Effectiveness of a Self-Care Program in Improving Symptom Distress and Quality of Life in Congestive Heart Failure Patients: A Preliminary Study

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ABSTRACT

Background: Prevalence of heart failure is increasing among older adults. Most heart failure patients experience distressing symptoms that lead to decreased physical functioning, poor quality of life, and a high incidence of rehospitalization. Health education about heart failure self-care (HFSC) is very important during hospitalization for these patients. However, lack of ongoing follow-up after discharge makes evaluation and disease management difficult. This is a significant problem in Taiwan.

Purpose: This study was undertaken to determine if participants with heart failure who were managed under the HFSC program had fewer distressing symptoms, better functional status, improved quality of life, and reduced hospital and emergency readmission rates compared with control group participants.

Methods: This study used a quasi-experimental design with a control group that received usual care and an intervention group that received usual care plus the HFSC program. Twenty-seven participants were recruited from 2 cardiac general wards at 1 medical center in Taipei City, Taiwan, and were randomized into intervention (n = 14) and control (n = 13) groups.

Results: After 3 months, there were significant differences in symptom distress (p < .01), 6-minute walk test results (p < .01), and quality of life (using Short Form 36, Taiwan version, p < .05) between the HFSC and control groups but no significant differences in hospital readmission and emergency department visits.

Conclusions/Implications for Practice: The HFSC program for patients with heart failure improved their heart failure symptoms and resulted in increased functional status and better quality of life. HFSC is a workable program in the clinical environment. Advanced nurse practitioners can use HFSC methods and principles to provide improved education and follow-up to heart failure patients.

Key Words: self-care, congestive heart failure, quality of life, symptom distress, nursing, Taiwan.

Introduction

Heart failure is a broad term used to describe a group of symptoms that are present in many chronic and terminal heart diseases. The incidence level of heart failure increases with age. The prevalence of heart failure is increasing as the number of older people in society grows (Weintraub et al., 2010). According to the American Heart Association, about 5,800,000 persons (~2% of the entire population) had heart failure in 2009, with an estimated yearly incidence of 550,000 in the United States (Weintraub et al., 2010). In Taiwan, cardiac disease was the second leading cause of death in 2010, accounting for 10.8% of the national death toll. Because heart failure is the terminal expression of all cardiac diseases, it is likely that heart failure incidence and prevalence will continue to increase (Department of Health, Executive Yuan, Taiwan, ROC, 2010).

Many studies have documented a readmission rate of approximately 50% for persons with heart failure (Vinson, Rich, Sperry, Shah, & McNamara, 1990). In one study, 39% of the participants demonstrated early clinical deterioration within 14 days of hospital discharge (Stewart & Horowitz, 2002a). Reasons for readmission were mostly due to symptom relapse such as shortness of breath and edema, which interfere with activities of daily living. Repeated hospital admissions in and of them themselves also worsen a person’s
quality of life (Candlish, Watts, Redman, Whyte, & Lowe, 1998). Bennett et al. (1998) found that 59% of heart failure patients were readmitted for sodium retention and resulting fluid overload. Patients with early symptom deterioration were more likely to be noncompliant with fluid restrictions (Stewart & Horowitz, 2002a). Some studies found that patients with fewer symptoms of distress had a better quality of life (Grady et al., 1995). In general, the factors related to patient readmission were not following the prescribed diet, not complying with medical treatment, and effects of related comorbidities. Vinson et al. (1990) stressed that 53% of re-admissions for heart failure are preventable. Heart failure treatment should center on controlling symptoms, avoiding acute exacerbation and readmission, and improving patient quality of life (Beers & Berkow, 2000).

Fatigue is one of the most common symptoms of heart failure. Many older adults regard it as part of the normal aging process (Friedman, 1997). However, increased fatigue was significantly associated with increased dependence and decreased quality of activities of daily living (Norberg, Boman, & Lööf, 2010). Frantz (2004) noted that in older people, when symptoms were ambiguous and unclear as indicators of illness, help seeking was delayed by 60% of the population. Dyspnea is also a common symptom of heart failure. Parshall et al. (2001) found that 70% of heart failure patients visited EDs because of dyspnea; of this group, 88% were hospitalized. Friedman (1997) found that 91% of patients had shortness of breath 3 days before admission and 37% had acute dyspnea 12 hours before admission.

