

management. *American Heart Journal, 133*, 703-712. doi:10.1016/S0002-

8703(97)70173-X

Philbin, E.F. (1999). Comprehensive multidisciplinary programs for the management of

patients with congestive heart failure. *Journal of General Internal Medicine, 14*,

130-135. DOI: 10.1046/j.1525-1497.1999.00291.x

Rogers, A.E., Addington-Hall, J.M., Abery, A.J., McCoy, A.S.M., Bulpitt, A.J., Coats, S.

    & Gibbs, J.S.R. (2000). Knowledge and communication difficulties for patients

    with chronic heart failure: Qualitative study. *British Medical Journal, 321*(7261),

    605-607. doi: 10.1136/bmj.321.7261.605

Stewart, A.L., Greenfield, S., Hays, R.D., Wells, K., Rogers, W.H., Berry, S.D., … Ware,

    J.E. (1989). Functional status and well-being of patients with chronic conditions.

    Journal of the American Medical Association, 262(7), 907-913. doi:

    10.1001/jama.1989.03430070055030

Stromberg, A. (2002). Educating nurses and patients to manage heart failure. *European

    Journal of Cardiovascular Nursing, 1*, 33-40.

U.S. Department of Health and Human Services, National Institutes of Health, National

    Heart, Lung, and Blood Institute (2010). *Heart failure.* Retrieved from

    http://www.nhlbi.nih.gov/health/dci/Diseases/Hf/HF_WhatIs.html

Washburn, S.C., Hornberger, C.A., Klutman, A. & Skinner, L. (2005). Nurses'

    knowledge of heart failure education topics as reported in a small Midwestern

    community hospital. *Journal of Cardiovascular Nursing, 20*(3), 215-220.

Yehle, K.S. & Chang, K. (2009). Baccalaureate student's knowledge of heart failure

    education concepts [Abstract]. *Heart & Lung, 38*(3), 265.

Appendix A

Nurses Heart Failure Survey

1) I feel that I have a good understanding of heart failure education topics.

Strongly Agree   Agree   Neither Agree or Disagree   Disagree   Strongly Disagree

For questions 2-16, please indicate whether the statement is either "True" or "False.".

2) Patients with Heart Failure (HF) should drink plenty of fluids each day.   **True / False**

3) As long as no salt is added to foods, there are no dietary restrictions for patients with HF.   **True / False**

4) Coughing and nausea/poor appetite are common symptoms of advanced HF. **True / False**

5) Patients with HF should decrease activity and most forms of active exercise should be avoided. **True / False**

6) If the patient gains more than 3 pounds in 48 hours without other HF symptoms, they should not be concerned. **True / False**

7) Swelling of the abdomen may indicate retention of excess fluid due to worsening HF. **True / False**

8) If patients take their medications as directed and follow the suggested lifestyle modifications, their HF condition will not return. **True / False**

9) When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) should be recommended. **True / False**

10) It is OK to use potassium-based salt substitutes (like "No-Salt" or "Salt Sense") to season food. **True / False**

11) If patients feel thirsty, it is OK to remove fluid limits and allow them to drink.

True / False

12) If a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the HF condition has worsened. **True / False**

13) If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the HF condition has worsened. **True / False**

14) Lean deli meats are an acceptable food choice as part of the patient's diet. **True / False**

15) Once the patient's HF symptoms are gone, there is no need for obtaining daily weights. **True / False**

16) When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or "dry" weight. **True / False**

Statements in questions 17-21 reflect signs or symptoms that patients may have. Please indicate "yes" or "no" to signify whether a patient should notify their HF physician of these signs and symptoms.

17) BP recording of 80/56 without any HF symptoms. **Yes / No**

18) Weight gain of 3 pounds in 5 days without symptoms. **Yes / No**

19) Dizziness or lightheadedness when arising that disappears within 10-15 minutes. **Yes / No**

20) New onset or worsening of fatigue. **Yes / No**

21) New onset or worsening of leg weakness or decreased ability to exercise. **Yes / No**

22) How many years have you been working with heart failure patients?

