Effects of Home–Based Care Program on Symptom Alleviation and Well–Being Among Persons with Chronic Heart Failure

Apinya Wongpiriyayothar, Linchong Pothiban, Patricia Liehr, Wilawan Senaratana,
Khanokporn Sucumvang

Abstract : Chronic heart failure (CHF) often requires a long period of recuperative care to address physical, psychological and social functions. CHF patients need a home-based care program to alleviate symptoms and improve well-being. This study was a randomized clinical trial aimed to examine the effects of a home-based care program on the alleviation of symptoms and improvement of well-being of CHF patients. The study framework included a symptom management model and coaching strategies. A sample of 96 participants who met the inclusion criteria were randomly assigned into control and experimental groups. The experimental group intervention consisted of two home visits for coaching and at least two weekly telephone contacts to assure regular performance of self-monitoring and symptom management activities. The control group received usual care. Data were collected before the intervention and after the intervention at week-8 and week-12. Collection instruments were the Chronic Heart Failure Symptom Severity Scale and the Medical Outcomes Study Short Form Health Survey Version 2 (SF-36 V2) to measure well-being. The results show that a home-based care program can significantly alleviate the severity and increase the well-being of CHF patients. The findings provide nurses with guidelines for taking care of CHF patients at home. In order to generalize the findings, further study must be carried out in different patient groups with various severity levels so that the finding can be generalized to the whole CHF population.

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Background and Significance of Research Problem

Chronic heart failure (CHF) is a major cause of disability, morbidity, and mortality.[1] Half of CHF patients die within five years.[2] CHF often leads to permanent impairment requiring a long period of supervision, observation and care.[3] Typical CHF symptoms include shortness of breath (SOB) or

Apinya Wongpiriyayothar, *R.N., M.N.S. Doctoral Candidate, Faculty of Nursing, Chiang Mai University, Thailand*
Linchong Pothiban, *R.N., Ph.D. Associate Professor, Faculty of Nursing, Chiang Mai University, Thailand*
Patricia Liehr, *ARNP., Ph.D. Professor, Christine E. Lynne College of Nursing, Florida Atlantic University, Boca Raton, FL, U.S.A.*
Wilawan Senaratana, *R.N., M.N.S. Associate Professor, Faculty of Nursing, Chiang Mai University, Thailand*
Khanokporn Sucumvang, *R.N., Ph.D. Assistant Professor, Faculty of Nursing, Chiang Mai University, Thailand*

dyspnea, fatigue, and edema.[4] SOB, an acute symptom, often prompts affected patients to seek emergency treatment.[5] Many studies report that CHF patients have problems controlling symptoms. Riegel and Carlson[6] reported CHF patients had difficulty coping with medication regimens, finding food without salt, and learning how to monitor CHF symptoms. Carlson et al.[4] found that most elderly patients with CHF did not easily recognize CHF symptoms. In a study on symptom management, **Wongpiriyayothar and Pothiban**[7] found that SOB and edema were the major problems that affected functional status, self-care, emotion, and social activities. Most patients managed edema inappropriately using massage or leg elevation. All these findings support the need for enhancing symptom management among Thai CHF patients.

Many previous studies presented that home-based care programs for CHF patients had both significant and insignificant effects on health outcomes. Rich et al.[8] found that multidisciplinary intervention-including home visits-significantly reduced symptom severity, readmission and cost, and improved QOL, but did not reduce the number of deaths after discharge within 3 months. Stewart, Marley and Horowitz[9] revealed that home-based care programs did not improve QOL and functional status, but did reduce readmission and length of stay in hospital. Krasper et al.[10] used multidisciplinary care in the OPD and home visits to teach patients about disease, daily weight monitoring, and symptom management. Krasper's patients saw their QOL improved but readmission and mortality rate did not significantly reduce.