Weight gain is another sign of heart failure and a signal of worsening patient condition. Sulzbach-Hoke, Kagan, and Craig (1997) found that 33% of patients did not attempt to deal with increased body weight, although 56.7% of them felt distressed about it. Only a few patients knew that weight gain was a critical sign of heart failure (Blyth et al., 1997). Ni et al. (1999) found that 40% of patients did not know the importance of taking daily weight. Weight gain has been significantly associated with heart failure rehospitalization rates (Martens, 2000).

Therefore, efforts to educate patients and their caregivers about heart failure, precipitating factors, and the need for compliance with medication and dietary advice are crucial elements in heart failure management success (McAlister, Stewart, Ferrua, & McMurray, 2004). Several studies have explored the effectiveness of different interventions and educational programs. Peters-Klimm et al. (2010) implemented and explored heart failure case management in heart failure patients. Outcomes from this study showed high adherence to pharmacotherapy and good patient self-care behaviors as well as lower hospital admission and mortality rates (Peters-Klimm et al., 2010). Naylor et al. (2004) delivered a transitional care intervention consisting of discharge planning and home follow-up with older people hospitalized with heart failure. Results demonstrated only short-term improvement in overall, the physical dimension of quality of life, and patient satisfaction. In a home-based intervention study, a median of 4.2 years of follow-up found significantly fewer unplanned readmissions and deaths in the experimental group than the standard care group and significantly lower median cost of readmissions in the former than the latter (Stewart & Horowitz, 2002b).

Heart failure is a chronic disease that requires specific self-care strategies. Some studies demonstrated benefits from interventions and education. However, heart failure has such a pervasive effect on patients’ lives that little physical energy remains for self-care (Riegel & Carlson, 2002). Barriers to heart failure self-care (HFSC) include symptom burden and misconceptions or lack of knowledge about how to perform HFSC. Many patients were unable to judge the importance of their symptoms, misinterpreted self-care, or did not believe that self-care behavior could help. Confidence in self-ability to effectively treat symptoms was low. This may explain why most patients experience symptoms for a prolonged period before seeking help (Carlson, Riegel, & Moser, 2001).

These previously mentioned studies revealed differing intervention outcomes and emphasized the importance continued care for heart failure patients from admission to discharge and home follow-up. The European Society of Cardiology guidelines recommend the key characteristics of heart failure disease management program as providing in-hospital and out-of-hospital care, discharge planning, education strategies, and vigilant follow-up (Dickstein et al., 2008). Several studies demonstrated the positive outcomes achievable by disease management programs (DeWalt et al., 2006; Hebert et al., 2008; Kutzleb & Reiner, 2006). Yu, Thompson, and Lee (2006) reviewed studies published during the past 10 years and indicated that intensive education, self-care practice, and home visits play an important role in heart failure management. In Taiwan, however, the health insurance and healthcare delivery systems are different from those in Western countries and lack home follow-up after hospital discharge. The purpose of this study was to explore the effect of a self-care program for elderly patients with heart failure on symptom distress, functional status, quality of life, emergency visits and hospital readmissions within three months after discharge.

**Methods**

**Design**

This study used a quasi-experimental design with a control group receiving normal care (i.e., oral instruction) and an intervention group receiving the normal care plus an HFSC program. The HFSC program was implemented on the participant’s hospital admission day and focused on intensive education, in-hospital and out-of-hospital care, home visits, and enhancing access to healthcare. The patient and their families were encouraged to participate in the program. We hoped they could actively participate, not just experience
passive learning. In addition, an HFSC education brochure was provided. Telephone contact was initiated on the third or fourth day after discharge. Home visits were arranged to assess the self-care performance of patients and families, such as medication and diet compliance and body weight recording, during the first week and then during the first, second, and third months postdischarge. A telephone number to call for advice was given for any emergency situation or for care needed. The follow-up period was 3 months postdischarge. All questionnaires (specific information follows) and 6-Minute Walk Test (SMWT) data were collected immediately after the patient or family consented to join the study program and at the third-month home postdischarge visit.