0 – 2 years   3 – 5 years   6 – 8 years   9 – 11 years   12 + years

23) Please indicate the highest degree you have obtained.

1= Associate/Diploma   2=Masters/Baccalaureate

24) In what areas would you like more information about heart failure?_____

_____

Appendix B

Recruitment e-mail

Dear colleague,

My name is Catherine Standfuss, a staff nurse in Patient Care Support, and also a nurse practitioner student at Minnesota State University, Mankato. I am currently working on my capstone experience and am asking for your help in completing my research examining registered nurses' knowledge regarding routine heart failure education. As you may know, heart failure is a disease that affects patient quality of life and hospital admission rates due to disease exacerbation. As registered nurses, a large part of our job is to educate patients to optimally care for themselves when they return to the community to prevent further disease exacerbations.

Consent Information

Participation in this research involves completing *Nurses Heart Failure Survey,* which was designed on SurveyMonkey; a link to the survey is found below. Completing the survey will take approximately 10 minutes. Participation is completely voluntary and anonymous. Informed consent will be implied by completion of the survey.

There is no risk of physical harm in completing this survey. It is possible that you could feel slight discomfort if you become aware of a lack of knowledge while completing the survey. You may discontinue the survey at any time. Your choice of whether or not to participate will not have any professional or employment consequences. You have the right to not disclose any information you do not wish to share. Your data will remain confidential and the results will be reported as an aggregate. Benefits to participating in this research include the satisfaction of contributing to the growing base of nursing research.

Contact Information

If you have any questions regarding the research, you can contact me at (320) 241-0910 or via e-mail at catherine.standfuss@mnsu.edu. You may also contact the Principal Investigator Dr. Patricia Young at 360 Wissink Hall, Mankato MN, (507) 389-6824, or via e-mail at patricia.young@mnsu.edu.

If you have questions or concerns regarding the treatment of human subjects, you may contact Dr. Terrence Flaherty, the IRB Administrator at Minnesota State University Mankato at 115 Alumni Foundation Center, Mankato MN 56001, (507) 389-2321, or via e-mail at terrance.flaherty@mnsu.edu.

Thank you for your time and participation!

Sincerely,

Catherine Standfuss, RN, BAN

Minnesota State University, Mankato

Appendix C

Reminder e-mail

Dear colleague,

Greetings, my name is Catherine Standfuss and I am a staff nurse working in Patient Care Support. I am currently a nurse practitioner student at Minnesota State University, Mankato and am working on my capstone experience. One week ago I invited you to participate in a survey entitled *Nurses Heart Failure Survey* (see original letter below). The survey is anonymous and will take approximately 10 minutes to complete. The survey will remain available for the next seven days to complete.

The link to the survey is listed below.

If you have already completed the survey, thank you very much and please disregard this email.

Thank you again for your time and participation!

Sincerely,

Catherine Standfuss, RN, BAN
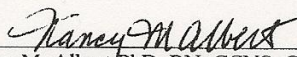
Minnesota State University, Mankato

Appendix D

NURSES KNOWLEDGE OF HEART FAILURE EDUCATION PRINCIPLES:
AGREEMENT FORM

Nurses Knowledge of Heart Failure Education Principles is a clinical screening instrument used to assess implicit beliefs and knowledge that nurses have regarding themes that should be included when providing patient education about heart failure and self-management. The *Nurses Knowledge of Heart Failure Education Principles* instrument is an empirical scale measuring 5 education themes: low-sodium diet, fluid management, monitoring signs/symptoms, exercise, and medication management. The scale developer, who holds the copyright, wishes to assure standardization in the use of the instruments and to build a normative database for interpreting scores. With this goal in mind, please agree to the following conditions in exchange for using this instrument:

1) User agrees to maintain the *Nurses Knowledge of Heart Failure Education Principles* instrument in the form provided, without modification, unless written approval is obtained from the scale developer;

2) User agrees to use the *Nurses Knowledge of Heart Failure Education Principles* instrument for her/his own work, without distribution to other colleagues, unless written approval is obtained from the scale developer;

3) User agrees to use the *Nurses Knowledge of Heart Failure Education Principles* instrument for no more than three years, with continued use beyond that period requiring a new request;

4) Within six months of the end of the data collection, user agrees to provide the following information (when applicable): Written abstract of study, including completed specifics of design and sampling methods;

5) User agrees to cite the appropriate *Nurses Knowledge of Heart Failure Education Principles* instrument reference.

