

# The family centered empowerment program can relieve stress, anxiety, and depression of heart failure patients' family caregivers

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## Abstract

**Background:** Living with heart failure (HF) patients is a complex condition for family caregivers. Few interventional studies have yet been conducted to relieve several challenges of HF patients' family caregivers in a caring situation. The aim of this study was to investigate the effects of an educative-supportive intervention in relieving stress, anxiety, and depression in HF patients' family caregivers.

**Materials and methods:** This clinical trial was conducted in a capital teaching hospital in Isfahan, Iran in 2014. The intervention consisted of two-hour multimedia-assisted educative-supportive sessions for four weeks. The participants were 50 family caregivers of HF patients. The levels of stress, anxiety, and depression were measured by short-form version of the Depression Anxiety Stress Scale 21. Paired and student's t-tests and ANOVA were used to compare the mean differences of stress, anxiety, and depression scores between the two groups throughout a three-month period.

**Findings:** The educative-supportive intervention had appropriate effects in reducing HF patients family caregivers' stress, anxiety and depression at the completion and three months after the completion of the intervention ( $P < 0.001$ ).

**Conclusions:** Nurses and other health care providers can use the results of this study to effectively implement suitable interventions for reducing challenges of family caregivers in a caring situation.

**Key words:** Stress, Anxiety, Depression, Family caregivers, Heart failure, Iran

Please cite this article as: Etemadifar S. et al. The family centered empowerment program can relieve stress, anxiety, and depression of heart failure patients' family caregivers. *World Family Medicine*. 2017; (10):99-104. DOI: 10.5742/MEWFM.2017.93145

## Introduction

Heart failure (HF) is the final outcome of many cardiovascular diseases that is estimated to affect over 5.8 million people in the USA and over 15 million people in Europe (1, 2). Unfortunately, no reliable data have yet been reported about the number of HF patients in Iran due to poor registration. It seems that the prevalence of HF will reach 3,500 per 100,000 population in Iran in the near future (3, 4). Because HF is a debilitating and chronic disease, the families may care for these patients for a long time. Sometimes, a patient's family member, such as his/her spouse or child, takes responsibility for caring (2, 5, 6). Certain factors are associated with negative complications of caretaking. Moreover, the family caregivers of HF patients become involved in performing heavy duties of caretaking that can be associated with continuous monitoring of the disease's symptoms, management of diet and therapeutic regimen, repeated hospitalization, use of new and complex therapy equipment, and stupendous treatment costs (1, 7).

Most caregivers are faced with stress, anxiety, and depression due to overwhelming tasks in a caring situation (1, 8). Although some studies have reported that the caregivers of HF patients experience caretaking-related stress, anxiety, depression, and conflict in the literature (7, 9, 10), few studies have yet investigated interventions to reduce caretaking-related complications among these caregivers. Also most studies have been conducted on the caregivers of patients with other chronic diseases such as dialysis patients and patients with schizophrenia (11, 12).

In this literature, studies on different interventions to reduce adverse effects of caretaking among family caregivers have recommended six types of interventions consisting of psychological training, support, daily care, psychotherapy, skill development in care receiver, and multidimensional interventions. A one-dimensional program may fail to resolve the family caregivers' challenges because these caregivers have a wide spectrum of requirements. Therefore, a multidimensional intervention, i.e. a combination of different interventions, will be more fruitful (3, 8, 11, 13). Living with a family member who has a chronic disease has different dimensions. At first, family supports the patient seriously, but support declines over time and the patient and family member may be losing their hope for the future. Therefore, living with a chronic disease in the long term leads to stress, anxiety, and depression in family members. In Iran, family caregivers have received little formal training and support by governmental or nongovernmental services (11, 14). Besides that, most patients with HF refer to public hospitals to receive health care services, and therefore the health care team cannot efficiently examine and meet the caregivers' requirements because of their heavy workload and inadequate time (15, 16).

Regarding the current challenges ahead of HF patients' family caregivers, this study was conducted to investigate the effects of a group, educative-supportive interventional program on the levels of stress, anxiety, and depression in the family caregivers of patients with HF.