The HFSC program started after the patient was admitted to the general ward. Demographic data and physical assessment were performed during first interview, and the program was introduced to patient and family. After that, we visited the patient and family at least every other day. Symptom assessment and patient education were undertaken during each visit. The education content includes pathophysiology of heart failure disease; risk and precipitating factors, signs, and symptoms; stressing the importance of adherence to diet, medication, and exercise regimens; and implementing lifestyle changes and daily weight measurement habits. Before discharge, an informal family meeting was held with reminders about medication and the date of the next clinic follow-up. After discharge from the hospital, a first phone call was made 3 or 4 days later. At this time, we assessed the patient’s heart failure signs and symptoms and discussed diet, medication compliance, and symptom monitoring. During the home visits, not only was the heart failure signs and symptom assessment done, but we also tried to observed how they implemented self-care skills in their daily lives.

A cardiologist, pharmacist, and senior nursing staff and supervisor validated the HFSC program content. After approval was obtained from the hospital institutional review board, this program was implemented by the principal investigator—a cardiac intensive care unit nurse with 6 years of related experience.

Sample
Participants were chosen from among patients diagnosed with heart failure at a medical center in Taipei City, Taiwan. Selection criteria included clear cognition, ambulatory independence, ability to communicate in Chinese or Taiwanese, willingness to participate in the study, and providing written consent. Participants were recruited from two cardiac general wards. To prevent confounding influences from the environment, policies, or ward nursing staffs on outcomes, participants were enrolled for 4 months from one unit and then from the second unit for the last 4 months for the experimental group. Control group enrollment was reversed. The study ran for 12 months. The sample size estimation followed the recommendation of Rich et al. (1995) of an effect size of 0.58. Sixteen patients were required for each group, estimated under an alpha of .05 and power of 80%.

Instruments
Symptom Distress Questionnaire (SDQ)
Symptom distress is the uncomfortable experience perceived by patients. However, no validated Chinese-version questionnaire about symptom distress for heart failure disease was available. Reflecting the common symptoms experienced by heart failure patients, the researcher developed an SDQ containing nine common symptoms: dyspnea, fatigue, edema, weight gain, palpitation, chest tightness, poor appetite, dizziness, and impotence. Each symptom was rated on a 4-point Likert-type scale of occurrence from 0 (never) to 3 (always). Scores had a possible range of 0 to 27, with a higher score meaning greater symptom distress level. Cardiologists, a cardiac rehabilitation physician, a nursing supervisor, a head nurse, and a master’s degree nurses determined content validity. The internal reliability alpha was .69 from 39 individuals in a convenient sampling of cardiovascular disease patients.

SMWT
The SMWT assessed participant functional status. This exercise measures the distance walked in a fixed period (6 minutes) and is commonly used to assess activity tolerance. Because it closely mimics the activity effort of daily living, the SMWT has particular values in evaluating patients with severe heart failure (Lipkin, Scriven, Crake, & Poole-Wilson, 1986). Bittner et al. (1993) indicated that the SMWT was a predictive factor of heart failure mortality and morbidity.

In this study, the first SMWT was tested in the corridor of the hospital ward. During the test, the corridor was cleared. The number of tiles (each 30 cm long) a patient walked was converted to a total measurement in centimeters. The second SMWT was conducted at the patient’s home or clinic. A straight and open hallway was selected and the distance walked by the patient was measured.

Quality of Life Questionnaire (SF-36 Taiwanese Version)
The SF-36 was developed by Ware and Sherbourne (1992) and contains 36 questions that measure eight dimensions of physical and mental health status including physical functions, role limitations due to physical problems, bodily pain, general health, vitality, social functions, role limitation due to emotional problems, mental health, and reported health transition. A higher score reflects better quality of life. The Chinese-language version of the SF-36 has established reliability and validity. Reliability was α = .76 to .92 for all dimensions, with the exception of social function (α = .65; Lu, Tseng, & Tsai, 2003). The criterion-related validity for physical health dimension score decreased with increasing age, and the mental health dimension was not affected by age. Therefore, the SF-36 Taiwanese version conforms to the
assumptions of the original version if age is used as a criterion (Tseng, Lu, & Tsai, 2003).