Jaarsma et al.[11] visited patients at home to provide education that focused on recognizing warning symptoms and diet and fluid management. The results showed that this program did not decrease symptom severity and increase well-being. Todero, LaFramboise, and Zimmerman[12] designed a home-based care program to educate about CHF, symptom monitoring and management. The results indicated that the program reduced severity of SOB and edema and improved QOL in some dimensions. In the literature, QOL is used interchangeably with well-being.[13]

Our review of the literature found that most of home-based care program of previous studies emphasized on teaching about disease, self-monitoring, and symptom management, but they did not mention how to improve skills for symptom monitoring and management especially controlling fluid intake and cooking a low salt diet. Therefore, symptom severity and well-being did not improve. Furthermore, most CHF programs in Thailand are designed to improve knowledge and self-care behavior by giving information rather than by teaching practical skills for every day life activities, especially managing SOB and edema.[14-17] To date, there is no clear consensus in the literature on which approach is the most promising for controlling CHF symptoms. A program to enhance symptom monitoring and management skills is required for Thai persons with CHF. Literature review suggests that an effective program to manage symptoms and improve QOL or well-being should be home based. It should include patient education and improving skills via training for symptom monitoring and management through home visits or telephone calls.

Considering the feasibility, applicability and cost effectiveness of the program, it is important to test the effectiveness of a specially designed home-based care program for enhancing CHF patient's symptom management behaviors. The program is expected to reduce symptoms and increase the well-being of these patients. This study finding will provide evidence for nurses in caring for CHF patients.

Objective of the Study

The objective of this study is to examine the effects of a home-based care program on symptom alleviation and well-being among patients with CHF.

Hypotheses

1. After receiving a home-based care program at 8 and 12 weeks, CHF patients will show less symptom severity than before receiving the program.
2. At 8 and 12 weeks, CHF patients receiving a home-based care program will show less symptom severity than those receiving usual care.
3. After receiving a home-based care program at 8 and 12 weeks, CHF patients will show better well-being than before receiving the program.
4. At 8 and 12 weeks, CHF patients receiving a home-based care program will show better well-being than those receiving usual care.

Conceptual framework

The study uses the symptom management model developed by Dodd et al.[18] and coaching strategies[19] as a conceptual framework. The interrelation among three concepts of the symptom management model (symptom experience, symptom management strategies, and outcomes) and coaching strategies are demonstrated in this study. Coaching is used as the method to teach and train CHF patients and families on the perception of symptom experience, identifying symptom management strategies and enhancing self-management skills. From increased knowledge and skills, the patients can change behaviors resulting in controlled symptoms, decreased severity, and improved well-being.

Methodology

Design

A randomized clinical trial was designed and utilized to test the effects of a home-based care program on symptom alleviation and well-being among patients with CHF.

Population and sample

The target population consisted of CHF patients who came for follow-up treatment at the cardiovascular clinic at a hospital located in the northeastern region of Thailand. The sample included all patients who met the following inclusion criteria: Aged 40 years or older, being in the New York Heart Association (NYHA) functional class II, no alteration of medication for heart failure conditions before recruitment, being able to communicate verbally, having at least one family member staying with them, willing to participate, and residing within 40 kilometers away from a hospital. Criteria for dropping out included not being able to continue the protocol and/or having severe symptoms or complications from heart or co-morbid diseases.

To determine the sample size, the researcher used the formula for testing the difference between two means (one-tailed test) of Norman and Streiner[20] using data from a similar study of Jaasrma et al.[11] to estimate the sample size of this study. The estimated sample size was 48 subjects per group. However, three participants in the control group were dropped-out because of their co-morbidities. Thus, 93 participants remained in the study, 45 in the control group and 48 in the experimental group that made the attrition rate for this study to be 3.13%.

Research Instruments

The CHF Symptom Severity Scale. This scale was translated from the Item Checklist of CHF Symptoms generated by Friedman and Griffin.[21] The back-translation technique was used to ensure the accuracy of translation. The first step was forward-translation of the scale into the Thai language by the first bilingual expert. The second step was back-translation of the Thai version into the English version by two bilingual experts. Then, the researchers compared the back translation version with the original version to check the discrepancies. It was found that there were no discrepancies in meaning of the items used. To increase sensitivity for measuring symptom severity, the scale was modified from nominal scale (yes/no) to a five point Likert scale rating 0 to 5 (0 = no symptom present, 1 = no severity, 2 = mild severity, 3 = moderate severity, 4 = very severe, 5 = extreme severity). The scale was composed of 12 items asking for 12 CHF symptoms: SOB with exertion, orthopnea, paroxysmal nocturnal dyspnea (PND), edema, weight gain, fatigue or weakness, cough, nausea, anorexia, dizziness, palpitation, and chest pain. The overall symptom severity score was calculated by summing the scores of 12 items. The total score ranged from 0 to 60. Regarding severity scores of each symptom, the possible scores ranged from 0 to 5. The score was also divided into three levels. The scores of low level ranged from 0 to 1.66, moderate level ranged from 1.67 to 3.33, and high level ranged from 3.34 to 5. In this study, the internal consistency coefficient tested in 15 CHF patients was .86 and that tested in 93 patients was .78.

