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Association of Self-Care Confidence and Hospital Readmission Following Student Nurse Led Congestive Heart Failure Transitional Care Project

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Review of Literature

Heart failure is a growing cause for concern in American healthcare as it affects over 5 million Americans, (Grayson & Gandy, 2012; Salyer, Schubert, & Chiaranai, 2012) half of who will die within 5 years (Dionne-Odom et al., 2014; Muus et al., 2010; Rickenbacher et al., 2012). This disease is primarily among people over the age of 65 with major risk factors of hypertension, myocardial infarction, diabetes mellitus, valvular disease, and obesity (Muus et al., 2010; Rickenbacher et al., 2012). The number of heart failure cases is expected to grow exponentially through the coming years (Dionne-Odom et al., 2014; Grayson & Gandy, 2012). This may be tied to the American population ageing and maintaining a lifestyle of little activity and poor food choices, which lead to the presence of risk factors. Heart failure has many precipitating events that may cause the initial cardiac injury, but they all end in myocardial remodeling (Blauer, Frei, Schnepp, & Spirig, 2015; Grayson & Gandy, 2012; Williams, Akroyd, & Burke, 2010). The ventricles are then unable to fill (diastolic heart failure) or contract (systolic heart failure) adequately. The cardiac output cannot meet the demands for tissue metabolism (Andrietta, Moreira, & Barros, 2011; Caruso et al., 2011; Grayson & Gandy, 2012). If the damage is to the right ventricle, blood flow to the lungs is decreased and backs up into the circulatory system causing peripheral edema because of hydrostatic pressure within the microvasculature. Left ventricular impairment causes blood to back up into the pulmonary circulation and inadequate blood supply to reach the body (Grayson & Gandy, 2012). Patients may have mixed presentation. The altered structure and blood flow of the heart gives objective evidence that heart failure is present, but progression is often tracked through a set of typical subjective assessments reported by the patient. Decompensated patients frequently experience dyspnea, orthopnea, lower

extremity edema, weight gain, nausea, abdominal pain, and feeling abdominal fullness (Kransdorf & Kittleson, 2012).

The New York Heart Association and American Heart Association classify heart failure based on the individual's functional ability with symptoms growing worse with less exertion as the stages progress (Dionne-Odom et al., 2014). Class I and II are associated with less severity and mortality than class III and IV, however, the disease progression is highly variable among individuals and difficult to predict (Blauer et al., 2015; Dionne-Odom et al., 2014).

New pharmaceuticals, restriction guidelines, and patient devices are being generated without impacting the growing number of Americans with heart failure. Treatments may relieve symptoms of heart failure, but the cause of decompensation, needs to be addressed. Inadequate control through lifestyle change is frequent (Blauer et al., 2015; Carrington & Stewart, 2009). In order to remain well, heart failure patients must follow a low sodium diet, fluid restriction, a complex medication schedule, and provide self-care monitoring. Should a patient have a lapse in adherence, they may face decompensation leading to hospital readmission (Enc, Yigit, & Altiok, 2010).

One in four heart failure patients are readmitted to an acute care facility due to decompensation within the first 30 days of being discharged (Felter et al., 2014; Joynt, Orav, & Jha, 2011; Kransdorf & Kittleson, 2012; Muus et al., 2010). Being in the hospital setting may lead to further deconditioning, muscle weakness, depression, anxiety, and decreased quality of life (Caruso et al., 2011). In addition to these patients having a further decline in health when they return home, acute exacerbations increase the potential for arrhythmias or hemodynamic instability. Hospitalization among heart failure patients is a significant risk factor for mortality, associated with a death rate 6 fold higher than patients remaining at home (Andrietta et al., 2011;

Caruso et al., 2011; Joynt et al., 2011; Kransdorf & Kittleson, 2012; Rickenbacher et al., 2012).

Because hospitalized patients are more acutely ill, they require more aggressive interventions.