## Materials and methods

This randomized clinical trial was conducted in the family and patient training center, Al-Zahra hospital of Isfahan, Iran. This study compared the effects of a group, educative-supportive intervention and a routine health care protocol on the levels of stress, anxiety, and depression of HF patients' family caregivers. The number of study samples enrolled from a capital hospital was 136, and 100 caregivers with inclusion criteria were randomly divided into two groups; intervention and control (50 in each group), by using a random number table. To achieve this purpose, first, the samples were numbered 0-100 and then the first and second participants who were selected by random number table were assigned to the intervention group and the control group, respectively. This process continued until 50 people were assigned to each group. The inclusion criteria were: having a few months' experience of caring, being 18 years old and over, financially supporting the patient, and having communication skills for interview. The levels of stress, anxiety, and depression of family caregivers were measured by a standard instrument, short-form of the Depression Anxiety Stress Scale 21 (DASS-21) before the intervention, at the completion of the intervention, and three months after the intervention, in both groups. Then, the results were compared.

Demographic and clinical characteristics of the caregivers and patients such as education level, gender, age, employment status, and marital status and ejection fraction of the patients were recorded. The shortened version of DASS 21-item version has been used in several studies because its items can easily be responded to (17, 18). The items are responded to by a four-point scale (Never: 0, to some extent: 1, to a large extent: 2, and very often: 4)

Range of scores is 0-21 for each domain (anxiety, stress, and depression) and therefore 0-63 for total scale. The mean scores 0-21, 22-43, and 44-63 represent mild, moderate, and severe levels of anxiety, stress, and depression, respectively.

In this study, the interventional program was developed according to the results of a preliminary qualitative study on the experiences of family caregivers that was approved by an panel of experts and reviewed against similar studies. In this program, special purposes and contents, education and learning strategies, and audiovisual materials were designed (19, 20). This program consisted of two-hour multimedia-assisted sessions and individual counseling for four weeks. In each session, 10 family caregivers underwent the program which was conducted by a cardiologist, a psychiatric nurse, a cardiac care nurse, and a clergyman. In the introductory session, after the people were introduced to each other, the protocol of each session was explained for them and an informed consent form was completed. The research purposes were explained to all participants. Then, they provided their informed consent to participate in the study and were ensured that they could withdraw from the study at any time with no penalty. Then, the levels of depression, anxiety, and stress were

anxiety, and stress were measured using DASS-21. The Isfahan University of Medical Sciences approved the protocol of this study, and the Iranian Registry of Clinical Trials registered this study as IRCT20130212452N1 code.

In the educational sessions, the significance of caretaking from the Islamic perspective, HF signs and symptoms, HF patients' pharmacotherapy especially at home, and caretaking practices were explained to the participants. Besides that, the caregivers were trained in to how manage the signs and symptoms, time and principle care in emergency conditions. In addition, the research team trained the caregivers how to access more family and organizational support and acquire coping skills and strategies.

In the sessions, a variety of support and learning strategies were taught to the caregivers through certain techniques such as power point, educational CD, booklets, and a specific updatable weblog for caregivers.

The first half of each session was a lecture delivered by the research team and the second half was group discussion between the caregivers and the research team. Throughout these sessions, the caregivers described their experiences in the caring situation and discussed ways of learning how to cope with their own conditions. The intervention group was counseled individually and via telephone by the family and patient training center for three months after completion of the intervention.

The control group received routine health care in the hospital. After the intervention was conducted for the intervention group, the booklets, CD, and the internet address of the designed weblog for HF caregivers were delivered to the control group, so that they could also use this intervention.

Demographic and clinical characteristics of the two groups were compared using chi-square test. In-group and inter-group comparisons of the variables were done by student's t-test and paired t-test, respectively. ANOVA was used to investigate the significance of mean differences between the two groups. The data were analyzed by SPSS 17 and  $P < 0.05$  was considered to be the level of significance.

## Results

A total of 100 family caregivers were enrolled in the study. Thirteen participants (eight in the intervention group and six in the control group) did not complete the interventional program because their patients died (attrition rate: 13%). The mean age of the participants was  $40.78 \pm 9.30$  years in the intervention group and  $41.44 \pm 9.21$  in the control group with no significant difference according to independent t-test ( $P = 0.0741$ ).