The Medical Outcomes Study Short Form Health Survey Version 2 (SF-36 V2). The SF-36 V2 was translated into Thai by Methakanjanasak.[22] This scale consists of 36 items for assessing eight dimensions of general health, physical functioning, role limitations due to physical health problems, role limitations due to emotional problems, bodily pain, social functioning, vitality (energy and fatigue), and mental health.[23] The total score ranges from 0 to 100. A person having a high score represents better well-being than a person having a low score. The internal consistency reliability tested in 15 and 93 CHF patients showed the coefficient of .95 and .93 respectively.

The Home-Based Care Program

The home-based care program included a protocol for home-based care intervention and a booklet for CHF patients. The protocol included 1) a patient education plan that covers topics namely meaning of CHF, causes of CHF, signs and symptoms, treatment, medication, diet and fluid management, and exercise, 2) a plan for enhancing patient's symptom monitoring skills, and 3) a plan for enhancing patient's symptom management skills in medication use, fluid intake control, and low sodium diet control. The home-based care protocol and the CHF booklet were verified for content validity by a panel of experts having experience related to CHF patients. In the experimental group, the researchers provided a home-based care program which used coaching strategies for approaching the participants through two home visits and at least two weekly telephone calls.

Home visit 1. The first home visit was scheduled within one week after recruitment from the hospital. The time spent for intervention was two hours. The researcher provided the participants with a booklet for CHF, and using coaching strategies to deliver intervention for patient education, enhancing patient's symptom monitoring and symptom management skills. Firstly, the researcher encouraged the participants and families to tell their stories about CHF symptoms, experience of symptom management, outcomes, and barrier. Secondly, the researcher encouraged the participants and families to share part of story that they concerned and needed help from the researcher to deep understanding and to clarify the participants and families' concerns. Thirdly, the researcher allowed the participants to work on monitoring and managing symptoms. In this process, the researcher started the plan for patient education. The participants and families were taught about CHF to gain knowledge and understanding about their disease. Therefore, the participants could use this information to engage in the activities of symptom monitoring and management. In this process, daily symptom monitoring was trained until the participants and families could detect early warning symptoms. The researcher assigned homework for the participants to monitor and record their CHF symptoms in the "Symptom Evaluation Form" every day. Fourthly, the researcher helped the participants find new or additional ways for managing their symptoms. In this process, the researcher provided the plan for enhancing patient's symptom management skills. This plan included three sub-plans of enhancing drug adherence, enhancing skill for controlling fluid intake, and enhancing skills for cooking a low salt diet. To improve skills for drug adherence, the researcher taught the participants about the medication they were taking including actions and side effects. Next, the researcher taught the participants how to control fluid intake and trained them to record and monitor fluid intake in the "Fluid Intake Recording Form." Regarding enhancing skill for cooking a low salt diet, the researcher invited the participants to tell story about their cooking pattern with salt and problems. Then, the researcher made an appointment for training how to cooking a low salt diet in the next home visit.

Home visit 2. The second home visit was scheduled within one week after the first home visit and lasted 45 to 60 minutes for all activities. The researcher evaluated the problems of self-monitoring from the "Symptom Evaluation Form" and evaluated fluid intake from the "Fluid Intake Recording Form." If the participants recorded correctly, the researcher would congratulate them and if they did not understand how to record in these forms, the researcher would again explain and trained them to record. If they had any CHF symptoms, the researcher would discuss with the participants to identify the causes and the ways to manage symptoms. Then, the researcher trained the participants to cook a low salt diet.

Telephone follow up. After the second home visit, the researcher made at least two weekly phone calls to coach the participants in performing self-monitoring, and symptom management.

Usual Care

Both control and experimental groups received usual care from healthcare providers at hospital. The usual care for heart failure patients included laboratory investigation, routine assessment, physical examination, problem assessment, drug prescription, and suggestion. However, at the end of 12 weeks, the researchers gave the control participants a CHF booklet and taught them about CHF, how to do self-monitoring, and how to manage symptoms.