Patients are also more likely to be hospitalized due to the disease progression, giving the

appearance that more hospitalization causes more death. Patients spend more time hospitalized

during the 60 days prior to their death than any other time throughout their treatment

(Rickenbacher et al., 2012). In addition to hospitalization being associated with mortality, it

produces an exorbitant cost and burden on the healthcare system. Readmissions account for 5% of

the United States healthcare budget (Grayson & Gandy, 2012) with the largest contributing factor

being repeated hospital readmissions primarily during the first 90 days after discharge (Williams

et al., 2010). According to the National Hospital Discharge Survey, heart failure is the most

common discharge diagnosis (Kransdorf & Kittleson, 2012). Because so many relapses occur

within 30-90 days after discharge, it would seem an improvement in care is needed. It is estimated

that between one-third and one-half of the hospital readmissions due to heart failure are

preventable (Enc et al., 2010).

The Center for Medicare and Medicaid Services (CMS) recognized the increased

occurrence of hospital readmission and made recommendations in an attempt to solve the

problem, coupled with financial incentives. The CMS advisory commission recommended each

hospital report the readmission rates of heart failure patients (Muus et al., 2010). Transparency

not only allows consumers to know the quality of care they will receive, but also brings

consciousness to the hospitals that have high rates of readmissions to recognize the need for

change. CMS decreased reimbursement to hospitals with poor outcomes for the patients in 2012

(Felter et al., 2014; Kransdorf & Kittleson, 2012). Reduced funding was not found to negatively

impact long-term outcomes. Joynt, Orav, and Jha (2011) found that the short-term mortality rate

(30 day) was reduced with higher spending, but long term, patients had no improved mortality, readmission rates, or quality of life with increased funding. Initiating intense treatment regimens may keep the patient alive for a few weeks, but without a change in the system and goals of treatment the overall course of the disease remains unchanged. The Joint Commission took another approach to reducing readmissions based on the assumption that more information in the patients' hands would reduce readmissions. They provided guidelines for patient discharge instructions that include information on diet, daily weights, recognition of worsening symptoms, adherence to medication dosages, and recommended physical activities (Andrietta et al., 2011). However, lengthy written materials without additional teaching and continued monitoring have questionable effectiveness.

Patients returning home from the hospital are still in poor physical condition (Blauer et al., 2015). They need to continue to recuperate, get stronger and build endurance. Patients report inconsistencies in the ability to ask questions and include others during discharge teaching (Williams et al., 2010). CHF is a complex disease process that requires thoughtful management and frequently necessitates someone other than the patient to be a caretaker, especially in the presence of any form of cognitive impairment (Andrietta et al., 2011). Even with thorough information provided to patient and caregiver, treatment compliance is dependent upon consideration of the patient's individuality (Enc et al., 2010). All care, including discharge education, needs to be patient centered and tailored to fit the individual. The nursing process should be used to first assess the individual and create a plan for that person's greatest needs once they return home (Andrietta et al., 2011; Blauer et al., 2015). Frequently, discharge instructions provided are the same for every patient and reviewed quickly in the last hours of the hospital stay. This inadequacy of discharge planning is a factor contributing to the patient's non-compliance

(Andrietta et al., 2011). Internal motivation and individual values must be incorporated in order to create behavioral change, which draws from previous experiences, education, and beliefs (Blauer et al., 2015; Enc et al., 2010; Jowsey, Pearce-Brown, Douglas, & Yen, 2014). The only way to attend to all of these facets is through time spent with the patient assessing and addressing their individuality.