**Unplanned readmission, emergency visit event**

Data were obtained from the hospital computer system related to healthcare services and medical records. Data on medical events including hospital unplanned readmission and ED visits were collected during the 3-month period after patient discharge.

**Data Collection and Analysis**

A bachelor’s-degree-prepared nurse with cardiology care unit experience collected study data. The characteristics of the two groups were compared using frequency, percentage, chi-square, and t tests. Differences between preintervention and postintervention within groups in SDQ, SMWT, and SF-36 were tested using the nonparametric Wilcoxon signed-rank test. Nonparametric Mann–Whitney U test tested differences between the two groups in terms of outcome indicators. SPSS for Windows Version 11 (SPSS Inc., Chicago, IL, USA) was used to conduct data analysis.

**Results**

**Participant Characteristics**

Thirty-one participants were recruited, 2 participants could not be contacted after discharge, and 2 participants dropped out. These 4 participants were all men, with a mean age of 81.75 years. At the conclusion of the study, 27 participants remained enrolled (completion rate of 87%), with 14 in the intervention group and 13 in the control group. No significant differences were found in the basic characteristics of the two groups. Mean ages for the intervention and control groups were 72.43 ± 10.26 years and 70.46 ± 11.83 years, respectively. The majority of participants in both groups were men (78.60% vs. 76.90%), were married (78.60% vs. 76.90%), and were living with their spouse or children (64.30% vs. 61.50%). Comorbid conditions included hypertension (85.70% vs. 68.20%), diabetes (64.30% vs. 69.20%), and coronary artery disease (78.60% vs. 76.90%).

The mean history of heart failure was 2.16 ± 2.76 years in the intervention group and 1.81 ± 3.50 years in the control group. Most in both groups were at New York Heart Association Functional Class III (50.00% vs. 53.80%), followed by Class II (28.60% vs. 30.80%) and Class IV (21.40% vs. 15.40%). Left ventricular ejection fraction was 41.47 ± 18.59% and 38.38 ± 11.81%, respectively, during hospitalization.

**Symptom Distress**

Posttest scores were all lower than pretest scores for both groups, with the exception of the “poor appetite” score in the control group. Fatigue, dyspnea, edema, poor appetite, and chest tightness were significantly different pretest and posttest in the intervention group. There were no significant differences in any of the nine symptoms in the control group. The difference of score sums between pretest and posttest was significant in the intervention group (Wilcoxon signed-rank test, Z = 3.06, p < .01) but not in the control group. The study used a Mann–Whitney U test to compare the mean difference between hospitalization and 3 months after discharge scores for the two groups and found significance (Z = 2.71, p < .01). Results showed that the HFSC program reduced participant symptom distress (Table 1).

**Functional Status**

In the intervention group, walking distance significantly increased from 180.86 ± 109.30 m to 254.93 ± 145.53 m

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### Table 1. Comparison of Symptom Distress (N = 27)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Fatigue</td>
<td>1.57</td>
<td>0.94</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>1.57</td>
<td>0.85</td>
</tr>
<tr>
<td>Edema</td>
<td>1.21</td>
<td>1.25</td>
</tr>
<tr>
<td>Poor appetite</td>
<td>1.21</td>
<td>1.12</td>
</tr>
<tr>
<td>Palpitation</td>
<td>1.07</td>
<td>0.92</td>
</tr>
<tr>
<td>Dizziness</td>
<td>1.00</td>
<td>0.88</td>
</tr>
<tr>
<td>Chest tightness</td>
<td>0.64</td>
<td>0.74</td>
</tr>
<tr>
<td>Impotence</td>
<td>0.29</td>
<td>0.83</td>
</tr>
<tr>
<td>Weight gain</td>
<td>0.29</td>
<td>0.61</td>
</tr>
<tr>
<td>Sum</td>
<td>8.86</td>
<td>3.11</td>
</tr>
</tbody>
</table>

* *p < .05. ** *p < .01.
(Wilcoxon signed-rank test, \( Z = -2.76, p < .01 \)). However, distance decreased from 143.10 \( \pm \) 53.39 m to 123.84 \( \pm \) 57.10 m in the control group, demonstrating a significant difference between the groups (Mann–Whitney \( U \) test, \( Z = -2.89, p < .05 \)). Results showed that the HFSC program increased participant walking distance (Table 2).