Regarding kinship, 38.1% of the caregivers were the patients' daughters, 28.6% their spouses, 19% their sons, 9.6% their siblings, and 4.7% were their parents. Most (76.2%) caregivers were married and 54.8% were housewives and 26.2% had elementary education. The

mean age of the patients was  $61.09 \pm 11.8$  years and most (59.5%) of them were male. There were no statistically significant differences in mean scores of stress, anxiety, and depression and demographic characteristics of the two groups before the intervention ( $P \geq 0.05$ ).

Mean (M)  $\pm$  standard deviation (SD) score for anxiety in the intervention group was  $23.94 \pm 5.47$ ,  $15.36 \pm 3.38$ , and  $18.72 \pm 3.61$  before the intervention, at completion of the intervention, and three months later, respectively; the corresponding scores in the control group were  $22 \pm 5.46$ ,  $25.17 \pm 5.30$ , and  $27.79 \pm 11.93$ , respectively. According to independent t-test, no significant difference was seen in mean score for anxiety between the two groups ( $P = 0.085$ ). Independent t-test indicated a significant difference in mean score for anxiety between the two groups at completion of the intervention and three months later ( $P < 0.001$ ) (Table 1 - next page).

There is no statistical difference of mean score of anxiety at baseline between intervention and control group using independent t test ( $P = 0.085$ ). Also this test showed statistical differences of mean score of anxiety at post-intervention ( $P < 0.001$ ) and 3 month post-intervention ( $P < 0.001$ ) between intervention and control group.

M $\pm$ SD score for stress in the intervention group was  $29.10 \pm 4.97$ ,  $17.42 \pm 4.35$ ,  $20.88 \pm 3.65$  before the intervention, at completion of the intervention, and three months later, respectively; the corresponding scores in the control group were  $27.53 \pm 5.09$ ,  $30.05 \pm 5.20$ , and  $30.92 \pm 4.34$ , respectively. According to independent t-test, no significant difference was seen of mean score for stress between the two groups ( $P = 1.47$ ). Independent t-test indicated a significant difference in mean score for stress between the two groups at completion of the intervention and three months later ( $P < 0.001$ ) (Table 2).

There is no statistical difference of mean score of stress at baseline between intervention and control group using independent t test ( $P = 1.47$ ). Also this test showed a statistical differences= of mean score of stress at post-intervention ( $P < 0.001$ ) and 3 month post-intervention ( $P < 0.001$ ) between intervention and control group.

Mean  $\pm$  SD score for depression in the intervention group was  $27.94 \pm 5.41$ ,  $18.42 \pm 3.66$ , and  $21.27 \pm 3.41$  before the intervention, at completion of the intervention, and three months later, respectively; the corresponding scores in the control group were  $26.46 \pm 5.47$ ,  $30.51 \pm 9.27$ , and  $30.10 \pm 5.48$ , respectively. According to independent t-test, no significant difference was observed in mean score for depression between the two groups before the intervention ( $P = 0.233$ ), but a significant difference was seen between the two groups at completion of the intervention and three months later ( $P = 0.233$ ) (Table 3).

There is no statistical difference of mean score of depression at baseline between intervention and control group using independent t test ( $P = 0.233$ ). Also this test showed a statistical difference of mean score of depression at post-intervention ( $P = 0.233$ ) and 3 month post-intervention ( $P = 0.233$ ) between intervention and control group.



**Table 1: Comparisons of anxiety mean score among baseline, post-intervention and 3 months post-intervention in intervention and control groups**

The time of the study Mean score of anxiety	Baseline		Post- intervention		3 months post-intervention	
	Control	Intervention	Control	Intervention	Control	Intervention
Mean	22	23.94	25.17	15.36	27.79	18.72
SD	5.46	5.47	5.30	3.38	11.93	3.61
Test	t=1.74 P=0.085		t=-9.64 P<0.001		t=-4.37 P<0.001	

**Table 2: Comparisons of stress mean score among baseline, post-intervention and 3 months post-intervention in intervention and control groups**

The time of the study Mean score of stress	Baseline		Post- intervention		3 months post-intervention	
	Control	Intervention	Control	Intervention	Control	Intervention
Mean	27.53	29.10	30.05	17.42	30.92	20.88
SD	5.09	4.97	5.20	4.35	4.34	3.65
Test	t=1.47 P=0.144		t=-11.53 P<0.001		t=-10.76 P<0.001	