Transitional care is a mode to overcome the barriers of teaching at the bedside and facilitate implementation of continued care in the patient's home. It provides a bridge from traditional acute care to care in the home in order to create better compliance, more knowledge, and self-care behaviors on the part of patients (Carrington & Stewart, 2009). Transitional care programs have significant variability as far as composition and skills provided. The common goal is to replace traditional handoff care which can be disjointed and create a continuum of care through continuing education to reinforce discharge instructions as well as clarifying questions and easing doubts (Andrietta et al., 2011; Felter et al., 2014; Naylor, Aiken, Kurtxman, Olds, & Hirschman, 2011). Continued care may be provided in the form of phone calls, telemonitoring, clinic visits, or in-home health care visits. Across studies, persons receiving in- home care within the first 24 hours of discharge provides the best outcomes resulting in less acute care readmissions (Andrietta et al., 2011; Blauer et al., 2015; Dionne-Odom et al., 2014; Felter et al., 2014; Naylor et al., 2011). Many successful transitional care models deploy specially trained nurses. These have been found effective in reducing readmissions among heart failure patients over the age of 65 by 48% (Stauffer et al., 2011). In the models reducing overall mortality, multidisciplinary teams were utilized with nurses acting as case managers to fully address all patient needs (Andrietta et al., 2011; Blauer et al., 2015; Felter et al., 2014). Driscoll et al. (2011) reported 25% mortality reduction through such a team. Lawmakers are recognizing the potential of transitional

care and encouraging community-based programs through major funding outlined in the

Affordable Care Act (Naylor et al., 2011). A search of the literature did not reflect the use of a

student transitional care program. Thus, this project is novel in its approach to caring for heart

failure patients.

Time constraints are frequently a barrier to best care practices and transitional care is no

different. To be most effective, the patient must be intensely monitored through frequent vital

sign and symptom assessment (Felter et al., 2014; Nakamura, Koga, &Iseki , 2014). It is

unfeasible for a patient to be constantly monitored by a healthcare professional. This is where

many transitional care models fail. The nurses must provide tools to develop the patient's self-

management skills as they teach and manage the patient (Blauer et al., 2015; Muus et al., 2010;

Williams et al., 2010). Patients must be empowered to take control of their own health and

treatment plan.

Those who actively participate in their healthcare have reduced co-morbidities, mortality,

costs, and a better quality of life (Riegel et al., 2011). Barriers to engaging in one's own care are

frequent and can stem from a lack of acceptance of the disease process and feeling the disease has

improved, the complex nature of treatment, side effects, and the lack of a cure (Andrietta et al.,

2011). To overcome barriers, patients and providers need to form a partnership to empower the

patient to make positive decisions (Blauer et al., 2015). Through education and motivational

interviewing the patient and provider can work together to identify a motivating factor and the

importance of disease management. The necessary education includes emphasis on importance of

daily weighing, maintenance of fluid and sodium restrictions, compliance with prescribed

medication regimen, and maintaining contact with the healthcare team when tracking worsening

signs and symptoms of deterioration (Andrietta et al., 20112). These self-care behaviors are an

important starting point for engagement, but do not fully reduce the burden on the health system or reach ideal outcomes (Jowsey et al., 2014). In order to provide self- care management, one must have enough knowledge to identify problems and implement strategies to correct the problems (Blauer et al., 2015). Management is important to avoiding exacerbation, but does not fully maintain optimal health. When a patient has more experience with positive outcomes as a result of his or her quick decision-making in relation to changes in signs and symptoms, self-care confidence is increased (Riegel et al., 2011). Although the tenant of self-care confidence is an independent ability to care for oneself, evaluate the outcomes, and adjust as necessary, it can be reinforced through supportive relationships. Small groups of supportive individuals cultivate self-efficacy in the patient, leading to increased self-care confidence, and better disease management (Salyer et al., 2012). Because self-care confidence is the perceived ability to take control of ones care at every stage of treatment, a confident person is more likely to implement appropriate interventions. Self-care confidence is an indicator of how well patients will manage their condition (Salyer et al., 2012).

Self-care confidence can be effectively measured using the Self Care of Heart Failure Index version 6 (SCHFI V6.2). This tool uses twenty-two questions in a Likert scale to assess common actions of individuals with heart failure, symptom occurrence, patient reaction to the symptom, and patient confidence in actively taking steps to maintain wellness. Validity of the SCHFI V 6.2 was tested through confirmatory factor analysis by comparing results of the self-care behavior section to the European HF Self-Care Behavior Scale. Interviews were conducted to gather qualitative data on individuals, confirming that the SCHFI V 6.2 scores accurately reflected patient lifestyle behaviors (Riegel, Lee, Dickson, & Carlson, 2009).