Data Collection Procedure

The study was approved by the Research

Ethical Committee of the Faculty of Nursing, Chiang Mai University. The participants were informed of the purpose of the study, process of collecting data, confidentiality, anonymity, and benefits of participating in the program.

At the cardiovascular clinic, the researcher selected the prospective participants. The participant who met the inclusion criteria was randomly assigned into either the experimental or the control groups. After that the researcher gave them information that was presented in the informed consent form. If the participant agreed to participate in the study, informed consent was obtained. Next, the researcher made an appointment with the participants in both groups for visit and collecting data at home.

At the first home visit, in both experimental and control groups, symptoms severity and well-being were pretested. The experimental group received the home-based care program, while the control group received a usual care. However, to protect human right of the control group, the participants were assessed for their physical conditions. If they had any problems the researcher asked them to recall what they had learnt from their physician, nurse, or pharmacist about that problem and asked them to do as they were told by the healthcare providers. If they had some severe symptoms, the researcher asked them to visit their physician right away before the physician made an appointment. At the end of 8 and 12 weeks after pretest, the researcher measured CHF symptom severity and well-being of the participants in both groups at home. Then, the researcher gave the control participants a CHF booklet and taught them about CHF, how to do self-monitoring and how to manage symptoms.

Data Analysis

Descriptive statistics, repeated measures analysis of variance, Friedman, t-test, and Mann-Whitney U test were used to analyze the data based on the assumptions of each statistics.

Results

Demographic Characteristics of the Sample

In the control group, the age of the participants ranged from 40 to 82 years with a mean age of 59.68 years (SD =10.92). The majority of the participants were female (57.8%), married (77.8%), and finished primary school (88.9%). Sixty percent were diagnosed as CHF with valvular heart disease (VHD). In the experimental group, the mean age was 60.69 years (SD = 10.25, range 40 - 80). Most participants were female (56.3%) and married (68.2%), and 89.5% were educated at primary level. Fifty-six percent of them were diagnosed as CHF with VHD. Demographic characteristics of both groups showed no statistical differences.

Comparing symptom severity

At baseline, there were no significant differences in all of the scores between both groups. Comparing the symptom severity between baseline and at 8-week and 12-week, the results showed that there were no significant changes in severity of all CHF symptoms over time in the control group, while the experimental group showed a decrease over time of overall symptom severity and severity of eight CHF symptoms ($p < .05$), while the severity of weight gain, cough, and nausea did not **(Table 1)**. Comparing symptom severity scores between groups, it was found that the experimental group had significantly less severity scores of overall symptom severity and severity of eight CHF than that the control group at either week-8 or week-12 ($p < .05$). There were no significant differences in severity of edema, weigh gain, and nausea between both groups **(Table 2)**.

Table 1 Comparisons of severity scores between each point of measurement in the control and the experimental groups

Variables	M			Statistic test value	p-value
	Baseline	8-week	12-week		
Overall symptom severity					
Control group	12.944	12.567	12.456	.176^{r}	.839
Experimental group	13.406	4.063	4.115	98.424^{r}	.000***
Shortness of breath					
Control group	2.933	2.911	2.756	.666^{r}	.517
Experimental group	2.875	1.229	1.333	48.847^{r}	.000***
Orthopnea or PND					
Control group	.967	.900	.833	.718^{f}	.698
Experimental group	1.113	.083	.156	41.062^{f}	.000***
Edema					
Control group	.489	.467	.556	.444^{f}	.801
Experimental group	.792	.417	.375	14.700^{f}	.001**
Weight gain					
Control group	.467	.289	.289	1.423^{f}	.491
Experimental group	.392	.250	.167	2.905^{f}	.234
Fatigue/ weakness					
Control group	2.044	2.267	2.311	.925^{f}	.630
Experimental group	2.146	.583	.521	50.400^{f}	.000***
Cough					
Control group	1.156	1.089	1.178	.949^{f}	.622
Experimental group	.708	.438	.417	4.225^{f}	.121
Nausea					
Control group	.333	.422	.267	1.185^{f}	.553
Experimental group	.438	.125	.188	5.644^{f}	.059
Anorexia					
Control group	1.089	1.089	.844	.914^{f}	.633
Experimental group	.750	.292	.250	6.576^{f}	.037*
Dizziness					
Control group	1.222	1.044	1.289	1.556^{f}	.459
Experimental group	1.188	.271	.167	33.100^{f}	.000***
Palpitation					
Control group	1.422	1.222	1.267	1.208^{f}	.547
Experimental group	1.625	.167	.354	34.545^{f}	.000***
Chest pain					
Control group	.822	.867	.867	.071^{f}	.965
Experimental group	.958	.208	.188	19.743^{f}	.000***