6) Prior to submission for publication, user agrees to submit manuscript to the instrument developer for review and approval of that section.

If in agreement with the above conditions, please sign this form, retain a copy for your records, and return the original for final approval.   This agreement is made with:

Nancy M. Albert PhD, RN, CCNS, CCRN, NE-BC   3/19/11
                                                                      Date

User's Name (*Typed or printed*):	_Catherine Standfuss_
Signature (s):	_Catherine Standfuss_ /
Date:	_March 19, 2011_ /
Title of Project:	_Nurses' Knowledge of Heart Failure Topics at a Regional Midwestern Hospital_
Organization:	_Minnesota State University, Mankato_
Address:	_24373 17th Avenue St. Augusta, MN 56301 (home)_
	School of Nursing, 360 Wissink Hall Mankato, MN 56001 (school)
Telephone #:	_(320) 241-0910_ Fax #:
Electronic mail:	_catherine.standfuss@mnsu.edu_

Mail to: Nancy M. Albert PhD, RN; Cleveland Clinic, 9500 Euclid Avenue Mailcode: J3-4, Cleveland Ohio,
44195   Contact information: W: 216-444-7028; Fax: 216-445-0905; albertn@ccf.org

Appendix E

✚ **St. Cloud Hospital**
CENTRACARE Health System

1406 Sixth Avenue North | St. Cloud, MN 56303-1901
(320) 251-2700 phone | (320) 255-5711 fax
www.centracare.com

May 10, 2011

Catherine Standfuss
Patient Care Support - SCH
MN State University – Mankato
Nursing Department
Mankato, MN 56001

Dear Catherine:

On behalf of the St. Cloud Hospital IRB committee I have reviewed and approved the recommendation from the Nursing Research Review Board to approve the research proposal: Nurses' Knowledge of Heart Failure topics at a Regional Midwestern Hospital to be conducted by Catherine Standfuss, Nurse Practitioner at MN State University, Mankato.

Sincerely,

Linda Chmielewski, MS, RN, NEA,BC
Vice President, Hospital Operations/CNO

cc: Roberta Basol, Chair, Nursing Research Review Board

St. Cloud Hospital operates under the auspices of the local Catholic Church of St. Cloud.

Appendix F

MINNESOTA STATE
UNIVERSITY
MANKATO

Patricia Young, Ph.D.
School of Nursing
360 Wissink Hall
Minnesota State University, Mankato
Mankato MN 56002

Catherine Standfuss
24373 17th Ave
Saint Augusta MN 56301

June 20, 2011

Dear Patricia and Catherine:

Re: IRB Proposal, Log **#3845** entitled "*Nurses' Knowledge of Heart Failure Education Topics at a Regional Midwestern Hospital* "

Your IRB Proposal has been approved as of June 20, 2011. On behalf of the Institutional Review Board I wish you success with your study. Remember that you must seek approval for any changes in your study, its design, funding source, consent process, or any part of the study that may affect participants in the study. Should any of the participants in your study suffer a research-related injury or other harmful outcome, you are required to report them to the IRB as soon as possible.

The approval of your study is for one calendar year from the approval date. When you complete your data collection, or should you discontinue your study, you must notify the IRB. Please include your log number with any correspondence with the IRB.

This approval is considered final when the full IRB approves the monthly decisions and active log. The IRB reserves the right to review each study as part of its continuing review process. Continuing reviews are usually scheduled. However, under some conditions the IRB may choose not to announce a continuing review.

Sincerely,

Patricia Hargrove

Patricia Hargrove, Ph.D.
IRB Coordinator

Cc: File