The purpose of this study is to determine the association between the level of self-care confidence and acute care readmission among heart failure patients following student nurse led transitional care. Although literature exists on many transitional care models, there is a gap in literature discussing the role of student nurses providing this type of care. This will identify a possible cost-effective way to manage heart failure patients post-hospitalization with improved outcomes.

Research Questions

(1) Is there a statistically significant difference in pre- and post-self-care confidence in congestive heart failure patients as measured by the Self-Care of Heart Failure Index version 6.2 scores following implementation of a student nurse led transitional care program? (2) Is there a correlation between patients' score on the Self-Care of Heart Failure Index version 6.2 and the number of times patients were readmitted to an acute care setting within 30 days of initial discharge?

Methodology

This study was approved by the University of Arkansas and the study hospital Institutional Review Boards prior to data collection and analysis under the student led transitional care project protocol of principal investigator. The sample consisted of 20 patients over the age of 18, who were hospitalized for congestive heart failure. The participants completed the student-led 14-week transitional care program. Each patient was de-identified according to the federal Health Insurance Portability and Accountability Act (HIPAA) and assigned a random number used to identify their pre- and post- Self-Care of Heart Failure Index version 6.2 surveys and hospital medical record. All information is reported in the aggregate.

The research was conducted using a secondary data analysis of previous collected data from the Self-Care of Heart Failure Index version 6.2 (Appendix A) from an IRB approved pilot project and electronic medical record reviews. Information included each patient's pre- and post-transitional care implementation score on the Self-Care of Heart Failure Index version 6.2, as well as the number of readmissions to the hospital or emergency department visits since the study subject's original hospital discharge and entrance into the transitional care project to 30 days post discharge.

Results

Seventeen participants completed the pre- and post- maintenance and confidence sections of the Self Care of Heart Failure Index. The management section of the Self Care of Heart Failure Index was computed only if the patient acknowledged having trouble breathing or ankle swelling in the past interval. An initial paired samples *T* test was used to compare the differences in reported pre- and post-survey scores for each item. Data are mean $\pm$ standard deviation, unless otherwise stated (Table 1).

As noted in Appendix B, there was no statistically significant difference between pre- and post- Self-Care of Heart Failure Index version 6.2 surveys with regard to questions related to compliance with instructions, remedies used when experiencing difficulty breathing or ankle swelling, how likely they were to use the remedies and questions related to self-care confidence with the exception of their ability to evaluate how well a remedy worked. When evaluating how well a remedy worked for them, patients demonstrated a statistically significant increase in the post-survey self-confidence score with a mean difference of 0.50 (95% CI, .041 to .959), $t\,(17) =$ 2.297, $p = .04$.