r = One-way repeated measures ANOVA f = Friedman test
*** = p < .001. = pL.01.* **= p < .05 * = p < .05 ** = p < .01 *** p < .001

Table 2 Comparisons of symptom severity between the control and the experimental groups at each point of measurement

Variables	M		Statistic test value	p-value
	Control group (n= 45)	Experimental group (n= 48)		
Overall symptom severity				
baseline	12.944	13.406	-.359^t	.720
8-week	12.567	4.063	-8.939^t	.000***
12-week	12.456	4.115	-8.204^t	.000***
Shortness of breath				
baseline	2.933	2.875	-.330^t	.742
8-week	2.911	1.229	-7.847^t	.000***
12-week	2.756	1.333	-7.106^t	.000***
Orthopnea or PND				
baseline	.967	1.113	1.264^z	.206
8-week	.900	.083	-3.530^z	.000***
12-week	.833	.156	-2.895^z	.004**
Edema				
baseline	.489	.792	-1.005^z	.315
8-week	.467	.417	-.201^z	.841
12-week	.556	.375	-1.077^z	.281
Weight gain				
baseline	.467	.396	-.205^z	.838
8-week	.289	.250	-.679^z	.497
12-week	.289	.167	-.501^z	.617
Fatigue/weakness				
baseline	2.044	2.146	-.620^z	.535
8-week	2.267	.583	-5.984^z	.000***
12-week	2.311	.521	-6.141^z	.000***
Cough				
baseline	1.156	.708	-1.304^z	.192
8-week	1.089	.438	-2.440^z	.000***
12-week	1.178	.417	-2.847^z	.004**
Nausea				
baseline	.333	.438	-.623^z	.533
8-week	.422	.125	-.638^z	.524
12-week	.267	.188	-.465^z	.642
Anorexia				
baseline	1.089	.750	-1.001^t	.317
8-week	1.089	.292	-2.811^z	.005**
12-week	.844	.250	-2.403^z	.016*
Dizziness				
baseline	1.222	1.188	-.059^t	.953
8-week	1.044	.271	-3.131^z	.002***
12-week	1.289	167	-4.512^z	.000***
Palpitation				
baseline	1.422	1.625	-.564^t	.573
8-week	1.222	.167	-3.945^z	.000***
12-week	1.267	.354	-3.359^z	.001***
Chest pain				
baseline	.822	.958	.322^t	.748
8-week	.867	.208	-2.659^z	.008**
12-week	.867	.188	-2.702^z	.007**

M = mean t = t-test z = Mann-Whitney U Test
* = p < .05 ** = p < .01 *** = p < .001

Comparing Well-Being

Test of the differences of overall and sub-dimension well-being scores at baseline between both groups indicated that both groups were equivalent ($p > .05$). Testing the changes over time in each group showed an increase over time in the scores of overall well-being and all well-being sub-dimensions ($p < .05$) only in the experimental group (**Table 3**). Comparing well-being scores between both groups at each point of measurement, the results indicated that after receiving the program, at 8-week and 12-week, the experimental group showed significantly higher scores of overall well-being and well-being sub-dimensions than the control group (p <. 05) **(Table 4)**.