**Quality of Life**

The pretest scores for SF-36 in the intervention and control groups were 98.00 \( \pm \) 15.84 and 87.00 \( \pm \) 22.86, respectively. After the 3-month follow-up, posttest scores had increased to 118.75 \( \pm \) 11.20 in the intervention group and 89.00 \( \pm \) 28.47 in the control group. Only in the intervention group was a significant difference found between pretest and posttest results (Wilcoxon signed-rank test, \( Z = -2.59, p < .05 \)). Comparing the differences between individual dimension scores, no significant change was found at any dimension, with the exception of general health (Table 3). However, there was a significant difference after summing scores for all dimensions (Mann–Whitney \( U \) test, \( Z = -2.10, p < .05 \)). Results indicate that the HFSC program improved participant QOL (Table 2).

### TABLE 2.

**Comparison of Symptom Distress, SMWT, and QOL (\( N = 27 \))**

<table>
<thead>
<tr>
<th>Item/Group</th>
<th>Pretest, Mdn</th>
<th>Posttest, Mdn</th>
<th>Pretest, M</th>
<th>Posttest, M</th>
<th>Mean Difference, M</th>
<th>Wilcoxon Signed-Rank Test, M</th>
<th>Mann–Whitney U Test, M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>8.50</td>
<td>1.50</td>
<td>8.86</td>
<td>3.11</td>
<td>-2.08</td>
<td>1.51</td>
<td>-3.06**</td>
</tr>
<tr>
<td>Control</td>
<td>9.00</td>
<td>7.00</td>
<td>8.50</td>
<td>3.84</td>
<td>6.78</td>
<td>5.33</td>
<td>-0.67</td>
</tr>
<tr>
<td>SMWT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>149.10</td>
<td>215.80</td>
<td>180.86</td>
<td>109.30</td>
<td>254.93</td>
<td>145.53</td>
<td>-2.76**</td>
</tr>
<tr>
<td>Control</td>
<td>143.40</td>
<td>123.15</td>
<td>143.10</td>
<td>53.39</td>
<td>123.84</td>
<td>57.10</td>
<td>-0.56</td>
</tr>
<tr>
<td>QOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>95.50</td>
<td>119.00</td>
<td>98.00</td>
<td>15.84</td>
<td>118.75</td>
<td>11.20</td>
<td>-2.59*</td>
</tr>
<tr>
<td>Control</td>
<td>88.00</td>
<td>93.00</td>
<td>87.00</td>
<td>22.86</td>
<td>89.00</td>
<td>28.47</td>
<td>-0.59</td>
</tr>
</tbody>
</table>

*Note. SMWT = 6-Minute Walk Test; QOL = quality of life. *\( p < .05 \). **\( p < .01 \).*

### Readmission and Emergency Visits

Four participants experienced at least one emergency visit or readmission in the intervention group, which resulted in eight emergency visits and four readmissions. In the control group, eight participants experienced 14 emergency visits and nine participants experienced 12 readmissions. The intervention group had lesser healthcare utilization, although the difference was not significantly different (chi-square, \( p = .26 \) vs. \( p = .06 \), Table 4).