Table 1
Paired Samples Statistics

In general, how confident are you that you can		Mean	N	Std. Dev.
Weigh yourself?	post	3.61	18	.916
	pre	3.56	18	.856
Check your ankles for swelling?	post	3.67	18	.594
	pre	3.61	18	.778
Try to avoid getting sick?	post	3.39	18	1.037
	pre	3.39	18	.850
Do some physical activity?	post	2.72	18	1.127
	pre	2.50	18	.985
Keep doctor or nurse appointments?	post	3.78	18	.732
	pre	3.67	18	.840
Eat a low salt diet?	post	3.67	18	.485
	pre	3.44	18	.705
Exercise for 30 minutes?	post	1.83	18	1.150
	pre	2.11	18	1.183
Forget to take one of your medicines?	post	1.39	18	.778
	pre	1.72	18	1.018
Ask for low salt items when eating out or visiting others?	post	2.06	18	1.392
	pre	2.56	18	1.423
Uses a system to help you remember your medicines?	post	3.72	18	.826
	pre	3.33	18	1.283
How quickly did you recognize trouble breathing/ankle swelling as a symptom of HF?	post	3.38	13	2.219
	pre	3.23	13	1.878
Reduce the salt in your diet	post	3.12	17	1.269
	pre	3.24	17	1.033
Reduce your fluid intake	post	2.65	17	1.320
	pre	2.53	17	1.179
Take an extra water pill	post	1.71	17	1.213
	pre	2.24	17	1.393
Call your doctor or nurse for guidance	post	3.06	17	1.144
	pre	2.94	17	.966
How sure were you that the remedy helped or did not help?	post	2.89	18	1.676
	pre	3.11	18	1.410
Keep yourself free of heart failure symptoms?	post	2.56	18	.705
	pre	2.33	18	.594
Follow the treatment advice you have been given?	post	3.33	18	.686
	pre	3.11	18	.758
Evaluate the importance of your symptoms?	post	2.61	18	.979
	pre	2.72	18	.826
Recognize changes in your health if they occur?	post	3.17	18	.857
	pre	2.89	18	.963
Do something that will relieve your symptoms?	post	2.78	18	.878
	pre	2.39	18	.916
Evaluate how well a remedy works?	post	2.94	18	.873
	pre	2.44	18	.856

Next the survey questions were divided into the scales (maintenance, management, and confidence) and standardized to a score of 100 to make them comparable across scales. A paired samples *T* test was used to determine whether the mean difference between the pre- and post-survey scores were statistically significant. There was not a statistically significant difference in the maintenance scale, management scale or confidence scale in the study population (Table 2). The survey scale addressing management was to be used only if the patient acknowledged having trouble breathing or ankle swelling in the past month. If the patient responded "no" then they were not included in the analysis. This allowed only 5 participants to be analyzed using a paired samples *T* test.

Table 2
Paired Samples Test on Self-Care of Heart Failure Index

Survey Scales	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Maintenance post – pre	3.51	18.90	4.46	-5.89	12.91	.79	17	.44
Management post – pre	-18.00	32.90	14.71	-58.85	22.85	-1.22	4	.29
Confidence post – pre	8.34	20.20	4.76	-1.71	18.39	1.75	17	.10

Study participant medical records were reviewed to determine the number of readmissions and emergency department visits during the 30 days following initial hospitalization for heart failure. Only 4.7% of the study participants were readmitted to the hospital within thirty days due to worsening of their congestive heart failure. Additionally, 9.5% were seen in the emergency department because of cardiac related reasons. One patient was seen for increasing shortness of breath which was treated with diuretics, one patient was treated for new onset of atrial

fibrillation, and three patients were seen in the emergency department for non-cardiac events (epistaxis, urinary tract infection, and unintentional overdose).

Discussion

This study examined the level of self-care maintenance, management, and confidence pre- and post- a student led transitional care. The findings show no significant change in the patients' pre- and post- self-care ability in terms of maintenance, management or confidence. Although not statistically significant, an increase in reported means for the sections covering level of maintenance and confidence, showing some gain in these two aspects of individuals' self-care. According to Riegel et al. (2009), an increase in the scale of over one half of a standard deviation, as is the case with self-care confidence, demonstrates clinical importance. A reported score of 70 or greater is also shown to be a point at which self-care adequacy can be assumed. The reported scores for post-implementation self-care maintenance reached 73.51.

The literature supports home visits as tools to promote learning instructions, clarifying doubts, and being able to identify signs and symptoms of worsening heart failure (Andrietta et al., 2011). At-home patient visits after hospital discharge was found to be the most successful way to positively impact patient health (Andrietta et al., 2011; Blauer et al., 2015; Dionne-Odom et al., 2014; Felter et al., 2014; Muus et al., 2010).