Table 3 Comparisons of well-being scores between each point of measurement in the control and the experimental groups

Variables	M				
	Baseline	8-week	12-week	Statistics value	p-value
Overall well-being					
Control group	54.435	54.391	54.557	.915^{r}	.404
Experimental group	54.423	74.521	77.967	98.041^{r}	.000***
General health					
Control group	26	27.667	26.111	.413^{f}	.897
Experimental group	27.292	49.792	55.938	43.585^{f}	.000***
Physical functioning					
Control group	54.778	57.111	60.444	2.745^{r}	.070
Experimental group	58.750	78.958	79.333	47.129^{r}	.000***
Role limitations due to physical problems					
Control group	52.500	55	53.611	.634^{f}	.728
Experimental group	52.604	84.505	88.281	57.316^{f}	.000*
Role limitations due to emotional problems					
Control group	65.556	66.296	66.667	.566^{f}	.754
Experimental group	66.319	83.681	88.542	45.079^{f}	.000*
Social functioning					
Control group	68.333	71.944	71.111	.463^{f}	.792
Experimental group	67.969	86.198	92.708	25.615^{f}	.000***
Bodily pain					
Control group	65.056	66.557	63.444	1.309^{f}	.520
Experimental group	58.906	77.656	76.667	21.871^{f}	.000***
Vitality (energy and fatigue)					
Control group	48.472	50.972	50.278	.981^{r}	.612
Experimental group	53.385	73.568	78.776	41.998^{r}	.000***
Mental health					
Control group	59	50.278	58.556	.028^{r}	.972
Experimental group	60.833	75.729	77.708	34.136^{r}	.000***

M = mean r = One-way repeated measures ANOVA f = Freidman test
* = $p < .05$ *** = $p < .001$

Table 4 Comparisons of mean scores for well-being and sub-dimensions at each point of measurement between the control and the experimental groups

Variables	M		Statistic test value	p-value
	Control group (n = 45)	Experimental group (n = 48)		
Overall well-being				
baseline	54.435	54.423	$.568^{t}$	.571
8-week	54.391	74.521	6.695^{t}	.000***
12-week	54.557	77.967	7.905^{t}	.000***
General health				
baseline	26.000	27.292	$-.078^{z}$	.938
8-week	27.667	49.792	-4.568^{z}	.000***
12-week	26.111	55.938	-5.344^{z}	.000***
Physical functioning				
baseline	54.778	58.750	$.964^{t}$	.338
8-week	57.111	78.958	4.899^{t}	.000***
12-week	60.444	78.333	4.976^{t}	.000***
Role limitations due to physical problem				
baseline	52.500	52.604	$-.004^{z}$	.997
8-week	55.000	84.505	-5.359^{z}	.000***
12-week	53.611	88.281	5.187^{z}	.000***
Role limitations due to emotional problem				
baseline	65.556	66.319	$-.799^{z}$	.424
8-week	66.296	83.681	-4.270^{z}	.000***
12-week	66.667	.542	-5.389^{z}	.000***
Social functioning				
baseline	68.333	67.969	$-.012^{z}$	.469
8-week	71.944	86.198	-2.052^{z}	.040*
12-week	71.111	92.708	-3.761^{z}	.000***
Bodily pain				
baseline	65.056	58.906	-1.002^{z}	.316
8-week	66.557	77.656	-2.371^{z}	.018*
12-week	63.444	76.667	-3.232^{z}	.001**
Vitality (energy and fatigue)				
baseline	48.472	53.385	1.170^{t}	.245
8-week	50.972	73.568	6.750^{t}	.000***
12-week	50.278	78.776	7.826^{t}	.000***
Mental health				
baseline	59.000	60.833	$.475^{t}$	.636
8-week	50.278	75.729	5.084^{t}	.000***
12-week	58.556	77.708	5.966^{t}	.000***

M = mean.. t = t-test z = Mann-Whitney U Test *p < .05 **p < .01 *** p < .001

Discussion

In this study the positive effect of the program on most CHF symptoms was demonstrated. The findings confirm the effectiveness of program activities in enhancing knowledge and skills in symptom evaluation, monitoring, and management of patients and families using coaching strategies. Coaching is a best strategy of advance practiced nurses (APNs) used to enhance patients to participate in their care.[24] The previous studies showed that using a knowledgeable nurses such as APNs and clinical nurse specialist could contribute to positive outcomes.[8,25-27] Consistent with other previous studies, the present study found the benefits of coaching strategies delivered by the researcher who worked as an APN in patient education. Program with coaching or delivered by APNs could decrease symptom severity after discharge of CHF patients,[8,28] increase understanding of disease and its management as well as increase self-efficacy and specific skills for cardiac patients.[29-30]