**Table 3: Comparisons of depression mean score among baseline, post-intervention and 3 months post-intervention in intervention and control groups**

The time of the study Mean score of depression	Baseline		Post- intervention		3 months post-intervention	
	Control	Intervention	Control	Intervention	Control	Intervention
Mean	26.46	27.94	30.51	18.42	30.10	21.27
SD	5.47	5.41	9.27	3.66	5.48	3.41
Test	t=1.20 P=0.233		t=-7.48 P<0.001		t=-8.28 P<0.001	

## Discussion

In this study, most caregivers reported several psychological challenges and emotional distress due to the overwhelming caregiving roles and responsibilities. The findings of this study indicated that a four-week group, educative-supportive intervention could have significant effects in relieving the caregivers' anxiety, stress, and depression. In the present study, the levels of anxiety, stress, and depression decreased significantly in the intervention group after the program. These findings suggest that this program not only resulted in a reduction in the family caregivers' several psychological challenges but also prevented an increase of these problems in the control group. In this literature Duhamel and colleagues (2007) conducted

qualitative research on the effects of a nursing intervention among the caregivers of HF patients. They found their intervention facilitated humanistic caretaking of HF patients and increased satisfaction among the family caregivers in a caregiving situation and their responsibilities (21). Etemadifar and colleagues evaluated the effectiveness of group intervention on the family caregivers' burden of HF patients. They indicated that a simple and short-term intervention could reduce the family caregivers' burden significantly (3). Most of the interventional studies were conducted on patients and family caregivers of other chronic diseases. For example, in an interventional study to investigate the short-term effects of group and individual support programs for caregivers of stroke patients, Van den Heuvel and colleagues (2000) reported that the group

program and home visit contributed significantly to increase caregivers' care-related knowledge and use of active coping strategies. They recommended implementation of more suitable interventions that focus on coping and providing information to caregivers (22). Consistent findings were reported by other interventional studies on caregivers of schizophrenia and mood disorders (11), dementia (23), and hemodialysis patients (24) in Iran.

The caregivers of patients with chronic diseases can share their experiences. Therefore, training in basic care and managing time, providing more formal and informal support, and helping them to facilitate their daily routines could reduce their stress, and enhance the quality of life among the patients and the caregivers. Family caregivers who experience high levels of stress are faced with challenges in caretaking roles and supporting their patients, which may interrupt appropriate caretaking (7, 9, 10). Because the family caregivers are vital agents for delivering appropriate care to the patients, caring for and supporting the patients would dramatically decline, particularly at home, if the caregivers suffer from chronic stress (7, 25). In this study, we observed that a group, educative-supportive intervention for the caregivers of patients with HF can effectively relieve stress among these caregivers, especially at home. Therefore, health care providers, especially nurses, can play an important task in supporting the caregivers through implementing similar programs.

This study had certain limitations. The personal perceptions of the two groups were different. Besides that, economic, personal, and family differences between the two groups were not taken into account. However, the research team controlled for these differences to some extent through randomly assigning the caregivers to the two groups. The findings of this study were confirmed after a three-month follow-up in comparison with longer follow-up in other studies. Therefore, further studies should investigate the effects of similar programs in the long term.

## Conclusion

The findings of this study confirmed the positive effects of a group, educative-supportive intervention on family caregivers of HF patients' stress, anxiety and depression. This is a simple, feasible, and applied intervention that not only relieves the caregivers' stress at home but also enhances their capabilities and self-confidence in caring for patients especially at home. Finally, it could prevent long-term and repeated hospitalization among HF patients. Further studies should be conducted to examine different components of these programs to reduce several challenges in the caring situation. Health care policymakers and professionals, especially nurses, should find ways to implement these programs and encourage the caregivers to participate in these programs in order to facilitate caretaking tasks.

## Acknowledgments

This study was funded by the research and technology deputy of the Isfahan University of Medical Sciences. The authors gratefully thank the family caregivers and patients for participating in this study and the officials of family and patient training center of Al-Zahra hospital for assisting us in this study.

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