Thirty-day hospital readmission rates were tracked for the patients in the study and found that they visited an acute care setting less than is standard. Typically, one in four heart failure patients are readmitted to an acute care setting within the initial thirty days following discharge (Felter et al., 2014; Joynt et al., 2011). Only 4.7% of the study participants were readmitted to the hospital within thirty days due to congestive heart failure, and 9.5% were seen in the emergency department because of cardiac related reasons. These patients were assessed weekly, so

intervention would occur within hours to days of worsening symptoms. Quick treatment of the

study participants' deterioration in clinical condition prevented the problems from becoming so

severe they required hospitalization (Rickenbacher et al., 2012). Participants were additionally

supported in their decision-making, and provided education on the complex disease process. More

knowledge is the first step in advancing self-care. According to Riegel et al. (2011), the most

basic form of self-care is maintenance. This serves as a stepping stone to build up one's ability to

manage their own care and eventually become confident in those abilities as well as evaluation of

their self-care decisions. In order to be able to perform the basic roles included in self-care

maintenance (weighing daily, checking for edema, adhering to sodium restrictions, getting

physical activity, and taking medications appropriately) the patient must understand their

instructions. The students used the teach-back method with instructions so that they could be

understood including the reasoning behind instructions to attempt and increase adherence.

Compliance has been found to increase as education increases (Enc et al., 2010).

Some advances in self-care, especially self-care confidence, come from simply living with

the disease and learning to cope with it. Personal outlook changes as a patient has time to

psychologically adjust to what the illness entails and come to terms with his or her new lifestyle

(Blauer et al., 2015). Additionally, perceived social support instills confidence in patients along

with the belief that they are in control of their lives and disease processes (Salyer et al., 2012).

Although the student nurses provided education and followed trends in the patient's clinical

symptoms to attempt early intervention, they also encouraged simply through visiting. These

patients are often isolated and the students were able provide needed social support. They were

able to form a rapport through repeated visits and provide the patients with a sense of security

knowing that a trained person would be coming to guide and support their decisions. When one

patient was asked if she had made any adjustments after noticing increased swelling that week, she replied "No, I knew you were coming and would tell me what to do." This is positive that the patient felt supported and was correct that the students would arrange for having her medication adjusted and be instructed on changes to make. At the same time, it is negative because the goal is to have patients empowered to make lifestyle changes on their own such as limiting fluid intake, further limiting salt, increasing diuretics, and calling the clinic if the patient is unsure of immediate interventions.

This may be partially due to student nurses' lack of experience with using motivational techniques to promote behavioral change and empowering clients to make changes in their care. Student nurses are accustomed to practicing in a hospital, a highly controlled environment where the patient can be kept on a strict schedule, ensuring adequate activity, dietary restrictions, and medication compliance. Successful transitional care relies heavily on individualized patient care including motivational interviewing, flexibility, and compromise (Blauer et al., 2015). Dionne-Odom et al. (2014) found the majority of heart failure patients do not believe the disease will kill them. This does not align with a student's perception of heart failure and the severity of consequences for not making appropriate lifestyle changes. Skill at finding intrinsic motivation and forming shared goals with a patient comes from practice that student nurses may lack.

Additional limitations include the length of the intervention, sample size of the study, and fragmentation of the care during the study. Many studies that found transitional care programs with positive outcomes were lengthy studies, such as that identified by Carrington & Stewart (2009) as successful, which included 7.5 years of intervention and data. With more time patient outcomes could be assessed more thoroughly. Prolonged studies also give more time for intervention and attempt to make behavioral changes, which occur slowly. The intervention

model used may still be less successful than others in literature due to fragmentation of care. One main goal of transitional care is continuum of care (Andrietta et al., 2011; Felter et al., 2014; Naylor et al., 2011). Students rotated out of the implementation group every six weeks with gaps before a new student was sent to visit the patient's home. With each new student nurse came an adjustment period as far as learning about the patient's personality, preferences, adherence, and health specifics. With more time under the care of one student nurse, the patient would be able to have a stronger bond and more personalized care. The sample size was small and could play a role in the lack of statistical significance between pre-and post-intervention samples. This is especially true for the pre- and post- management, as it only contained 5 patients. Smaller sample sizes lower the statistical power, causing type II errors to occur more frequently (de Winter, 2013). The smaller the sample size, the harder to show statistical significance in rejecting the null hypothesis.