One strength of the program used in this study is that it was conducted at the homes of patients after discharge when the patients and families were ready for learning. Individual approach at home gave the researchers the necessary time to educate, evaluate what they had learned, and discuss problem-solving with the patients. The patient who did not understand about his disease or could not monitor and manage symptoms could ask for help immediately. Thereby, the researchers could coach him to perform advised activities. Regarding telephone contacts in the present study, the researchers used the telephone as a way of coaching patients. All patients in the experimental group received telephone contacts from the researchers to assist them in monitoring and managing symptoms. Therefore, the patients were more likely to show improvement in skills for evaluating and managing symptoms. According to West et al.,[28] telephone visits can be used to evaluate patients' symptoms and promote adherence to dietary and drug regimens, and will have positive benefits on reducing symptoms of dyspnea, cough, orthopnea, and fatigue.

However, in the present study, three symptoms in the experimental group, including weight gain, cough, and nausea, did not significantly decrease over time. This might be due to the small effect size of the program on those symptoms and the small number of CHF patients having nausea and cough. The participants in the present study were limited to only CHF patients who were in NYHA functional class II in which edema and weight gain are seldom reported. Moreover, most participants in the experimental and the control groups (36 vs. 30 cases respectively) were taking diuretic drugs that could prevent edema and weigh gain. Under these conditions, no matter how effective the program, the severity of edema and weight gain will not change. Furthermore, most participants had co-morbid diseases and had more than one diagnosis of cardiovascular diseases. Therefore, they were prescribed various kinds of drugs that might cause nausea. The medications included diuretics, digitalis glycosides, aspirin, isordil, angiotensin converting enzyme (ACE) inhibitors, and anti-lipidemia. Many of these drugs have side effects on gastrointestinal tract and cause nausea.[31-33] Regarding cough, it was found that the participants in experimental and control groups (13 vs.14 cases respectively) took drugs that induced cough, particularly ACE inhibitors.[31] These drugs might cause cough among the participants in both groups and the program could not show its effectiveness in reducing this symptom.

The results demonstrated that CHF patients who received the home-based care program had significantly improved well-being. Coaching strategies for education and specific training for improving symptom monitoring and management skills can help participants to control symptoms. The findings in the present study are consistent with a study of West et al.[28] which demonstrated the effectiveness of their education program in increasing QOL. According to Rich et al.,[8] increasing knowledge of CHF patients about CHF, symptoms, medications, and diet by APNs through home education could decrease symptom severity and improve their QOL. Since the present study used RCT design, the effect sizes were estimated using Cohen's formula[34] to describe the size of the home-based care program effect. It was found that the mean effect size for both symptom severity and well-being of CHF patients was large (.83 and 1.041 respectively).

Calculating effect size of previous studies using Cohen's formula,[34] it was found that the effect sizes for symptom severity were small to medium ($d = .14$ to .35)[8,11] and the effect sizes for QOL or well-being were small to medium ($d = .02$ to .67).[8,11,26,35-36] The program of the present study showed larger effect size than that of the previous study because the program was developed based on evidence based research of previous studies and emphasized on patient education and enhancing self-monitoring and symptom management skills, while most of the previous programs emphasized on teaching about disease, symptom, and symptom management, but did not emphasize on improving skills to monitor or manage symptom.

Conclusion and Recommendations

The results indicate that a home-based care program that includes patient education and enhancement of symptom monitoring and management skills through coaching can decrease symptom severity and improve well-being of CHF patients. Home health care nurses should integrate this program for CHF patients. To distribute this program broadly, nursing educational institutions should provide a special course for nurses who work with CHF patients and add this program as a part of the course. In addition, nurse administrators should create a policy for improving quality of nursing care by using the evidence from this research for nursing practice and provide nurses with budgets for booklets, transportation, and telephone contacts during program application. Regarding healthcare policy, the Ministry of Public Health should consider providing the home-based care program for CHF patients. Also, to effectively care for CHF patients, nurses need to be knowledgeable about patho-physiology of disease, treatment, and specific management for this particular disease. The government should state a policy that nurses who work in acute and chronic care setting as well as primary care units should be APNs. The policy statements should include that all CHF patients after being discharged from hospital should be home visited by APNs at least two consecutive weeks. Further study should be conducted in CHF patients with NYHA functional class II in other settings as well as patients having a functional class higher than class II.