### Discussion

The center of heart failure management is symptom relief, quality of life improvement, avoidance of acute deterioration, and reduced hospital readmission rates (Beers & Berkow, 2000). The HFSC program used in this study

### TABLE 3.

**Comparison of the Eight SF-36 Dimensions (\( N = 27 \))**

<table>
<thead>
<tr>
<th>Dimension of the SF-36</th>
<th>Intervention Pretest</th>
<th>Intervention Posttest</th>
<th>Control Pretest</th>
<th>Control Posttest</th>
<th>Mann–Whitney ( U ) test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M ) ( SD )</td>
<td>( M ) ( SD )</td>
<td>( M ) ( SD )</td>
<td>( M ) ( SD )</td>
<td></td>
</tr>
<tr>
<td>General health</td>
<td>17.71 3.43</td>
<td>22.00 3.46</td>
<td>14.38 4.86</td>
<td>15.78 6.83</td>
<td>-2.64*</td>
</tr>
<tr>
<td>Physical functioning</td>
<td>18.00 5.01</td>
<td>23.08 5.48</td>
<td>18.62 6.12</td>
<td>19.44 5.29</td>
<td>-1.92</td>
</tr>
<tr>
<td>Role-physical</td>
<td>4.64 1.34</td>
<td>6.67 1.72</td>
<td>4.77 1.54</td>
<td>4.89 1.76</td>
<td>-1.42</td>
</tr>
<tr>
<td>Role-emotional</td>
<td>4.79 1.19</td>
<td>5.50 0.90</td>
<td>4.00 1.15</td>
<td>4.22 1.48</td>
<td>-0.80</td>
</tr>
<tr>
<td>Social functioning</td>
<td>6.93 2.73</td>
<td>8.75 1.29</td>
<td>6.92 3.15</td>
<td>6.33 2.69</td>
<td>-1.14</td>
</tr>
<tr>
<td>Bodily pain</td>
<td>8.86 2.66</td>
<td>10.17 1.59</td>
<td>7.68 3.20</td>
<td>7.67 3.35</td>
<td>-0.70</td>
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<tr>
<td>Vitality</td>
<td>13.64 3.99</td>
<td>16.25 3.05</td>
<td>11.00 5.08</td>
<td>11.44 5.05</td>
<td>-1.68</td>
</tr>
<tr>
<td>Mental health</td>
<td>21.64 5.64</td>
<td>26.42 3.58</td>
<td>18.15 6.50</td>
<td>19.22 5.89</td>
<td>-1.78</td>
</tr>
</tbody>
</table>

*\( p < .05 \).*
TABLE 4.
Comparison of Numbers of Readmissions and Emergency Visits (N = 27)

<table>
<thead>
<tr>
<th>Item</th>
<th>Intervention</th>
<th>Control</th>
<th>(c^2) (Fisher’s Exact Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (Persons)</td>
<td>No (Persons)</td>
<td>Total Numbers</td>
</tr>
<tr>
<td>Emergency visits</td>
<td>4</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Readmissions</td>
<td>4</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

Reduced participant symptom distress and improved functional status and quality of life. Vinson et al. (1990) noted that there are preventable risk factors for readmissions, which included noncompliance with regard to diet and medication, inadequate discharge planning and follow-up, lack of a social support system, and inadequate seeking of medical care. Blue et al. (2001) indicated that in addition to education, the key components of successful intervention include regular contact between patients and their healthcare providers to detect clinical deterioration and continued adjustment and optimization of treatment. Home visits appear to be pivotal to reducing readmissions. For this reason, the HFSC program reinforced the role of discharge planning and follow-up, which is a major healthcare shortcoming in Taiwan. During the period of hospitalization, the caregiver’s role, healthcare knowledge, and skills seem to have been enhanced, including comprehensive instructions about diet, medication, lifestyle changes, and weight measurement habits. In this study, after discharge, the nurse visited the participant at home to evaluate the patient’s status and compliance with the regimen as well as to teach self-management. This approach is clearly distinct from the current hospital discharge follow-up of one telephone contact, which, although very convenient to implement, can easily miss the early signs and symptoms of deterioration.

Stewart and Horowitz (2002a) found that 39% of heart failure patients discharged from hospital had early clinical deterioration caused by failure to restrict fluid. In the transition process from hospital to the patient’s home, patients suffered from tentative, cautious circumstance and encountered emotional frustration and challenges while trying to manage their disease. Although patients knew the importance of dietary control, it was difficult to change or modify established eating habits (Lough, 1996). Therefore, the transitional care of hospitalized heart failure patients is very important. Through continuing follow-up, nurses can be a consultant and communicator between patients/families and the healthcare provider. For example, one participant described: “continuous follow-up made me feel more sure, made my mind more at ease, ..., feel respected, ..., that’s one thing that made me happy, ..., gave me confidence.”