Conclusion

As the American population ages the amount of individuals with heart failure will grow. In order to achieve the best lives for these patients and to prevent skyrocketing cost of care, patients need to be kept stable in their home environment.

Transitional care is one proposed way to provide these benefits. By replacing traditional discharge with continued care and support, patients can ease back into their daily lives. Supporting and growing patient knowledge and self-care can help them to avoid excessive hospital readmissions. The patients in the study did not show a statistically significant increase in self-care maintenance, management, or confidence, but did show trends in the positive direction. Benefits could better be explored through further development of the program. This student facilitated transitional care model is new to healthcare and requires more studies to prove the benefits and best practice.

The study is making positive strides in patient care, but should be strengthened by expanding the study. It should incorporate a larger number of patients as well as following them long-term to track impact on the 50% 5-year mortality rate. Students involved in the program should have more skills practice and training on identifying the client's goals and barriers in order to work as a team rather than attempting to implement changes based solely on the student's perspective. This will increase patient willingness to learn and further treatment compliance. With further training and development, student-led transitional care programs have the potential to impact care of patients with congestive heart failure following hospital discharge.

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Appendix A

Self-Care of Heart Failure Index version 6.2

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

SECTION A:

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

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

SECTION B:

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

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

    0) No

    1) Yes

11. If you had trouble breathing or ankle swelling in the past month... (circle one number)

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

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

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

    16. Think of a remedy you tried the last time you had trouble breathing or ankle swelling, (circle one number)

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

SECTION C:

In general, how confident are you that you can:

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

Appendix B

Paired Samples Test

	Mean	Std. Dev.	Lower	Upper	t	df	Sig.
			95% Confidence Interval of the Difference				
Weigh yourself?	.056	1.211	-.547	.658	.195	17	.85
Check your ankles for swelling?	.111	.583	-.179	.401	.809	17	.43
Try to avoid getting sick?	.000	1.138	-.566	.566	.000	17	1.0
Do some physical activity?	.222	1.700	-.623	1.067	.555	17	.59
Keep doctor or nurse appointments?	.111	.583	-.179	.401	.809	17	.43
Eat a low salt diet?	.222	.647	-.099	.544	1.458	17	.16
Exercise for 30 minutes?	-.278	1.487	-1.017	.462	-.792	17	.14
Forget to take one of your medicines?	-.333	1.455	-1.057	.390	-.972	17	.35
Ask for low salt items when eating out or visiting others?	-.500	2.229	-1.609	.609	-951	17	.36
Uses a system to help you remember your medicines?	.389	1.290	-.252	1.030	1.279	17	.29
How quickly did you recognize trouble breathing/ankle swelling as a symptom of HF?	.154	3.412	-1.908	2.216	.163	12	.87
Reduce the salt in your diet	-.118	1.576	-.928	.693	-.308	16	.76
Reduce your fluid intake	.118	2.027	-.925	1.160	.239	16	.81
Take an extra water pill	-.529	1.505	-1.303	.244	-1.450	16	.17
Call your doctor or nurse for guidance	.188	1.616	-.713	.948	.300	16	.77
How sure were you that the remedy helped or did not help?	-.222	1.865	-1.150	.705	-.506	17	.62
Keep yourself free of heart failure symptoms?	.222	.647	-.099	.544	1.458	17	.16
Follow the treatment advice you have been given?	.222	.878	-.214	.659	1.074	17	.30
Evaluate the importance of your symptoms?	-.111	1.323	-.769	.547	-.356	17	.73
Recognize changes in your health if they occur?	.278	1.127	-.283	.838	1.045	17	.31
Do something that will relieve your symptoms?	.389	.916	-.067	.845	1.8	17	.09
Evaluate how well a remedy works?	.500	.924	.041	.959	2.297	17	*.04*

Acknowledgments