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ผลของโปรแกรมการดูแลที่บ้านต่อการบรรเทาอาการและความผาสุกในผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรัง*

อภิญญา วงศ์พิริยโยธา, ลินจง โปธิบาล, แพทริเซีย ลีหร์, วิลาวัณย์ เสนารัตน์, กนกพร สุคำวัง

บทคัดย่อ: ภาวะหัวใจล้มเหลวเรื้อรังเป็นปัญหาที่สำคัญที่ต้องการดูแลในระยะยาว อาการของภาวะหัวใจล้มเหลวเรื้อรังมีผลกระทบต่อการทำหน้าที่ของร่างกาย จิตใจ และสังคม ผู้ป่วยที่มีภาวะนี้ต้องการโปรแกรมที่ช่วยบรรเทาอาการและส่งเสริมความผาสุก การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลองเพื่อทดสอบผลของโปรแกรมการดูแลที่บ้านต่อการบรรเทาอาการและความผาสุกในผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรัง โดยใช้รูปแบบการจัดการอาการและกลวิธีในการ coaching เป็นกรอบแนวคิดในการวิจัย กลุ่มตัวอย่างเป็นผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรังที่ตรงกับเกณฑ์ที่กำหนดไว้จำนวน 96 คน โดยสุ่มกลุ่มตัวอย่างเข้าสู่กลุ่มทดลองและกลุ่มควบคุม กลุ่มทดลองได้เข้าร่วมในโปรแกรมการดูแลที่บ้านที่ประกอบด้วยการเยี่ยมบ้านสองครั้งและการเยี่ยมทางโทรศัพท์ทุกสัปดาห์อย่างน้อยสองครั้งเพื่อทำการการสอนและฝึกทักษะกลุ่มตัวอย่างให้สามารถปฏิบัติกิจกรรมเกี่ยวกับการติดตามอาการและจัดการอาการของตนเองอย่างสม่ำเสมอ และกลุ่มควบคุมเป็นกลุ่มที่ได้รับการดูแลตามปกติ การเก็บรวบรวมข้อมูลทำก่อนเริ่มโปรแกรมและหลังการให้โปรแกรม 8 สัปดาห์และ 12 สัปดาห์ โดยใช้เครื่องมือวัดความรุนแรงของอาการหัวใจล้มเหลวเรื้อรังและใช้แบบสำรวจสุขภาพฉบับที่ 2 (SF-36 V2) ในการวัดความผาสุก ซึ่งเครื่องมือดังกล่าวมีค่าสัมประสิทธิ์ความเชื่อมั่นอยู่ในระดับที่ยอมรับได้ ผลการวิจัยพบว่าโปรแกรมการดูแลที่บ้านสามารถลดความรุนแรงของอาการและเพิ่มความผาสุกของผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรังอย่างมีนัยสำคัญทางสถิติ ผลการศึกษาให้แนวทางแก่พยาบาลในการดูแลผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรังที่บ้าน การศึกษาครั้งต่อไปควรดำเนินการในผู้ที่มีภาวะหัวใจล้มเหลวเรื้อรังกลุ่มอื่นๆ ที่มีระดับความรุนแรงแตกต่างกันเพื่อให้ได้ผลการวิจัยที่สามารถอ้างถึงประชากรที่มีภาวะหัวใจล้มเหลวเรื้อรังได้

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คำสำคัญ: โปรแกรมการดูแลที่บ้าน การบรรเทาอาการ ความผาสุก/คุณภาพชีวิต ความรุนแรงของอาการ หัวใจล้มเหลว

***อภิญญา วงศ์พิริยโยธา**, R.N., M.N.S. นักศึกษาปริญญาเอก, คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่,*
***ลินจง โปธิบาล**, R.N., Ph.D. รองศาสตราจารย์, คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*
***แพทริเซีย ลีหร์**, ARNP., Ph.D. ศาสตราจารย์, Christine E. Lynne College of Nursing, Florida Atlantic University, Boca Raton, รัฐฟลอริดา ประเทศสหรัฐอเมริกา*
***วิลาวัณย์ เสนารัตน์**, R.N., M.N.S. รองศาสตราจารย์, คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*
***กนกพร สุคำวัง**, R.N., Ph.D. ผู้ช่วยศาสตราจารย์, คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*