Symptom distress is a subjective experience. Most older people with heart failure regard fatigue or general weakness as a part of normal aging and do not know the severity of their illness until they are threatened by severe shortness of breath. Considering the reasons for initial admission to the hospital for the 27 participants in this study, 2 were admitted for symptoms of chest tightness and the others were admitted for shortness of breath, exertional dyspnea, and acute pulmonary edema. Unplanned readmissions were almost always for dyspnea symptoms. Our results were similar to those of Parshall et al. (2001).

Weight gain and edema are common complaints of heart failure patients (Shah, Der, Ruggerio, Heidenreich, & Massie, 1998). Martens (2000) found that weight gain in excess of 3 lbs a week was significantly associated with re-admission. Most patients with heart failure admitted for dyspnea symptoms realized, after a detailed history taking, that symptoms of bilateral edema in the legs had been experienced for an extended period without being noticed because it “…subsided after waking up in morning.” As for weight gain or decreased urine output, most patients did not notice these symptoms or had no habit of weight measurement. Because they were not taught or were aware of what to look for, the early symptoms of heart failure were usually ignored, which could cause their condition to worsen. For this reason, rapid weight gain and edema were listed as items in the SDQ in this study. The importance of accurate weight measurement was also emphasized in the heart failure education pamphlet. Participants were asked to record body weight and urine amount every day to aid as indicators of outcome evaluation. However, this aspect of data gathering failed. Typical reasons for not collecting this type of data were stated by one participant, “There were no changes for several days, so I quit recording!” Another related issue was the taboo that hospital care should not be done in the home due to the associated bad luck of doing so. Some participants described it as difficult to record urine amount completely while outside the home. Consequently, statistical analysis could not be done for this incomplete data.

The goal of functional status improvement for heart failure patients was maintenance of daily activities. In this study, the SMWT was used to evaluate a patient’s function because it was closely related to the physical effort of daily activities and yielded measurable values for assessment of patients with severe heart failure (Lipkin et al., 1986). This test is also a predictor of heart failure mortality and morbidity (Bittner et al., 1993). The results of the SMWT may be confounded by the surrounding environment. In the pretest, tests were done in ward hallways, with similar environmental factors controlled for all participants. The posttest implemented in the participant’s home may have presented significantly
different environments and settings. Participants in the intervention group may have rearranged their home to make it more conducive to reducing energy loss, which may have affected walk test results. This influence is a "learning effect." In this case, participants may have adjusted their behavior or lifestyle after receiving instruction and follow-up, which were the effects of the self-care program and thus what we hoped to see.

Goals of heart failure management include reducing patient symptom distresses and increasing functional activities. However, the primary goal is enhancing quality of life. A study by Blyth et al. (1997) indicated that heart failure patients have a poorer quality of life than the general population does, which is related to many factors. This study showed significant improvements in quality of life in the intervention group compared with the control group. Results confirmed associations between symptom distress, functional status, quality of life, emergency visits, and hospital readmission, which were similar to previous studies (Blue et al., 2001; Candlish et al., 1998; Grady et al., 1995; Kasper et al., 2002; Naylor et al., 2004; Stewart & Horowitz, 2002b; Westlake et al., 2002).

The purpose of self-care is behavior change. Because of its long-term characteristics, chronic disease has special care needs and complicated treatments that include education related to medication and diet, assessment and monitoring of health behavior, well-being enhancement, prevention of complications, lifestyle changes, and risk factor modification (Connelly, 1987). However, heart failure patients face certain barriers to self-care. The first is ambiguous and unclear symptoms as indicators of illness; second is vague timeline features associated with exacerbation; third is patient environment; and fourth is inadequate understanding of causes associated with predicted disruptions. Self-care teaching intervention can overcome each of these barriers (Frantz, 2004). Although the HFSC program focused on instructing patients while they were hospitalized, it is impossible to expect patients to digest the massive amount of information and self-care skills that are presented during that relatively short period (Donley & Pietruch, 1996). For these reasons, this program was initiated at admission and continued with home visits after discharge, thus providing patients and their families with a more realistic time frame for learning.

The financial aspects of this type of program must be considered. Physical examinations and nursing instruction were included in home care reimbursement. However, most home care nurses were concerned that health education would not be covered. Hospitals must hire more nurses for home care duties and the number of hospitals involved in home-care-related programs should increase. However, continued follow-up after patient discharge actually improves home-care-related programs should increase. However, continued follow-up after patient discharge actually improves patient symptoms, functional abilities, and quality of life. This will be helpful to resolve National Health Insurance reimbursement problems.

Health policies in Taiwan are undergoing change due to the financial burden carried by the National Health Insur-

ance. Health authorities are aware of the aging population and social transformation trends. Heart failure patients, mainly elderly individuals, represent a major chronic disease population for whom government and health institutions should focus greater attention to lower hospital readmissions for symptom relapses and reduce disability levels. The HFSC program implemented in this study was based on the concept of continuing care and case management. It clearly reduced participant symptoms and improved functional ability and quality of life. In clinical implications, a heart failure care team model is suggested that combines multidisciplinary specialists and follow-up. This team could be the bridge of communication between the hospital and the patient and between the patient and his or her healthcare provider.

Limitations

The major limitation of this study was the short follow-up time of 3 months. Because of the small sample size and power of 33.6%, the results of this study are unlikely to reflect actual general conditions and thus cannot be generalized to all heart failure patients. In addition, the study was implemented at only one hospital, giving results only limited generalizability to other facilities. Expanding the sample size and number of facilities and lengthening the follow-up period are suggested for future studies. In an expanded study, the relationship between participant characteristics and the effectiveness of a self-care program could be better analyzed, and short- and long-term benefits of a self-care program could be compared.

One data collector collected study data. The posttest data collection was implemented at the patients’ homes. Unfortunately, most patients and families refused to allow an unfamiliar person to home visit. As a result, the researcher needed to do all of the posttest data collection, which made data collection lack objectivity and agreement between pretest and posttest. The Hawthorne effect can be expected to affect measured outcomes.

Finally, readmission and emergency visit data obtained only from the hospital computer system is also a study limitation that will underestimate the total number of readmissions and emergency visits when patients are readmitted to other hospitals. This situation may explain the nonstatistically significant differences in readmission and emergency visits between the two groups.

Conclusions

Despite the study limitations, study findings can provide insights into the development of HFSC intervention in clinical practice. The provision of HFSC can improve patient discomfort and increase functional abilities and quality of life. In the future, the HFSC program could be used in clinical practice to manage heart failure patients, make sure they receive continuous care, further increase their self-care skills, and improve their quality of life. We also suggest following subjects for a longer period of time to understand the long-term effects of the HFSC program.
References


自我照顧方案改善心衰竭患者生活品質與
症狀困擾成效之初步研究

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背景 心衰竭在老年人口的盛行率不斷成長，多數患者會因症狀困擾導致活動功能障礙、生活品質不佳，以及高再住院率，因此心衰竭自我照顧的衛教指導在病患住院過程中是非常重要的，然而出院後卻無法持續追蹤，這是目前台灣照護體系之一大缺失。

目的 探討心衰竭自我照顧方案的執行，是否能顯著降低心衰竭病患的症狀困擾，提昇功能

方法 採類實驗性研究設計，控制組接受常規照護，實驗組接受常規照護及心衰竭自我照顧
方案，個案來源為台北某醫學中心心臟內科一般病房27位診斷為心衰竭之患者，隨機
分派到自我照顧計畫組（14人）或控制組（13人）。

結果 追蹤三個月後，在症狀困擾（p < .01）、六分鐘走步測試（p < .01）和生活品質（Short
Form 36台灣版，p < .05），兩組有顯著差異，但在急診使用及再入院率上無顯著差
異。

結論／
實務應用 心衰竭自我照顧方案可改善心衰竭症狀、增進活動功能和生活品質，故此計畫在臨床
上是可行的，可訓練符合資格的專科護理人員負責病人的照護。

關鍵詞：自我照顧、心臟衰竭、生活品質、症狀困擾。